LOPERS & ASSOCIATES

Phase Two Environmental Site Assessment

1299-1315 Richmond Road
Ottawa, Ontario

Prepared for:

13008916 Canada Inc.

November 8, 2024

LOP23-029B

Table of Contents

List of Figures

List of Tables

List of Appendices

1. Executive Summary

Lopers & Associates (Lopers) was retained by 13008916 Canada Inc. (Brigil) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the commercial property with Civic address Nos. 1299-1315 Richmond Road, Ottawa, Ontario ("Phase Two Property", "Property" or "Site").

This Phase Two ESA is being completed as part of due diligence requirements associated with the submission and filing of a record of site condition (RSC) for the Property, required as part of a change to a more sensitive land use. This Phase Two ESA can also be used to support the submission of a Development Application to the City of Ottawa Municipal Planning Department.

Lopers has previously completed a Phase One Environmental Site Assessment (Phase One ESA) (Reference No. LOP23-029A, dated Revised February 2024) for Brigil at the Property. The Phase One ESA identified the presence of three potentially contaminating activities (PCAs) at the Property which were interpreted to represent areas of potential environmental concern (APECs).

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

PCA / APEC Report Reference No.	Potentially Contaminating Activity	Location	Potential Contaminants of Concern
PCA #1 APEC #1	Operational Dry Cleaner (O.Reg. 153/04 PCA Item 37: Operation of Dry Cleaning Equipment (where chemicals are used))	North-Central portion of the Phase One Property	VOCs
PCA #2 APEC #2	Pad mounted electrical transformer (O.Reg. 153/04 PCA Item 55: Transformer Manufacturing, Processing and Use) (O.Reg. 153/04 PCA Item 18: and Electricity Generation, Transformation and Power Stations)	North portion of the Phase One Property	PHCs/BTEXs, PCBs
PCA #3 APEC #3	Hydraulic elevator, hydraulic oil reservoir, storage and sump pit (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	North portion of the Phase One Property	PHCs/BTEXs, PAHs

Previous environmental reports were provided, which document the presence of contaminant concentrations that exceed the Site Condition Standards at the Phase One Property; the contaminants are associated with the aforementioned APEC #1.

Based on the identification of APECs at the Phase One Property and the requirement for documentation associated with an RSC, it was recommended that a Phase Two Environmental

Site Assessment Report be completed to provide documentation that the Property meets the soil and groundwater quality standards applicable to its future use.

The scope of work for the Phase Two ESA included drilling seven boreholes at the Phase Two Property. Five of the boreholes were instrumented with groundwater monitoring wells with screens installed in the overburden. Additional excess soil characterization sampling and analysis was completed concurrently with this Phase Two ESA, for future planning purposes.

Seventeen soil samples, including one duplicate sample, were submitted for laboratory analysis for a combination of VOCs, PHCs, BTEXs, PCBs, PAHs, metals and inorganics. One sample was also submitted for toxicity leaching characteristic procedure (TCLP) for waste characterization purposes.

Groundwater sampling was completed of the newly installed monitoring wells and two existing shallow groundwater monitoring wells and 5 existing deep geotechnical monitoring wells at the Phase Two Property. A total of 17 groundwater samples, including duplicate samples and a trip blank, were submitted for laboratory analysis for a combination of VOCs, PHCs, BTEXs, PCBs, PAHs, metals and inorganics.

The applicable sites standard was determined to be the full depth generic site condition standard, in a non-potable groundwater condition, with fine-medium textured soil, for residential property use, as specified in Table 3 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

All analyzed soil samples as part of this Phase Two ESA were in compliance with the site condition standards.

The following groundwater samples had parameter concentrations in exceedance compared to ('vs.') their respective site condition standards.

- BH2-24-GW1 and BH12-24-GW1 (Duplicate of BH2-24), collected from a screen depth of approximately 2.5-5.5 m BGS, had reported concentrations of chloride (2,500 µg/g and 2,550 µg/g vs. 2,300 µg/g).
    - This sample was collected in a location that may have been subject to de-icing activities /influence with the application of salts applied to ground surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both and is suspected to exceed the site condition standard solely as a result of these activities. Based on this application and the exemption set forth in Section 49.1 of O.Reg. 153/04, the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act. Based on additional groundwater analysis in other locations at the Phase Two Property, the presence of Chloride appears to have been influenced by de-icing across paved areas.

All of the other groundwater samples were in compliance with the site condition standards as of the certification date of March 6, 2024.

Given the Phase Two Property will continue to be occupied by an operational dry cleaner, using chlorinated solvents as cleaning agents, re-sampling of the existing groundwater monitoring wells is recommended prior to redevelopment of the Site. An updated Phase Two ESA report will be required to support the RSC application after the Phase Two Property is no longer occupied by the existing commercial use.

Preparation of a soil management plan in accordance with O.Reg. 406/19 will be required as part of management of excess soil generated as part of construction activities.

2. Introduction

Lopers & Associates (Lopers) was retained by 13008916 Canada Inc. (Brigil) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the commercial property with Civic address Nos. 1299-1315 Richmond Road, Ottawa, Ontario ("Phase Two Property", "Property" or "Site"). The location of the Phase Two Property within the City of Ottawa is presented on Figure 1: Key Plan.

i. Site Description

The Phase Two Property is legally described as Part of Lots 1 & 2 on Registered Plan 408456 in the City of Ottawa and has a property identifier number of 04282-0660. The boundaries of the Phase Two Property are presented on Figure 2: Site Plan.

Based on approximate dimensions obtained from the City of Ottawa's GIS mapping tool, the Phase Two Property has an approximate area of 4,142 m^2 (0.41 Hectares). The Phase Two Property is immediately surrounded by four municipal Right-of-Ways, then residential properties to the north, south and east, and commercial properties to the west and southwest.

ii. Property Ownership

The Phase Two Property is currently owned by 13008916 Canada Inc., a subsidiary company of Brigil Construction ("Brigil"). This Phase Two ESA was commissioned by Mr. Anthony Johnston, Project Manager - Land Development and Architecture for Brigil Construction (Brigil), operating as 13008916 Canada Inc. Brigil has a business address of 98 Rue Lois, Gatineau, Quebec, J8Y 3R7 and a business telephone number of 819-243-7392.

iii. Current and Proposed Future Use

The Property is currently used for commercial purposes and is zoned for mixed use. 13008916 Canada Inc. (Brigil) purchased the Phase One Property in 2021, and it is understood that the intended future use is for mixed use (commercial and residential purposes), including the current concept for construction of one multi-storey building, with multiple levels of subgrade parking, commercial ground floor and residential units above. Given that the proposed redevelopment will involve a more stringent land use, a record of site condition (RSC) will be required to be filed with the Ministry of Environment, Conservation and Parks (MECP) for the Phase Two Property. This Phase Two ESA report will be used as supporting documentation as part of filing of an RSC.

iv. Applicable Site Condition Standard

Through Ontario Regulation 153/04 (O.Reg. 153/04), the Ministry of Environment, Conservation and Parks (MECP) prescribes the conditions to determine the applicable site condition standard for a property.

The proposed future use of the Phase Two Property is for mixed ground floor commercial and residential use, however residential land use standards have been applied for the purposes of this report as they represent the more environmentally sensitive land use conditions.

The Phase Two Property and all other properties within 250 m of the property boundaries are supplied by the municipal drinking water system. The Phase Two is within the urban boundaries of the City of Ottawa, is supplied with municipally treated drinking water and there are no wells within 250 m of the property boundaries that are intended for use as a source of water for human consumption or agriculture. As such, the designation of non-potable groundwater setting is determined to be applicable [O.Reg. 153/04, section 35].

The soil and groundwater quality over the full depth of overburden was considered for this Phase Two ESA. The full depth generic site condition standards were selected for comparison for the Phase Two Property [O.Reg. 153/04, sections 36, 37, 38, 39 and 40].

The Phase Two Property is not situated within or adjacent to an area of natural significance and does not include any land within 30 m of an area of natural significance. The pH of the soil was analyzed and was found to range from 7.15 to 7.83. As such, the Phase Two Property is not considered to be an environmentally sensitive area [O.Reg. 153/04, section 41].

Based on stratigraphic records, the general stratigraphy of the Phase Two Property and general area consists of sand and gravel fill, underlain by silty clay or clayey silt, underlain by sand and gravel followed by Bedrock. Two particle size distribution analyses were completed as part of this Phase Two ESA. Based on physical observations and the laboratory results the soil conditions are considered to be fine grained soils [O.Reg. 153/04, section 42].

Review of the borehole/monitoring well logs completed as part of previous investigations was completed. It was determined that greater than 2/3 of the Phase Two Property has greater than 2 m of overburden soil. The Phase Two Property is not considered a shallow soil property [O.Reg. 153/04, section 43.1].

The Phase Two Property does not include and does not have any land located within 30 m of a water body. The MECP site condition standards for use within 30 m of a water body do not apply [O.Reg. 153/04, section 43.1].

The full depth generic site condition standards, with non-potable groundwater, fine textured soil, for residential/parkland/institutional property use, as specified in Table 3 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011 were determined to be the applicable site condition standards for the Phase Two Property as part of this Phase Two ESA.

3. Background Information

i. Physical Setting

No areas of natural significance are located at the Phase Two Property or in the Phase One Study Area. No drinking water wells are located at the Phase Two Property and the Phase One Study Area is serviced by municipally treated non-potable water. The Phase Two Property and Study Area are not located in the vicinity of any well-head protection areas or other designation identified by the City of Ottawa in its official plan for the protection of ground water. No private or agricultural water supply wells are located within the Phase One Study Area.

The regional topography in the Phase One Study Area generally slopes downward to the north and northwest. The Phase One Property is generally at grade with the neighbouring properties. The nearest surface water body identified on mapping is a tributary to the Ottawa River, located approximately 440 m north of the Phase One Property. The Ottawa River, flowing east, is located approximately 630 m north of the Phase One Property.

Surface water drainage at the Phase Two Property is by sheet drainage to catch basins located on the paved surfaces, which drain into the municipal stormwater sewer system or by infiltration in the unimproved ground surfaces.

ii. Past Investigations

Brigil provided the following three previous environmental reports for review:

1. "Revised - Phase I Environmental Site Assessment, 1299-1315 Richmond Road, Ottawa, Ontario", dated January 31, 2017, completed by Pinchin Ltd. for Look Property Management Inc.
2. "Groundwater Monitoring and Sampling Program, 1299-1315 Richmond Road, Ottawa, Ontario", dated March 10, 2017, completed by Pinchin Ltd. for Look Property Management Inc.
3. "Phase I Environmental Site Assessment, 1299-1315 Richmond Road, Ottawa, Ontario", dated December 16, 2022, completed by Pinchin Ltd. for 11034936 Canada Inc.

No reports have been provided to Brigil documenting the 2007 investigations, however, some of their findings are summarized in 2017 Phase I ESA, 2017 Groundwater Monitoring and Sampling Program and 2022 Phase I ESA.

2017 Revised - Phase I Environmental Site Assessment by Pinchin (2017 Phase I ESA)

The 2017 Phase I ESA stated that the Phase One Property was originally developed in the early 1960s and was used for commercial purposes since that time until present. The 2017 Phase I ESA stated that the plaza addition to the Site building was constructed in the late 1960s.

- Lopers notes that the actual date of construction of the building addition was in the early 1980s, as only the original portion of the building was present in the 1976 aerial photograph.

The 2017 Phase I ESA also states that the Phase One Property was developed with 3 residential buildings in 1946 and 1958.

- Lopers notes that the Phase One Property was shown to be undeveloped during a review of the 1958 aerial photograph and no FIPs existed for the Site in 1956. Lopers interpretation is that the Site was first developed in the 1960's and the reference to the former residential buildings may be erroneous.

The presence of an operational Dry Cleaner was identified in the central portion of the Site building since at least 1982. A summary of the on-Site dry cleaner operations, as observed and reported by Pinchin, were as follows:

> *"Spic n' Span 2000 operates a dry cleaning business in the central portion of the Site Building. Clothes dropped off by customers are either dry cleaned or put through a standard laundering process. The dry cleaning process generally involves spot-treating heavily stained clothes with perchloroethylene (PCE).*
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> *The clothes are then placed in a "fourth generation", wet-to-dry cleaning plant. The clothes are washed in one compartment containing PCE, and then manually transferred to a second compartment where they are dried. The waste PCE is stored in metal drums and disposed of off-Site on an as-needed basis by Recyclex. Secondary spill containment was in-place for the metal drums.*
>
> *During the drying process, air emissions from the dry cleaning plant are vented through a double-carbon filtering system. The carbon is used to "capture" PCE from the warm air emitted by the dryer. The adsorbed PCE is recovered by passing low-pressure steam through the carbon bed. The mixed steam and solvent vapours are then passed through a water-cooled condenser and collected in a phase separator. The carbon is dried and reused, and the recovered PCE is returned to the dry cleaning system.*
>
> *The water generated in the phase separator is discharged into the sanitary sewer system. Wash water is discharged into the sanitary sewer system."*

Pinchin summarized a 2007 Phase II ESA *(report not available for review as part of this Phase One ESA)* completed at the Site. The summary stated that soil and groundwater samples collected from 3 boreholes/monitoring wells were in compliance with the MECP Table 3 Standards, "*with the exception of a groundwater sample (MW-2), which reported a concentration of tetrachloroethylene that exceeded the 2011 Table 3 Standard (2.4 micrograms per litre (µg/L) versus (vs) the standard of 0.5 µg/L).*"

- Lopers interpretation is that the presence of PCE in the groundwater at the Phase One Property is a result of discharge from the on-Site dry cleaner. As noted above, the presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 associated with the O.Reg. 153/04 PCA: Operation of Dry Cleaning Equipment (where chemicals are used) and represents APEC #1 for the Property.
- Lopers also notes that very little information regarding the subsurface conditions were provided as part of the summary of the 2007 Phase II ESA, including no borehole/monitoring/geological record, no reference to grain size testing to determine coarse vs. fine grain soil condition standards (which also applies to groundwater quality). Pinchin has assumed fine grain size soil standards were appropriate, which are less stringent than coarse grain soil condition standards.

Pinchin identified the presence of a pad-mounted transformer on the north portion of the Phase One Property. This was not identified as a PCA by Pinchin.

- Lopers notes that this transformer is interpreted as PCA #2 associated with the O.Reg. 153/04 PCAs: Transformer Manufacturing, Processing and Use and Electricity Generation, Transformation and Power Stations, which represents APEC #2 for the Property.

Pinchin identified the presence of an "elevator pit" and a steel reservoir that stores hydraulic oil in the northeast portion of the Site building at Phase One Property. This was not identified as a PCA by Pinchin.

- Lopers noted the presence of the steel reservoir and elevator pit at the time of the Site Inspection (detailed further in Section 6). This equipment is interpreted as PCA #3 associated with the O.Reg. 153/04 PCA: Gasoline and Associated Products Storage in Fixed Tanks and Use represents APEC #3 for the Property.

A historical retail fuel outlet was identified approximately 30 m west of the Phase One Property; based on the distance of this operation and its hydraulically cross-gradient orientation with respect to the property, Pinchin did not interpret this operation to result in an APEC at the Phase One Property. This historic retail fuel outlet and automotive service garage has been interpreted as PCA #2, associated with the O.Reg. 153/04 PCAs: Gasoline and Associated Products Storage in Fixed Tanks and Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems.

- Because of its distance and interpreted cross-gradient orientation, this PCA #4 does not represent an APEC for the Phase One Property.

Pinchin recommended completing a groundwater sampling program of the existing (2007) groundwater monitoring wells.

2017 Groundwater Monitoring and Sampling Program by Pinchin (2017 GWMSP)

Pinchin redeveloped and re-sampled the monitoring well MW-2 in February 2017. The analytical results from MW-2 were in compliance with the MECP Table 3 standards for the water sample collected in 2017, with PCE not detected above the laboratory method detection limit. Pinchin concluded that: "*Based on the findings of this Groundwater Monitoring and Sampling Program, it is Pinchin's opinion that no further subsurface investigation is required for the Site in relation to the findings of the Phase I ESA. However, the Client may wish to undertake additional groundwater monitoring and sampling in the future to assess whether groundwater conditions at the Site have changed*."

The following statement was included in the limitations of the 2017 GWMSP report: *"The scope of work completed by Pinchin, as part of this Groundwater Monitoring and Sampling Program, is not sufficient (in and of itself) to meet the requirements for the submission of a Record of Site Condition (RSC) in accordance with Ontario Regulation 153/04 (as amended). If an RSC is an intended end product of work conducted at the Site, further consultation and/or work will be required."*

- Lopers' interpretation is that PCE is present in the subsurface groundwater and possibly also soil at the Phase One Property. Lopers' opinion is that inadequate sampling and delineation was completed as part of the 2017 GWMSP (and 2007 Phase II ESA) to conclude that further investigation and assessment of PCE at the Phase One Property was not required.

2022 Phase I Environmental Site Assessment by Pinchin (2022 Phase I ESA)

The 2022 Phase I ESA was essentially an update of the 2017 Phase I ESA; the majority of the findings were identical to the report from 2017, including the observations and statements regarding the operational dry cleaner, PCE use and waste storage at the Phase One Property. Pinchin completed supplemental groundwater monitoring and sampling of MW-2 in August 2022, which was discussed in the 2022 Phase I ESA; there were no detectable VOC concentrations in the groundwater sample.

The 2022 Phase I ESA concluded that "*Based on the results of the Phase I ESA completed by Pinchin, nothing was identified that is likely to result in potential subsurface impacts at the Site. As such, no subsurface investigation work (Phase II ESA) is recommended at this time."*

2024 Phase One Environmental Site Assessment by Lopers (2024 Phase I ESA)

Brigil also commissioned the following study:

- "Phase One Environmental Site Assessment, 1299-1315 Richmond Road, Ottawa, Ontario" dated March 21, 2022 (Revised February 2024) prepared for 13008916 Canada Inc. by Lopers & Associates.

The presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 associated with the O.Reg. 153/04 PCA: Operation of Dry Cleaning Equipment (where chemicals are used) and represents APEC #1 for the Property. The contaminants of potential concern associated with dry cleaning chemicals are volatile organic compounds (VOCs).

A pad mounted electrical transformer was observed on the north portion of the of the Phase One Property. The pad mounted electrical transformer is interpreted as PCA #2 associated with the O.Reg. 153/04 PCAs: Transformer Manufacturing, Processing and Use and Electricity Generation, Transformation and Power Stations, which represents APEC #2 for the Property. The CPCs associated with the electrical transformation equipment are polychlorinated biphenyls (PCBs), petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylenes (BTEXs).

The presence of a hydraulic elevator, hydraulic oil reservoir, storage and sump pit (PCA #3) are associated with the O.Reg. 153/04 PCAs "Gasoline and Associated Products Storage in Fixed Tanks" and "Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems" and have been interpreted to represent APEC #3 for the Phase One Property. The CPCs associated with the hydraulic elevator are PHCs, BTEXs, and polycyclic aromatic hydrocarbons (PAHs).

Previous environmental reports were provided, which document the presence of contaminant concentrations that exceed the Site Condition Standards at the Phase One Property; the contaminants are associated with the aforementioned APEC #1.

Based on the identification of APECs at the Phase One Property, it is recommended that a Phase Two Environmental Site Assessment be completed to assess the soil and/or groundwater quality in the vicinity of the APECs.

4. Scope of Investigation

i. Overview of Site Investigation

This Phase Two ESA was designed to meet the general requirements of O.Reg. 153/04 as amended, with details of scope presented in Lopers' Letter entitled "Proposal for Phase Two Environmental Site Assessment & Supplemental Excess Soil Management Sampling, Proposed Residential Re-development, 1299-1315 Richmond Road, Ottawa, ON", dated November 28, 2023, reference No. PRO-029B-23-BRIGIL.

The scope of work for investigation was discussed with Brigil and sampling and analysis plan (SAP) was prepared to achieve the objectives of the Phase Two ESA and gathering preliminary environmental excess soil quality information for future excavation management; the SAP is provided in Appendix A. For documentation purposes for an RSC for the Phase Two Property,

additional effort, including delineation, remediation and reporting will be required. These activities and confirmatory results are expected to be included as an Appendix to a revised version of this November 2024 Phase Two ESA.

Underground utility locates were completed through Ontario 1-Call to identify any active public services on the Phase Two Property. Following the completion of the public locates, Ottawa Locates underground service locators completed scanning of the Phase Two Property proposed drilling locations to locate privately owned underground services prior to initiating the field program. Various underground utility services, including natural gas, electricity, water and sewers were identified at the Phase Two Property. The water and sewer services are present in underground trenches which enter the Site building at the approximate centre of the Property from Richmond Road to the south. The natural gas connection is on the east side of the building, with a trench leading to Richmond Road to the south. Electricity enters the property through an underground service trench to north of the building. Copies of the underground locates are provided in Appendix B.

Two interior boreholes (BH1-24 and BH2-24) were drilled using a portable tripod drill on January 7 and February 5, 2024. On February 21 and 22, five boreholes (BH3-24 through BH7-24) were drilled at the Phase Two Property using a truck mounted CME 55 drill rig. The drilling equipment was operated by OGS Inc. Soil samples were collected using stainless steel split spoons. Soil samples recovered during the sampling program were screened in the field for volatile vapour concentrations, as well as visual and olfactory observations.

A total of five groundwater monitoring wells (BH1-24 through BH5-24) were installed on the at the Property as part of this Phase Two ESA. The boreholes which were instrumented with groundwater monitoring wells were drilled to the localized depths of between approximately 5.5 to 6.1 m below ground surface (m BGS) and were screened to straddle the shallow groundwater table. When possible, these groundwater monitoring wells were developed on the day of drilling by removing at least three well volumes or by purging the wells dry three times.

A total of seven existing groundwater monitoring wells were present at the Phase Two Property prior to undertaking the field program for this Phase Two ESA. The existing monitoring wells were installed as part of past investigations by others. Based on the depths of these wells and the depth to bedrock in boreholes in the vicinity of these wells which were drilled as part of this Phase Two ESA, only 2 of the 5 existing monitoring wells are suspected to have their screens set within the overburden and may also straddle the shallow groundwater table. The other five existing monitoring wells were drilled as part of a geotechnical investigation and had their screens set in the deep glacial till (approximately 13 m BGS) or bedrock (approximately 15 m BGS). All of the existing groundwater monitoring wells were developed on November 22, 2023 by removing at least three well volumes.

The locations of the boreholes/monitoring wells drilled/installed as part of this Phase Two ESA as well as existing monitoring wells at the Phase Two Property are presented on Figure 2: Site Plan. The rationale for the placement of the boreholes/monitoring wells is provided below:

- BH1-24 was drilled in the interior of the active dry cleaner in the north-central portion of the Site building. This borehole was placed in a location to assess the dry cleaning operations (APEC #1) in the vicinity of the interior sanitary drain. This borehole was instrumented with groundwater monitoring well BH1-24. Two historical boreholes were drilled to assess APEC #1, MW-2 and MW-3 were drilled to the northeast and south exterior of the existing dry cleaner as part of previous environmental investigations; these boreholes were also instrumented with groundwater monitoring wells.
- BH2-24 was drilled in the vicinity of an active elevator hydraulic reservoir and sump pit in the northeast portion of the Site building. This borehole was placed in a location to assess soil and groundwater quality in the vicinity of this petroleum product storage area (APEC #3). This borehole was instrumented with groundwater monitoring well BH2-24.
- BH3-24 was drilled in the northeast portion of the Phase Two Property in the vicinity of a pad mounted transformer. This borehole was placed in a location to assess soil and groundwater quality in the vicinity of this transformer (APEC #2). This borehole was instrumented with groundwater monitoring well BH3-24.
- BH4-24 was drilled adjacent to the north-central portion of the Phase Two Property, in the Starflower Lane Right-of-Way, near a stormwater catch basin to the northwest of the dry cleaner unit. This borehole was placed in a location to assess soil and groundwater contamination from a potential receptor (APEC #1). This borehole was instrumented with groundwater monitoring well BH4-24.
- BH5-24 was drilled approximately 5 m north of the north-central portion of the Phase Two Property, in the Starflower Lane Right-of-Way, near a downstream stormwater catch basin to the northwest of the dry cleaner unit. This borehole was placed in a location to assess soil and groundwater contamination from a potential receptor (APEC #1). This borehole was instrumented with groundwater monitoring well BH5-24.
- BH6-24 was drilled to the southwest of the existing commercial building in the southeast portion of the Phase Two Property. This borehole was placed in a location to assess anticipated excess soil quality in the footprint of the proposed future Site building.
- BH7-24 was drilled to the south of the existing commercial building in the southwest portion of the Phase Two Property. This borehole was placed in a location to assess anticipated excess soil quality in the footprint of the proposed future Site building.

Soil samples were selected for laboratory analysis of the contaminants of potential concern (CPCs) based on APECs and CPCs identified in the Phase One ESA, as described in Section 3.ii. above as well as field screening observations.

An initial groundwater monitoring and monitoring well development event of the existing groundwater monitoring wells at the Phase Two Property was completed on November 22,

2023. Groundwater level monitoring and well development of the monitoring wells MW-2, MW-3 and BH1-23 through BH5-23 were completed as part of the initial monitoring event. It was determined that MW-1 (on the northwest portion of the Phase Two Property) had been destroyed at the time of the initial monitoring event. The historical off-site operations to the west (1325 Richmond Road) were interpreted to be the rationale for the original drilling location of MW-1, however, following an interpretation of orientation/groundwater flow direction as well as historical reported analytical data, further assessment of potential off-Site impacts from 1325 Richmond Road were not considered warranted.

Static groundwater levels were measured prior to disturbance of the water column. During purging, water quality parameters were measured at regular intervals to monitor groundwater quality stabilization; once groundwater quality parameters stabilized (were within approximately 10% on successive readings), groundwater samples were collected. Groundwater samples were selected for laboratory analysis of select CPCs based on APECs and CPCs identified in the Phase One ESA.

An elevation survey was completed of the boreholes/monitoring wells drilled as part of the Phase Two ESA as well as both existing monitoring wells at the Phase Two Property. The boreholes/monitoring wells were surveyed relative to a temporary benchmark of the top spindle of the City of Ottawa fire hydrant located at the northeast corner of the Richmond Road and Assaly Road intersection; this benchmark was provided with a geodetic elevation of 71.02 m above mean sea level ("AMSL") and is considered "Site Datum" for the purposes of this Phase Two ESA.

ii. Media Investigation

Based on the finding of the Phase One ESA, the following media were investigated:

Soil quality at the Phase Two Property was investigated through the collection of soil samples at varying depths facilitated by drilling using a potable tripod mounted drill and truck mounted CME drill rig with stainless steel split spoon sampling.

Groundwater quality at the Phase Two Property was investigated through the installation of new monitoring wells and sampling of the new and existing groundwater monitoring wells. Five new monitoring wells installed as part of the Phase Two ESA were drilled to the localized depths between approximately of 5.5 and 6.1 m below ground surface (m BGS) and were screened to straddle the shallow groundwater table. The six existing monitoring wells at the Phase Two Property were suspected to have monitoring well screens installed within the overburden, deep glacial till and/or bedrock. Groundwater monitoring wells were sampled using a peristaltic pump.

There were no natural surface water bodies at the Phase Two Property, and as such no sediment sampling was completed as part of the Phase Two ESA.

iii. Phase One Conceptual Site Model

The Phase One Property, which has the same location orientation and property boundaries as the Phase Two Property, is located at Civic Nos. 1299-1315 Richmond Road, Ottawa, Ontario and has an approximate area of approximate area of 4,142 m^2 (0.41 Hectares).

The Phase One Property was undeveloped prior to the early 1960's when the 2-storey office portion of the present-day Site building was constructed on the east portion of the Property. The 1-storey plaza portion of the Site building was constructed in the early 1980's.

The office portion of the building is generally leased to Professionals (Doctors, Dentists, etc.) while the plaza building is leased to commercial businesses, who generally use the units for retail sales. 13008916 Canada Inc. (Brigil) purchased the Phase One Property in 2021, and it is understood that the intended future use is for residential purposes, with potential for commercial use on the ground floor and two to three levels of underground parking.

The Phase One Property is immediately surrounded by four municipal Right-of-Ways, then residential properties to the north, south and east, commercial properties to the west and southwest.

The Phase One Study Area includes the Phase One Property and properties with the boundaries within 250 m of the Phase One Property limits. Based on a review of the Phase One Property and properties in the Phase One Study Area, their associated historical and/or current uses and operations and physical characteristics of the Phase One Study Area, it was determined that an assessment of properties within 250 m of the Phase One property was sufficient to meet the objectives of the scope of this investigation for a Phase One ESA.

No areas of natural significance are located at the Phase One Property or in the Phase One Study Area. No drinking water wells are located at the Phase One Property and the Phase One Study Area is serviced by municipally treated non-potable water. All previously existing groundwater monitoring wells were removed from the Phase One Property; the former locations of these wells are presented on Figure 2.

The regional topography in the Phase One Study Area generally slopes downward to the north and northwest. The Phase One Property is generally at grade with the neighbouring properties. The nearest surface water body identified on the mapping is a tributary to the Ottawa River, located approximately 440 m north of the Phase One Property. The Ottawa River, flowing east, is located approximately 630 m north of the Phase One Property.

Based on historical research, the general stratigraphy of the Phase One Property and Phase One Study Area consists of sand and gravel fill, underlain by silty sand, followed by silty clay. The overburden soil is underlain by limestone and/or shale bedrock, which was encountered at approximately 14 m below ground surface, with a groundwater table at approximately 3 to 5 m BGS. Local shallow groundwater is expected to flow in a predominantly north direction.

The presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 associated with the O.Reg. 153/04 PCA: Operation of Dry Cleaning Equipment (where chemicals are used) and represents APEC #1 for the Property. The contaminants of potential concern associated with dry cleaning chemicals are volatile organic compounds (VOCs).

A pad mounted electrical transformer was observed on the north portion of the of the Phase One Property. The pad mounted electrical transformer is interpreted as PCA #2 associated with the O.Reg. 153/04 PCAs: Transformer Manufacturing, Processing and Use and Electricity Generation, Transformation and Power Stations, which represents APEC #2 for the Property. The CPCs associated with the electrical transformation equipment are polychlorinated biphenyls (PCBs), petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylenes (BTEXs).

The presence of a hydraulic elevator, hydraulic oil reservoir, storage and sump pit (PCA #3) are associated with the O.Reg. 153/04 PCAs "Gasoline and Associated Products Storage in Fixed Tanks" and "Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems" and have been interpreted to represent APEC #3 for the Phase One Property. The CPCs associated with the hydraulic elevator are PHCs, BTEXs, and polycyclic aromatic hydrocarbons (PAHs).

Seven additional PCAs were identified at neighbouring properties in the Phase One Study Area; however, these PCAs are located significant distances and/or at down- or cross-gradient orientations with respect to the Phase One Property and are not considered to represent APECs for the Phase One Property.

Previous environmental reports were provided which document the presence of contaminant concentrations that exceed the Site Condition Standards at the Phase One Property; the contaminants are associated with the aforementioned APEC #1.

Underground utility corridors for sanitary and storm sewers, potable water, private electricity and natural gas lines lead to the building, generally from Richmond Road to the south or from Starflower Lane to the north. The underground utility corridors have the potential to affect contaminant distribution and transport, as they would create preferential pathways for lateral migration. APEC #1 includes the underground storm and sanitary sewer corridors at the Phase Two Property.

iv. Deviations from Sampling and Analysis Plan

There were no deviations to the Sampling and Analysis Plan (SAP) as part of this Phase Two ESA.

v. Impediments

The boreholes/monitoring wells were located in a manner suitable to adequately assess the PCAs and APECs identified at the Phase Two Property. Due to active underground services, some borehole locations were located up to 3 m from the PCA location, however, it has been

interpreted that this Phase Two ESA drilling locations provide an adequate assessment of the overall environmental soil and groundwater quality at the APECs and overall Phase Two Property.

5. Investigation Method

i. General

The investigation method for this Phase Two ESA involved an assessment of the soil and/or groundwater quality for the associated CPCs in the vicinity of the APECs identified during the Phase One ESA.

Investigation of soil was completed using a truck mounted CME drill rig for exterior drilling and a tripod mounted portable drill for interior boreholes, with stainless steel split spoons used to recover soil samples. Soil samples were screened in the field for volatile vapour concentrations, as well as visual and olfactory observations. Select soil samples were submitted for laboratory analysis of the CPCs, based on all the indications mentioned above, as well as to capture representative soil and fill layers, for laboratory analysis for the CPCs.

Groundwater was assessed using the groundwater monitoring wells which were installed as part of this Phase Two ESA drilling program and those which had been installed at the Phase Two Property as part of historical previous investigations. The wells selected for monitoring/sampling were purged during the drilling program. Static groundwater levels were measured in the monitoring wells prior to disturbance of the water column on the day of sampling. Groundwater samples were collected using a peristaltic pump using low-flow procedures and were submitted for laboratory analysis for the CPCs.

The new (2024 Phase Two ESA) and existing boreholes/monitoring wells were surveyed relative to the benchmark of the top spindle of the City of Ottawa fire hydrant located at the northeast corner of the Richmond Road and Assaly Road intersection; this benchmark was provided with a geodetic elevation of 71.02 m above mean sea level ("AMSL") and is considered "Site Datum" for the purposes of this Phase Two ESA.

The following sections provide further detailed information regarding the investigation methodology completed to produce this Phase Two ESA.

ii. Drilling

The drilling field program for this Phase Two ESA was completed on January 7, February 5, 21 & 22, 2024 under full-time supervision by Lopers & Associates personnel. Seven boreholes were drilled for the Phase Two ESA by the drilling subcontractor OGS Inc., located at 5518 Appleton Side Road, Almonte, Ontario, K0A 1A0. Interior drilling (January 7 & February 5, 2024) was completed using a tripod mounted portable drill, with steel casings. The drill rig used for the

exterior drilling (February 21 & 22, 2024) for this Phase Two ESA was a truck mounted CME 55 drill, equipped with hollow stem augers and stainless-steel split spoons.

Samples were collected using stainless steel split spoons from the near surface to the full depth of drilling. Split spoon samples, collected in 0.6 m segments, were recovered continuously at 0.6 m intervals and/or with 0.15 m spacing between samples.

The split spoons, which were the only media to come into contact with the soil samples, were washed using soap and water and a scrub brush between samples to minimize the potential for cross-contamination among samples. The field technician used sterile nitrile gloves, which were changed prior to the handling of each soil sample to further reduce the potential of cross-contamination. The flights of the hollow stem augers were cleaned manually following each borehole.

iii. Soil Sampling

As described above, soil samples were recovered using stainless steel split spoons.

Soil samples were initially collected in Ziploc bags for initial screening as part of sample selection. Soil samples selected for laboratory analysis were collected in dedicated clear glass jars prepared and provided by the analytical laboratory. Soil samples collected for BTEXs/VOCs and the F1 range of PHCs analysis were collected using a dedicated graduated syringe provided by the laboratory and placed directly into a glass vial with a known quantity of methanol preservative. Analytes and associated preservatives were specified on each jar/vial by the laboratory. Each jar/vial sample set was provided with a unique sample identifier, project number and date of sampling in the field.

Detailed soil descriptions of the stratigraphy for each borehole/monitoring are included on the borehole logs provided in Appendix C. Available borehole logs from previous investigations by others at the Phase Two Property have also been included in Appendix C.

Based on the observations of soil samples collected during the Phase Two ESA field program and previous investigations by others, there were six stratigraphic units identified at the Phase Two Property, which include:

- Asphalt
- Silty Sand and Gravel (Fill)
- Sand (Fill)
- Silty Clay
- Silty Sand and Gravel (Till)

The stratigraphy is discussed in greater detail in Section 6.1 of this report.

iv. Field Screening Measurements

Initial field screening of the soil samples consisted of visual and olfactory observations made at the time of sample collection during the drilling program.

Additional field screening of the soil samples was completed using an RKI Instruments Model Eagle-2 combustible gas detector ("RKI Eagle"). The RKI Eagle(s) used for soil sample screening as part of this Phase Two ESA was obtained from Maxim Environmental and Safety Inc. and were calibrated by Maxim on January 5, January 31 and February 15, 2024. The RKI Eagle is capable of measuring combustible vapours at concentrations ranging from 0 parts per million (PPM) to 50% of the lower explosive limit (LEL). The RKI Eagle is also capable of measuring VOC vapours at concentrations ranging from 0 ppm to 1000 ppm. The readings of the RKI Eagle are shown on the Borehole Logs in Appendix C. Additional equipment and calibration information for the RKI Eagle is provided on the certificate of calibration included in Appendix D.

Where soil samples were selected in a borehole within an APEC and the SAP identified proposed soil analysis in that borehole, the field screening was used as follows to select the appropriate sample for laboratory analysis.

1. Select sample with evidence of visual and/or olfactory indications of suspected contamination, such as staining, PHC odours or deleterious fill material.
2. Select sample with most significant elevated soil vapour concentration.
3. Select sample based on stratigraphy and/or moisture content, as certain CPCs are generally expected to be found in these defined conditions (i.e. fill material at shallow depths or PHC impacts near the groundwater table interface).

v. Groundwater: Monitoring Well Installation

Installation of monitoring wells in BH1-24 through BH5-24 were completed by OGS Inc. The wells were installed using slotted PVC No. 10 monitoring well screens, which were 32 or 51 mm in diameter; these screens were installed at depths intended to straddle the shallow groundwater table in each of the aforementioned boreholes. Well screens were between 1.5 mand 3.0 m in length in both of the monitoring wells installed as part of this Phase Two ESA. The monitoring wells were extended to approximately 0.1 m below the surface grade with PVC riser, also 32 or 51 mm in diameter. A threaded PVC end cap was installed at the base of the screen to prevent sediment infiltration, while a J-Plug was installed at the top of the riser to present surface influence.

The annular space in each monitoring well was backfilled with clean silica sand up to approximately 0.3 m above the monitoring well screens. A layer of bentonite chips was then used to make a hydraulic seal above the sand pack to near the ground surface. The monitoring wells were completed with aluminum flushmount protective casings, which were backfilled with sand to allow drainage of any surface water which may infiltrate into the casings.

Development of each of the monitoring wells was completed using dedicated Waterra low density polyethylene (LDPE) tubing and a Waterra footvalve. The existing monitoring wells were developed on November 22, 2023 and the new monitoring wells were developed on February 22, 2024 by purging the wells dry at least three times. The wells were left to stabilize for a period of 2 weeks prior to groundwater sampling.

vi. Groundwater: Field Measurement of Water Quality Parameters

Measurements of the groundwater quality field parameters were completed to determine stabilization of these parameters prior to sampling. These measurements were completed using a Horiba U-52 groundwater quality measurement device ("Horiba"). The Horiba used for groundwater quality parameter stabilization measurements as part of this Phase Two ESA was obtained from Maxim Environmental and Safety Inc. and was calibrated on March 5, 2024. The Horiba is capable of measuring temperature, pH, conductivity, turbidity, dissolved oxygen and oxidation reduction potential. Additional equipment and calibration information for the Horiba is provided on the certificate of calibration included in Appendix D.

Field measurement of water quality parameters were collected at regular intervals (0 L, 0.5 well volumes, 1 well volume, 2 well volumes, etc.) during purging of the monitoring wells prior to sampling. The Horiba was placed in a flow-through cell and water quality parameters were measured until they were found to stabilize to within approximately 10% of the previous measurements prior to sample collection.

vii. Groundwater: Sampling

Groundwater sampling for this Phase Two ESA was completed on March 6, 2024 (at least seven days after well installation). Groundwater samples were collected from new monitoring wells (BH1-24 through BH5-24) and existing monitoring wells (MW-2, MW-3, BH1-23 though BH5-23).

Stabilized groundwater levels were measured in each of the groundwater monitoring wells prior to disturbance of the water column prior to sampling. The dedicated Waterra LDPE tubing and footvalve was removed from each of the monitoring wells and 6 m Waterra LDPE tubing was placed in each of the monitoring wells. The LDPE tubing was connected to a dedicated length of silicon tubing, run through a peristaltic pump set to low flow (approximately 0.2-0.5 L/minute) during purging and sampling while monitoring groundwater level to minimize the drop in head. The monitoring wells were purged on the day of sampling while water quality parameters were measured as noted above.

Groundwater samples were collected in dedicated amber glass bottles and vials or plastic bottles prepared and provided by the analytical laboratory. Analytes and associated preservatives were specified on each bottle by the laboratory. Each bottle sample set was provided with a unique sample identifier, project number and date of sampling in the field. Samples for PHCs, BTEXs, VOCs, PAHs and general chemistry were unfiltered, while metals samples were field filtered using a dedicated 0.45 µm Waterra filter for each sample.

The field technician changed dedicated sterile nitrile gloves prior to initiating work at each monitoring well and changed gloves prior to sample collection to minimize the potential for cross-contamination.

viii. Sediment: Sampling

There were no natural surface water bodies at the Phase Two Property, and as such no sediment sampling was completed as part of the Phase Two ESA.

ix. Analytical Testing

Soil and groundwater analytical testing was conducted by ALS Canada Ltd. (ALS). All laboratories conducting analysis as part of this Phase Two ESA are accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and the National Institute of Standards and Technology (NIST), Standard Services Division, National Voluntary Laboratory Accreditation Program (NVLAP) for specific environmental and IAQ tests listed in the Scopes of Accreditation registered with each association. For the scope of accreditation under CALA Membership Number 1262, the laboratories are accredited for analysis including, but not limited to, metals, organics, conventionals, bacteria, mold, and asbestos in various matrices.

x. Residue Management Procedures

Excess soil cuttings from drilling and monitoring well installations were containerized in steel 205 L drums, which were stored in a designated area at the Property. These drums were marked with a wax crayon indicating the origin location(s) of the cuttings containerized within each. The contents of the drums were disposed of by Veolia Environmental Services on April 12, 2024.

Groundwater from well development and purging was initially placed in a graduated plastic bucket for volume measurements and then was transferred to a dedicated plastic 205 L drum, which was stored in a designated area of the Property. This drum was marked with a wax crayon indicating the origin location(s) of the water containerized within.

Fluids from equipment cleaning and decontamination were containerized within the purge water drum.

xi. Elevation Surveying

The new (2024 Phase Two ESA) and existing boreholes/monitoring wells were surveyed relative to the benchmark of the top spindle of the City of Ottawa fire hydrant located at the northeast corner of the Richmond Road and Assaly Road intersection; this benchmark was provided with a geodetic elevation of 71.02 m above mean sea level ("AMSL") and is considered "Site Datum" for the purposes of this Phase Two ESA referenced as "Site Datum" for the purposes of this Phase Two ESA. The reference elevations of each borehole/monitoring well are provided on the borehole logs in Appendix C.

xii. Quality Assurance and Quality Control Measures

Soil samples were collected in dedicated clear glass jars prepared and provided by the analytical laboratory. Soil samples collected for BTEXs/VOCs and the F1 range of PHCs analysis were collected using dedicated graduated syringes provided by the laboratory and placed directly into a glass vial with methanol preservative. Analytes and associated preservatives were specified on each jar/vial by the laboratory. Each jar/vial sample set was provided with a unique sample identifier, project number and date of sampling in the field.

Groundwater samples were collected in dedicated amber glass bottles and vials or plastic bottles prepared and provided by the analytical laboratory. Analytes and associated preservatives were specified on each bottle by the laboratory. Each bottle sample set was provided with a unique sample identifier, project number and date of sampling in the field.

Following sample collection, the soil and groundwater samples were stored in an ice pack chilled cooler to minimize volatilization and begin the cooling process on the day of sampling. On each day of sample collection, following completion of the fieldwork, samples were delivered directly to the analytical laboratory. Standard chain of custody procedures were used to maintain a custody record of soil and groundwater samples between the field technician and the analytical laboratory.

The split spoons, which were the only media to come into contact with the soil samples, were washed using soap and water and a scrub brush between samples to minimize the potential for cross contamination among samples. The field technician used sterile nitrile gloves, which were changed prior to the handling of each soil sample to prevent cross-contamination. The field technician changed dedicated sterile nitrile gloves prior to initiating work at each monitoring well and changed gloves prior to groundwater sample collection to minimize the potential for cross-contamination.

A trip blank water sample for VOCs was submitted for laboratory analysis from the groundwater sampling event completed on March 6, 2014. No detectable VOC concentrations were reported in the trip blank water sample.

The soil sample (DUP-01/07) was submitted to the laboratory as a blind field duplicate sample of BH1-24-SS9) for VOCs. No duplicate soil sampling was submitted for other contaminants of concern, as the drilling program generated insufficient sample volumes for duplicate sample requirements from the laboratory. The laboratory completed and reported duplicate sample analysis for all groundwater CPC parameters analyzed as part of this Phase Two ESA as part of their internal quality assurance procedures.

The groundwater samples (MW-12-GW1, BH13-GW1 and BH15-GW1) were submitted to the laboratory as blind field duplicate samples of MW-2-GW1, BH3-GW1 and BH5-GW1, respectively. The ratio of groundwater duplicate results to original sample results was generally less than 20% which meets the required ratio. Given that no exceedances of the site condition

standards were detected for any analyzed parameters in both samples, the variability of these sample results does not affect the validity of the conclusions with respect to these results. These samples were analyzed for PHCs, VOCs (including BTEXs, which provide a blind quality assurance and quality control QA/QC validation for all groundwater CPC parameters analyzed as part of this Phase Two ESA.

No equipment blank of groundwater was required since the groundwater samples were collected using dedicated tubing.

6. Review and Evaluation

i. Geology

Based on the observations of soil samples collected during the 2024 Phase Two ESA field program and review of the findings from a recent geotechnical investigation, there were six stratigraphic units identified at the Phase Two Property, which include:

Asphalt

A layer of asphalt, approximately 0.10 m in thickness, was encountered at the ground surface in BH3-24 through BH7-24.

Concrete

A layer of asphalt, approximately 0.10 to 0.13 m in thickness, was encountered at the ground surface in BH1-24 and BH2-24.

Silty Sand and Gravel (Fill)

A layer of silty sand and gravel fill material, generally ranging from approximately 0.4 to 0.7 m in thickness (2.2 m thick in BH6-24), was encountered from ground surface, immediately below the asphalt or concrete layer in all boreholes (BH1-24 through BH7-24) drilled as part of the Phase Two ESA. This material was identified to consist of silty sand and gravel, was loose to compact and generally brown to grey. This layer was encountered at varying moisture conditions, generally dry to moist.

Silt with Clay and Sand

A layer of silt with clay and sand and some gravel, ranging from approximately 0.8 to 4.6 m in thickness, was encountered immediately below the silty sand and gravel fill layer in boreholes BH1-24 through BH5-24. This material was identified to consist of clayey silt, firm and was grey or brown-grey. This layer was encountered at varying moisture conditions, generally moist at shallow depths becoming wet at approximately 4 m BGS.

Silty Clay

A layer of silty clay with some sand was encountered immediately below the clayey silt with sand layer in all of the boreholes drilled as part of this Phase Two ESA, with the exception of BH6-24, which had a thick layer of silty sand. The clay was observed up to 4.5 m in thickness as part of the Phase Two ESA, however, geotechnical borehole logs indicate that up to 6 m of clay is present across the Site. This material was identified to consist of silty clay with some fine sand, was firm becoming soft at greater depths and was grey or brown-grey. This layer was encountered at varying moisture conditions, generally moist at shallow depths becoming wet at depths ranging from 3.5 to 4.2 m BGS.

Silty Sand and Gravel (Till)

A layer of silty sand and gravel with occasional cobbles, approximately 4 to 6 m in thickness, was encountered below the silty clay layer and above the bedrock. This material was not encountered as part of the Phase Two ESA, and was only observed during deeper drilling as part of a geotechnical investigation at the Site. This material consisted of grey silty sand and gravel with some clay was compact and wet. Where present, this material was found to be underlain by bedrock at depths ranging from approximately 13 to 15 m BGS.

Aquifer

The shallow (unconfined) aquifer is the principal aquifer of interest based on the nature of APECs and PCAs identified for the Phase Two Property. It is present in several geological units, including the native silty clay and clayey silt layers, as well as in the sand and/or silty sand and gravel fill layers (where present at shallow depths).

The deeper (confined) aquifer was a secondary aquifer of interest based on the nature of one of the contaminants of concern (VOCs). This aquifer was investigated by monitoring and sampling existing (geotechnical) monitoring wells installed in the deep (13 to 15 m BGS) glacial till and/or underlying bedrock.

Based on moisture contents observed in the soil samples collected as part of this Phase Two ESA it is expected that seasonal and annual variability affect the groundwater table elevation in the shallow aquifer.

ii. Groundwater and Elevations and Flow Direction

Based on the nature of the primary CPCs identified for groundwater at the Phase Two Property (including light non-aqueous phase liquids (LNAPLs)), the screened intervals for the groundwater monitoring wells installed as part of this Phase Two ESA were selected to straddle the shallow groundwater table within the silty clay overburden. Based on previous investigations, it was suspected that existing monitoring wells located within the APEC #1 at the Phase Two Property had monitoring well screens that are also installed within the overburden and would be expected to straddle the shallow groundwater table and were situated in the silty

clay, and are thus in same aquifer as the 2024 monitoring wells and could be used for supplemental sampling as part of this Phase Two ESA.

The boreholes/monitoring wells were surveyed relative to a temporary benchmark of the top spindle of the City of Ottawa fire hydrant located at the northeast corner of the Richmond Road and Assaly Road intersection; this benchmark was provided with a geodetic elevation of 71.02 m above mean sea level ("AMSL") and is considered "Site Datum" for the purposes of this Phase Two ESA.

The shallow groundwater aquifer was present within the overburden soil (generally silty clay) the Phase Two Property. Given the general consistency in depth of the groundwater table in the shallow overburden at the Phase Two Property, it is suspected that the same shallow aquifer can be used for a determination of groundwater flow direction and hydraulic gradient. Monitoring well construction details of the shallow aquifer monitoring wells are presented in Table 2 below.

Table 2: Monitoring Well Construction Details

Monitoring Well	Ground Surface Elevation (m AMSL)	Top of Piezometer Elevation (m AMSL)	Screen Elevation (m AMSL)	Sand Pack Elevation (m AMSL)	Bentonite Seal (m AMSL)
BH1-24	69.42	69.32	64.05 – 65.57	64.05 – 65.57	65.57 – 68.81
BH2-24	69.43	69.37	63.84 – 65.97	63.84 – 66.27	66.27 – 69.13
BH3-24	69.08	69.01	63.04 – 66.09	63.04 – 66.39	66.39 – 66.95
BH4-24	69.05	68.98	62.99 – 66.04	62.99 – 66.34	66.34 – 66.92
BH5-24	69.17	69.13	63.10 – 66.14	63.10 – 66.44	66.44 – 67.04
MW-2	69.20	69.14	63.30 - unknown	unknown	unknown
MW-3	69.11	69.01	64.10 - unknown	unknown	unknown

m AMSL – metres Above Mean Sea Level

On March 6, 2024, following a period of 12 days for stabilization after drilling and developing the monitoring wells, the groundwater levels were measured and are presented in Table 3 below. The shallow aquifer groundwater table was measured at depths ranging between 2.76 and 3.99 m BGS and the deep aquifer groundwater table was measured at depths ranging between 4.4 and 5.4 m BGS on March 6, 2024.

Table 3: Groundwater Table Elevations Measured on March 6, 2024

Monitoring Well	Ground Surface Elevation (m AMSL)	Top of Piezometer Elevation (m AMSL)	Depth to Groundwater (m below TOP)	Groundwater Table Elevation (m AMSL)	Depth to Groundwater (m BGS)
Shallow Aquifer: Silty Clay Monitoring Wells					
BH1-24	69.42	69.32	3.71	65.61	3.81
BH2-24	69.43	69.37	3.93	65.44	3.99
BH3-24	69.08	69.01	3.46	65.55	3.53
BH4-24	69.05	68.98	3.56	65.42	3.63
BH5-24	69.17	69.13	3.30	65.83	3.34
MW-2	69.20	69.14	3.67	65.47	3.73
MW-3	69.11	69.01	2.65	66.36	2.76
Deeper Aquifer: Glacial Till and/or Bedrock Monitoring Wells					
BH1-23	69.30	69.20	4.41	64.79	4.51
BH2-23	69.00	68.96	5.27	63.69	5.32
BH3-23	69.27	69.20	5.32	63.88	5.40
BH4-23	69.19	69.12	5.20	63.92	5.27
BH5-23	69.55	69.49	4.36	65.13	4.42

m AMSL – metres Above Mean Sea Level
m BGS – metres below Ground Surface.

Three groundwater monitoring well water table elevations are required to triangulate groundwater elevations and determine an approximate groundwater flow direction.

Shallow Aquifer Groundwater Flow Direction

The groundwater table elevations in BH2-24, BH3-24, BH4-24 and MW-1 were used for a determination of shallow aquifer groundwater flow direction, while BH5-24 was used to verify the accuracy of the model. Based on the measured groundwater table elevations in these monitoring wells, the local shallow aquifer groundwater flow direction on the central portion of the Phase Two Property is towards the north. This interpreted local groundwater flow direction is reasonable based on the regional topography and location of the Ottawa River, which is 630 m to the north of the Phase Two Property.

Deeper Aquifer Groundwater Flow Direction

The groundwater table elevations in BH1-23, BH2-23, BH3-23, BH4-23 and BH5-23 were used for a determination of deeper aquifer groundwater flow direction. Based on the measured

groundwater table elevations in these monitoring wells, the local deeper aquifer groundwater flow direction on the central portion of the Phase Two Property is towards the south.

No observations or indications of free product were observed in any of the monitoring wells accessed as part of this Phase Two ESA, as measured with an interface probe during water level measurements, and through observations of the purge water during development and sampling of the monitoring wells.

The underground utility corridors associated with the storm and sanitary sewers have the potential to affect contaminant distribution and transport, as they would create preferential pathways for lateral migration. Based on the depth to groundwater observed in the monitoring wells as part of this investigation, observed between 2.78 to 3.99 m BGS, the potential exists for migration of contaminants through underground utility service trenches (generally approximately 2 to 3 m BGS) during periods of seasonally high groundwater table elevations.

iii. Groundwater: Hydraulic Gradients

The horizontal hydraulic gradient was determined by plotting groundwater contours interpreted from groundwater elevations presented in Table 3 and then by dividing the difference in hydraulic head by the lateral separation distance in the groundwater contours. Based on the measured groundwater elevations in BH2-24, BH3-24, BH4-24 and MW-1 the horizontal hydraulic gradient of the shallow aquifer at the Phase Two Property is approximately 0.03 m/m. Based on the measured groundwater elevations in BH1-23, BH2-23, BH3-23, BH4-23 and BH5-23 the horizontal hydraulic gradient of the shallow aquifer at the Phase Two Property is approximately 0.04 m/m.

iv. Fine-Medium Grained Soil Texture

A substantial layer (approximate 5 m thick) clayey silt to silty clay was present at the Phase Two Property, beneath the shallow (< 1 m BGS) fill materials. Two particle size distribution analyses were conducted as part of this Phase Two ESA. Samples were submitted to ALS from BH1-24 at depths of 1.5-2.1 m BGS and 4.6-5.3 m BGS, respectively. The laboratory analytical results indicate that the percentages of soil particles which were smaller than 0.075 mm were 84 % and 73.5%, respectively. These results indicate fine grained soil texture in the analyzed samples. The Particle Size Distribution analysis is provided in Appendix E.

Based on the proposed development concept for the Phase Two Property, exposure pathways could exist for 2 underground storeys. The maximum investigation depth for this Phase Two ESA was determined to be 6 m BGS, of which greater than 2/3 of the media investigated / depths of interest of Phase Two Property has medium-fine grained soil. For the purposes of this Phase Two ESA, the soil conditions are considered to be fine-medium grained.

v. Soil Field Screening

Initial field screening of the soil samples consisted of visual and olfactory observations made at the time of sample collection during the drilling program. There were no olfactory observations of PHC contamination encountered in any of the samples recovered as part of this Phase Two ESA.

Additional field screening of the soil samples was completed using an RKI Eagle gas detector. Combustible soil vapour screening concentrations were found to range from 0 to 35 ppm, which is low and generally not considered indicative of significant VOC or PHC contamination.

vi. Soil Quality

Location and Depth of Soil Samples

The following soil samples, which were collected from the boreholes drilled as part of this Phase Two ESA, were submitted for laboratory analysis.

Table 4: Soil Samples Selected for Laboratory Analysis

Sample Location	Sample ID	Sample Depth (m BGS)	Analytical Parameters
BH1-24	BH1-24-SS1	0.2 - 0.6	PHCs, VOCs, PAHs, Metals & Inorganics
	BH1-24-SS3	1.2 - 1.8	Grain Size Distribution
	BH1-24-SS7	3.6 - 4.2	VOCs, Grain Size Distribution
	BH1-24-SS9	4.9 - 5.5	PHCs, VOCs, Metals & Inorganics
	DUP-01/07	Duplicate of BH1-24-SS9	VOCs
BH2-24	BH2-24-SS1	0.2 - 0.8	PHCs, BTEXs, PAHs, Metals & Inorganics
	BH2-24-SS7	4.2 – 4.8	PHCs, VOCs
BH3-24	BH3-24-SS1	0.0 – 0.6	VOCs, Metals & Inorganics
	BH3-24-SS6	3.8 – 4.4	VOCs, Metals & Inorganics
BH4-24	BH4-24-SS2	0.8 – 1.4	VOCs
	BH4-24-SS8	5.3 – 5.9	VOCs
BH5-24	BH5-24-SS1	0.0 – 0.6	PCBs, PHCs, BTEXs, PAHs, Metals & Inorganics
	BH5-24-SS7	4.6 – 5.2	PCBs, PHCs, VOCs, Metals & Inorganics
BH6-24	BH6-24-SS1	0.0 – 0.6	PHCs, BTEXs, PAHs, Metals & Inorganics
	BH6-24-SS4	2.3 – 2.9	PHCs, BTEXs, Metals & Inorganics
BH7-24	BH7-24-SS1	0.0 – 0.6	PHCs, BTEXs, PAHs, Metals & Inorganics
	BH7-24-SS5	3.1 – 3.7	PHCs, BTEXs, Metals & Inorganics

Comparison of Soil Analytical Results to Applicable Site Conditions Standards

The analytical soil results were compared to the full depth generic site condition standards, with non-potable groundwater, fine-medium textured soil, for residential property use, as specified in Table 3 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

The aforementioned soil samples selected for laboratory analysis were submitted to ALS under chain of custody on January 8, February 5 and February 22, 2024. The laboratory certificates of analysis (ALS Report #s WT2400552, WT2402708, WT2403940) are provided in Appendix E. The following samples had exceedance concentrations reported compared to ('vs.') their respective site condition standards.

All analyzed soil samples were in compliance with the site condition standards. A full summary of the soil analytical results and comparison to the applicable site condition standards are presented in Table 6: Soil Analytical Results following the text of this report.

Comparison of TCLP Analytical Results to O.Reg. 558/00

A waste characterization sample was selected for laboratory analysis of toxicity characteristic leaching procedure (TCLP) analysis for flashpoint, leachate metals & inorganics, leachate VOCs and leachate organics (PAHs) and polychlorinated biphenyls (PCBs)). This sample was comprised of a composite of worst-case samples, as determined by field screening parameters and analytical soil results.

The aforementioned composite soil sample selected for TCLP laboratory analysis was submitted to ALS under chain of custody on March 13, 2024. The laboratory certificate of analysis (Paracel Report # WT2405697) is provided in Appendix E.

This composite sample was compared to the criteria specified in schedule IV of O.Reg. 558/00 and no measured parameter exceeded the toxicity criteria. Based on the analytical results and field screening, if excess soil generated from redevelopment of the Site cannot be reused as clean fill at an appropriate receiving site, it can be treated as solid non-hazardous waste.

Contaminants of Concern

The presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 and represents APEC #1 for the Property. The contaminants of potential concern associated with dry cleaning chemicals are VOCs.

A pad mounted electrical transformer was observed on the north portion of the of the Phase One Property, is interpreted as PCA #2 and represents APEC #2 for the Property. The CPCs associated with the electrical transformation equipment are PCBs, petroleum hydrocarbons PHCs and BTEXs.

The presence of a hydraulic elevator, hydraulic oil reservoir, storage and sump pit (PCA #3) has been interpreted to represent APEC #3 for the Phase One Property. The CPCs associated with the hydraulic elevator are PHCs, BTEXs, and PAHs.

The contaminants of concern for a particular sample were based on the relative location and depth of the sample, visual and/or olfactory observations and combustible vapour screening concentrations.

Contaminants Related to Chemical and Biological Transformations

Contaminants related to chemical and biological transformations were not suspected to be present at the Phase Two Property and were not identified as part of the Phase Two ESA soil analysis.

Soil Serving as a Source of Contaminant Mass Contributing to Groundwater

Based on the analytical results, there may be soil that serves as a source of contaminant mass contributing to groundwater at the Phase Two Property. Soil contamination, namely VOCs were encountered at north-central portion of the Phase Two Property (APEC #1 – operational dry cleaner). There are detectable concentrations of VOCs in these areas of the Phase Two Property and it is suspected that soil serving as a source of contaminant mass is contributing to groundwater quality.

Light or Dense Non-Aqueous Phase Liquids

The analytical soil results indicate the potential presence of dense non-aqueous phase liquids (DNAPLs) at the Phase Two Property, given that low levels of VOCs were detected in the shallow (0.2-0.6 m BGS) in BH1-24; the detectable Tetrachloroethylene was in compliance with the site condition standards. It should be noted that the concentrations of VOCs in the soil are not themselves indicative of the suspected presence of DNAPL free product at the Phase Two Property.

The analytical soil results do not indicate the suspected presence of light non-aqueous phase liquids at the Phase to Property.

vii. Groundwater Quality

Locations and Sample Depth Interval of Groundwater Samples

The groundwater samples were collected using a peristaltic pump with tubing lowered to between the top and approximate (vertical) center of the water column within each monitoring well and withdrawing the water at low flow rates. The groundwater sample locations, screen depths and parameters analyzed are presented in Table 5 below.

Table 5: Groundwater Samples Selected for Laboratory Analysis

Sample Location	Groundwater Level (m AMSL)	Screen Depth (m AMSL)	Analytical Parameters
Shallow Aquifer: Silty Clay Monitoring Wells			
BH1-24	65.61	64.05 – 65.57	VOCs
BH2-24	65.44	63.84 – 65.97	PHCs, VOCs, PAHs, Metals & Inorganics
BH3-24	65.55	63.04 – 66.09	PHCs, VOCs
BH4-24	65.42	62.99 – 66.04	VOCs
BH5-24	65.83	63.10 – 66.14	PCBs, PHCs, VOCs, PAHs, Metals & Inorganics
MW-2	65.47	63.30 - unknown	VOCs
MW-3	66.36	64.10 - unknown	VOCs, PAHs, Metals & Inorganics
Deeper Aquifer: Glacial Till and/or Bedrock Monitoring Wells			
BH1-23	64.79	56.1 – 57.6	VOCs
BH2-23	63.69	56.2 – 57.7	VOCs
BH3-23	63.88	52.8 – 54.3	VOCs
BH4-23	63.92	54.1 – 55.6	VOCs
BH5-23	65.13	54.6 – 56.1	VOCs

m AMSL – metres Above Mean Sea Level

Field Filtering

Samples for PHCs, BTEXs, VOCs, PAHs and general chemistry were unfiltered, while metals samples were field filtered using a dedicated 0.45 µm Waterra filter for each sample.

Comparison of Groundwater Analytical Results to Applicable Site Conditions Standards

The analytical groundwater results were compared to the full depth generic site condition standards, with non-potable groundwater, fine-medium textured soil, as specified in Table 3 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

The groundwater samples selected for laboratory analysis were submitted to ALS under chain of custody on March 7, 2024. The laboratory certificate of analysis (ALS Report # WT2405173) is provided in Appendix E. The following groundwater samples had exceedance concentrations reported compared to ('vs.') their respective site condition standards.

- BH2-24-GW1 and BH12-24-GW1 (Duplicate of BH2-24), collected from a screen depth of approximately 2.5-5.5 m BGS, had reported concentrations of chloride (2,500 µg/g and 2,550 µg/g vs. 2,300 µg/g).

All of the other groundwater samples were in compliance with the site condition standards. A full summary of the groundwater analytical results and comparison to the applicable site condition standards are presented in Table 7: Groundwater Analytical Results following the text of this report.

Contaminants of Concern

The presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 and represents APEC #1 for the Property. The contaminants of potential concern associated with dry cleaning chemicals are VOCs.

A pad mounted electrical transformer was observed on the north portion of the of the Phase One Property, is interpreted as PCA #2 and represents APEC #2 for the Property. The CPCs associated with the electrical transformation equipment are PCBs, petroleum hydrocarbons PHCs and BTEXs.

The presence of a hydraulic elevator, hydraulic oil reservoir, storage and sump pit (PCA #3) has been interpreted to represent APEC #3 for the Phase One Property. The CPCs associated with the hydraulic elevator are PHCs, BTEXs, and PAHs.

The contaminants of concern for a particular sample were based on the relative location and depth of the sample, visual and/or olfactory observations of soil samples collected which could have come into contact with the groundwater table.

Contaminants Related to Chemical and Biological Transformations

Contaminants related to chemical and biological transformations were not suspected to be present at the Phase Two Property and were not identified as part of the Phase Two ESA groundwater analysis.

Soil Serving as a Source of Contaminant Mass Contributing to Groundwater

Based on the analytical results, low levels of VOCs were detected in the shallow (0.2-0.6 m BGS) in BH1-24; the detectable Tetrachloroethylene was in compliance with the site condition standards. There were detectable concentrations of VOCs in the groundwater sample BH1-24-GW1 collected from the monitoring well installed at BH1-24. It is suspected that soil serving as a source of contaminant mass is contributing to groundwater quality; although it should be noted that the groundwater analytical results from samples collected as part of this Phase Two ESA were in compliance with the site condition standards.

Light or Dense Non-Aqueous Phase Liquids

The analytical groundwater results indicate the potential presence of dense non-aqueous phase liquids (DNAPLs) at the Phase Two Property, given VOCs were identified at low concentrations in BH1-24, and historically MW-2. It should be noted that the presence of measurable levels DNAPL free product were not observed at the Phase Two Property, as measured with an interface probe and with observations of the purge water recovered from the monitoring wells.

The analytical groundwater results do not indicate the suspected presence of light non-aqueous phase liquids at the Phase to Property.

viii. Sediment Quality

There were no natural surface water bodies at the Phase Two Property, and as such no sediment sampling was completed as part of the Phase Two ESA.

ix. Quality Assurance and Quality Control Results

The soil sample (DUP-01/07) was submitted to the laboratory as a blind field duplicate sample of BH1-24-SS9) for VOCs; there were no detectable VOC concentrations in either sample. No duplicate soil sampling was submitted for other contaminants of concern, as the drilling program generated insufficient sample volumes for duplicate sample requirements from the laboratory. The laboratory completed and reported duplicate sample analysis for all groundwater CPC parameters analyzed as part of this Phase Two ESA as part of their internal quality assurance procedures.

The groundwater samples (MW-12-GW1, BH13-GW1 and BH15-GW1) were submitted to the laboratory as blind field duplicate samples of MW-2-GW1, BH3-GW1 and BH5-GW1, respectively. The ratio of groundwater duplicate results to original sample results was generally less than 20% which meets the required ratio. Given that no exceedances of the site condition standards were detected for any analyzed parameters in both samples, the variability of these sample results does not affect the validity of the conclusions with respect to these results. These samples were analyzed for PHCs, VOCs (including BTEXs, which provide a blind quality assurance and quality control QA/QC validation for all groundwater CPC parameters analyzed as part of this Phase Two ESA.

The laboratory made qualifying statements for analytical procedures related to low sample volume provided, higher detection limits and the presence of sediment in select groundwater samples. The qualifying remarks in certificates of analysis are not expected to impact the validity of any results qualified.

All certificates of analysis were received pursuant to clause 47 (2) (b) of O.Reg. 153/04 and comply with subsection 47 (3) of O.Reg. 153/04.

The overall quality of the field data from the investigation with respect to the data quality objectives, demonstrate that decision-making was not affected, and the overall objectives of the investigation and the assessment were met.

x. Phase Two Conceptual Site Model

The presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 associated with the O.Reg. 153/04 PCA: Operation of Dry Cleaning Equipment (where chemicals are used) and represents APEC #1 for the Property. The contaminants of potential concern associated with dry cleaning chemicals are VOCs.

A pad mounted electrical transformer was observed on the north portion of the of the Phase One Property. The pad mounted electrical transformer is interpreted as PCA #2 associated with

the O.Reg. 153/04 PCAs: Transformer Manufacturing, Processing and Use and Electricity Generation, Transformation and Power Stations, which represents APEC #2 for the Property. The CPCs associated with the electrical transformation equipment are PCBs, PHCs and BTEXs.

The presence of a hydraulic elevator, hydraulic oil reservoir, storage and sump pit (PCA #3) are associated with the O.Reg. 153/04 PCAs "Gasoline and Associated Products Storage in Fixed Tanks" and "Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems" and have been interpreted to represent APEC #3 for the Phase One Property. The CPCs associated with the hydraulic elevator are PHCs, BTEXs, and PAHs.

Underground utility corridors for sanitary and storm sewers, potable water, private electricity and natural gas lines lead to the building, generally from Richmond Road to the south or from Starflower Lane to the north. The underground utility corridors have the potential to affect contaminant distribution and transport, as they would create preferential pathways for lateral migration. APEC #1 includes the underground storm and sanitary sewer corridors at the Phase Two Property.

The overburden stratigraphy of the Phase Two Property is present in six geological units, including an asphalt layer at ground surface or concrete floor slab on the interior of the building, silty sand and gravel (fill) layer, clayey silt, silty clay and a native silty sand and gravel layer, found below the silty clay across the Property.

The shallow (unconfined) aquifer is the principal aquifer of interest based on the nature of APECs and PCAs identified for the Phase Two Property. It is present in several geological units, including the native silty clay and clayey silt layers, as well as in the sand and/or silty sand and gravel fill layers (where present at shallow depths). The deeper (confined) aquifer was a secondary aquifer of interest based on the nature of one of the contaminants of concern (VOCs). This aquifer was investigated by monitoring and sampling existing (geotechnical) monitoring wells installed in the deep (13 to 15 m BGS) glacial till and/or underlying bedrock.

The overburden soil is underlain by interbedded quartz sandstone bedrock at depths ranging from approximately 12.4 to 14.1 m BGS.

The shallow aquifer groundwater table was measured at depths ranging between 2.76 and 3.99 m BGS and the deep aquifer groundwater table was measured at depths ranging between 4.4 and 5.4 m BGS on March 6, 2024. Based on the measured groundwater table elevations in the shallow monitoring wells, the local shallow aquifer groundwater flow direction on the central portion of the Phase Two Property is towards the north with an approximate horizontal hydraulic gradient of 0.03 m/m. Based on the measured groundwater table elevations in the deeper monitoring wells, the local deeper aquifer groundwater flow direction on the central portion of the Phase Two Property is towards the south with an approximate horizontal hydraulic gradient of 0.04 m/m.

The proposed redevelopment of the Phase Two Property includes construction of one multi-storey building, with multiple levels of subgrade parking, commercial ground floor and residential units above.

The Phase Two Property and all other properties within 250 m of the property boundaries are supplied by Ottawa's municipal potable water supply system. The Phase Two is within the urban boundaries of the City of Ottawa, is supplied with municipally treated drinking water and there are no wells within 250 m of the property boundaries that are intended for use as a source of water for human consumption or agriculture. As such, the designation of non-potable groundwater setting is determined to be applicable [O.Reg. 153/04, section 35].

The Phase Two Property is not situated within or adjacent to an area of natural significance and does not include any land within 30 m of an area of natural significance. The pH of the soil was analyzed as part of this Phase Two ESA and was found to range from 7.15 to 7.83. As such, the Phase Two Property is not considered to be an environmentally sensitive area [O.Reg. 153/04, section 41].

Based on the proposed development concept for the Phase Two Property, exposure pathways could exist for 2 underground storeys. The maximum investigation depth for this Phase Two ESA was determined to be 6 m BGS, of which greater than 2/3 of the media investigated / depths of interest of Phase Two Property has medium-fine grained soil. For the purposes of this Phase Two ESA, the soil conditions are considered to be fine-medium grained. The Phase Two Property is not considered a shallow soil property [O.Reg. 153/04, section 43.1].

The Phase Two Property does not include and does not have any land located within 30 m of a water body. The MECP site condition standards for use within 30 m of a water body do not apply [O.Reg. 153/04, section 43.1].

The full depth generic site condition standards, with non-potable groundwater, fine-medium textured soil, for residential property use, as specified in Table 3 of the MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011 were determined to be the applicable site condition standards for the Phase Two Property as part of this Phase Two ESA.

All analyzed soil samples as part of this Phase Two ESA were in compliance with the site condition standards.

The following samples had exceedance concentrations reported compared to ('vs.') their respective site condition standards.

- BH2-24-GW1 and BH12-24-GW1 (Duplicate of BH2-24), collected from a screen depth of approximately 2.5-5.5 m BGS, had reported concentrations of chloride (2,500 µg/g and 2,550 µg/g vs. 2,300 µg/g).

All of the other groundwater samples were in compliance with the site condition standards as of the certification date of March 6, 2024.

7. Conclusions

All analyzed soil samples as part of this Phase Two ESA were in compliance with the site condition standards.

The following samples had exceedance concentrations reported compared to ('vs.') their respective site condition standards.

- BH2-24-GW1 and BH12-24-GW1 (Duplicate of BH2-24), collected from a screen depth of approximately 2.5-5.5 m BGS, had reported concentrations of chloride (2,500 µg/g and 2,550 µg/g vs. 2,300 µg/g).
    - This sample was collected in a location that may have been subject to de-icing activities /influence with the application of salts applied to ground surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both and is suspected to exceed the site condition standard solely as a result of these activities. Based on this application and the exemption set forth in Section 49.1 of O.Reg. 153/04, the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act. Based on additional groundwater analysis in other locations at the Phase Two Property, the presence of Chloride appears to have been influenced by de-icing across paved areas.

All of the other groundwater samples were in compliance with the site condition standards as of the certification date of March 6, 2024.

Given the Phase Two Property will continue to be occupied by an operational dry cleaner, using chlorinated solvents as cleaning agents, re-sampling of the existing groundwater monitoring wells is recommended prior to redevelopment of the Site. An updated Phase Two ESA report will be required to support the RSC application after the Phase Two Property is no longer occupied by the existing commercial use.

Preparation of a soil management plan in accordance with O.Reg. 406/19 will be required as part of management of excess soil generated as part of construction activities.

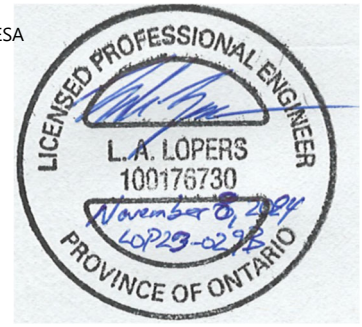
i. Signatures

The Qualified Person for this study is Mr. Luke Lopers, P. Eng. Mr. Lopers has been a Professional Engineer, registered in Ontario since 2012 and has been working on environmental site assessments since 2006. Mr. Lopers has been an author, project manager and/or peer reviewer for hundreds of Phase One ESAs and Phase Two ESAs as well as previously filed RSCs.

The reviewer for this study is Mr. Don Plenderleith, P.Eng. Mr. Plenderleith is a Professional Engineer registered in Ontario since 1994 and has authored and/or reviewed hundreds of Phase One and Two ESAs in Ontario and the rest of Canada. The qualifications of the assessor/Qualified Person and reviewer are included in Appendix F.

Sincerely,

Luke Lopers, P.Eng., QP_{ESA}



Don Plenderleith, P.Eng., QP_{ESA}

8. Limitations

The findings and conclusions of this Phase Two ESA are based on the information provided and/or reviewed as part of this study.

This Phase Two ESA has been completed with the standard of care generally expected in the industry for a study of this nature.

This Phase Two ESA has been prepared for the sole use of 13008916 Canada Inc. for the purposes of a due diligence assessment of the potential liabilities which may exist at the Phase Two Property. No other party is permitted to rely on the conclusions or findings of this report without the written consent of Lopers & Associates and 13008916 Canada Inc.

Changes to the physical setting of the Phase Two Property, Phase One Study Area and applicable regulations governing Phase One and Two Environmental Site Assessments have the potential to influence the validity of the conclusions and opinions presented in this Phase Two ESA.

9. References

Legal Survey Plan, Annis, O'Sullivan, Vollebekk Ltd., on May 30, 2022.

City of Ottawa, geoOttawa mapping website, Visited November 2023 through November 2024. http://maps.ottawa.ca/geoottawa/

Google Earth, Visited November 2023 through November 2024.

"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", produced by the Ontario Ministry of the Environment, dated April 15, 2011.

"Phase One Environmental Site Assessment, 1299-1315 Richmond Road, Ottawa, Ontario" dated March 21, 2022 (Revised February 2024) prepared for 13008916 Canada Inc. by Lopers & Associates.

"Revised - Phase I Environmental Site Assessment, 1299-1315 Richmond Road, Ottawa, Ontario", dated January 31, 2017, completed by Pinchin Ltd. for Look Property Management Inc.

"Groundwater Monitoring and Sampling Program, 1299-1315 Richmond Road, Ottawa, Ontario", dated March 10, 2017, completed by Pinchin Ltd. for Look Property Management Inc.

"Phase I Environmental Site Assessment, 1299-1315 Richmond Road, Ottawa, Ontario", dated December 16, 2022, completed by Pinchin Ltd. for 11034936 Canada Inc.

ALS Certificate of Analysis – Report # WT2400552 - Soil Sample Submission January 8, 2024

ALS Certificate of Analysis – Report # WT2402708 - Soil Sample Submission February 5, 2024

ALS Certificate of Analysis – Report # WT2403940 - Soil Sample Submission February 22, 2024

ALS Certificate of Analysis – Report # WT2405697 - TCLP Sample Submission March 13, 2024

ALS Certificate of Analysis – Report # WT2405173 - Groundwater Sample Submission March 7, 2024

10. Appendices

Appendix A – Sampling and Analysis Plan

Appendix B – Underground Utility Locates

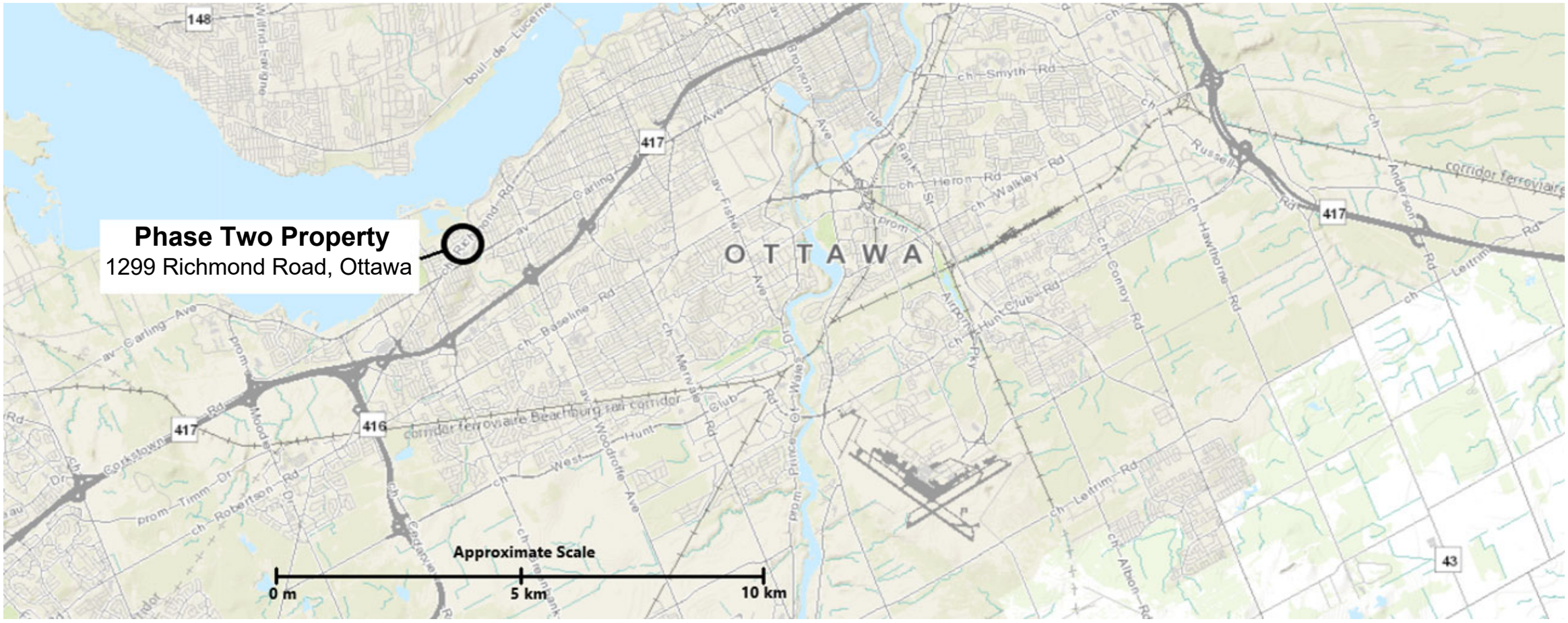
Appendix C – Borehole Logs

Appendix D – Certificates of Equipment Calibration

Appendix E – Laboratory Certificates of Analysis

Appendix F – Qualifications of Assessors

Figures



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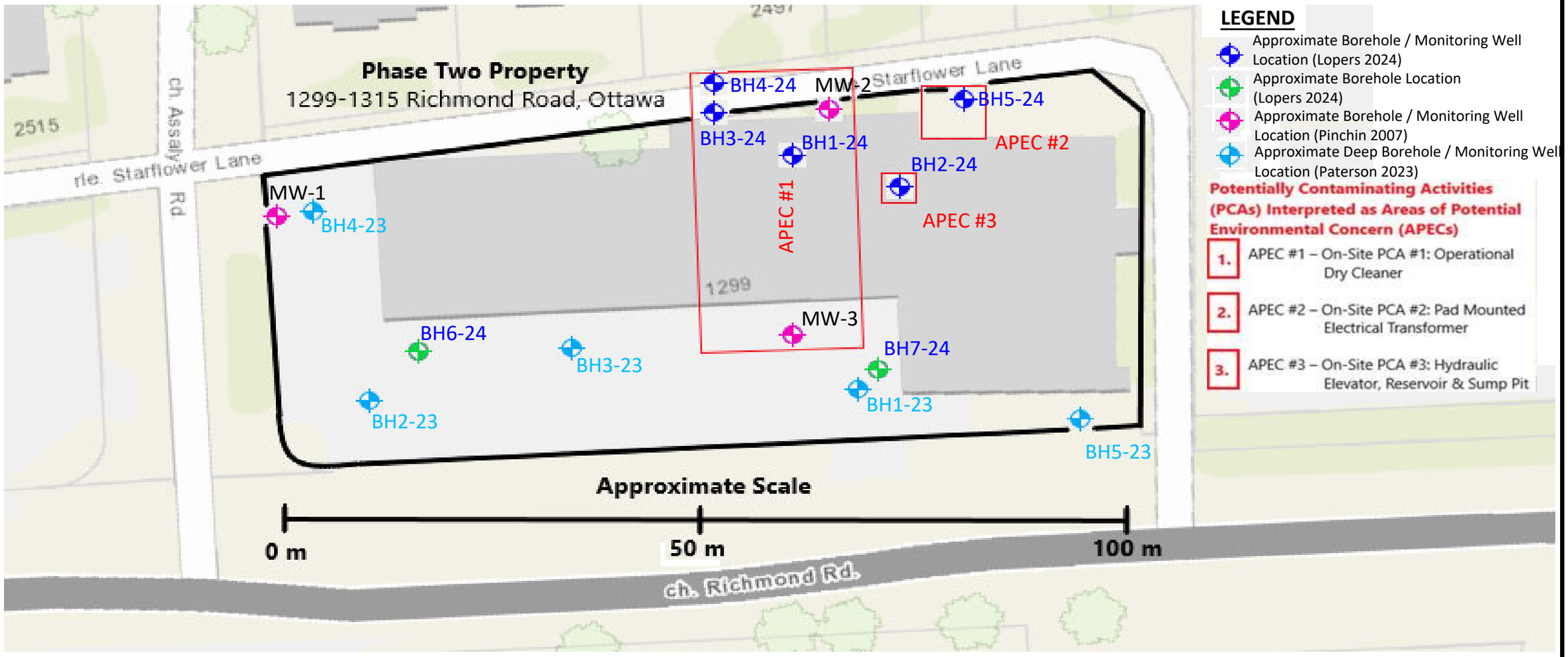
LOPERS & ASSOCIATES

Figure 1: Key Plan
Phase Two Environmental Site Assessment
1299-1315 Richmond Road, Ottawa, Ontario
13008916 Canada Inc.

Project Reference No:	LOP23-029B
Drawing No.:	LOP23-029B-1
Date:	November 7, 2024
Author:	L. Lopers
Source:	geoOttawa, Base Mapping



LOPERS & ASSOCIATES

Figure 2: Site Plan
Phase Two Environmental Site Assessment
1299-1315 Richmond Road, Ottawa, Ontario
13008916 Canada Inc.

Project Reference No:	LOP23-029B
Drawing No.:	LOP23-029B-2
Date:	November 7, 2024
Author:	L. Lopers
Source:	geoOttawa

Tables

Table 6: Excess Soil Analytical Results

1299 Richmond Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 153/04 Table 3: Residential Property Use Standards, Fine Grained Soil	Sample ID: BH1-24-SS1 Sample Depth: 0.2 - 0.6 m BGS Sample Date: 07-Jan-2024 Laborartory Sample ID: WT2400552-001	Sample ID: BH1-24-SS3 Sample Depth: 1.2 - 1.8 m BGS Sample Date: 07-Jan-2024 Laborartory Sample ID: WT2400552-005	Sample ID: BH1-24-SS7 Sample Depth: 3.6 - 4.2 m BGS Sample Date: 07-Jan-2024 Laborartory Sample ID: WT2400552-002	Sample ID: BH1-24-SS9 Sample Depth: 4.9 - 5.5 m BGS Sample Date: 07-Jan-2024 Laborartory Sample ID: WT2400552-003	Sample ID: DUP-01/07 Sample Depth: Duplicate of BH1-24-SS9 Sample Date: 07-Jan-2024 Laborartory Sample ID: WT2400552-004	Sample ID: BH2-24-SS1 Sample Depth: 0.2 - 0.8 m BGS Sample Date: 05-Feb-2024 Laborartory Sample ID: WT2402708-001	Sample ID: BH2-24-SS7 Sample Depth: 4.2 - 4.8 m BGS Sample Date: 05-Feb-2024 Laborartory Sample ID: WT2402708-002	Sample ID: BH3-24-SS1 Sample Depth: 0.0 - 0.6 m BGS Sample Date: 21-Feb-2024 Laborartory Sample ID: WT2403940-001	Sample ID: BH3-24-SS6 Sample Depth: 3.8 - 4.4 m BGS Sample Date: 21-Feb-2024 Laborartory Sample ID: WT2403940-002
Petroluem Hydrocarbons (PHCs)														
F1 PHCs (C6-C10)	ug/g	5	65	-	-	-	<5.0	-	<5.0	<5.0	-	-		
F2 PHCs (C10-C16)	ug/g	10	150	-	-	-	<10	-	<10	<10	-	-		
F3 PHCs (C16-C34)	ug/g	50	1300	-	-	-	<50	-	<50	<50	-	-		
F4 PHCs (C34-C50)	ug/g	50	5600	-	-	-	<50	-	<50	<50	-	-		
F4G PHCs (gravimetric)	ug/g	50	5600	-	-	-	-	-	-	-	-	-		
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)														
Acetone	ug/g	0.50	28	<0.50	-	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50		
Benzene	ug/g	0.0050	0.17	<0.0050	-	<0.0050	<0.0050	<0.0050	0.0058	<0.0050	<0.0050	<0.0050		
Bromodichloromethane	ug/g	0.050	13	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Bromoform	ug/g	0.050	0.26	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Bromomethane	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Carbon tetrachloride	ug/g	0.050	0.12	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Chlorobenzene	ug/g	0.050	2.7	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Chloroform	ug/g	0.050	0.18	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dibromochloromethane	ug/g	0.050	9.4	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dibromoethane, 1,2-	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichlorobenzene, 1,2-	ug/g	0.050	4.3	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichlorobenzene, 1,3-	ug/g	0.050	6	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichlorobenzene, 1,4-	ug/g	0.050	0.097	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichlorodifluoromethane	ug/g	0.050	25	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloroethane, 1,1-	ug/g	0.050	11	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloroethane, 1,2-	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloroethylene, 1,1-	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloroethylene, cis-1,2-	ug/g	0.050	30	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloroethylene, trans-1,2-	ug/g	0.050	0.75	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloromethane	ug/g	0.045	0.96	<0.045	-	<0.045	<0.045	<0.045	-	<0.045	<0.045	<0.045		
Dichloropropane, 1,2-	ug/g	0.050	0.085	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloropropylene, cis+trans-1,3-	ug/g	0.075	0.083	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Dichloropropylene, cis-1,3-	ug/g	0.050	NV	<0.050	-	<0.050	<0.030	<0.050	-	<0.030	<0.030	<0.030		
Dichloropropylene, trans-1,3-	ug/g	0.050	NV	<0.050	-	<0.050	<0.030	<0.050	-	<0.030	<0.030	<0.030		
Ethylbenzene	ug/g	0.015	15	<0.015	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		
Hexane, n-	ug/g	0.050	34	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Methyl ethyl ketone [MEK]	ug/g	0.50	44	<0.50	-	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50		
Methyl isobutyl ketone [MIBK]	ug/g	0.50	4.3	<0.50	-	<0.50	<0.50	<0.50	-	<0.50	<0.50	<0.50		
Methyl-tert-butyl ether [MTBE]	ug/g	0.040	1.4	<0.040	-	<0.040	<0.040	<0.040	-	<0.040	<0.040	<0.040		
Styrene	ug/g	0.050	2.2	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Tetrachloroethane, 1,1,1,2-	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Tetrachloroethane, 1,1,2,2-	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Tetrachloroethylene	ug/g	0.050	2.3	0.832	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Toluene	ug/g	0.050	6	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Trichloroethane, 1,1,1-	ug/g	0.050	3.4	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Trichloroethane, 1,1,2-	ug/g	0.050	0.05	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Trichloroethylene	ug/g	0.010	0.52	<0.010	-	<0.010	<0.010	<0.010	-	<0.010	<0.010	<0.010		
Trichlorofluoromethane	ug/g	0.050	5.8	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050		
Vinyl chloride	ug/g	0.020	0.022	<0.020	-	<0.020	<0.020	<0.020	-	<0.020	<0.020	<0.020		
Xylene, m+p-	ug/g	0.030	NV	<0.030	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030		
Xylene, o-	ug/g	0.030	NV	<0.030	-	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030		
Xylenes, total	ug/g	0.050	25	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	ug/g	0.050	58	-	-	-	-	-	<0.050	-	-	-		
Acenaphthylene	ug/g	0.050	0.17	-	-	-	-	-	<0.050	-	-	-		
Anthracene	ug/g	0.050	0.74	-	-	-	-	-	<0.050	-	-	-		
Benzo[a]anthracene	ug/g	0.050	0.63	-	-	-	-	-	<0.050	-	-	-		
Benzo[a]pyrene	ug/g	0.050	0.3	-	-	-	-	-	<0.050	-	-	-		
Benzo[b]fluoranthene	ug/g	0.050	0.78	-	-	-	-	-	<0.050	-	-	-		
Benzo[g,h,i]perylene	ug/g	0.050	7.8	-	-	-	-	-	<0.050	-	-	-		
Benzo[k]fluoranthene	ug/g	0.050	0.78	-	-	-	-	-	<0.050	-	-	-		
Chrysene	ug/g	0.050	7.8	-	-	-	-	-	<0.050	-	-	-		
Dibenzo[a,h]anthracene	ug/g	0.050	0.1	-	-	-	-	-	<0.050	-	-	-		
Fluoranthene	ug/g	0.050	0.69	-	-	-	-	-	<0.050	-	-	-		
Fluorene	ug/g	0.050	69	-	-	-	-	-	<0.050	-	-	-		
Indeno[1,2,3-cd]pyrene	ug/g	0.050	0.48	-	-	-	-	-	<0.050	-	-	-		
1-Methylnaphthalene	ug/g	0.050	3.4	-	-	-	-	-	<0.050	-	-	-		
2-Methylnaphthalene	ug/g	0.030	3.4	-	-	-	-	-	<0.030	-	-	-		
Methylnaphthalene (1&2)	ug/g	0.030	3.4	-	-	-	-	-	<0.030	-	-	-		
Naphthalene	ug/g	0.010	0.75	-	-	-	-	-	<0.010	-	-	-		
Phenanthrene	ug/g	0.050	7.8	-	-	-	-	-	<0.050	-	-	-		
Pyrene	ug/g	0.050	78	-	-	-	-	-	<0.050	-	-	-		
Metals														
Antimony	ug/g	1.0	7.5	<0.10	-	-	<0.10	-	<0.10	-	<0.10	<0.10		
Arsenic	ug/g	1.0	18	2.13	-	-	1.66	-	1.90	-	3.94	1.64		
Barium	ug/g	1.0	390	104	-	-	215	-	124	-	172	262		
Beryllium	ug/g	0.5	5	0.28	-	-	0.51	-	0.42	-	0.78	0.64		
Boron, available	ug/g	0.1	120	6.1	-	-	5.0	-	7.0	-	12.1	<5.0		
Boron	ug/g	5.0	1.2	0.18	-	-	<0.10	-	0.27	-	0.19	<0.10		
Cadmium	ug/g	0.5	160	0.049	-	-	0.076	-	0.067	-	0.168	0.096		
Chromium (VI)	ug/g	0.2	10	0.16	-	-	0.14	-	0.21	-	0.28	0.18		
Chromium	ug/g	1.0	160	16.8	-	-	44.8	-	32.4	-	46.8	48.0		
Cobalt	ug/g	1.0	22	5.82	-	-	12.2	-	8.33	-	12.2	13.9		
Copper	ug/g	1.0	180	12.4	-	-	24.3	-	19.2	-	24.1	26.7		
Lead	ug/g	1.0	120	5.77	-	-	4.59	-	4.91	-	12.6	5.12		
Mercury	ug/g	0.005	1.8	0.0096	-	-	<0.0050	-	0.0130	-	0.0471	<0.0050		
Molybdenum	ug/g	1.0	6.9	0.86	-	-	0.66	-	1.62	-	0.71	0.29		
Nickel	ug/g	1.0	130	11.2	-	-	25.9	-	16.9	-	29.2	28.3		
Selenium	ug/g	1.0	2.4	<0.20	-	-	0.28	-	<0.20	-	<0.20	<0.20		
Silver	ug/g	0.2	25	<0.10	-	-	<0.10	-	<0.10	-	0.16	<0.10		
Thallium	ug/g	0.5	1	0.109	-	-	0.242	-	0.152	-	0.246	0.253		
Uranium	ug/g	1.0	23	0.444	-	-	1.15	-	0.573	-	0.730	0.630		
Vanadium	ug/g	1.0	86	24.0	-	-	69.3	-	41.2	-	68.6	72.6		
Zinc	ug/g	5.0	340	22.0	-	-	66.4	-	39.2	-	67.2	78.1		
General Inorganics														
SAR	N/A	0.01	5	1.15	-	-	2.78	-	7.56	-	3.70	21.4		
Conductivity	uS/cm	5	700	0.190	-	-	1.08	-	0.433	-	0.575	0.969		
Cyanide, free	ug/g	0.03	0.051	<0.050	-	-	<0.050	-	<0.050	-	<0.050	<0.050		
pH	pH Units	0.05	5-11	7.78	-	-	7.78	-	7.75	-	7.83	7.33		
Grain Size														
Percent Passing (i.e. smaller than)	mm	0.075	50%	-	84.0	73.5	-	-						
Polychlorinated Biphenyls														
Aroclor 1016	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1221	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1232	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1242	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1248	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1254	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1260	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1262	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Aroclor 1268	ug/g	0.010		-	-	-	-	-	-	-	-	-		
Polychlorinated biphenyls [PCBs], total	ug/g	0.030		-	-	-	-	-	-	-	-	-		

NV - No value listed in MECP site condition standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds MECP site condition standards

Table 6: Excess Soil Analytical Results

1299 Richmond Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 153/04 Table 3: Residential Property Use Standards, Fine Grained Soil	Sample ID: BH4-24-SS2	BH4-24-SS8	BH5-24-SS1	BH5-24-SS7	BH6-24-SS1	BH6-24-SS4	BH7-24-SS1	BH7-24-SS5
				Sample Depth: 0.8 - 1.4 m BGS	5.3 - 5.9 m BGS	0.0 - 0.6 m BGS	4.6 - 5.2 m BGS	0.0 - 0.6 m BGS	2.3 - 2.9 m BGS	0.0 - 0.6 m BGS	3.1 - 3.7 m BGS
				Sample Date: 21-Feb-2024	21-Feb-2024	21-Feb-2024	21-Feb-2024	22-Feb-2024	22-Feb-2024	22-Feb-2024	22-Feb-2024
				Laborartory Sample ID: WT2403940-003	WT2403940-004	WT2403940-005	WT2403940-006	WT2403940-007	WT2403940-008	WT2403940-009	WT2403940-010
Petroluem Hydrocarbons (PHCs)											
F1 PHCs (C6-C10)	ug/g	5	65	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F2 PHCs (C10-C16)	ug/g	10	150	-	-	<10	<10	<10	<10	<10	<10
F3 PHCs (C16-C34)	ug/g	50	1300	-	-	<50	<50	<50	<50	<50	<50
F4 PHCs (C34-C50)	ug/g	50	5600	-	-	<50	<50	72	<50	<50	<50
F4G PHCs (gravimetric)	ug/g	50	5600	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)											
Acetone	ug/g	0.50	28	<0.50	<0.50	-	<0.50	-	-	-	-
Benzene	ug/g	0.0050	0.17	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromodichloromethane	ug/g	0.050	13	<0.050	<0.050	-	<0.050	-	-	-	-
Bromoform	ug/g	0.050	0.26	<0.050	<0.050	-	<0.050	-	-	-	-
Bromomethane	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Carbon tetrachloride	ug/g	0.050	0.12	<0.050	<0.050	-	<0.050	-	-	-	-
Chlorobenzene	ug/g	0.050	2.7	<0.050	<0.050	-	<0.050	-	-	-	-
Chloroform	ug/g	0.050	0.18	<0.050	<0.050	-	<0.050	-	-	-	-
Dibromochloromethane	ug/g	0.050	9.4	<0.050	<0.050	-	<0.050	-	-	-	-
Dibromoethane, 1,2-	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Dichlorobenzene, 1,2-	ug/g	0.050	4.3	<0.050	<0.050	-	<0.050	-	-	-	-
Dichlorobenzene, 1,3-	ug/g	0.050	6	<0.050	<0.050	-	<0.050	-	-	-	-
Dichlorobenzene, 1,4-	ug/g	0.050	0.097	<0.050	<0.050	-	<0.050	-	-	-	-
Dichlorodifluoromethane	ug/g	0.050	25	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloroethane, 1,1-	ug/g	0.050	11	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloroethane, 1,2-	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloroethylene, 1,1-	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloroethylene, cis-1,2-	ug/g	0.050	30	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloroethylene, trans-1,2-	ug/g	0.050	0.75	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloromethane	ug/g	0.045	0.96	<0.045	<0.045	-	<0.045	-	-	-	-
Dichloropropane, 1,2-	ug/g	0.050	0.085	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloropropylene, cis+trans-1,3-	ug/g	0.075	0.083	<0.050	<0.050	-	<0.050	-	-	-	-
Dichloropropylene, cis-1,3-	ug/g	0.050	NV	<0.030	<0.030	-	<0.030	-	-	-	-
Dichloropropylene, trans-1,3-	ug/g	0.050	NV	<0.030	<0.030	-	<0.030	-	-	-	-
Ethylbenzene	ug/g	0.015	15	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Hexane, n-	ug/g	0.050	34	<0.050	<0.050	-	<0.050	-	-	-	-
Methyl ethyl ketone [MEK]	ug/g	0.50	44	<0.50	<0.50	-	<0.50	-	-	-	-
Methyl isobutyl ketone [MIBK]	ug/g	0.50	4.3	<0.50	<0.50	-	<0.50	-	-	-	-
Methyl-tert-butyl ether [MTBE]	ug/g	0.040	1.4	<0.040	<0.040	-	<0.040	-	-	-	-
Styrene	ug/g	0.050	2.2	<0.050	<0.050	-	<0.050	-	-	-	-
Tetrachloroethane, 1,1,1,2-	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Tetrachloroethane, 1,1,2,2-	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Tetrachloroethylene	ug/g	0.050	2.3	<0.050	<0.050	-	<0.050	-	-	-	-
Toluene	ug/g	0.050	6	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,1-	ug/g	0.050	3.4	<0.050	<0.050	-	<0.050	-	-	-	-
Trichloroethane, 1,1,2-	ug/g	0.050	0.05	<0.050	<0.050	-	<0.050	-	-	-	-
Trichloroethylene	ug/g	0.010	0.52	<0.010	<0.010	-	<0.010	-	-	-	-
Trichlorofluoromethane	ug/g	0.050	5.8	<0.050	<0.050	-	<0.050	-	-	-	-
Vinyl chloride	ug/g	0.020	0.022	<0.020	<0.020	-	<0.020	-	-	-	-
Xylene, m+p-	ug/g	0.030	NV	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Xylene, o-	ug/g	0.030	NV	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes, total	ug/g	0.050	25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	ug/g	0.050	58	-	-	<0.050	-	<0.050	-	<0.050	-
Acenaphthylene	ug/g	0.050	0.17	-	-	<0.050	-	<0.050	-	<0.050	-
Anthracene	ug/g	0.050	0.74	-	-	<0.050	-	<0.050	-	<0.050	-
Benzo[a]anthracene	ug/g	0.050	0.63	-	-	<0.050	-	<0.050	-	<0.050	-
Benzo[a]pyrene	ug/g	0.050	0.3	-	-	<0.050	-	<0.050	-	<0.050	-
Benzo[b]fluoranthene	ug/g	0.050	0.78	-	-	<0.050	-	<0.050	-	<0.050	-
Benzo[g,h,i]perylene	ug/g	0.050	7.8	-	-	<0.050	-	<0.050	-	<0.050	-
Benzo[k]fluoranthene	ug/g	0.050	0.78	-	-	<0.050	-	<0.050	-	<0.050	-
Chrysene	ug/g	0.050	7.8	-	-	<0.050	-	<0.050	-	<0.050	-
Dibenzo[a,h]anthracene	ug/g	0.050	0.1	-	-	<0.050	-	<0.050	-	<0.050	-
Fluoranthene	ug/g	0.050	0.69	-	-	<0.050	-	<0.050	-	<0.050	-
Fluorene	ug/g	0.050	69	-	-	<0.050	-	<0.050	-	<0.050	-
Indeno[1,2,3-cd]pyrene	ug/g	0.050	0.48	-	-	<0.050	-	<0.050	-	<0.050	-
1-Methylnaphthalene	ug/g	0.050	3.4	-	-	<0.050	-	<0.050	-	<0.050	-
2-Methylnaphthalene	ug/g	0.030	3.4	-	-	<0.030	-	<0.030	-	<0.030	-
Methylnaphthalene (1&2)	ug/g	0.030	3.4	-	-	<0.030	-	<0.030	-	<0.030	-
Naphthalene	ug/g	0.010	0.75	-	-	<0.010	-	<0.010	-	<0.010	-
Phenanthrene	ug/g	0.050	7.8	-	-	<0.050	-	<0.050	-	<0.050	-
Pyrene	ug/g	0.050	78	-	-	<0.050	-	<0.050	-	<0.050	-
Metals											
Antimony	ug/g	1.0	7.5	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	ug/g	1.0	18	-	-	3.48	1.36	1.82	1.64	1.91	1.72
Barium	ug/g	1.0	390	-	-	119	188	280	235	301	302
Beryllium	ug/g	0.5	5	-	-	0.52	0.46	0.66	0.59	0.82	0.72
Boron, available	ug/g	0.1	120	-	-	12.2	<5.0	5.4	<5.0	6.1	<5.0
Boron	ug/g	5.0	1.2	-	-	0.19	<0.10	0.16	0.12	0.27	<0.10
Cadmium	ug/g	0.5	160	-	-	0.124	0.067	0.091	0.075	0.127	0.092
Chromium (VI)	ug/g	0.2	10	-	-	0.30	<0.10	0.13	0.25	0.50	0.33
Chromium	ug/g	1.0	160	-	-	25.7	39.9	51.1	49.4	62.1	58.8
Cobalt	ug/g	1.0	22	-	-	8.94	10.8	14.8	13.9	16.2	16.2
Copper	ug/g	1.0	180	-	-	15.5	21.3	29.1	27.5	24.4	31.8
Lead	ug/g	1.0	120	-	-	9.03	3.98	6.28	4.93	7.50	5.73
Mercury	ug/g	0.005	1.8	-	-	0.0407	<0.0050	<0.0050	<0.0050	0.0163	0.0052
Molybdenum	ug/g	1.0	6.9	-	-	0.72	0.27	0.35	0.28	0.27	0.30
Nickel	ug/g	1.0	130	-	-	21.3	22.9	29.8	28.1	33.4	33.8
Selenium	ug/g	1.0	2.4	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	ug/g	0.2	25	-	-	0.14	0.14	<0.10	<0.10	<0.10	<0.10
Thallium	ug/g	0.5	1	-	-	0.215	0.213	0.287	0.256	0.312	0.302
Uranium	ug/g	1.0	23	-	-	0.614	0.558	0.655	0.658	0.579	0.637
Vanadium	ug/g	1.0	86	-	-	48.0	58.0	72.4	66.3	77.2	78.4
Zinc	ug/g	5.0	340	-	-	37.2	58.2	78.5	70.6	85.4	86.7
General Inorganics											
SAR	N/A	0.01	5	-	-	4.56	15.5	32.4	31.8	15.7	15.4
Conductivity	uS/cm	5	700	-	-	0.332	1.39	1.29	1.43	3.37	1.82
Cyanide, free	ug/g	0.03	0.051	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
pH	pH Units	0.05	5-11	-	-	7.43	7.45	7.72	7.15	7.41	7.39
Grain Size											
Percent Passing (i.e. smaller than)	mm	0.075	50%								
Polychlorinated Biphenyls											
Aroclor 1016	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1221	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1232	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1242	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1248	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1254	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1260	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1262	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Aroclor 1268	ug/g	0.010		-	-	<0.010	<0.010	-	-	-	-
Polychlorinated biphenyls [PCBs], total	ug/g	0.030		-	-	<0.030	<0.030	-	-	-	-

NV - No value listed in MECP site condition standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds MECP site condition standards

Table 7: Excess Groundwater Analytical Results

1299 Richmond Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 153/04 Table 3: Residential Property Use Standards, Fine Grained Soil	Sample ID: BH1-24-GW1	BH2-24-GW1	BH12-24-GW1	BH3-24-GW1	BH13-24-GW1	BH4-24-GW1	BH5-24-GW1	BH15-24-GW1
				Well Screen Depth: 3.8 - 5.4 m BGS	3.4 - 4.6 m BGS	Duplicate of BH2-24-GW1	3.1 - 6.1 m BGS	Duplicate of BH3-24-GW1	3.1 - 6.1 m BGS	3.1 - 6.1 m BGS	Duplicate of BH5-24-GW1
				Sample Date: March 6, 2024	March 6, 2024	March 6, 2024	March 6, 2024	March 6, 2024	March 6, 2024	March 6, 2024	March 6, 2024
				Laborartory Sample ID: WT2405173-001	WT2405173-002	WT2405173-006	WT2405173-003	WT2405173-007	WT2405173-004	WT2405173-005	WT2405173-008
Petroluem Hydrocarbons (PHCs)											
F1 PHCs (C6-C10)	µg/L	25	750	-	<25	<25	<25	-	-	<25	-
F2 PHCs (C10-C16)	µg/L	100	150	-	<100	<100	<100	-	-	<100	-
F3 PHCs (C16-C34)	µg/L	250	500	-	<250	<250	<250	-	-	<250	-
F4 PHCs (C34-C50)	µg/L	250	500	-	<250	<250	<250	-	-	<250	-
F4G PHCs (gravimetric)	µg/L	250	500	-	-	-	-	-		-	-
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)											
Acetone	µg/L	20	130000	<20	<20	<20	<20	<20	<20	<20	-
Benzene	µg/L	0.50	430	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Bromodichloromethane	µg/L	0.50	85000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Bromoform	µg/L	0.50	770	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Bromomethane	µg/L	0.50	56	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Carbon tetrachloride	µg/L	0.20	8.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-
Chlorobenzene	µg/L	0.50	630	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Chloroform	µg/L	0.50	22	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dibromochloromethane	µg/L	0.50	82000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dibromoethane, 1,2-	µg/L	0.20	0.83	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-
Dichlorobenzene, 1,2-	µg/L	0.50	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichlorobenzene, 1,3-	µg/L	0.50	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichlorobenzene, 1,4-	µg/L	0.50	67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichlorodifluoromethane	µg/L	0.50	4400	5.01	4.40	4.07	2.06	2.76	0.57	<0.50	-
Dichloroethane, 1,1-	µg/L	0.50	3100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloroethane, 1,2-	µg/L	0.50	12	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloroethylene, 1,1-	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloroethylene, cis-1,2-	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloroethylene, trans-1,2-	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloromethane	µg/L	1.0	5500	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-
Dichloropropane, 1,2-	µg/L	0.50	140	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloropropylene, cis+trans-1,3-	µg/L	0.50	45	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Dichloropropylene, cis-1,3-	µg/L	0.30	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	-
Dichloropropylene, trans-1,3-	µg/L	0.30	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	-
Ethylbenzene	µg/L	0.50	2300	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Hexane, n-	µg/L	0.50	520	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Methyl ethyl ketone [MEK]	µg/L	20	1.50E+06	<20	<20	<20	<20	<20	<20	<20	-
Methyl isobutyl ketone [MIBK]	µg/L	20	580000	<20	<20	<20	<20	<20	<20	<20	-
Methyl-tert-butyl ether [MTBE]	µg/L	0.50	1400	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Styrene	µg/L	0.50	9100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Tetrachloroethane, 1,1,1,2-	µg/L	0.50	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Tetrachloroethane, 1,1,2,2-	µg/L	0.50	15	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Tetrachloroethylene	µg/L	0.50	17	1.77	<0.50	<0.50	<0.50	0.61	<0.50	<0.50	-
Toluene	µg/L	0.50	18000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Trichloroethane, 1,1,1-	µg/L	0.50	6700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Trichloroethane, 1,1,2-	µg/L	0.50	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Trichloroethylene	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Trichlorofluoromethane	µg/L	0.50	2500	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Vinyl chloride	µg/L	0.50	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-
Xylene, m+p-	µg/L	0.40	NV	<0.40	<0.40	<0.40	<0.40	<0.40	0.97	<0.40	-
Xylene, o-	µg/L	0.30	NV	<0.30	<0.30	<0.30	<0.30	<0.30	0.63	<0.30	-
Xylenes, total	µg/L	0.50	4200	<0.50	<0.50	<0.50	<0.50	<0.50	1.60	<0.50	-
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	µg/L	0.010	1700	-	<0.010	<0.010	-	-	-	<0.010	-
Acenaphthylene	µg/L	0.010	1.8	-	<0.010	<0.010	-	-	-	<0.010	-
Anthracene	µg/L	0.010	2.4	-	<0.010	<0.010	-	-	-	<0.010	-
Benz(a)anthracene	µg/L	0.010	4.7	-	<0.010	<0.010	-	-	-	<0.010	-
Benzo(a)pyrene	µg/L	0.0050	0.81	-	<0.0050	<0.0050	-	-	-	<0.0050	-
Benzo(b+j)fluoranthene	µg/L	0.010	0.75	-	<0.010	<0.010	-	-	-	<0.010	-
Benzo(g,h,i)perylene	µg/L	0.010	0.2	-	<0.010	<0.010	-	-	-	<0.010	-
Benzo(k)fluoranthene	µg/L	0.010	0.4	-	<0.010	<0.010	-	-	-	<0.010	-
Chrysene	µg/L	0.010	1	-	<0.010	<0.010	-	-	-	<0.010	-
Dibenz(a,h)anthracene	µg/L	0.0050	0.52	-	<0.0050	<0.0050	-	-	-	<0.0050	-
Fluoranthene	µg/L	0.010	130	-	<0.010	<0.010	-	-	-	0.012	-
Fluorene	µg/L	0.010	400	-	<0.010	<0.010	-	-	-	<0.010	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.010	0.2	-	<0.010	<0.010	-	-	-	<0.010	-
Methylnaphthalene, 1+2-	µg/L	0.015	1800	-	0.050	0.060	-	-	-	<0.015	-
Methylnaphthalene, 1-	µg/L	0.010	1800	-	0.019	0.020	-	-	-	<0.010	-
Methylnaphthalene, 2-	µg/L	0.010	1800	-	0.031	0.040	-	-	-	<0.010	-
Naphthalene	µg/L	0.050	6400	-	0.050	0.068	-	-	-	<0.050	-
Phenanthrene	µg/L	0.020	580	-	<0.020	<0.020	-	-	-	<0.020	-
Pyrene	µg/L	0.010	68	-	<0.010	<0.010	-	-	-	0.039	-
Metals											
Antimony	µg/L	0.10	20000	-	<1.00	<1.00	-	-	-	<1.00	-
Arsenic	µg/L	0.10	1900	-	<1.00	<1.00	-	-	-	<1.00	-
Barium	µg/L	0.10	29000	-	459	482	-	-	-	471	-
Beryllium	µg/L	0.020	67	-	<0.200	<0.200	-	-	-	<0.200	-
Boron	µg/L	10	45000	-	<100	<100	-	-	-	<100	-
Cadmium	µg/L	0.0050	2.7	-	0.106	0.113	-	-	-	0.0826	-
Chromium	µg/L	0.50	810	-	<5.00	<5.00	-	-	-	<5.00	-
Chromium, hexavalent [Cr VI]	µg/L	0.5	140	-	3.38	3.98	-	-	-	2.56	-
Cobalt	µg/L	0.10	66	-	<1.00	<1.00	-	-	-	<1.00	-
Copper	µg/L	0.20	87	-	<2.00	<2.00	-	-	-	<2.00	-
Lead	µg/L	0.050	25	-	<0.500	<0.500	-	-	-	<0.500	-
Mercury	µg/L	0.0050	2.8	-	<0.0050	<0.0050	-	-	-	<0.0050	-
Molybdenum	µg/L	0.050	9200	-	1.85	1.60	-	-	-	0.604	-
Nickel	µg/L	0.50	490	-	<5.00	<5.00	-	-	-	<5.00	-
Selenium	µg/L	0.050	63	-	<0.500	<0.500	-	-	-	<0.500	-
Silver	µg/L	0.010	1.5	-	0.216	0.578	-	-	-	<0.100	-
Sodium	µg/L	50	2.30E+06	-	1140000	1210000	-	-	-	1010000	-
Thallium	µg/L	0.010	510	-	<0.100	<0.100	-	-	-	<0.100	-
Uranium	µg/L	0.010	420	-	6.07	6.20	-	-	-	3.93	-
Vanadium	µg/L	0.50	250	-	<5.00	5.12	-	-	-	<5.00	-
Zinc	µg/L	1.0	1100	-	<10.0	<10.0	-	-	-	<10.0	-
General Inorganics											
Chloride	µg/L	0.5	2300	-	2500	2550	-	-	-	2060	-
Conductivity	uS/cm	0.001	-	-	8.52	8.71	-	-	-	7.26	-
Cyanide, free	µg/L	2	66	-	<2.0	<2.0	-	-	-	<2.0	-
pH	pH Units	0.05	5-11	-	8.22	8.22	-	-	-	8.17	-
Polychlorinated Biphenyls											
Aroclor 1016	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1221	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1232	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1242	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1248	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1254	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1260	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1262	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Aroclor 1268	µg/L	0.020	-	-	-	-	-	-	-	<0.010	<0.010
Polychlorinated biphenyls [PCBs], total	µg/L	0.060	15	-	-	-	-	-	-	<0.030	<0.030

NV - No value listed in MECP site condition standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds MECP site condition standards

Table 7: Excess Groundwater Analytical Results

1299 Richmond Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 153/04 Table 3: Residential Property Use Standards, Fine Grained Soil	Sample ID: MW-2-GW1 Well Screen Depth: Unknow to 5.9 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-009	Sample ID: MW-12-GW1 Well Screen Depth: Duplicate of MW-2-GW1 Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-011	Sample ID: MW-3-GW1 Well Screen Depth: Unknow to 5.0 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-010	Sample ID: BH1-23-GW1 Well Screen Depth: 11.5 - 13 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-012	Sample ID: BH2-23-GW1 Well Screen Depth: 11.2 - 12.7 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-013	Sample ID: BH3-23-GW1 Well Screen Depth: 15.0 - 16.5 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-014	Sample ID: BH4-23-GW1 Well Screen Depth: 13.6 - 15.1 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-015	Sample ID: BH5-23-GW1 Well Screen Depth: 13.5 - 15.0 m BGS Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-016	Sample ID: TRIP BLANK Well Screen Depth: N/A Sample Date: March 6, 2024 Laborartory Sample ID: WT2405173-017
Petroluem Hydrocarbons (PHCs)													
F1 PHCs (C6-C10)	µg/L	25	750	-	-	-	-	-	-	-	-	-	-
F2 PHCs (C10-C16)	µg/L	100	150	-	-	-	-	-	-	-	-	-	-
F3 PHCs (C16-C34)	µg/L	250	500	-	-	-	-	-	-	-	-	-	-
F4 PHCs (C34-C50)	µg/L	250	500	-	-	-	-	-	-	-	-	-	-
F4G PHCs (gravimetric)	µg/L	250	500	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)													
Acetone	µg/L	20	130000	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	0.50	430	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	0.50	85000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	0.50	770	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	0.50	56	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	µg/L	0.20	8.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	0.50	630	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	0.50	22	<0.50	<0.50	<0.50	<0.50	<0.50	1.70	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	0.50	82000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	µg/L	0.20	0.83	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	µg/L	0.50	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	0.50	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	0.50	67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	0.50	4400	6.86	6.95	15.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	µg/L	0.50	3100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	µg/L	0.50	12	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	µg/L	1.0	5500	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	µg/L	0.50	140	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-	µg/L	0.50	45	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	µg/L	0.30	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	µg/L	0.30	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	0.50	2300	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Hexane, n-	µg/L	0.50	520	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl ethyl ketone [MEK]	µg/L	20	1.50E+06	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	µg/L	20	580000	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	µg/L	0.50	1400	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	0.50	9100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	0.50	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	0.50	15	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	0.50	18000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,1-	µg/L	0.50	6700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	µg/L	0.50	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	0.50	17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	0.50	2500	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	µg/L	0.50	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylene, m+p-	µg/L	0.40	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	µg/L	0.30	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	µg/L	0.50	4200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	µg/L	0.010	1700	-	-	<0.010	-	-	-	-	-	-	-
Acenaphthylene	µg/L	0.010	1.8	-	-	<0.010	-	-	-	-	-	-	-
Anthracene	µg/L	0.010	2.4	-	-	<0.010	-	-	-	-	-	-	-
Benz(a)anthracene	µg/L	0.010	4.7	-	-	<0.010	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/L	0.0050	0.81	-	-	0.0070	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	0.010	0.75	-	-	0.013	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/L	0.010	0.2	-	-	0.014	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	0.010	0.4	-	-	<0.010	-	-	-	-	-	-	-
Chrysene	µg/L	0.010	1	-	-	<0.010	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	µg/L	0.0050	0.52	-	-	<0.0050	-	-	-	-	-	-	-
Fluoranthene	µg/L	0.010	130	-	-	0.014	-	-	-	-	-	-	-
Fluorene	µg/L	0.010	400	-	-	<0.010	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.010	0.2	-	-	<0.010	-	-	-	-	-	-	-
Methylnaphthalene, 1+2-	µg/L	0.015	1800	-	-	<0.015	-	-	-	-	-	-	-
Methylnaphthalene, 1-	µg/L	0.010	1800	-	-	<0.010	-	-	-	-	-	-	-
Methylnaphthalene, 2-	µg/L	0.010	1800	-	-	<0.010	-	-	-	-	-	-	-
Naphthalene	µg/L	0.050	6400	-	-	<0.050	-	-	-	-	-	-	-
Phenanthrene	µg/L	0.020	580	-	-	<0.020	-	-	-	-	-	-	-
Pyrene	µg/L	0.010	68	-	-	0.018	-	-	-	-	-	-	-
Metals													
Antimony	µg/L	0.10	20000	-	-	<1.00	-	-	-	-	-	-	-
Arsenic	µg/L	0.10	1900	-	-	<1.00	-	-	-	-	-	-	-
Barium	µg/L	0.10	29000	-	-	405	-	-	-	-	-	-	-
Beryllium	µg/L	0.020	67	-	-	<0.200	-	-	-	-	-	-	-
Boron	µg/L	10	45000	-	-	<100	-	-	-	-	-	-	-
Cadmium	µg/L	0.0050	2.7	-	-	<0.0500	-	-	-	-	-	-	-
Chromium	µg/L	0.50	810	-	-	<5.00	-	-	-	-	-	-	-
Chromium, hexavalent [Cr VI]	µg/L	0.5	140	-	-	<0.50	-	-	-	-	-	-	-
Cobalt	µg/L	0.10	66	-	-	<1.00	-	-	-	-	-	-	-
Copper	µg/L	0.20	87	-	-	<2.00	-	-	-	-	-	-	-
Lead	µg/L	0.050	25	-	-	<0.500	-	-	-	-	-	-	-
Mercury	µg/L	0.0050	2.8	-	-	<0.0050	-	-	-	-	-	-	-
Molybdenum	µg/L	0.050	9200	-	-	1.22	-	-	-	-	-	-	-
Nickel	µg/L	0.50	490	-	-	<5.00	-	-	-	-	-	-	-
Selenium	µg/L	0.050	63	-	-	<0.500	-	-	-	-	-	-	-
Silver	µg/L	0.010	1.5	-	-	<0.100	-	-	-	-	-	-	-
Sodium	µg/L	50	2.30E+06	-	-	571000	-	-	-	-	-	-	-
Thallium	µg/L	0.010	510	-	-	<0.100	-	-	-	-	-	-	-
Uranium	µg/L	0.010	420	-	-	11.8	-	-	-	-	-	-	-
Vanadium	µg/L	0.50	250	-	-	<5.00	-	-	-	-	-	-	-
Zinc	µg/L	1.0	1100	-	-	<10.0	-	-	-	-	-	-	-
General Inorganics													
Chloride	µg/L	0.5	2300	-	-	1800	-	-	-	-	-	-	-
Conductivity	uS/cm	0.001	-	-	-	6.09	-	-	-	-	-	-	-
Cyanide, free	µg/L	2	66	-	-	<2.0	-	-	-	-	-	-	-
pH	pH Units	0.05	5-11	-	-	7.63	-	-	-	-	-	-	-
Polychlorinated Biphenyls													
Aroclor 1016	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	µg/L	0.020	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated biphenyls [PCBs], total	µg/L	0.060	15	-	-	-	-	-	-	-	-	-	-

NV - No value listed in MECP site condition standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds MECP site condition standards

Appendix A

Sampling and Analysis Plan

LOPERS & ASSOCIATES

Sampling and Analysis Plan

1299-1315 Richmond Road
Ottawa, Ontario

Prepared for:

13008916 Canada Inc.

11/22/2023

Table of Contents

1. Background

Lopers & Associates (Lopers) was retained by 13008916 Canada Inc. (Brigil) to complete a Phase Two Environmental Site Assessment (Phase Two ESA) of the commercial property with Civic address No. 1299-1315 Richmond Road, Ottawa, Ontario ("Phase Two Property", "Property" or "Site").

Lopers has previously completed a Phase One Environmental Site Assessment (Phase One ESA) (Reference No. LOP23-029A, dated Revised February 2024) for Brigil at the Property. The Phase One ESA identified the presence of three potentially contaminating activities (PCAs) at the Property which were interpreted to represent an areas of potential environmental concern (APECs).

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

PCA / APEC Report Reference No.	Potentially Contaminating Activity	Location	Potential Contaminants of Concern
PCA #1 APEC #1	Operational Dry Cleaner (O.Reg. 153/04 PCA Item 37: Operation of Dry Cleaning Equipment (where chemicals are used))	North-Central portion of the Phase One Property	VOCs
PCA #2 APEC #2	Pad mounted electrical transformer (O.Reg. 153/04 PCA Item 55: Transformer Manufacturing, Processing and Use) (O.Reg. 153/04 PCA Item 18: and Electricity Generation, Transformation and Power Stations)	North portion of the Phase One Property	PHCs/BTEXs, PCBs
PCA #3 APEC #3	Hydraulic elevator, hydraulic oil reservoir, storage and sump pit (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	North portion of the Phase One Property	PHCs/BTEXs, PAHs

Previous environmental reports were provided, which document the presence of contaminant concentrations that exceed the Site Condition Standards at the Phase One Property; the contaminants are associated with the aforementioned APEC #1.

Based on the identification of APECs at the Phase One Property and the requirement for documentation associated with an RSC, it was recommended that a Phase Two Environmental Site Assessment Report be completed to provide documentation that the Property meets the soil and groundwater quality standards applicable to its future use.

The scope of work for the Phase Two ESA included drilling seven boreholes at the Phase Two Property. Five of the boreholes were instrumented with groundwater monitoring wells with

screens installed in the overburden. Additional excess soil characterization sampling and analysis was completed concurrently with this Phase Two ESA, for future planning purposes.

In the event that additional contaminants of APECs are identified during the drilling or sampling fieldwork, additional scope of work will be discussed with BRIGIL to complete the Phase Two ESA.

2. Planning Site Investigation - Specific Objectives

The following are the specific objectives for planning a site investigation of the Phase Two Environmental Site Assessment, as defined in O.Reg. 153/04.

1. To plan an investigation that will achieve the general objectives of a Phase Two Environmental Site Assessment,

> i. through the use of an appropriate and complete information base concerning the Phase Two Property, and
>
> ii. through the conduct of an investigation based both on information obtained before the Phase Two Environmental Site Assessment begins and on the incorporation of information obtained during the Phase Two Environmental Site Assessment.

2. To develop a sampling and analysis plan that will adequately assess all areas of the Phase Two Property where contaminants may be present in land or water on, in or under the Property.

3. 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, or any record of site condition (RSC) property within it, meets applicable site condition standards and any standards specified in a risk assessment.

3. Underground Utility Service Locates

Prior to completing the Phase Two ESA field investigation activities, public underground locates will be coordinated through Ontario One Call. As it is understood that the Site is developed with a commercial place and that no privately owned underground services or infrastructure drawings are available, therefore private locates will also be completed in the proposed drilling locations.

The locations of the proposed boreholes will be reviewed in relation to the public underground locates and locations will be modified accordingly if conflicts exist between any location or if the location is in close proximity to an active underground service.

A copy of the public underground locates will be retained by Lopers' field personnel during all excavation components of the fieldwork.

4. Planning Site Investigation - Specific Requirements

The qualified person has ensured the following requirements were met in planning a site investigation. The Phase One conceptual site model for the Phase One Environmental Site Assessment report was used in conjunction with other information in determining:

i. Media for Investigation

Soil and groundwater sampling and analysis for the purpose of assessing environmental quality will be completed as part of the Phase Two ESA.

There are no surface water bodies at the Phase Two Property, as such, sediment and surface water quality sampling and analysis will not be completed as part of this Phase Two ESA.

ii. Locations and Depths for Sampling

A total of five borehole locations have been proposed to provide coverage of the APECs identified at the Phase Two Property. Boreholes will be located in the north-central portion of the Property to assess APECs #1, #2 and #3. A distribution of 2 boreholes will be spread over the remaining areas of the Property, to assess future excess soil management requirements.

Sampling depths will include as a minimum, collection of samples in 0.6 m intervals from the ground surface to native soil conditions within the groundwater table. Borehole/monitoring wells depths are proposed to be drilled to approximately 5-6 m to intercept the groundwater table in APECs were groundwater quality assessment is required. Boreholes are proposed to be drilled to a depth of approximately 3 m where an assessment of the fill quality is required.

iii. Parameters for Laboratory Analysis.

The parameters for laboratory analysis will be selected based on the contaminants of potential concern for each APEC as well as the field screening observations.

The contaminants of potential concern associated with fuel storage and fuelling are generally The presence of an operational Dry Cleaner at the Phase One Property is interpreted as PCA #1 associated with the O.Reg. 153/04 PCA: Operation of Dry Cleaning Equipment (where chemicals

are used) and represents APEC #1 for the Property. The contaminants of potential concern associated with dry cleaning chemicals are volatile organic compounds (VOCs).

A pad mounted electrical transformer was observed on the north portion of the of the Phase One Property. The pad mounted electrical transformer is interpreted as PCA #2 associated with the O.Reg. 153/04 PCAs: Transformer Manufacturing, Processing and Use and Electricity Generation, Transformation and Power Stations, which represents APEC #2 for the Property. The CPCs associated with the electrical transformation equipment are polychlorinated biphenyls (PCBs), petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylenes (BTEXs).

The presence of a hydraulic elevator, hydraulic oil reservoir, storage and sump pit (PCA #3) are associated with the O.Reg. 153/04 PCAs "Gasoline and Associated Products Storage in Fixed Tanks" and "Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems" and have been interpreted to represent APEC #3 for the Phase One Property. The CPCs associated with the hydraulic elevator are PHCs, BTEXs, and polycyclic aromatic hydrocarbons (PAHs).

The contaminants of concern for a particular sample will be based on the relative location and depth of the sample, visual and/or olfactory observations and combustible vapour screening concentrations.

Information obtained after the completion of the phase one environmental site assessment shall be used to modify the investigation, as appropriate.

5. Quality Assurance and Quality Control

The qualified person has ensured that there is a quality assurance and quality control program, data quality objectives, standard operating procedures and a description of any physical impediments that interfere with or limit the ability to conduct sampling and analysis.

The quality assurance and quality control program includes the following requirements:

5.1 Field Equipment Decontamination

All non-dedicated sampling and monitoring equipment must be cleaned following each use.

The split spoons, which are the only media to come into contact with the soil samples, will be washed using soap and water and a scrub brush between samples to minimize the potential for cross-contamination among samples. The field technician will use sterile nitrile gloves, which are to be changed prior to the handling of each soil sample to further reduce the potential of

cross-contamination. The flights of the hollow stem augers are to be cleaned manually following each borehole.

Water level monitoring equipment, including water level meters and interface probes will be decontaminated with an environmentally safe cleaning solution and rinsed with deionized water between water level readings to prevent cross contamination.

The field technician will change dedicated sterile nitrile gloves prior to initiating work at each monitoring well and change gloves prior to sample collection to minimize the potential for cross-contamination.

5.2 Trip Blanks

Since groundwater samples are to be analyzed for volatile organic compounds (VOCs), one trip blank sample shall be submitted for laboratory analysis with each laboratory submission of groundwater samples.

5.3 Field Duplicates

Sufficient field duplicate samples shall be collected in each medium (soil and groundwater) being sampled, so that at least one field duplicate sample can be submitted for laboratory analysis for every ten samples submitted for laboratory analysis.

At least one field duplicate sample shall be submitted for laboratory analysis for every ten samples submitted for laboratory analysis.

One field duplicate will be submitted from each medium sampled for PHCs, VOCs, PAHs and metals & inorganics which are the parameter suites identified as a contaminants of concern in APECs #1 through #3 as part of the previously prepared Phase One ESA.

5.4 Equipment Calibration

Field screening of the soil samples will be completed using an RKI Instruments Model Eagle-2 combustible gas detector ("RKI Eagle"). The RKI Eagle used for soil sample screening as part of this Phase Two ESA will be obtained from Maxim Environmental and Safety Inc. and will be calibrated prior to use.

Measurements of the groundwater quality field parameters will be completed to determine stabilization of these parameters prior to sampling. These measurements will be completed using Horiba U-52 groundwater quality measurement device ("Horiba"). The Horiba used for groundwater quality parameter stabilization measurements as part of this Phase Two ESA will be obtained from Maxim Environmental and Safety Inc. and will be calibrated prior to use.

5.5 Data Quality Objectives

The data quality objectives for all types of field data collected during the Phase Two Environmental Site Assessment field investigation that set the level of uncertainty in environmental data shall be such that,

(a) the decision-making is not affected; and

(b) the overall objectives of the investigation are met.

6. Standard Operating Procedures

Standard operating procedures were developed for all of the following field investigation methods used in the field investigation.

6.1 Borehole Drilling

The drilling field program will be completed under full time supervision of Lopers & Associates personnel. The drilling subcontractor retained for the Phase Two ESA is OGS Inc., located at 5518 Appleton Side Road, Almonte, Ontario, K0A 1A0. The drill rig used for the Phase Two ESA will be a truck mounted CME drill, equipped with hollow stem augers and stainless steel split spoons. The boreholes / monitoring wells located on the interior of the Site building will be drilled using a potable drill and tripod set-up, with sample collection using stainless steel split spoons. Operation of the drilling equipment is the responsibility of the drilling subcontractor, who is trained and competent in the operation of this equipment.

The field technician logs the drilling and recovery of soil samples from each borehole, noting the soil type, physical and environmental characteristics at each borehole location on the field borehole logs.

6.2 Soil Sampling

Samples are to be collected from auger cuttings or split spoons at the ground surface for surficial samples (0-0.6 m below ground surface (m BGS)) and then using split spoons for subsequent samples. Split spoon samples are generally not collected from surficial depths, as poor recovery of loose packed fill material does not yield sufficient volume of samples required for field screening or laboratory analysis. Split spoon samples, collected in 0.6 m segments, are to be recovered at continuous 0.76 m intervals; the additional 0.16 m between split spoon samples will be over-drilled to provide undisturbed field measurement of geotechnical parameters (blow counts) and to prevent cave in materials from stratigraphic units above the intended sampling intervals from being collected at unrepresentative depths during sampling.

Soil samples are initially collected in Ziploc bags for initial screening as part of sample selection. Soil samples selected for laboratory analysis are collected in dedicated clear glass jars prepared and provided by the analytical laboratory. Soil samples collected for BTEXs/VOCs and the F1 range of PHCs analysis are collected using a dedicated graduated syringe provided by the laboratory and placed directly into a glass vial with methanol preservative. Analytes and associated preservatives are specified on each jar/vial by the laboratory. Each jar/vial sample set is provided with a unique sample identifier, project number and date of sampling in the field.

6.3 Field Soil Screening Measurements

Initial field screening of the soil samples will consist of visual and olfactory observations made at the time of sample collection during the drilling program.

Additional field screening of the soil samples will be completed using an RKI Instruments Model Eagle-2 combustible gas detector ("RKI Eagle"). The RKI Eagle is capable of measuring combustible vapours at concentrations ranging from 0 parts per million (PPM) to 50% of the lower explosive limit (LEL). The RKI Eagle is also capable of measuring VOC vapours at concentrations ranging from 0 ppm to 1000 ppm.

6.4 Monitoring Well Installation

Installation of monitoring wells in selected boreholes is to be completed by OGS Inc., who is a licensed well driller in accordance with O.Reg. 903. The wells will be installed using slotted PVC No. 10 monitoring well screens, which are 51 mm in diameter; these screens are to be installed at the base of each of the aforementioned boreholes, directly above the bedrock surface. Well screens can range from 1.5 m to 4.5 m in length. The monitoring wells are extended to approximately 0.15 m below the surface grade with PVC riser, also 51 mm in diameter. A threaded PVC end cap should be installed at the base of the screen to prevent sediment infiltration, while a J-Plug is installed at the top of the riser to present surface influence.

The annular space in each monitoring well is to be backfill with clean silica sand to approximately 0.3 m above the monitoring well screens. A layer of bentonite chips is then used to make a hydraulic seal above the sand pack to near the ground surface. The monitoring wells are to be completed with flushmount aluminum protective casings, which were backfilled with sand to provide drainage from the protective casing.

6.5 Elevation Survey

An elevation survey of all boreholes and monitoring wells will be conducted following the completion of the drilling program. A fixed temporary benchmark should be used as a reference elevation; the top of the spindle of a fire hydrant is preferred for this purpose as geodetic elevations can be obtained for these points. The reference benchmark should be assigned a field site datum of 100.00 m for the purposes of the elevation survey. The ground surface elevation of all boreholes should be surveyed. The top of piezometer of each

monitoring well should also be surveyed; this allows for higher accuracy in the interpretation of groundwater elevations.

6.6 Monitoring Well Development;

Groundwater monitoring wells will be developed on the day of drilling using LDPE tubing and a footvalve. At least three and up to ten well volumes will be removed from the monitoring wells in order to remove as much sediment as possible from the wells. In cases where the monitoring well goes dry prior to purging three well volumes, the well should be purged dry a minimum of three times, waiting at least one hour between purging events. The LDPE tubing should be removed from the monitoring wells following well development.

6.7 Field Measurement of Water Quality Indicators

Field measurement of water quality parameters were collected at regular intervals (0 L, 0.5 well volumes, 1 well volume, 2 well volumes, etc.) during purging of the monitoring wells prior to sampling. The Horiba was placed in a flow-through cell and water quality parameters were measured until they were found to stabilize to within approximately 10% of the previous measurements prior to sample collection.

6.8 Groundwater Sampling

Follow a period of stabilization after drilling and monitoring well development (1 week recommended), static groundwater elevations are measured relative to the top of piezometer at each groundwater monitoring well on the day of sampling, prior to disturbance of the water column.

Following static groundwater elevation measurements, 6 mm LDPE tubing is placed in each of the monitoring wells. The LDPE tubing is connected to silicon tubing, run through a peristaltic pump set to low flow (approximately 0.2-0.5 L/minute) during purging and sampling. The peristaltic pump is used to avoid mixture of sediment into the groundwater column and prevent volatilization during sample collection. The monitoring wells are purged on the day of sampling while water quality parameters were measured and stabilize as noted above.

Groundwater samples are collected in dedicated amber glass bottles and vials or plastic bottles prepared and provided by the analytical laboratory. Analytes and associated preservatives are specified on each bottle by the laboratory. Each bottle sample set will be provided with a unique sample identifier, project number and date of sampling in the field. Samples for PHCs, BTEXs, VOCs, PAHs and general chemistry are unfiltered, while metals samples are to be field filtered using a dedicated 0.45 µm filter for each sample.

Appendix B

Underground Utility Locates

From: solutions@on1call.com
To: Luke Lopers
Subject: Request 2024016235
Date: January 4, 2024 4:20:47 PM

LOCATE REQUEST CONFIRMATION

REQUEST #:	REQUEST PRIORITY:	REQUEST TYPE:	WORK TO BEGIN DATE:
2024016235	**PROJECT WORK**	**REGULAR**	**01/11/2024**
Update of Request #	**Project #:LOP23-029B**	**Call Date: 01/04/2024 04:11:18 PM**	**Transmit Date: 01/04/2024 04:20:03 PM**

REQUESTOR'S CONTACT INFORMATION	
Contractor ID: 343253 **Contact Name:** LUKE LOPERS **Company Name:** LOPERS & ASSOCIATES **Address:** 30 LANSFIELD WAY, OTTAWA, ON, K2G3V8 **Email:** Luke@Lopers.ca **Primary Phone #:** (613) 327-9073 **Cell Phone #:** (613) 327-9073	**On-site Contact Name:** LUKE LOPERS **On-site Contact #:** (613) 327-9073

DIG INFORMATION		
Region/County: OTTAWA **Community:** **City:** OTTAWA **Address:** 1299, RICHMOND RD To 1315 **Intersecting Street 1:** STARFLOWER LANE **Intersecting Street 2:** SIR JOHN A MACDONALD PKWY	**Work Done for:** PROPERTY OWNER **Reason for Work:** ENVIRONMENTAL **Dig Method:** Machine Dig **Depth:** More than 15 Feet	**Pre-Marked:** Area Not Pre-Marked **Property Type:** Private Property, Public Property **Site Meeting:** No **Permit #:** No **Work End Date:** 02/17/2024

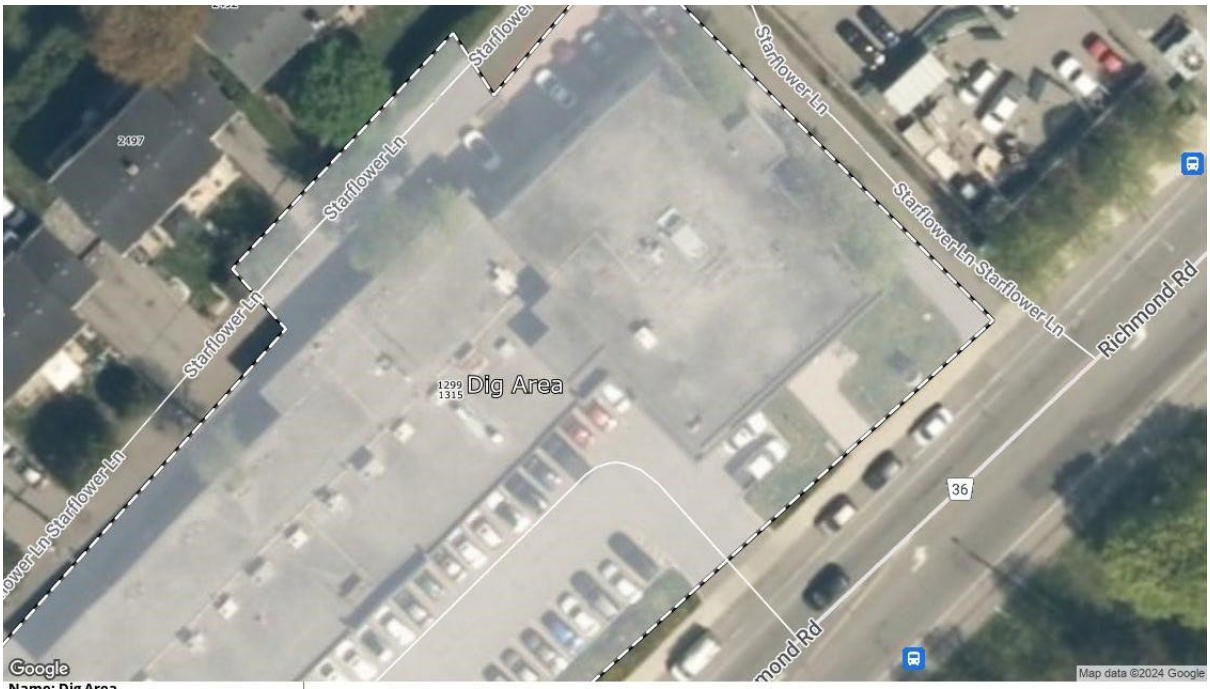
ADDITIONAL INFORMATION	QUALIFYING INFORMATION

Civic#: 1299,1315 THIS REQUEST IS FOR A RE-MARK OF TICKET #20234416156 PREVIOUS REQUEST WILL EXPIRE PRIOR TO COMPLETION OF THE DIGGING. DRILLING MONITORING WELLS FOR ENVIRONMENTAL DELINEATION PURPOSES. PLEASE LOCATE ENTIRE SITE AND SECTION OF STARFLOWER LANE TO THE NORTH OF THE BUILDING; WE ARE APPLYING FOR A ROAD CUT PERMIT FOR DRILLING ON THE RIGHT OF WAY.	

MEMBERS NOTIFIED: The following owners of underground infrastructure in the area of your excavation site have been notified.

Member Name	Station Code	Initial Status
HYDRO OTTAWA (HOT1)	HOT1	Notification sent
PROMARK FOR ENBRIDGE GAS (ENOE01)	ENOE01	Notification sent
CITY OF OTTAWA WATER/SEWER (OTWAWS01)	OTWAWS01	Notification sent
BLACK AND MC DONALD FOR CITY OF OTTAWA STREET LIGHTS (OTWASL01)	OTWASL01	Notification sent
CLI FOR ROGERS (ROGOTT01)	ROGOTT01	Notification sent
CITY OF OTTAWA TRAFFIC SIGNALS (OTWATS01)	OTWATS01	Notification sent
BELL CANADA (BCOE01)	BCOE01	Notification sent

MAP SELECTION: Map Selection provided by the excavator through Ontario One Call's map tool or through agent interpretation by phone



Name: Dig Area
Start Date: 2024/01/11

Area: 4903.89sq. m

IMPORTANT INFORMATION: Please read.

Defining "NC" - Non-Compliant

- Non-compliant members have not met their obligations under section 5 of the Ontario Underground Infrastructure Notification Act. ON1Call has notified these members to ensure they are aware of your excavation. In this circumstance, should the member not respond, the excavator should contact the member directly to obtain their locates or request a status. ON1Call will not be provided with a locate status from the member regarding this request and therefore, cannot provide further information at this time. For locate status contact information please refer to our website.

You have a valid locate when...

- You have reviewed your locate request information for accuracy. UPDATE your request IMMEDIATELY if changes are needed and obtain a corrected locate request confirmation.

NOTE: Intersecting streets are often suggested by Ontario One Call's system, in some circumstances they may not reflect the closest intersecting streets to your excavation. You can change the intersecting streets before submitting the request by going through the "Review" page of your locate request, and editing any inaccurate information. Intersecting streets are for reference only, and unless you change the streets manually, you will not be asked to correct them if they are chosen by the system. If you don't agree with a street name, make sure to edit the request before you submit it, if you found a mistake after submitting the request, update your requests immediately on the web portal.

- You have obtained locates or clearances from all ON1Call members listed in this request before beginning your dig.

You've met your obligations when...

- You respect the marks and instructions provided by the locators and dig with care; the marks and locator instructions MUST MATCH. You must wait for responses from all members notified on your locate request before

beginning to dig..
- You have obtained any necessary permits from the municipality in which you are digging.
- You have made Ontario One Call aware if you have come across any new or unlisted infrastructure in the public right of way AND stopped digging to prevent damages while we review.
- You have arranged for locates for your private lines on your private property - where applicable.

What does "Cleared" mean in the "Initial Status" section?

1. The information that you have provided about your dig will not affect that member's underground infrastructure and they have provided you with a
clearance, if anything about your excavation changes, please ensure that you update your request immediately.

What are the images under "Map Selection"?

1. A drawing created by an excavator directly within Ontario One Call's Web request tool, this is expected to be an accurate rendition of the dig site, and it is the excavator's responsibility to ensure the location matches the information they provide under the 'Dig Location'; section OR;

2. A drawing created by an Ontario One Call agent, this drawing is based on a verbal description by phone of the area by the excavator. Agents may create drawings that are larger than the proposed dig to minimize risk of interpretation. It is the excavator's responsibility to review these map selections for accuracy. Changes can be made by the excavator through the Web request tool, to learn how visit www.ontarioonecall.ca.

3. All drawings dictate which members are notified.

Promark telecon
Location of underground infrastructures

Primary Locate Sheet

OTTLocateFollowup@Promark-Telecon.ca
Phone 613-723-9888 Toll Free: 1-800-371-8866

Request #2024016235

NORMAL

Utilities Located:	Revised Excavation Date	Excavation Date	Status
☐ Bell ☐ Gas ☐ Hydro Ottawa ☐ Elexicon ☐ Hydro One ☐ Rogers ☐ 360 ☐ Videotron	mm/dd/yyyy	2024-01-11 8:00:00 AM mm/dd/yyyy	PROJECT WORK Homeowner ☐ Contractor ☐ Project ☐

Requested by:	Company:	Phone:	Fax/email:
LUKE LOPERS	LOPERS & ASSOCIATES	(613)-327-9073 ext.	LUKE@LOPERS.CA

Appt Date:	Received Date:	Locate Address:	
mm/dd/yyyy	2024-01-04 4:34:46 PM mm/dd/yyyy	1299 to 1315, RICHMOND RD	
		STARFLOWER LANE	SIR JOHN A MACDONALD PKWY

Type of work:	City:
ENVIRONMENTAL	OTTAWA

Caller's Remarks:
THIS REQUEST IS FOR A RE-MARK OF TICKET #20234416156 PREVIOUS REQUEST WILL EXPIRE PRIOR TO COMPLETION OF THE DIGGING. DRILLING MONITORING WELLS FOR ENVIRONMENTAL DELINEATION PURPOSES. PLEASE LOCATE ENTIRE SITE AND SECTION OF STARFLOWER LANE TO THE NORTH OF THE BUILDING; WE ARE APPLYING FOR A ROAD CUT PERMIT FOR DRILLING ON THE RIGHT OF WAY.

-75.785758, 45.368130, NB_SEGMENTS::2, NO_PLAN::613 828, BCOE01 BELL CANADA (BCOE01),OTWATS01 CITY OF OT, OTWATS01 CITY OF OTTAWA TRAFF,ROGOTT01 CLI FOR, ROGOTT01 CLI FOR ROGERS (ROGO,OTWASL01 BLACK AN, OTWASL01 BLACK AND MC DONALD ,OTWAWS01 CITY OF,

Bell Mark | Clear	Gas Mark | Clear	Hydro Ottawa Mark | Clear	Street Lighting Mark | Clear	Elexicon Mark | Clear	Hydro One Mark | Clear	Rogers Mark | Clear	360 Mark | Clear	Videotron Mark | Clear

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE.

Records Reference: ☐ GMobile ☐ LAC Multiviewer ☐ FRA # ☐ GO360

☐ Third Party Notification _____

Field Notes, As-Laids, Service Sketches:

Locator Remarks:

Apply Sticker Here if Required

Excavator shall notify & receive a clearance from utility prior to excavation for the following: **Telecon** ☐ **High Priority Cable** ☐ **Central Office Vicinity**

GAS MATERIAL TYPE: ☐ **Steel (ST)** ☐ **Plastic (PE)** ☐ **Copper (CP)**

Method of Field Marking: ☐ **Paint** ☐ **Stakes** ☐ **Flags** ☐ **Offset Flags** ☐ **Other**

Colour Indicator: Telecom = Orange Gas = Yellow Traffic / Hydro = Red Sewer = Green Water = Blue

Caution: Bell and 360 locates are valid for the life of the excavation. Hydro One - Hydro Ottawa - Enbridge Gas - Elexicon Energy locates are valid for 60 days. Rogers locates are valid for 90 days unless an extension approval is provided by Rogers. Unless otherwise indicated, all other utility locates are VOID after 60 days. For utility specific details, see attached document(s).

Caution: Any changes to location or nature of work will require a new locate. The excavator must not work outside the located area without obtaining a new locate. Privately owned services within the located area have not been marked - check with service / property owner. For all locate requests including remarks, contact Ontario One Call at **1-800-400-2255** or online at **www.on1call.com**

Locator Name: SARSFIELD JAMES	Start Time:	☐ Mark & Fax ☐ Left on Site ☐ Emailed
ID #: EMP013970	End Time :	Print:
Date	Total Hours:	Signature:

A copy of this Primary Locate Sheet and Auxiliary Locate Sheet(s) must be on site and in the hands of the machine operator during work operations. If sketch and markings do not coincide, the Excavator must obtain a new locate.

This form revised **June 2023**

Promark telecon
Location of underground infrastructures

Primary Locate Sheet

Request #2024016235

OTTLocateFollowup@Promark-Telecon.ca
Phone 613-723-9888 Toll Free: 1-800-371-8866

NORMAL

Utilities Located: ● Bell ● Gas ● Hydro Ottawa ☐ Elexicon ☐ Hydro One ☐ Rogers ☐ 360 ☐ Videotron	Revised Excavation Date: N/A (mm/dd/yyyy)	Excavation Date: 1/11/2024 8:00:00 AM (mm/dd/yyyy)	Status: PROJECT WORK — Homeowner ☐ Contractor [X] Project ☐
Requested by: LUKE LOPERS	Company: LOPERS & ASSOCIATES	Phone: (613)-327-9073 ext.	Fax/email: LUKE@LOPERS.CA
Appt Date: N/A (mm/dd/yyyy)	Received Date: 1/4/2024 4:34:46 PM (mm/dd/yyyy)	Locate Address: 1299 to 1315, RICHMOND RD; STARFLOWER LANE; SIR JOHN A MACDONALD PKWY	
Type of work: ENVIRONMENTAL		City: OTTAWA	

Caller's Remarks:
THIS REQUEST IS FOR A RE-MARK OF TICKET #20234416156 PREVIOUS REQUEST WILL EXPIRE PRIOR TO COMPLETION OF THE DIGGING. DRILLING MONITORING WELLS FOR ENVIRONMENTAL DELINEATION PURPOSES. PLEASE LOCATE ENTIRE SITE AND SECTION OF STARFLOWER LANE TO THE NORTH OF THE BUILDING; WE ARE APPLYING FOR A ROAD CUT PERMIT FOR DRILLING ON THE RIGHT OF WAY.

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Bell Mark | Clear	Gas Mark | Clear	Hydro Ottawa Mark | Clear	Street Lighting Mark | Clear	Elexicon Mark | Clear	Hydro One Mark | Clear	Rogers Mark | Clear	360 Mark | Clear	Videotron Mark | Clear
1	1	1	N/A	N/A	N/A	N/A	N/A	N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE.

Records Reference: [X] GMobile [X] LAC Multiviewer [X] FRA # ☐ GO360

Field Notes, As-Laids, Service Sketches: PMOTTP12142

6-0293-139 & 6-0441-003

Locator Remarks: N/A

☐ Third Party Notification _____

Danger - Do Not Proceed
Buried high voltages cables located within the area. You must send Locate through hydroottawa.com/locates
If you have questions about the online form, please call 613-738-6418. For urgent matters involving power outages and after hours emergencies, call 613-738-6404

Apply Sticker Here if Required

Excavator shall notify & receive a clearance from utility prior to excavation for the following: Telecon ☐ High Priority Cable ☐ Central Office Vicinity

GAS MATERIAL TYPE: ☐ Steel (ST) ☐ Plastic (PE) ☐ Copper (CP)

Method of Field Marking: [X] Paint ☐ Stakes [X] Flags ☐ Offset Flags ☐ Other

Colour Indicator: Telecom = Orange Gas = Yellow Traffic / Hydro = Red Sewer = Green Water = Blue

Caution: Bell and 360 locates are valid for the life of the excavation. Hydro One - Hydro Ottawa - Enbridge Gas - Elexicon Energy locates are valid for 60 days. Rogers locates are valid for 90 days unless an extension approval is provided by Rogers. Unless otherwise indicated, all other utility locates are VOID after 60 days. For utility specific details, see attached document(s).

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Locator Name: SARSFIELD JAMES	Start Time: 13:00	☐ Mark & Fax ☐ Left on Site [X] Emailed
ID #: EMP013970 2163	End Time: 13:50	Print: N/A
Date 01/09/2024	Total Hours: 50MIN	Signature: N/A

A copy of this Primary Locate Sheet and Auxiliary Locate Sheet(s) must be on site and in the hands of the machine operator during work operations. If sketch and markings do not coincide, the Excavator must obtain a new locate.

This form revised **June 2023**

Promark telecon

Location of underground infrastructures

Auxiliary Locate Sheet

OTTLocateFollowup@Promark-Telecon.ca

Phone: 613-723-9888 Toll Free: 1-800-371-8866

Utilities Located: ☐ Bell ● Gas ☐ Hydro One ☐ Rogers ☐ Zayo ☐ Videotron ☐ BHT ☐ Elexicon Energy

Date Located: mm/dd/yyyy 01/09/2024

Request # 2024016235

Number of Services marked: (Specify building/house numbers) N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE THE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE

FROM: 0.5M N. OF S.FC OF PARKING LOT

FROM: W.FC OF PARKING LOT

TO: S.BL 1315 RICHMOND RD.

TO: E.FC OF PARKING LOT

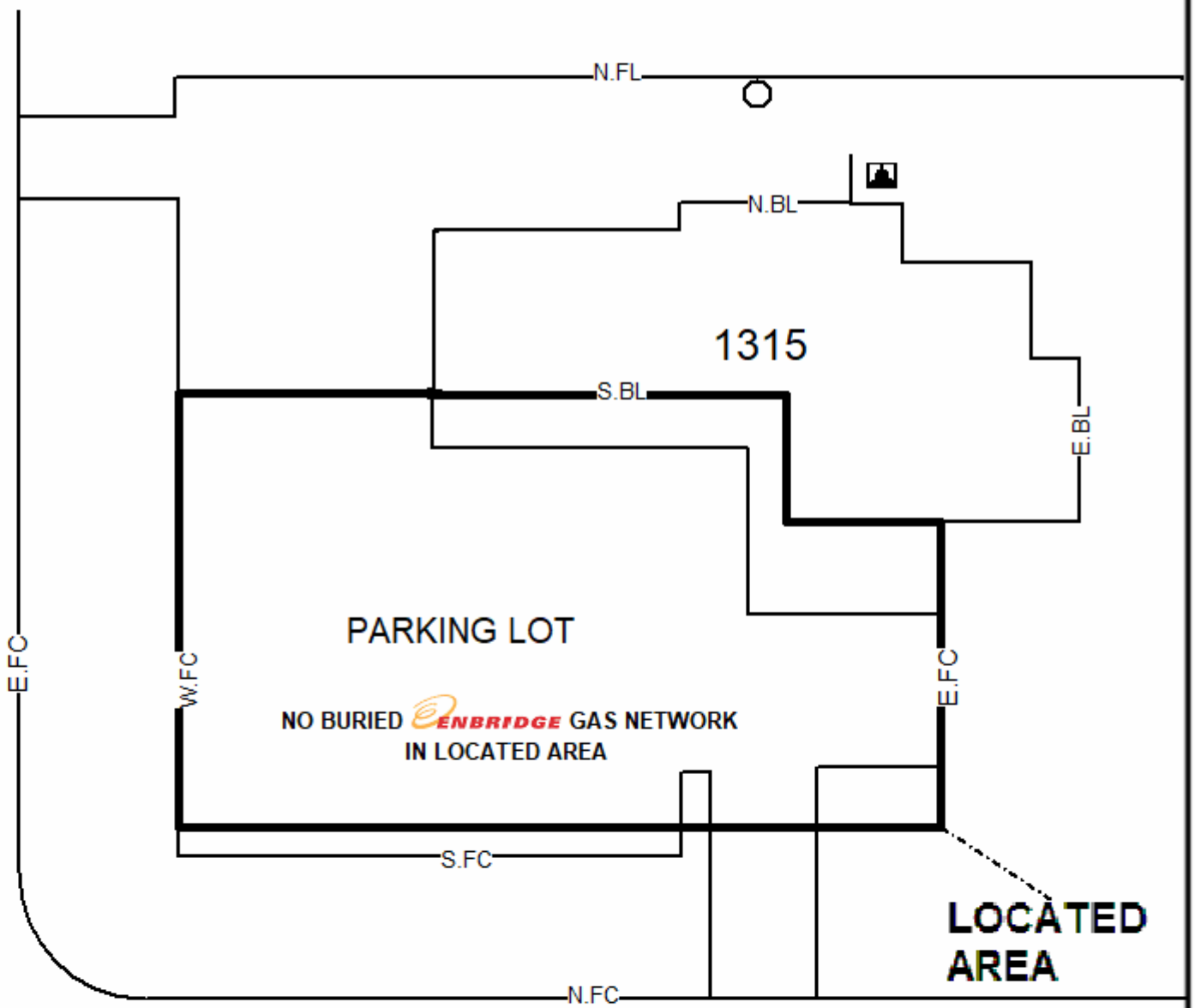
Legend

Building Line	-- BL --
Fence Line	-- FL --
Face of Curb	-- FC --
Asphalt Edge	-- AE --
Sidewalk	SW
Driveway	-- DW --
Manhole	M/H
Pedestal	☒
Buried CableTV	-- TV --
Flush to Grade Pedestal	FTG
Buried Service Wire	-- BSW --
Buried Cable	-- B --
Conduit	-- C --
Fiber Optic Cable	-- FO --
Bell Hydro Service	-- BH --
Gas Valve	⋈
Gas Service	-- GS --
Gas Main	-- GM --
Transformer	▲
Demarcation	DM
Hydro	-- H --
Hydro Primary	-- HP --
Hydro Secondary	-- HS --
Catch Basin	CB
Sewer Manhole	◎
Water Valve	⋈
Hydrant	⋔
Water Valve Chamber	W
Hydro / Bell Pole	O
Railway	═══
End Cap	⌊
Traffic Manhole	Ⓣ
Street Light Cable	-- SL --
Street Light	✳
North	N.
East	E.
West	W.
South	S.
Gas Material - Steel	ST
- Plastic	PE
- Copper	CP

CAUTION: Hand dig within 1 M as measured horizontally from the field markings to avoi damaging the underground utilities. If you damage the plant, you may be held liable.
If you damage underground plant, contact the facility owner immediately.
Depth varies and MUST be verified by hand digging or vacuum excavation.

LOCATED AREA HAS BEEN ALTERED AS PER: N/A

N W E S



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Promark telecon
Location of underground infrastructures

Auxiliary Locate Sheet

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Utilities Located: ● Bell ☐ Gas ☐ Hydro One ☐ Rogers ☐ Zayo ☐ Videotron ☐ BHT ☐ Elexicon Energy

Date Located: mm/dd/yyyy 01/09/2024

Request # 2024016235

Number of Services marked: (Specify building/house numbers) N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE THE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE

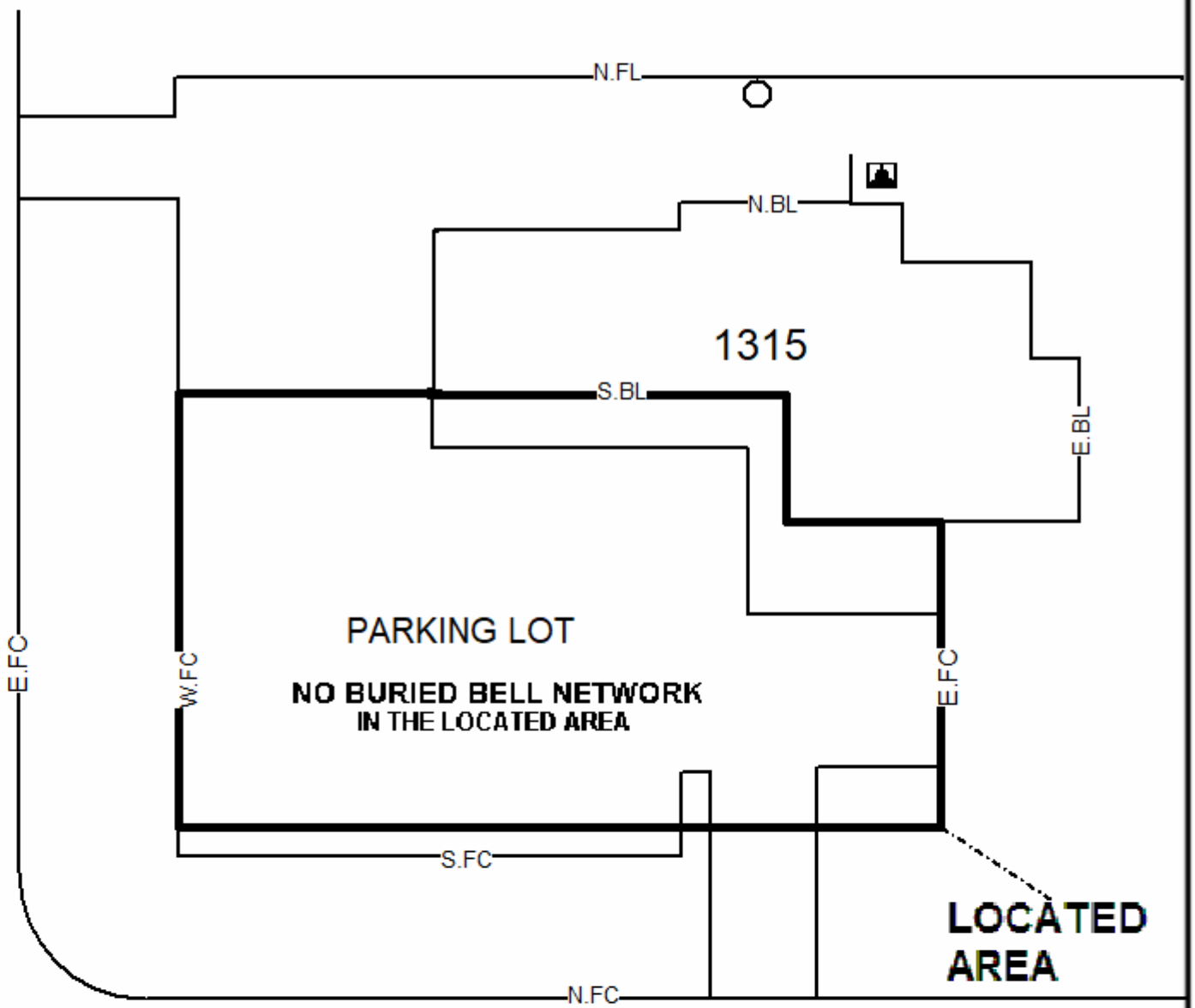
FROM: 0.5M N. OF S.FC OF PARKING LOT
FROM: W.FC OF PARKING LOT
TO: S.BL 1315 RICHMOND RD.
TO: E.FC OF PARKING LOT

Legend

Building Line	-- BL --
Fence Line	-- FL --
Face of Curb	-- FC --
Asphalt Edge	-- AE --
Sidewalk	SW
Driveway	-- DW --
Manhole	M/H
Pedestal	⊠
Buried Cable TV	-- TV --
Flush to Grade Pedestal	FTG
Buried Service Wire	-- BSW --
Buried Cable	-- B --
Conduit	-- C --
Fiber Optic Cable	-- FO --
Bell Hydro Service	-- BH --
Gas Valve	⋈
Gas Service	-- GS --
Gas Main	-- GM --
Transformer	▲
Demarcation	DM
Hydro	-- H --
Hydro Primary	-- HP --
Hydro Secondary	-- HS --
Catch Basin	CB
Sewer Manhole	◎
Water Valve	✱
Hydrant	⋔
Water Valve Chamber	W
Hydro / Bell Pole	O
Railway	═══
End Cap	⌊
Traffic Manhole	Ⓣ
Street Light Cable	-- SL --
Street Light	✳
North	N.
East	E.
West	W.
South	S.
Gas Material - Steel	ST
- Plastic	PE
- Copper	CP

CAUTION: Hand dig within 1 M as measured horizontally from the field markings to avoi damaging the underground utilities. If you damage the plant, you may be held liable.
If you damage underground plant, contact the facility owner immediately.
Depth varies and MUST be verified by hand digging or vacuum excavation.
LOCATED AREA HAS BEEN ALTERED AS PER: N/A

N W E S



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This form revised January 2023

Promark telecon
Location of underground infrastructures

Auxiliary Locate Sheet

OTTLocateFollowup@Promark-Telecon.ca
Phone: 613-723-9888 Toll Free: 1-800-371-8866

Utilities Located:	Date Located: mm/dd/yyyy	Request #
● Hydro Ottawa	01/09/2024	2024016235

Number of Services marked: (Specify building/house numbers) N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE THE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE

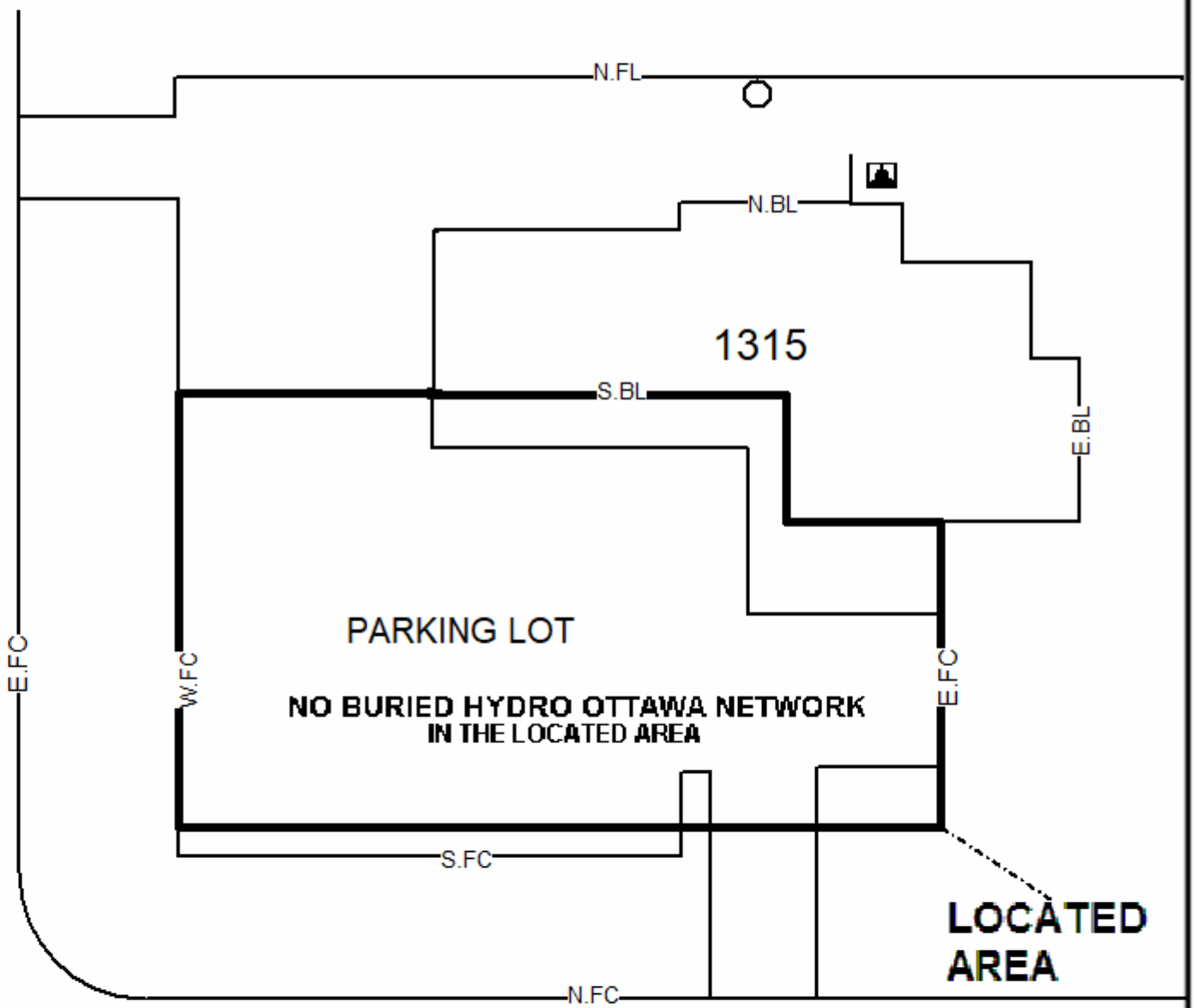
FROM: 0.5M N. OF S.FC OF PARKING LOT	TO: S.BL 1315 RICHMOND RD.
FROM: W.FC OF PARKING LOT	TO: E.FC OF PARKING LOT

Legend

Building Line	-- BL --
Fence Line	-- FL --
Face of Curb	-- FC --
Asphalt Edge	-- AE --
Sidewalk	SW
Driveway	-- DW --
Manhole	M/H
Pedestal	☒
Buried CableTV	-- TV --
Flush to Grade Pedestal	FTG
Buried Service Wire	-- BSW --
Buried Cable	-- B --
Conduit	-- C --
Fiber Optic Cable	-- FO --
Bell Hydro Service	-- BH --
Gas Valve	⋈
Gas Service	-- GS --
Gas Main	-- GM --
Transformer	▲
Demarcation	DM
Hydro	-- H --
Hydro Primary	-- HP --
Hydro Secondary	-- HS --
Catch Basin	CB
Sewer Manhole	◎
Water Valve	⋇
Hydrant	⋇
Water Valve Chamber	W
Hydro / Bell Pole	O
Railway	
End Cap	▙
Traffic Manhole	Ⓣ
Street Light Cable	-- SL --
Street Light	✳
North	N.
East	E.
West	W.
South	S.

CAUTION: Hand dig within 1.5 M as measured horizontally from the field markings to avoi damaging the underground utilities. If you damage the plant, you may be held liable.
If you damage underground plant, contact the facility owner immediately.
Depth varies and MUST be verified by hand digging or vacuum excavation.
LOCATED AREA HAS BEEN ALTERED AS PER: N/A

N
W E
S



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Location of underground infrastructures

Auxiliary Locate Sheet

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Phone: 613-723-9888 Toll Free: 1-800-371-8866

Utilities Located: ☐ Bell ● Gas ☐ Hydro One ☐ Rogers ☐ Zayo ☐ Videotron ☐ BHT ☐ Elexicon Energy

Date Located: mm/dd/yyyy 01/09/2024

Request # 2024016235

Number of Services marked: (Specify building/house numbers) N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE THE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE

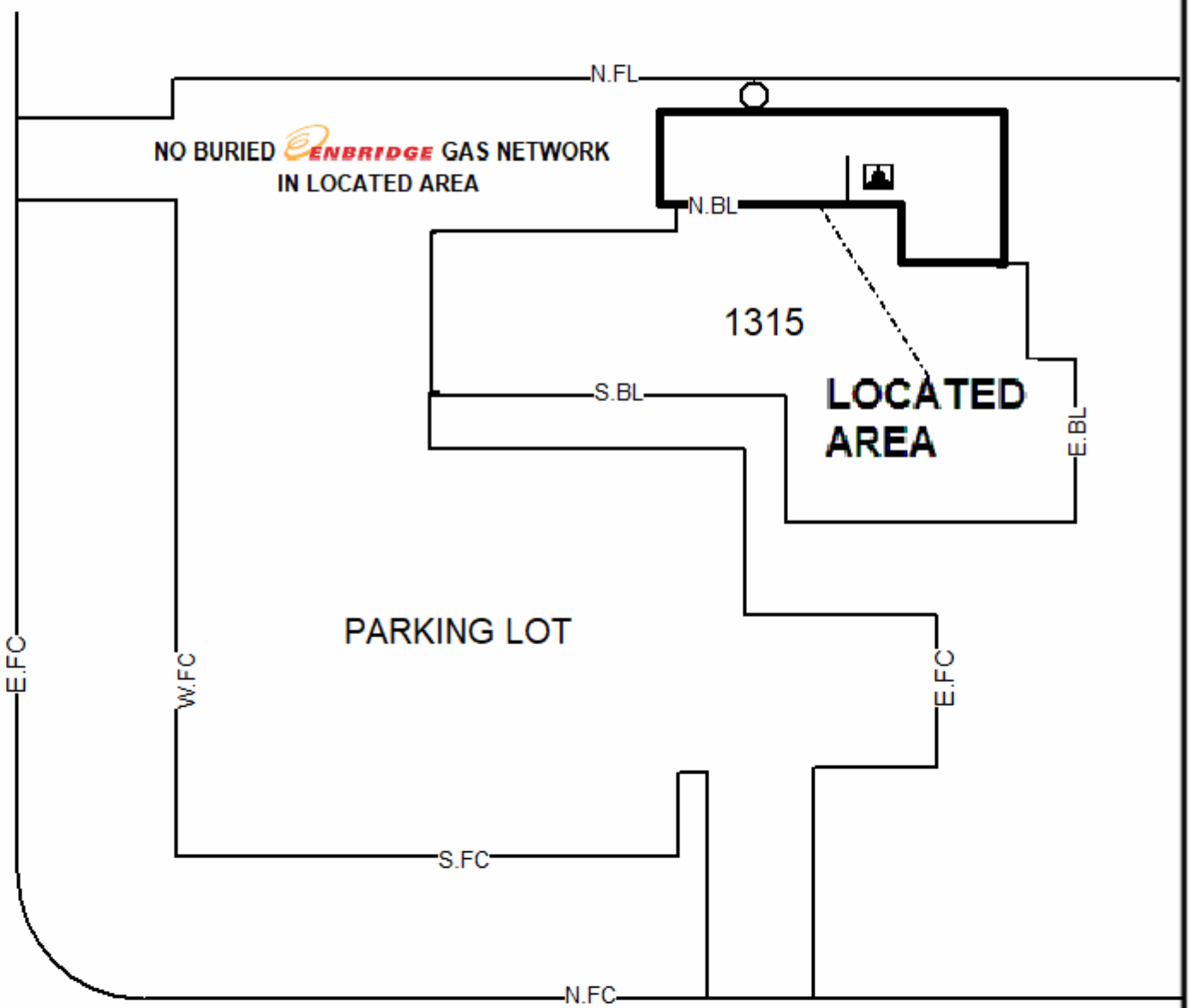
FROM: 6.0M N. OF N.BL 1315 RICHMOND RD.
FROM: 55.0M W. OF E.BL 1315 RICHMOND RD.
TO: N.BL 1315 RICHMOND RD.
TO: 10.0M W. OF E.BL 1315 RICHMOND RD.

Legend

Building Line	-- BL --
Fence Line	-- FL --
Face of Curb	-- FC --
Asphalt Edge	-- AE --
Sidewalk	SW
Driveway	-- DW --
Manhole	M/H
Pedestal	☒
Buried Cable TV	-- TV --
Flush to Grade Pedestal	FTG
Buried Service Wire	-- BSW --
Buried Cable	-- B --
Conduit	-- C --
Fiber Optic Cable	-- FO --
Bell Hydro Service	-- BH --
Gas Valve	⋈
Gas Service	-- GS --
Gas Main	-- GM --
Transformer	▲
Demarcation	DM
Hydro	-- H --
Hydro Primary	-- HP --
Hydro Secondary	-- HS --
Catch Basin	CB
Sewer Manhole	◎
Water Valve	⋈
Hydrant	⋔
Water Valve Chamber	W
Hydro / Bell Pole	O
Railway	
End Cap	⌊
Traffic Manhole	Ⓣ
Street Light Cable	-- SL --
Street Light	✳
North	N.
East	E.
West	W.
South	S.
Gas Material - Steel	ST
- Plastic	PE
- Copper	CP

CAUTION: Hand dig within 1 M as measured horizontally from the field markings to avoi damaging the underground utilities. If you damage the plant, you may be held liable.
If you damage underground plant, contact the facility owner immediately.
Depth varies and MUST be verified by hand digging or vacuum excavation.
LOCATED AREA HAS BEEN ALTERED AS PER: N/A

N W E S



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Promark telecon
Location of underground infrastructures

Auxiliary Locate Sheet

OTTLocateFollowup@Promark-Telecon.ca
Phone: 613-723-9888 Toll Free: 1-800-371-8866

Utilities Located: ●Bell ☐Gas ☐Hydro One ☐Rogers ☐Zayo ☐Videotron ☐BHT ☐Elexicon Energy

Date Located: mm/dd/yyyy 01/09/2024

Request # 2024016235

Number of Services marked: (Specify building/house numbers) N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE THE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE

FROM: 6.0M N. OF N.BL 1315 RICHMOND RD.
FROM: 55.0M W. OF E.BL 1315 RICHMOND RD.
TO: N.BL 1315 RICHMOND RD.
TO: 10.0M W. OF E.BL 1315 RICHMOND RD.

Legend

Building Line	-- BL --
Fence Line	-- FL --
Face of Curb	-- FC --
Asphalt Edge	-- AE --
Sidewalk	SW
Driveway	-- DW --
Manhole	M/H
Pedestal	☒
Buried Cable TV	-- TV --
Flush to Grade Pedestal	FTG
Buried Service Wire	-- BSW --
Buried Cable	-- B --
Conduit	-- C --
Fiber Optic Cable	-- FO --
Bell Hydro Service	-- BH --
Gas Valve	⋈
Gas Service	-- GS --
Gas Main	-- GM --
Transformer	▲
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Hydro Secondary	-- HS --
Catch Basin	CB
Sewer Manhole	◎
Water Valve	⋈
Hydrant	⋔
Water Valve Chamber	W
Hydro / Bell Pole	O
Railway	
End Cap	
Traffic Manhole	Ⓣ
Street Light Cable	-- SL --
Street Light	✳
North	N.
East	E.
West	W.
South	S.
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- Plastic	PE
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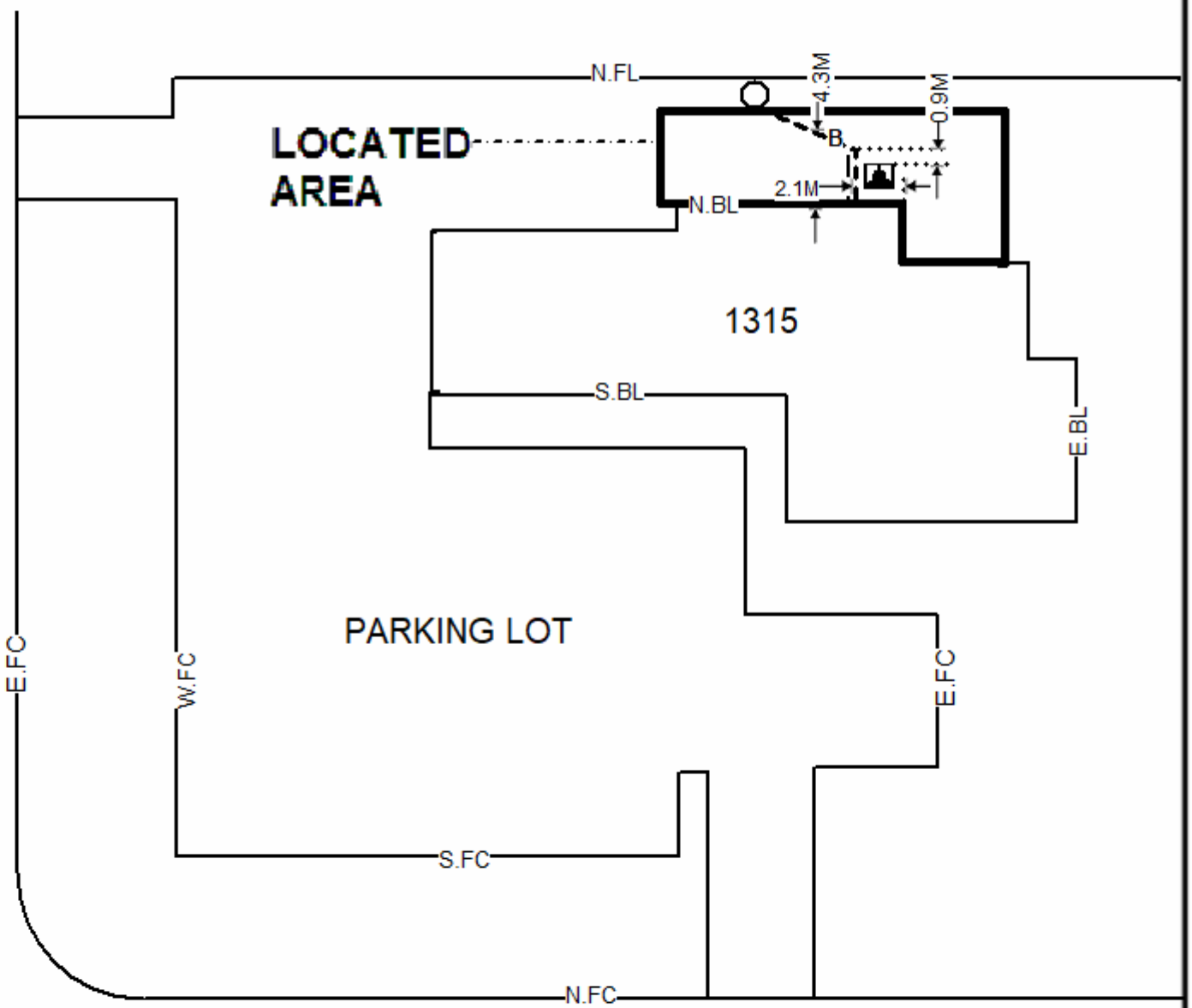
LOCATED AREA HAS BEEN ALTERED AS PER: N/A

N W E S



THIS FORM VALID ONLY WITH Primary Locate Form. This sketch is not to scale.
Any privately owned services within the located area have not been marked- check with service/property owner.

A copy of this Auxiliary Locate Sheet(s) and the Primary Locate Sheet must be on site and in the hands of the machine operator during work operations. If sketch and markings do not coincide, the Excavator must obtain a new locate.

Promark telecon
Location of underground infrastructures

Auxiliary Locate Sheet

OTTLocateFollowup@Promark-Telecon.ca
Phone: 613-723-9888 Toll Free: 1-800-371-8866

Utilities Located:	Date Located: mm/dd/yyyy	Request #
● Hydro Ottawa	01/09/2024	2024016235

Number of Services marked: (Specify building/house numbers) N/A

LOCATED AREA: EXCAVATOR SHALL NOT WORK OUTSIDE THE LOCATED AREA WITHOUT OBTAINING ANOTHER LOCATE

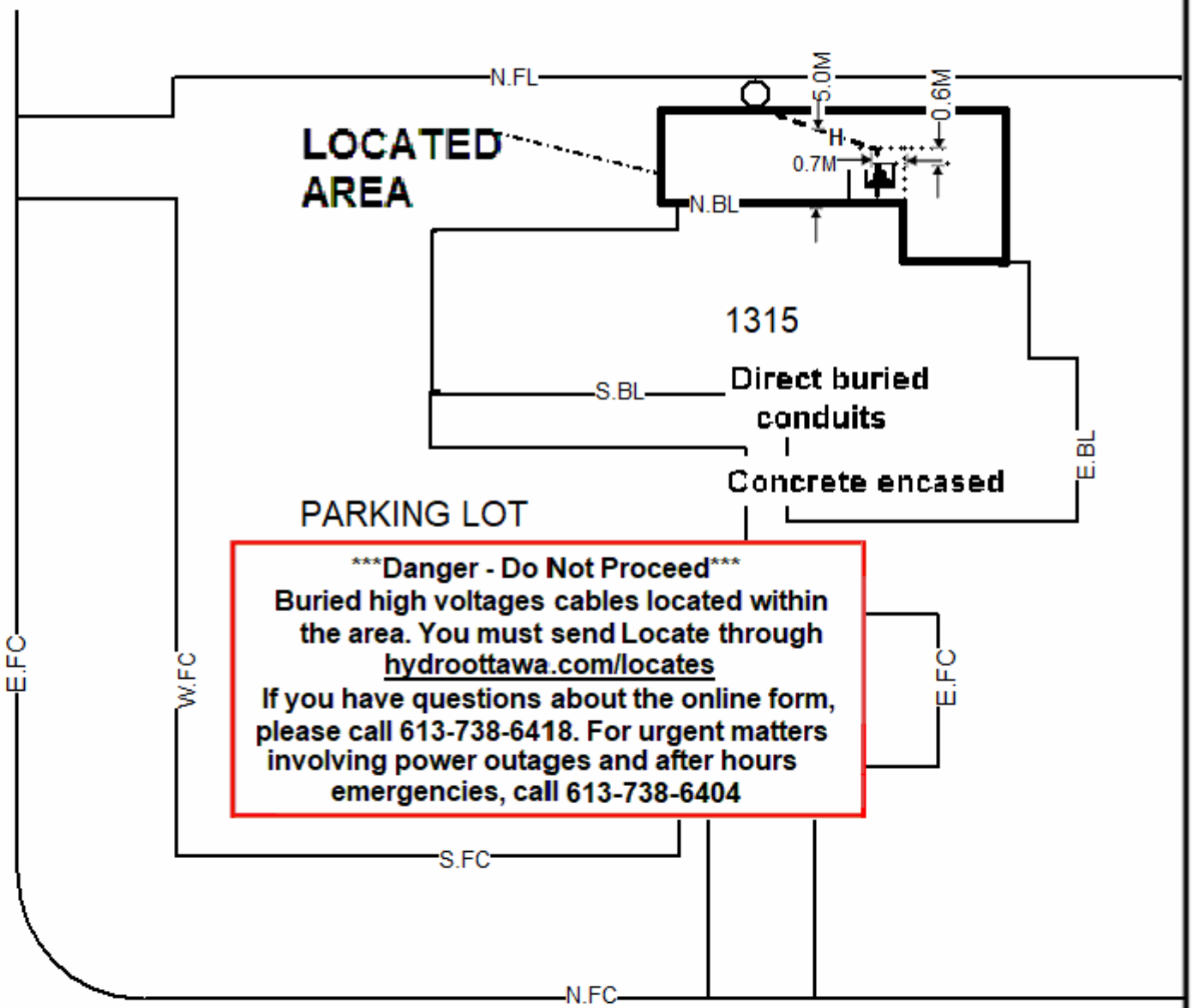
FROM: 6.0M N. OF N.BL 1315 RICHMOND RD.	TO: N.BL 1315 RICHMOND RD.
FROM: 55.0M W. OF E.BL 1315 RICHMOND RD.	TO: 10.0M W. OF E.BL 1315 RICHMOND RD.

Legend

Building Line	-- BL --
Fence Line	-- FL --
Face of Curb	-- FC --
Asphalt Edge	-- AE --
Sidewalk	SW
Driveway	-- DW --
Manhole	M/H
Pedestal	☒
Buried CableTV	-- TV --
Flush to Grade Pedestal	FTG
Buried Service Wire	-- BSW --
Buried Cable	-- B --
Conduit	-- C --
Fiber Optic Cable	-- FO --
Bell Hydro Service	-- BH --
Gas Valve	⋈
Gas Service	-- GS --
Gas Main	-- GM --
Transformer	▲
Demarcation	DM
Hydro	-- H --
Hydro Primary	-- HP --
Hydro Secondary	-- HS --
Catch Basin	CB
Sewer Manhole	◎
Water Valve	◎
Hydrant	✳
Water Valve Chamber	W
Hydro / Bell Pole	○
Railway	═══
End Cap	⌐
Traffic Manhole	Ⓣ
Street Light Cable	-- SL --
Street Light	✳
North	N.
East	E.
West	W.
South	S.

CAUTION: Hand dig within 1.5 M as measured horizontally from the field markings to avoi damaging the underground utilities. If you damage the plant, you may be held liable.
If you damage underground plant, contact the facility owner immediately.
Depth varies and MUST be verified by hand digging or vacuum excavation.
LOCATED AREA HAS BEEN ALTERED AS PER: N/A

N W E S



THIS FORM VALID ONLY WITH Primary Locate Form. This sketch is not to scale.
Any privately owned services within the located area have not been marked- check with service/property owner.

A copy of this Auxiliary Locate Sheet(s) and the Primary Locate Sheet must be on site and in the hands of the machine operator during work operations. If sketch and markings do not coincide, the Excavator must obtain a new locate.

CANADIAN LOCATORS INC.
Servicing the Utilities Industry

Ph: (905)479-5674 Email: ontario@canadianlocators.com

ROGERS
Auxiliary Locate Sheet

ON 1 Call Ticket # : 2024016235

Utilities Marked :

☐ Coaxial Plant m ☐ Fibre Optics Plant m

Number of Services Marked : (specify building/house numbers)

NA

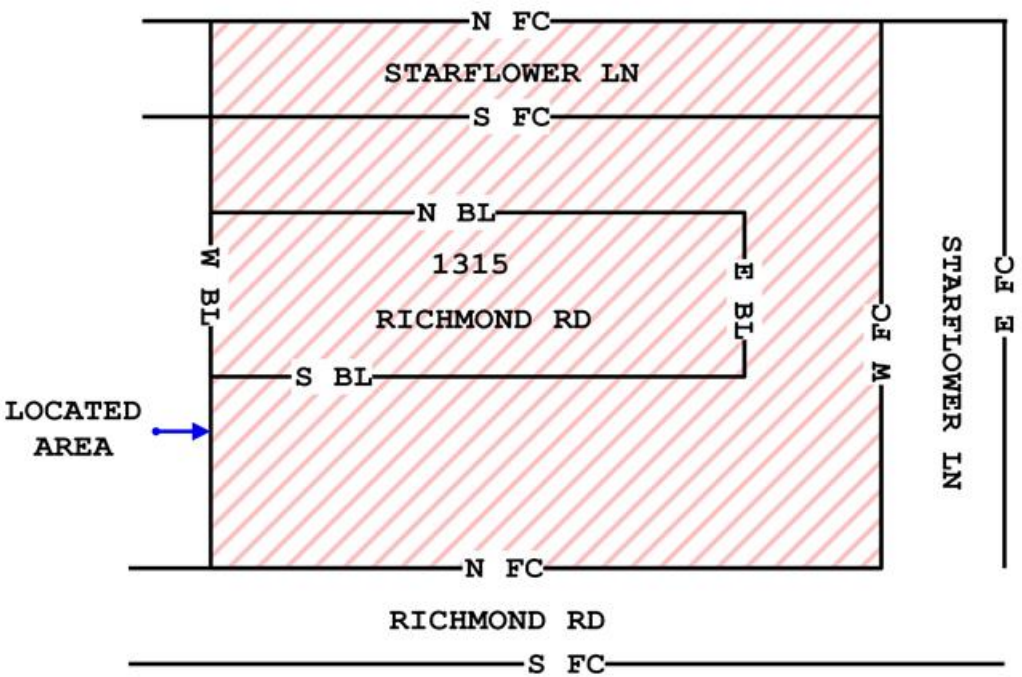
LOCATED AREA CONTAINS ALL KNOWN ROGERS INFRASTRUCTURE

FROM :	TO :
N FC OF STARFLOWER LN	N FC OF RICHMOND RD
FROM :	TO :
W BL OF 1315 RICHMOND RD	W FC OF STARFLOSER LN

Hand dig within 1 meter or 3.28 feet as measured horizontally from the field markings to avoid damaging the underground utilities.
If you damage the utilities, you may be held liable. **For all cut cable, please call: 1-800-265-9501 immediately!**
Depth of cable plant varies and **MUST** be determined by hand digging or vacuum excavation.
LOCATED AREA ALTERED AS PER :

N

ROGERS CABLES CLEAR IN LOCATED AREA



Sketch not drawn to scale

LEGEND :

Fibre Optic — FO —	Road Edge — RE —	Property Line — PL —	Tree	Transformer TPR	Streetlight SL
Cable / T.V. — CATV —	Bldg Line — BL —	Lot Line — LL —	Pedestal	Manhole	Hand Hole HH
Conduit — C —	North Direction N	Face of Curb — FC —	Pole	Catch Basin CB	Hydrant H
Railway	Sidewalk SW	Driveway — DW —	Valve	North N	East E
Work Area	Measurement	Fence Line — FL —	Vault	South S	West W

A copy of this Auxiliary Locate Sheet(s) and the Primary Locate Sheet must be on site and in the hands of the machine operator during work operations. Should sketch and markings not coincide, a new locate MUST be obtained.

CANADIAN LOCATORS INC.
Servicing the Utilities Industry

Ph: (905)479-5674 Email: ontario@canadianlocators.com

ROGERS
Primary Locate Sheet

ON 1 Call Ticket # : 2024016235

Contractor / Excavator : LOPERS & ASSOCIATES			**Contact Name :** LUKE LOPERS
Tel : 613-327-9073	**Alt. Phone :** 613-327-9073	**Email :** luke@lopers.ca	
Received Date : Jan 4 2024	**Excavation Date :** Jan 11 2024	**Revised Excavation Date:**	**Type of Work :** ENVIRONMENTAL
Locate Address : 1299-1315 RICHMOND RD			**City / Municipality :** OTTAWA, ONTARIO

Nearest Intersection : STARFLOWER LANE & SIR JOHN A MACDONALD PKWY

Method of Field Marking : ☐ Paint ☐ Stakes ☐ Flags

Caller's Remarks *(Additional Info)* **:**
THIS REQUEST IS FOR A RE-MARK OF TICKET #20234416156 PREVIOUS REQUEST WILL EXPIRE PRIOR TO COMPLETION OF THE DIGGING. DRILLING MONITORING WELLS FOR ENVIRONMENTAL DELINEATION PURPOSES. PLEASE LOCATE ENTIRE SITE AND SECTION OF STARFLOWER LANE TO THE NORTH OF THE BUILDING; WE ARE APPLYING FOR A ROAD CUT PERMIT FOR DRILLING ON THE RIGHT OF WAY., TOOLS USED:[Machine Dig], PREMARKED VALUES:[Area Not Pre-Marked], PROPERTY TYPES:[Private Property],[Public Property], SITE MEETING:No, PROJECT NUMBER:LOP23

Utilities Marked :					**Does this locate have multiple work areas which are greater than 100 m apart?**
☐ Coaxial Plant	☐ Fibre Optics Plant				☐ Yes How many?
Total Length : m	**Total Length :** m				☑ No

Field sketch and Located Area shown on auxiliary locate sheet(s)

This locate is for ROGERS plant / infrastructure ONLY !

Apply sticker here if required

CAUTION : Locate is VOID after 90 days !

CAUTION : Hand dig within one (1) meter or 3.28 feet of markings. The Located Area defined on the Auxiliary Locate Sheet(s) contains all known ROGERS infrastructure. Any changes to excavation area or nature of work requires a new locate.

For all cut cable, please call :
1-800-265-9501

Locator's Comments :
ROGERS CABLES CLEAR IN LOCATED AREA

Locator's Name : *(Please Print)*
Jason Bisier

Date :	**Start Time :**	**End Time :**
Jan 8 2024	12:30 PM	2:30 PM

A copy of this Primary Locate Sheet and Auxiliary Locate Sheet(s) must be on site and in the hands of the machine operator during work operations. Should sketch and markings not coincide, a new locate MUST be obtained.

Ontario One Call TF

City of Ottawa
Street Light Locate

Black&McDonald

NOTICE OF INTENT TO EXCAVATE

Header Code: PROJECT WORK

Request Type: NORMAL

Ticket No: 2024016235

Original Call Date: 1/4/2024 4:20:00 PM

Work To Begin Date: 01/11/2024

Company: LOPERS & ASSOCIATES

Contact Name: LUKE LOPERS

Pager:

Contact Phone: (613)-327-9073 ext.

Cell: (613)-327-9073 ext.

Fax:

Alternate Contact: LUKE LOPERS

Alt. Phone: (613)-327-9073 ext.

Place: OTTAWA

Street: 1299, RICHMOND RD TO 1315

Nearest Intersecting Street: STARFLOWER LANE

Second Intersecting Street: SIR JOHN A MACDONALD PKWY

Subdivision:

Additional Dig Information: Depth in M. 0

MAP REF.: 613 828 PRIVATE PROPERTY, PUBLIC PROPERTY SITE MEETING: NO PERMIT #: NO CIVIC#: 1299,1315 THIS REQUEST IS FOR A RE-MARK OF TICKET #20234416156 PREVIOUS REQUEST WILL EXPIRE PRIOR TO COMPLETION OF THE DIGGING. DRILLING MONITORING WELLS FOR ENVIRONMENTAL DELINEATION PURPOSES. PLEASE LOCATE ENTIRE SITE AND SECTION OF STARFLOWER LANE TO THE NORTH OF THE BUILDING; WE ARE APPLYING FOR A ROAD CUT PERMIT FOR DRILLING ON THE RIGHT OF WAY.

WO/ JOB #:

Type Of Work: ENVIRONMENTAL

Remarks:

HYDRO OTTAWA (HOT1), HOT1, NOTIFICATION SENT, PROMARK FOR ENBRIDGE GAS (ENOE01), ENOE01, NOTIFICATION SENT, CITY OF OTTAWA WATER/SEWER (OTWAWS01), OTWAWS01, NOTIFICATION SENT, BLACK AND MC DONALD FOR CITY OF OTTAWA STREET LIGHTS (OTWASL01), OTWASL01, NOTIFICATION SENT, CLI FOR ROGERS (ROGOTT01), ROGOTT01, NOTIFICATION SENT, CITY OF OTTAWA TRAFFIC SIGNALS (OTWATS01), OTWATS01, NOTIFICATION SENT,

KRISTOFER LOBO

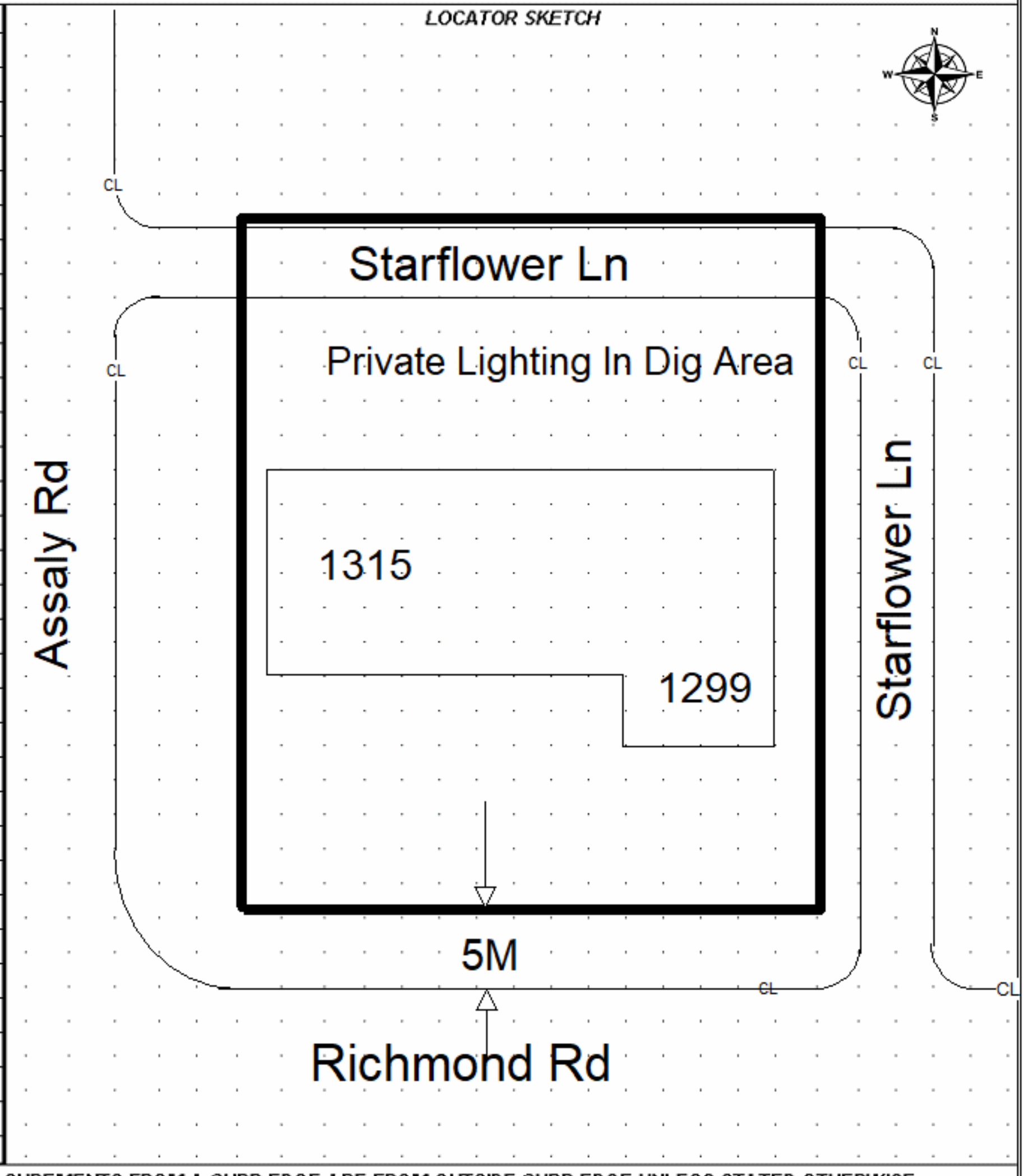
53A

Ontario 1 Call	2024016235

City of Ottawa Street Light Locate — Black&McDonald

SL - Streetlight
OH - Overhead Fed
H - Hydro Lines
BL - Building Line
FL - Fence Line
CL - Face of Curb Line
AE - Asphalt Edge
PL - Property Line
SW - Sidewalk
MH - Manhole
↔ Measurements
- - - - Reference Line
Catch Basin
Hydro Pole
Sign Posts
Power Source
EB99
Decorative Light
Streetlight
FH Fire Hydrant
Pedestal
Disconnect

LOCATOR SKETCH



ANY MEASUREMENTS FROM A CURB EDGE ARE FROM OUTSIDE CURB EDGE UNLESS STATED OTHERWISE

Notes/Comments: Other Than Small Section On Starflower Ln Rest Of Dig Area Confined To Private Property Only

Locate is valid for 90 days. If sketch is different from markings, location or nature of work changes, a new locate must be requested. Hand dig within 1m (3.28ft) on either side of markings. Depth of buried plant varies.

Cette fiche n'est pas **valide 90 jours** de calendrier apres le reperage. Si les marques ne concordent pas avec celles sur le croquis, un nouveau reperage est requis. Tout changement a l'emplacement ou a la nature du travail necessite un nouveau reperage. Creuser a la main un metre (3.28 pieds) du repere. La profondeur des installationvarie d'un endroit a l'autre

Date Located	01/08/2024
Located by	Kris L.

From: Forbes, Terry
To: Luke Lopers
Subject: 2024016235
Date: January 5, 2024 7:40:55 AM

This Ontario One Ticket is **Clear of Underground City of Ottawa / Ville d'Ottawa Traffic Lights Infrastucture in Proposed Work Area **

“Locates are Valide for 90 Days”

Ce billet Ontario One est ** **libre** de toute infrastructure souterraine de la ville d’Ottawa pour les feux de signalisation dans la zone de travail proposée **

“Les locataires sont sont valides pendant 90 jours”

Terry Forbes
City of Ottawa
Traffic Plant Investigator/Locator
Cell # 613 223 7710

Sketches

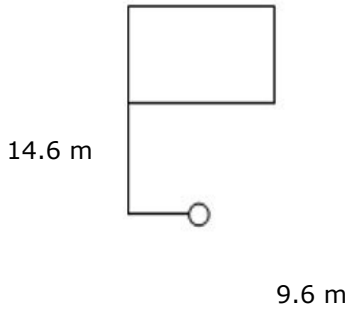
Water Service : S0942064000

Location

Address:	1299	To		RICHMOND RD	City:	OO	
Qualifier:		XStreet1:	STARFLOWER LANE		Dist:		Ward: Ward 7
Unit:		XStreet2:	ASSALY RD		Block:		S Plan:

Sketch Information

Looking:	unknown	North Degree:	
Facing:	front of	The:	building
Start at the:	left corner	Move straight out:	14.6 m
Then go:	right	For:	9.6 m
Other Structure:		ID:	
Drawing Code:			



Attributes

Status	OPERATING	Ownership	PUBLIC	Install Date	
Billing Account		Frost Warning		Condition Rating	
Tracer?					

Service Characteristics

Located On:	Depth(m)	Diameter(mm)	Material
Public(At Main)	0	40	CO
Private(At Post)	0		

Insulation Type		Soil		Joint Type	
Bedding		Backfill		Surface	
Length	0				

Comments

Sketches

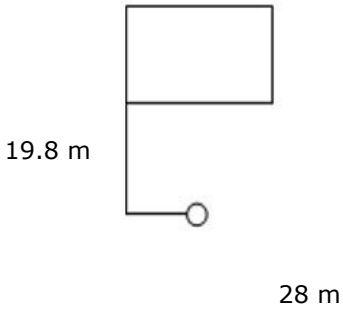
Water Service : S0942072000

Location

Address:	1315 To		RICHMOND RD	City:	OO		
Qualifier:		XStreet1:	STARFLOWER LANE	Dist:		Ward:	Ward 7
Unit:		XStreet2:	ASSALY RD	Block:		S Plan:	

Sketch Information

Looking:	unknown	North Degree:	
Facing:	front of	The:	building
Start at the:	left corner	Move straight out:	19.8 m
Then go:	right	For:	28 m
Other Structure:		ID:	
Drawing Code:			



Attributes

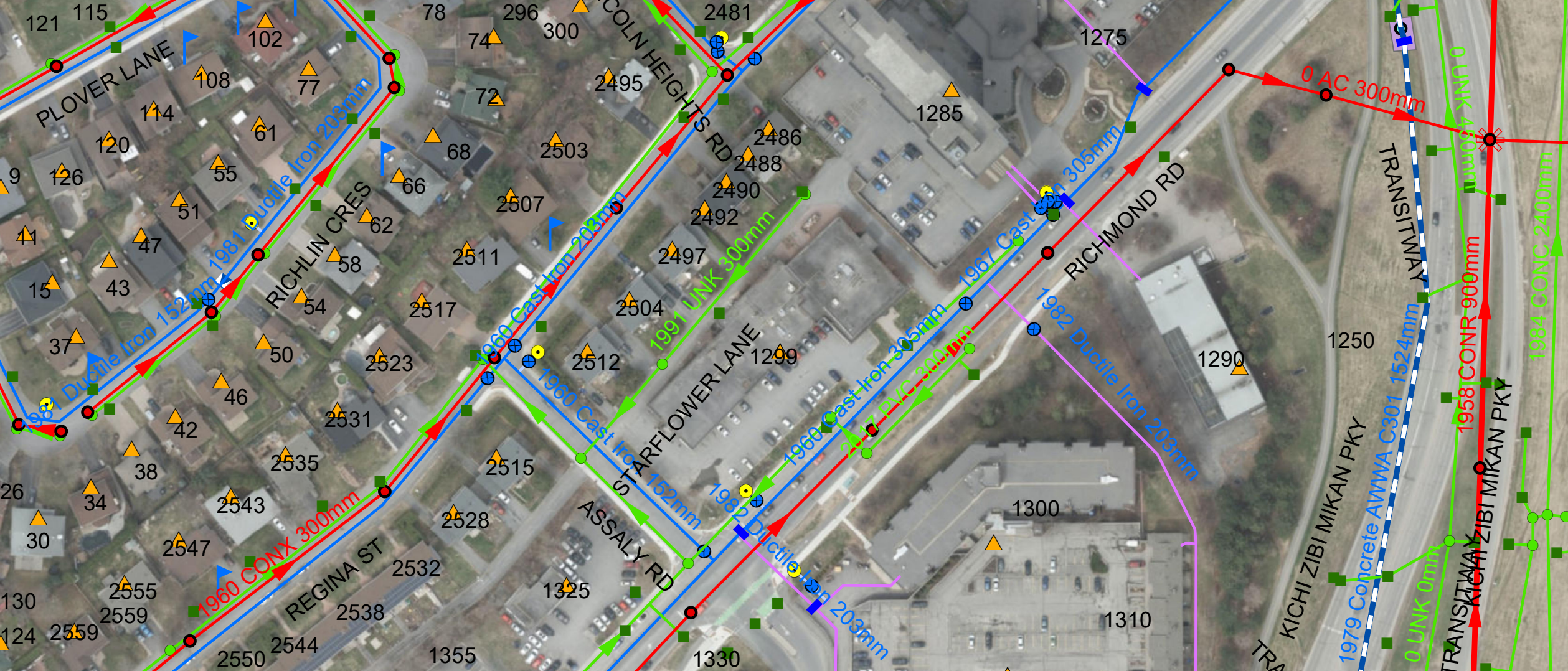
Status	OPERATING	Ownership	PUBLIC	Install Date	
Billing Account		Frost Warning		Condition Rating	
Tracer?					

Service Characteristics

Located On:	Depth(m)	Diameter(mm)	Material
Public(At Main)	0	51	CO
Private(At Post)	0		

Insulation Type		Soil		Joint Type	
Bedding		Backfill		Surface	
Length	0				

Comments


PLOVER LANE
LINCOLN HEIGHTS RD
RICHLIN CRES
STARFLOWER LANE
REGINA ST
ASSALY RD
RICHMOND RD
TRANSITWAY
KICHI ZIBI MIKAN PKY
1981 Ductile Iron 152mm
1960 Cast Iron 203mm
1991 UNK 300mm
1960 Cast Iron 305mm
1967 Cast Iron 305mm
1982 Ductile Iron 203mm
1960 CONX 300mm
1982 Ductile Iron 152mm
1960 Cast Iron 152mm
1982 Ductile Iron 203mm
0 AC 300mm
0 UNK 450mm
1958 CONR 900mm
1984 CONC 2400mm
1979 Concrete AWWA C301 1524mm
0 UNK 0mm

DISCLAIMER

The excavator must have a copy of this locate on the job site during excavation.

Locate area: The excavator must not work outside the area indicated in the location of work or located area in the diagram without an updated locate. Stakes or markings may disappear or be displaced. If any delays occur in acting on the stakeout information, or if markings become unclear, a new locate must be obtained.

Locating the plant: The plant location information provided is only an estimate. Depth of underground plant varies and the exact location must be determined by hand digging prior to excavation with mechanical equipment.

Warning: Do not use mechanical equipment within one (1) metre of the estimated location of the water or sewer plant. If the plant is greater than or equal to 600mm, mechanical equipment must not be used within three (3) meters.

Digging around exposed plants: Must do any further excavation within 0.3 metres of an exposed water or sewer plant by hand.

Contractors are to perform all work in accordance with applicable City of Ottawa By-laws and any applicable federal and provincial legislation or regulations, including but not limited to the *Public Utilities Act, R.S.O. 1990, c. P.52, s. 56(1); Ontario Regulation 210/01 under the Technical Safety Standards Act, 2000 , S.O. 2000 c. 16*; *Ontario Regulation 213/91 under the Occupational Health and Safety Act, R.S.O. 1990, c. O.1*.

AVIS DE NON-RESPONSABILITÉ

L'opérateur de l'excavatrice doit avoir en sa possession ce rapport de localisation pendant l'excavation.

Zone de localisation : l'opérateur de l'excavatrice ne doit pas creuser en dehors de la zone indiquée sur l'ordre de travail ni à l'extérieur de la zone indiquée sur le diagramme, à moins d'avoir en sa possession un rapport de localisation actualisé. Les piquets ou les marques peuvent disparaître ou être déplacés. S'il y a un retard à intervenir sur la base des données de surveillance ou si le marquage devient imprécis, il faut obtenir un nouveau rapport de localisation.

Déterminer l'emplacement des conduites : les renseignements sur l'emplacement des conduites sont approximatifs. Pour déterminer l'emplacement et la profondeur, on doit creuser manuellement avant d'utiliser une excavatrice.

Avertissement : n'utilisez pas d'équipement mécanique [excavatrice] à moins d'un [1] mètre de l'emplacement supposé de la conduite d'eau ou d'égout. Si la conduite compte plus de 406 mm de diamètre, aucun équipement mécanique ne doit être utilisé à moins [3] de trois mètres de celle-ci.

Creuser autour des conduites exposées : toute excavation à moins de 0,3 m d'une conduite d'eau ou d'égout doit se faire manuellement.

Les entrepreneurs doivent exécuter tous les travaux conformément aux règlements de la Ville d'Ottawa et aux lois et règlements fédéraux ou provinciaux applicables, y compris, mais sans s'y limiter, la *Loi sur les services publics, L.R.O. 1990, chap. P.52, art. 56[1]*; le *Règlement 210/01 de l'Ontario* en vertu de la *Loi de 2000 sur les normes techniques et la sécurité, L.O. 2000, chap. 16*; et le *Règlement 213/91 de l'Ontario* en vertu de la *Loi sur la santé et la sécurité au travail L.R.O. 1990, chap. O.1*.

2022

Dear Excavator,

Re: Marking Preservation

Your City of Ottawa Water & Sewer locate request has been completed based on the information you provided Ontario One Call. The locate is valid for 90 days from the date indicated on the City of Ottawa Locate Report – Water and Sewer Utilities. Please be aware it's the requestors responsibility to contact Ontario One Call for a new locate if any changes are known, suspected or for a relocate if excavation continues beyond 90 days.

The City of Ottawa expects excavators to protect and preserve the paint marks and flags placed at the time of the original locate ticket. If markings are removed due to weather or excavation work, the excavator is expected to recreate the markings based on the tie-in measurements provided on the original locate ticket report. Valid locate documentation is always required to be on site.

This is in accordance with the below section from the Canadian Common Ground Alliance Best Practices handbook version 3.0 – October 2018 (p. 55)

4-16: Marking Preservation Practice Statement: *The excavator, where practical, protects and preserves the staking, marking, or other designations for underground facilities until no longer required for proper and safe excavation. The excavator stops excavating and notifies the notification service for re-marks if any facility mark is removed or no longer visible.*

If an excavator would like the City of Ottawa to refresh the markings, please contact Ontario One Call to request a Remark and reference the original locate ticket number.

Thank you,

City of Ottawa, Water and Sewer Locates

Enbridge Excavator Checklist

Prior to site arrival

- [ ] Ensure you have received all locate sheets (total of package is found on page 1).
- [ ] If required, print additional copies of locate package for crews at various locations on site.
- [ ] If required, ensure all clearances have been received, printed and included in locate package.

Upon site arrival

- [ ] Review the sketch and the located area limits. Do you have what was requested? If not, do not excavate outside what was issued until the locate service provider has been contacted and the locate corrected.
- [ ] Review the markings on site. Is the entire plant identified on the locate form marked in the field? If not, contact the locate service provider.
- [ ] Ensure a plan is in place to protect and preserve the original yellow paint markings. White paint can be used to preserve and maintain the markings but should be placed beside or at the top or bottom of the original markings, ensuring not to replace the yellow paint.

Prior to excavation

- [ ] Ensure appropriate safeguards to expose all marked gas lines will be used. Hand dig or hydro excavation method must be used within 1 m (3.3 ft) (or as directed by Enbridge Gas Inc.) of any marked lines.
- [ ] If hydro-excavation will be used, ensure equipment is operated per Enbridge requirements.
- [ ] If support of gas lines or trench protection will be required through the course of excavation, ensuring approved methods and materials are readily available.

During Excavation

- [ ] Ensure no mechanical equipment is used within 1 m (3.3 ft) (or as directed by Enbridge Gas Inc.) of locate marks.
- [ ] Once gas lines are fully exposed (top, sides, bottom) ensure no mechanical equipment is used within 0.3 m (1 ft) (or greater if directed by Enbridge) of exposed pipe.
- [ ] Ensure all locate marks are verified. Expose per locate mark. Do not assume a gas line found away from the mark is what the locator was actually marking; you may have found an abandoned line or a missed line.
- [ ] Ensure all exposed gas identified in your excavation match the description on the auxiliary sheet of your locate (i.e., size and material). Any discrepancies should be reported to the locate service provider.

Additional information for Excavators can be found in the
Enbridge Third-Party Requirements in the Vicinity of Natural Gas Facilities Standard

enbridgegas.com/-/media/Extranet-Pages/Safety/Before-you-dig/Third-Party-Requirements-in-the-Vicinity-of-Natural-Gas-Facilities

April 06th, 2022

To all Excavators :

Bell locates are valid for the life of the excavation project and will not automatically be relocated every 90days.

Please note the following for the above apply:

A) Construction within the located area begins within 90 days of the "locate completed date" on the original ticket.

B) The construction company named on the locate remains active on the site.

Bell expects excavators will protect and preserve the paint marks put down on the original locate ticket. If markings are removed due to weather or excavation work, the excavator is expected to recreate the markings based on the tie-in measurements provided on the original locate ticket.

If an excavator would like their, markings freshened up, they can contact **Promark** (Bell Canada Locate Service Provider in this area) directly to arrange for them to place a fresh markings on the ground. **However, this will be at the excavator's expense.**

Promark can be reached at:

Toronto – 905-474-1114 toll free – 1-888-883-6273

Ottawa – 613-723-9888 toll free – 1-800-371-8866

The locate will be considered officially expired one day after the final day of construction.

Best regards

1-Call Customer Called

Ottawa Locates

Date: Nov 22/23

Locate Sketch

(not to scale)

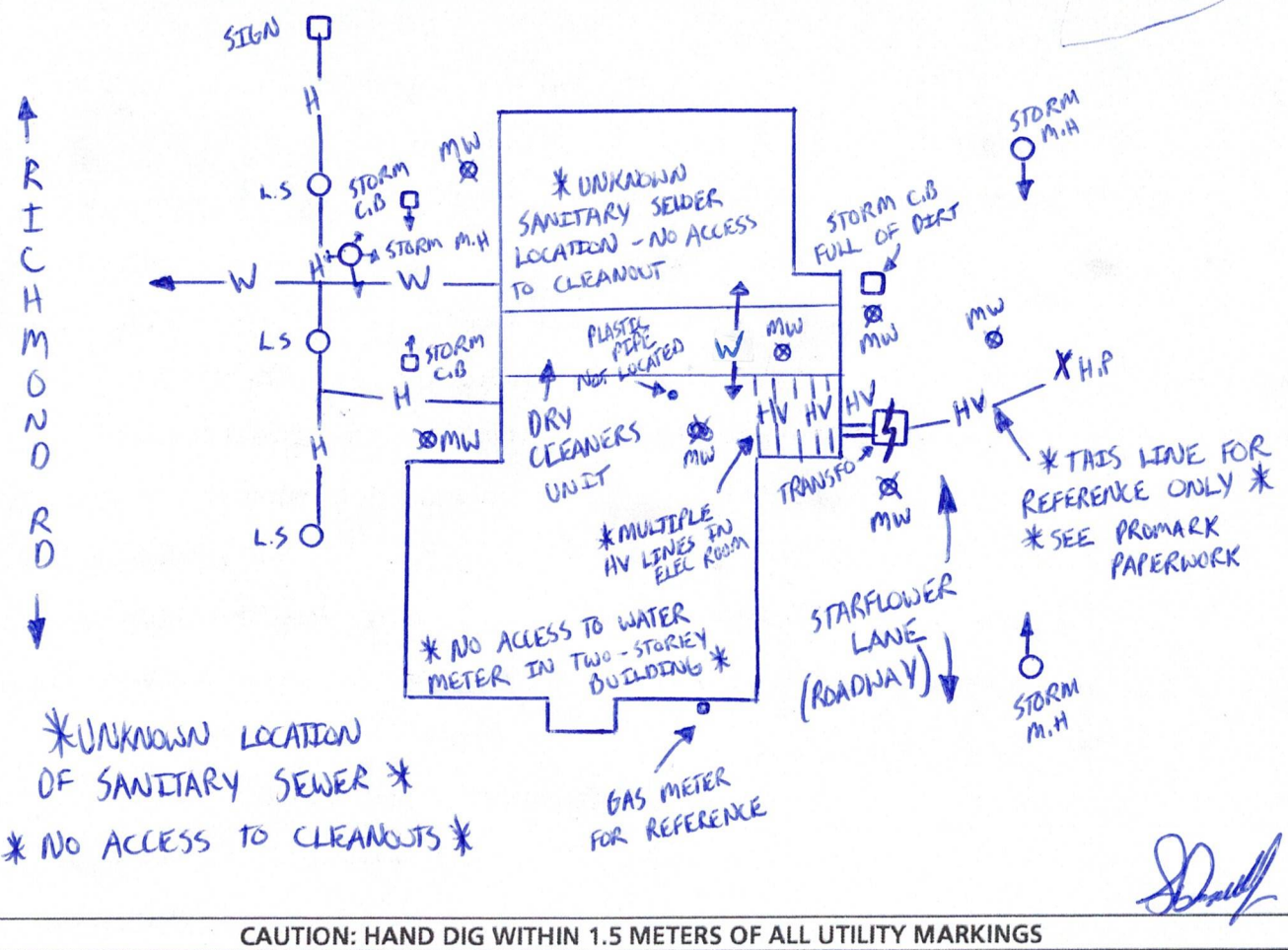
Customer Lopers + Associates

Property Description, Address, City, Work Area: MONITORING WELLS

1299 Richmond Rd

Onsite Contact LUKE Attended Locate (Y) / N As Built or Site Plan Provided (Y) / N

LOCATES ONLY VALID FOR 30 DAYS & ONLY FOR WORK AREA INDICATED



CAUTION: HAND DIG WITHIN 1.5 METERS OF ALL UTILITY MARKINGS

⊗ MW = PROPOSED MONITORING WELL **Legend of Located Utilities**

-C- Cable, **-H-** Hydro, **-G-** Gas, **-FO-** Fibre Optic, **-B-** Phone (Bell), **-W-** Water, **-S-** Sewer, **-ST-** Storm Sewer, **-E-** Electrical

BL = Building Line, CB = Catch Basin, CL = Curb Line, FH = Fire Hydrant, FL = Fence Line

MH = Man Hole, LS = Light Standard, WV = Water Valve, X = Hydro Pole

Ottawa Locates **PO Box 30044, Greenbank Rd. N., Ottawa, ON K2H 5V0 Phone: 613-829-8118 Fax: 613-482-3471**

info@ottawalocates.com ● www.ottawalocates.com

Appendix C

Borehole Logs

LOPERS & ASSOCIATES

Lopers & Associates
30 Lansfield Way
Ottawa, Ontario K2G3V8

BH1-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-1-7 **COMPLETED** 24-1-7
GROUND ELEVATION 69.42 m **HOLE SIZE** 5 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Manual Installation with Tripod
AFTER DRILLING 3.81 m / Elev 65.61 m
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					Casing Top Elev: 69.32 (m)	
					0.13 Concrete floor slab. 69.29	
					0.23 Clear Stone Gravel. 69.19	
	SS 1		Vapor = 10		Silty Sandy with Gravel. Brown, compact, moist. SS1 - Laboratory Analysis for VOCs, Metals& Inorganics	
					0.61 68.81	
1	SS 2		Vapor = 20		Clayey Silt with some Sand. Brown and grey, firm, moist.	
	SS 3		Vapor = 25		SS3 - Laboratory Analysis for Grain size.	
2	SS 4		Vapor = 15			
					2.44 66.98	
	SS 5		Vapor = 35		Silty Clay with Sand. Grey, soft, moist to wet.	
3	SS 6		Vapor = 15			
					▼	Groundwater Level 3.81 m BGS
4	SS 7		Vapor = 23		SS7 - Laboratory Analysis for VOCs, Grain size.	
	SS 8		Vapor = 0		Wet @ 4.5 m.	
5	SS 9		Vapor = 25		SS9 - Laboratory Analysis for PHCs, VOCs, Metals& Inorganics & Duplicate Sample for VOCs	
					5.49 63.93	

Bottom of hole at 5.49 m.

LOPERS & ASSOCIATES

Lopers & Associates
30 Lansfield Way
Ottawa, Ontario K2G3V8

BH2-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-2-5 **COMPLETED** 24-2-5
GROUND ELEVATION 69.43 m **HOLE SIZE** 5 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Manual Installation with Tripod
AFTER DRILLING 3.99 m / Elev 65.44 m
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
						Casing Top Elev: 69.37 (m)
					0.10 Concrete slab. 69.33	
					0.23 Granular fill. 69.20	
	SS 1		Vapor = 0		Silty Sand and Gravel. Brown, compact, dry. SS1 - Laboratory Analysis for PHCs/BTEXs, PAHs and Metals & Inorganics	
1					0.83 68.60 Clayey Silt with some Sand. Grey, stiff, moist.	
	SS 2		Vapor = 0			
2	SS 3		Vapor = 0			
	SS 4		Vapor = 5		3.00 66.43 Silty Clay with Sand and Gravel. Grey and brown, compact, moist.	
3	SS 5		Vapor = 5			
	SS 6		Vapor = 10		▼ Wet @ 4.25 m	Groundwater Level 3.99 m BGS
4	SS 7		Vapor = 15		SS7 - Laboratory Analysis for PHCs/BTEXs	
5	SS 8		Vapor = 15		5.59 63.84	

Bottom of hole at 5.59 m.

LOPERS & ASSOCIATES

Lopers & Associates
30 Lansfield Way
Ottawa, Ontario K2G3V8

BH3-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-2-21 **COMPLETED** 24-2-21
GROUND ELEVATION 69.08 m **HOLE SIZE** 20.32 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Track Mounted CME 45
AFTER DRILLING 3.53 m / Elev 65.55 m
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					Casing Top Elev: 69.01 (m)	
					0.10 Asphalt 68.98	
	SS 1	4-5-6-6/0.06	Vapor = 10		Silty Sand and Gravel. Brown and grey, loose, dry. SS1 - Laboratory Analysis for PHCs, VOCs	
					0.76 68.32	
1	SS 2	1-2-2-1 (4)	Vapor = 0		Clayey Silt with some Sand. Asphalt in tip no recovery.	
					1.50 67.58	
2	SS 3	1-1-1-1 (2)	Vapor = 0		Silty Clay with Sand. Grey and brown, soft, moist to wet @ 4.11 BGS.	
	SS 4	1-2-2-2 (4)	Vapor = 10			
3					SS6 - Laboratory Analysis for VOCs	
	SS 5	1-2-1-3 (3)	Vapor = 10			Groundwater Level 3.53 m BGS
4	SS 6	1-1-1-2 (2)	Vapor = 5			
	SS 7	1-2-1-2 (3)	Vapor = 0			
5						
	SS 8	0-1-0-1 (1)	Vapor = 0			
6					6.04 63.04	

Bottom of hole at 6.04 m.

LOPERS & ASSOCIATES

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30 Lansfield Way
Ottawa, Ontario K2G3V8

BH4-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-2-21 **COMPLETED** 24-2-21
GROUND ELEVATION 69.05 m **HOLE SIZE** 20.32 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Track Mounted CME 45
AFTER DRILLING 3.63 m / Elev 65.42 m
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
						Casing Top Elev: 68.98 (m)
	SS 1	25-50-50-50/0.06	Vapor = 15		0.10 Asphalt. 68.95 Silty Sand and Gravel. Brown, compact, dry.	
					0.76 68.29	
1	SS 2	2-1-2-2 (3)	Vapor = 20		Sandy Silt with trace gravel and clay. Brown and grey, soft, moist. SS2 - Laboratory Analysis for VOCs	
2	SS 3	2-1-2-2 (3)	Vapor = 15			
					2.29 66.76	
	SS 4	2-5-3-3 (8)	Vapor = 10		Clayey Silt with some Sand and Gravel. Brown, compact, moist.	
3					3.05 66.00	
	SS 5	1-2-4-2 (6)	Vapor = 10		Silty Clay with Sand. Brown, soft, moist.	Groundwater Level 3.63 m BGS
4	SS 6	1-1-2-2 (3)	Vapor = 5			
5	SS 7	2-1-4-2 (5)	Vapor = 5			
	SS 8	1-0-1-0 (1)	Vapor = 15		SS8 - Laboratory Analysis for VOCs	
6					6.06 62.99	
					Bottom of hole at 6.06 m.	

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30 Lansfield Way
Ottawa, Ontario K2G3V8

BH5-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-2-22 **COMPLETED** 24-2-22
GROUND ELEVATION 69.17 m **HOLE SIZE** 20.32 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Track Mounted CME 45
AFTER DRILLING 3.97 m / Elev 65.20 m
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					0.10 Asphalt 69.07	Casing Top Elev: 69.13 (m)
	SS 1	20-15-18-15/0.06	Vapor = 0		Silty Sand and Gravel. grey, compact, moist. SS1 - Laboratory Analysis for Metals & Inorganics, PAHs, PHCs/BTEXs, PCBs.	
					0.72 68.45	
1	SS 2	1-1-2-3 (3)	Vapor = 0		Clayey Silt with some Sand. Brown and grey, soft, moist.	
2	SS 3	3-2-3-3 (5)	Vapor = 0			
	SS 4	2-3-2-3 (5)	Vapor = 0			
3	SS 5	2-2-2-2 (4)	Vapor = 0			Groundwater Level 3.34 m BGS
4	SS 6	1-2-1-2 (3)	Vapor = 0			
5	SS 7	1-1-1-3 (2)	Vapor = 0		SS7 - Laboratory Analysis for Metals & Inorganics, PAHs, PHC/BTEXs, PCBs.	
					5.33 63.84	
	SS 8	0-0-0-0 (0)	Vapor = 0		Silty Clay with Sand. Grey, soupy soft, wet.	
6					6.07 63.10	

Bottom of hole at 6.07 m.

LOPERS & ASSOCIATES

Lopers & Associates
30 Lansfield Way
Ottawa, Ontario K2G3V8

BH6-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-2-22 **COMPLETED** 24-2-22
GROUND ELEVATION 69.13 m **HOLE SIZE** 20.32 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Track Mounted CME 45
AFTER DRILLING ---
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					0.10 Asphalt. 69.03	
0.5	SS 1	2-1-3-2/0.06	Vapor = 5		Sandy Silt with trace gravel and clay. Brown and grey, compact, moist.	
1.0	SS 2	2-3-2-3 (5)	Vapor = 0		SS1 - Laboratory Analysis for PHCs/BTEXs, PAHs, Metals & Inorganics	
1.5						
2.0	SS 3	2-2-3-6 (5)	Vapor = 5		2.29 66.84	
2.5	SS 4	3-2-2-2 (4)	Vapor = 10		Silty Sand. Brown, compact, moist to wet. SS4 - Laboratory Analysis for PHCs/BTEXs, PAHs, , Metals & Inorganics	
3.0						
3.5	SS 5	1-2-1-1 (3)	Vapor = 0		3.66 65.47	
					Bottom of hole at 3.66 m.	

LOPERS & ASSOCIATES

Lopers & Associates
30 Lansfield Way
Ottawa, Ontario K2G3V8

BH7-24

CLIENT Brigil
PROJECT NAME Phase Two Environmental Site Assessment
PROJECT NUMBER LOP23-029B
PROJECT LOCATION 1299-1315 Richmond road
DATE STARTED 24-2-22 **COMPLETED** 24-2-22
GROUND ELEVATION 69.3 m **HOLE SIZE** 20.32 cm
DRILLING CONTRACTOR OGS Inc.
GROUND WATER LEVELS:
DRILLING METHOD Track Mounted CME 45
AFTER DRILLING ---
LOGGED BY L. Lopers **CHECKED BY** D. Plenderleith
NOTES Site Datum = 71.02 mASL Top of Spindle of Fire Hydrant SW of Property

DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
					0.10 Asphalt. 69.20	
0.5	SS 1	10-6-4-4/0.06	Vapor = 0		Silty Sand and gravel fill. Grey, compact , dry SS1 - Laboratory Analysis for PHCs/BTEXs, PAHs, , Metals & Inorganics	
					0.76 68.54	
1.0	SS 2	2-3-4-6 (7)	Vapor = 10		Silty Sand. Brown, compact, moist.	
1.5					1.52 67.78	
2.0	SS 3	3-4-5-6 (9)	Vapor = 0		Sandy Silt with trace gravel and clay. Brown, firm, moist.	
					2.29 67.01	
2.5	SS 4	3-3-9-5 (12)	Vapor = 5		Silty Clay with Sand. Brown, compact, moist.	
3.0						
3.5	SS 5	1-2-2-1 (4)	Vapor = 0		SS5 - Laboratory Analysis for PHCs/BTEXs, Metals & Inorganics	
					3.66 65.64	

Bottom of hole at 3.66 m.

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9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Mixed-Use High-Rise Development
1299 Richmond Road, Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** March 13, 2023

FILE NO. PG6598

HOLE NO. BH 1-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	69.32
Asphaltic concrete 0.13		AU	1				
FILL: Grey crushed stone, some sand 0.69		SS	2	100	9	1	68.32
Loose, brown **SANDY SILT,** trace to some clay		SS	3	100	5	2	67.32
2.97		SS	4	100	5	3	66.32
Very stiff to stiff, brown **SILTY CLAY,** trace sand seams		SS	5	100	3	4	65.32
		SS	6	100	5	5	64.32
		SS	7	100	2	6	63.32
		SS	8	100	1	7	62.32
6.02		SS	9	25	5	8	61.32
GLACIAL TILL: Grey silty clay with sand, gravel, cobbles and boulders		SS	10	100	3	9	60.32
		SS	11	17	4	10	59.32
		G	12			11	58.32
		SS	13	33	3	12	57.32
		SS	14		3	13	56.32
11.13		SS	15	100	4		
GLACIAL TILL: Dense to very dense, brown silty sand to sandy silt, some clay, gravel, cobbles and boulders		SS	16	84	40		
		S	17	67	50+		
13.26		SS	18	50	50+		
End of Borehole							
Practical refusal to augering at 13.26m depth.							
(GWL @ 3.79m - March 23, 2023)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Mixed-Use High-Rise Development
1299 Richmond Road, Ottawa, Ontario

DATUM Geodetic

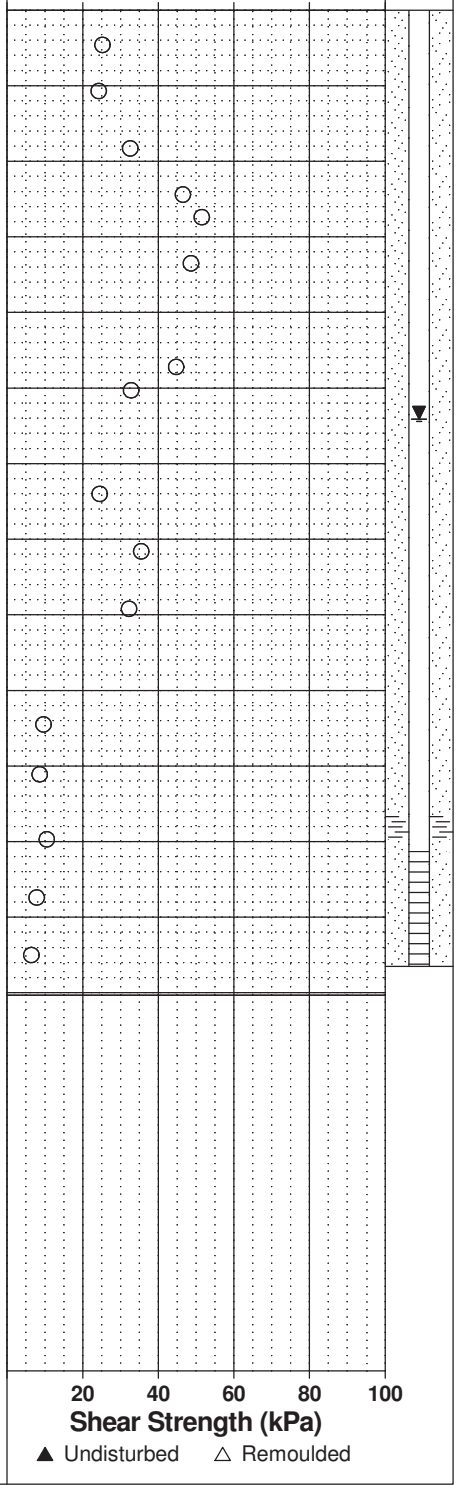
REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** March 13, 2023

FILE NO. PG6598

HOLE NO. BH 2-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	69.06
Asphaltic concrete 0.08		AU	1				
FILL: Crushed stone, some silty sand 0.23		SS	2	100	5	1	68.06
0.76							
FILL: Brown silty clay, some sand		SS	3	100	6	2	67.06
Loose, brown **SANDY SILT,** trace to some clay 2.21		SS	4	100	3		
Very stiff to stiff, brown **SILTY CLAY,** some sand seams		SS	5	100	2	3	66.06
						4	65.06
- stiff to firm and grey by 4.7m depth		SS	6	100	2	5	64.06
		SS	7	100	1	6	63.06
		SS	8	100	1	7	62.06
8.23		SS	9	100	1	8	61.06
GLACIAL TILL: Grey silty clay with sand, gravel, cobbles and boulders		SS	10	0	7		
9.30		SS	11	58	24	9	60.06
		SS	12	88	50+	10	59.06
GLACIAL TILL: Compact to dense, grey silty sand to sandy silt with gravel, cobbles and boulders		SS	13	29	50+	11	58.06
		SS	14		50+		
		SS	15	71	50+	12	57.06
13.03		SS	16	0	50+	13	56.06
End of Borehole							
Practical refusal to augering at 13.03m depth.							
(GWL @ 5.41m - March 23, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Mixed-Use High-Rise Development
1299 Richmond Road, Ottawa, Ontario

DATUM Geodetic

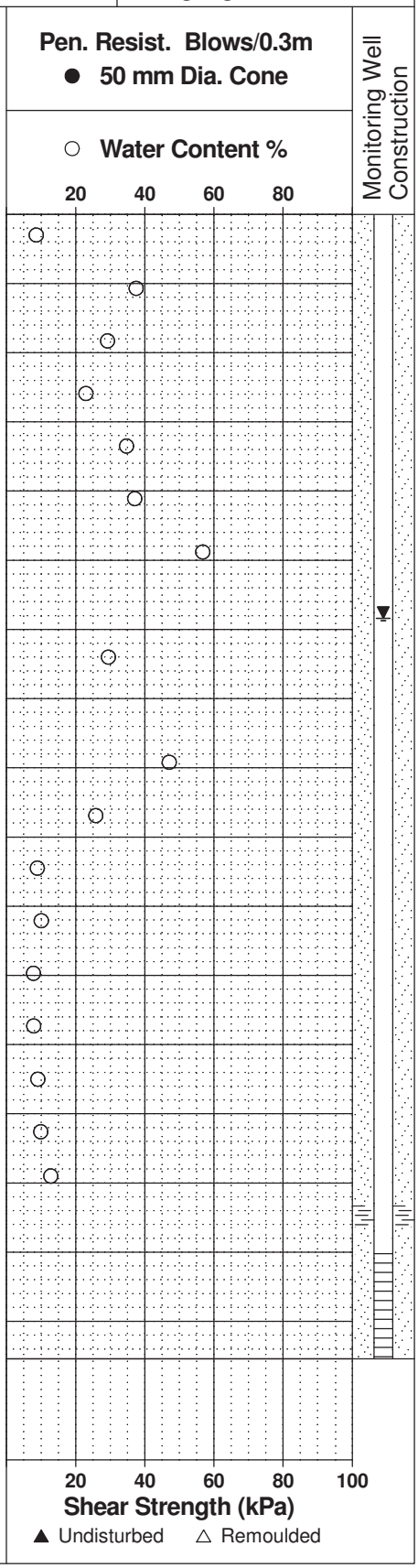
REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** March 14, 2023

FILE NO. PG6598

HOLE NO. BH 3-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	69.30
Asphaltic concrete 0.05		AU	1				
FILL: Crushed stone 0.56		SS	2	100	6	1	68.30
Loose, brown **SANDY SILT,** trace to some clay		SS	3	92	4	2	67.30
- some sand seams by 2.3m depth 2.74		SS	4	100	7		
		SS	5	100	4	3	66.30
Very stiff, brown **SILTY CLAY** some sand seams		SS	6	100	2	4	65.30
- silty sand layer from 5 to 5.2m depth		SS	7	100	5	5	64.30
		SS	8	100	1	6	63.30
- trace gravel by 8.1m depth		SS	9	100	1	7	62.30
8.99		SS	10	8	2	8	61.30
GLACIAL TILL: Grey silty clay with sand, gravel, cobbles and boulders		SS	11	8	3	9	60.30
10.21		SS	12	21	16	10	59.30
		SS	13	100	50+	11	58.30
GLACIAL TILL: Compact to very dense, grey silty sand, some gravel, cobbles and boulders, trace clay		SS	14	67	50+	12	57.30
		SS	15	83	50+	13	56.30
		SS	16	100	50+		
14.05		SS	17	86	50+	14	55.30
		RC	1	100	100	15	54.30
BEDROCK: Excellent quality, grey quartz sandstone		RC	2	100	98	16	53.30
16.54							
End of Borehole							
(GWL @ 5.84m - March 23, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Mixed-Use High-Rise Development
1299 Richmond Road, Ottawa, Ontario

DATUM Geodetic

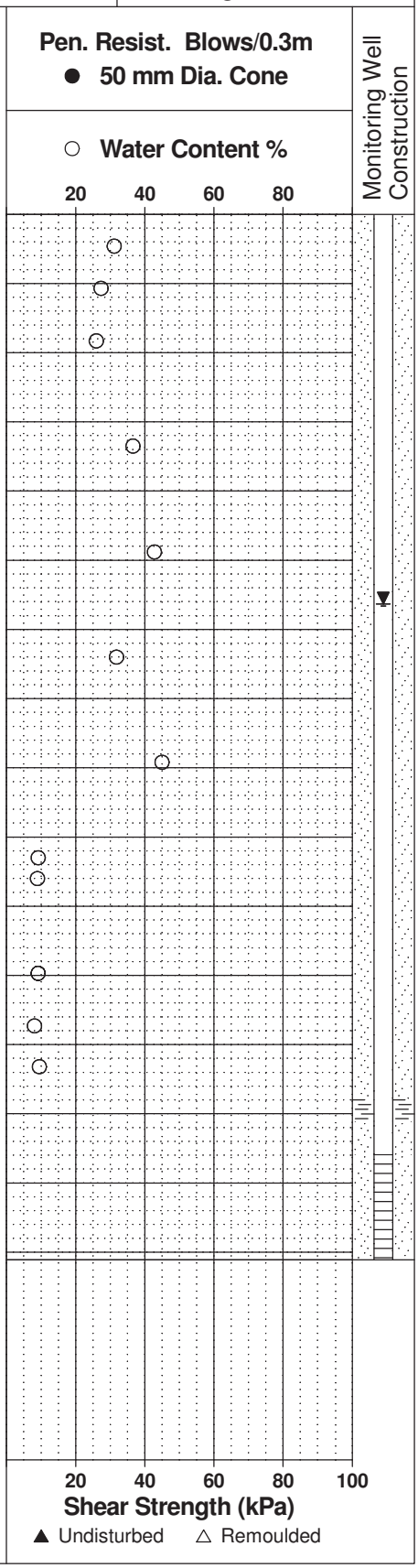
REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** March 15, 2023

FILE NO. PG6598

HOLE NO. BH 4-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	69.18
Asphaltic concrete 0.08		AU	1				
FILL: Crushed stone with silty sand 0.38							
FILL: Brown silty clay, trace sand and gravel 0.69		SS	2	100	6	1	68.18
		SS	3	100	6	2	67.18
Loose, brown **SANDY SILT,** trace to some clay 3.05		SS	4	100	4	3	66.18
Very stiff, brown **SILTY CLAY,** trace to some sand seams		SS	5	100	6	4	65.18
5.49						5	64.18
Stiff to firm, grey **SILTY CLAY**		SS	6	100	1	6	63.18
		SS	7	100	1	7	62.18
8.53						8	61.18
GLACIAL TILL: Grey silty clay with sand and gravel 9.45		SS	8	100	50+	9	60.18
GLACIAL TILL: Very dense, grey silty sand to sandy silt with gravel, cobbles and boulders		SS	9	58	50+	10	59.18
		SS	10	58	50+	11	58.18
12.44		SS	11	90	50+	12	57.18
		RC	1	100	100		
BEDROCK: Excellent quality, grey quartz sandstone		RC	2	100	95	13	56.18
		RC	3	100	95	14	55.18
15.11						15	54.18
End of Borehole							
(GWL @ 5.63m - March 23, 2023)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Mixed-Use High-Rise Development
1299 Richmond Road, Ottawa, Ontario

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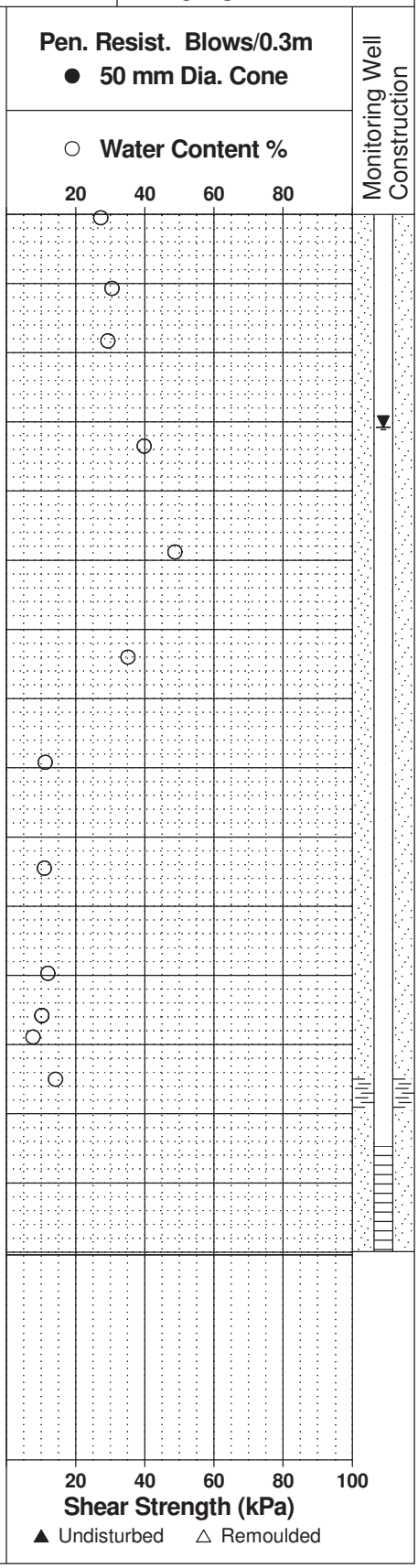
REMARKS

BORINGS BY CME-55 Low Clearance Drill **DATE** March 15, 2023

FILE NO. PG6598

HOLE NO. BH 5-23

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	69.55
TOPSOIL 0.10		AU	1				
FILL: Brown sandy silt, some clay, trace gravel and organics 0.60		SS	2	83	11	1	68.55
Compact to loose, brown **SANDY SILT,** trace to some clay		SS	3	92	7	2	67.55
- increasing clay content with depth 2.59							
Hard to very stiff, brown **SILTY CLAY,** some sand		SS	4	100	5	3	66.55
		SS	5	100	3	4	65.55
- stiff and grey by 5.5m depth 6.10						5	64.55
		SS	6	75	3	6	63.55
GLACIAL TILL: Grey silty clay with sand and gravel, occasional cobbles		SS	7	58	12	7	62.55
		SS	8	83	4	8	61.55
		SS	9	58	2	9	60.55
11.99		SS	10	100	1	10	59.55
GLACIAL TILL: Dense, grey silty sand to sandy silt with gravel, cobbles and boulders, some to trace clay 12.78		SS	11	83	45	11	58.55
		RC	1	100	100	12	57.55
BEDROCK: Excellent quality, grey quartz sandstone		RC	2	100	98	13	56.55
15.04						14	55.55
End of Borehole						15	54.55
(GWL @ 3.08m - March 23, 2023)							



Appendix D

Certificates of Equipment Calibration

CERTIFICATE OF CALIBRATION

The RKI Instrument listed below has been inspected and calibrated following the Manufacturer's specifications and methods.

Instrument Model: **RKI Eagle 2** *Serial Number:* **E2F796** *Calibration Date:* **January 5, 2024**

SENSOR	CALIBRATION GAS STANDARD	CALIBRATION GAS CONCENTRATION	READING PRIOR TO ADJUSTMENT	INSTRUMENT SPAN SETTINGS	ALARM LEVEL SETTING
VOC	Isobutylene LOT# 22-9430	100 PPM	99 PPM	100 PPM	400 & 1000 PPM
Combustible	Methane LOT# 23-9790	50% LEL	<500 PPM	"ME" MODE	
Combustible	Hexane LOT# 23-9964	1650 PPM	1700 PPM	15% LEL FULL GAS RESPONSE MODE	10 & 50% LEL
Combustible	Hexane LOT# 23-9964	15% LEL	15% LEL	15% LEL "METHANE ELIMINATION" MODE	10 & 50% LEL

The calibration gas standard used is considered to be a certified standard and is traceable to the National Institute of Standards and Technology (NIST). Certificate of Analysis is available upon request.

The instrument indicated above is now certified to be operating within the Manufacturer's specifications. This does not eliminate the requirement for regular maintenance and pre-use sensor response checks in order to ensure continued complete and accurate operating condition.

Certified By: Jeff Loney

Maxim **Environmental and Safety Inc.**

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9 - 148 Colonnade Rd., Ottawa, ON K2E 7R4
(613)224-4747 | Toll Free (888)285-2324

CERTIFICATE OF CALIBRATION

The RKI Instrument listed below has been inspected and calibrated following the Manufacturer's specifications and methods.

Instrument Model: **RKI Eagle 2** *Serial Number:* **E2H103** *Calibration Date:* **January 31, 2024**

SENSOR	CALIBRATION GAS STANDARD	CALIBRATION GAS CONCENTRATION	READING PRIOR TO ADJUSTMENT	INSTRUMENT SPAN SETTINGS	ALARM LEVEL SETTING
VOC	Isobutylene LOT# 22-9430	100 PPM	99 PPM	100 PPM	400 & 1000 PPM
Combustible	Methane LOT# 23-9790	50% LEL	<500 PPM	"ME" MODE	
Combustible	Hexane LOT# 23-9964	1650 PPM	1700 PPM	15% LEL FULL GAS RESPONSE MODE	10 & 50% LEL
Combustible	Hexane LOT# 23-9964	15% LEL	15% LEL	15% LEL "METHANE ELIMINATION" MODE	10 & 50% LEL

The calibration gas standard used is considered to be a certified standard and is traceable to the National Institute of Standards and Technology (NIST). Certificate of Analysis is available upon request.

The instrument indicated above is now certified to be operating within the Manufacturer's specifications. This does not eliminate the requirement for regular maintenance and pre-use sensor response checks in order to ensure continued complete and accurate operating condition.

Certified By: Jeff Loney

Maxim **Environmental and Safety Inc.**

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(613)224-4747 | Toll Free (888)285-2324

CERTIFICATE OF CALIBRATION

The RKI Instrument listed below has been inspected and calibrated following the Manufacturer's specifications and methods.

Instrument Model: **RKI Eagle 2** *Serial Number:* **E2G958** *Calibration Date:* **February 15, 2024**

SENSOR	CALIBRATION GAS STANDARD	CALIBRATION GAS CONCENTRATION	READING PRIOR TO ADJUSTMENT	INSTRUMENT SPAN SETTINGS	ALARM LEVEL SETTING
VOC	Isobutylene LOT# 22-9430	100 PPM	100 PPM	100 PPM	400 & 1000 PPM
Combustible	Methane LOT# 23-9790	50% LEL	<500 PPM	"ME" MODE	
Combustible	Hexane LOT# 23-9964	1650 PPM	1500 PPM	15% LEL FULL GAS RESPONSE MODE	10 & 50% LEL
Combustible	Hexane LOT# 23-9964	15% LEL	15% LEL	15% LEL "METHANE ELIMINATION" MODE	10 & 50% LEL

The calibration gas standard used is considered to be a certified standard and is traceable to the National Institute of Standards and Technology (NIST). Certificate of Analysis is available upon request.

The instrument indicated above is now certified to be operating within the Manufacturer's specifications. This does not eliminate the requirement for regular maintenance and pre-use sensor response checks in order to ensure continued complete and accurate operating condition.

Certified By: Vincent Marin

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CERTIFICATE OF CALIBRATION

The HORIBA Instrument listed below has been inspected and calibrated following the Manufacturer's specifications and methods.

Instrument Model: **HORIBA U-52** *Serial Number:* **U0XAOESX** *Calibration Date:* **March 5, 2024**

2-POINT pH	CONDUCTIVITY	TURBIDITY	DISSOLVED OXYGEN	OXIDIZATION-REDUCTION POTENTIAL	TEMPERATURE
4.00 pH, 7.00 pH	4.49mS/cm ZERO CHECKED	0 & 100 NTU	8.42 mg/L @ 24 DegC SODIUM SULFITE ZERO	240mV	Fisher Scientific s/n 230606647
AutoCal 4.00 pH Solution LOT # 3GE0924	AutoCal Solution LOT # 3GH0985	AutoCal Solution LOT# 3GH0985	Oakton Zero Solution LOT # 773998	Hanna ORP LOT # 8976	
Expiry Date: August 1, 2024	Expiry Date: August 1, 2024	Expiry Date: August 1, 2024		Expiry Date: March 1, 2025	
pH 7.00 LOT # 3GH0684	@25 DegC LOT # 3GH0985	Turb. 100 NTU LOT # A2237A			
Expiry Date: August 1, 2025		Expiry Date: August 1, 2024			

The calibration standard used is considered to be a certified standard and is traceable to the National Institute of Standards and Technology (NIST). Certificate of Analysis is available upon request.

The instrument indicated above is now certified to be operating within the Manufacturer's specifications. This does not eliminate the requirement for regular maintenance and pre-use sensor response checks in order to ensure continued complete and accurate operating condition.

Certified By: Vincent Marin

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Appendix E

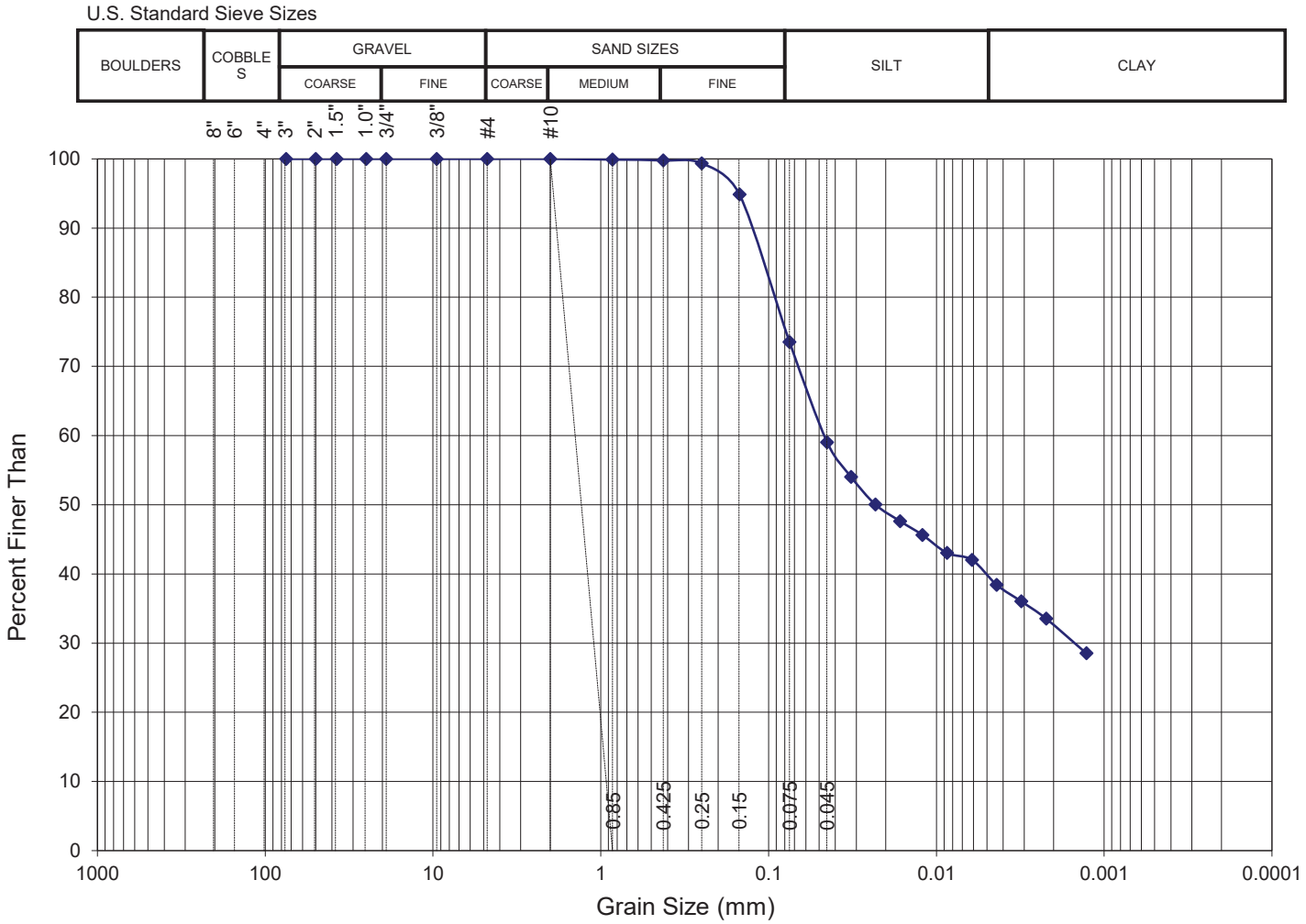
Laboratory Certificates of Analysis

ALS Laboratory Group

819-58th Street, Saskatoon,SK

PARTICLE SIZE DISTRIBUTION CURVE

Client Name:	WT2400552002
Project Number:	
Client Sample ID	BH1-24-SS7
Lab Sample ID	WT2400552002
Date Sample Received:	00-Jan-00
Test Completion Date:	12-Jan-24
Analyst:	HML



METHOD DESCRIPTION

Method Reference: ASTM D6913 & D7928

Dispersion method: Mechanical

Dispesion period: 1 minute cm/s

DESCRIPTION OF SAND AND GRAVEL PARTICLES

Shape: Angular

Hardness: Hard

SUMMARY OF RESULTS

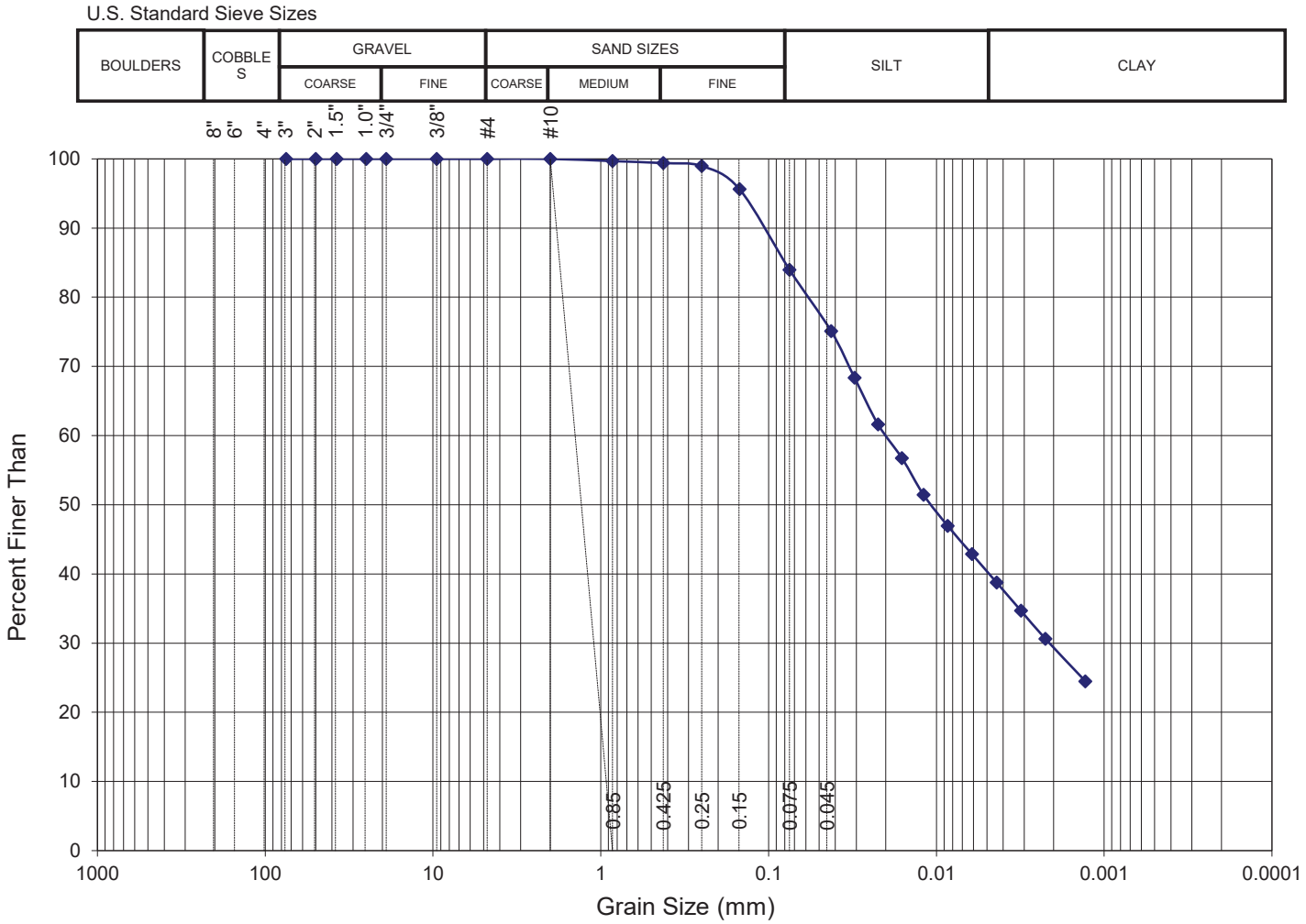
GRAIN SIZE	WT %	DIA. RANGE (mm)
% GRAVEL :	< 1	> 4.75
% COARSE SAND :	< 1	2.0 - 4.75
% MEDIUM SAND :	< 1	0.425 - 2.0
% FINE SAND :	26.24	0.075 - 0.425
% SILT :	33.69	0.075 - 0.005
% CLAY :	39.85	< 0.005

ALS Laboratory Group

819-58th Street, Saskatoon,SK

PARTICLE SIZE DISTRIBUTION CURVE

Client Name:	WT2400552005
Project Number:	
Client Sample ID	BH1-24-SS3
Lab Sample ID	WT2400552005
Date Sample Received:	00-Jan-00
Test Completion Date:	12-Jan-24
Analyst:	HML



METHOD DESCRIPTION

Method Reference: ASTM D6913 & D7928

Dispersion method: Mechanical

Dispesion period: 1 minute cm/s

DESCRIPTION OF SAND AND GRAVEL PARTICLES

Shape: Angular

Hardness: Hard

SUMMARY OF RESULTS

GRAIN SIZE	WT %	DIA. RANGE (mm)
% GRAVEL :	< 1	> 4.75
% COARSE SAND :	< 1	2.0 - 4.75
% MEDIUM SAND :	< 1	0.425 - 2.0
% FINE SAND :	15.42	0.075 - 0.425
% SILT :	43.60	0.075 - 0.005
% CLAY :	40.37	< 0.005

CERTIFICATE OF ANALYSIS

Work Order	: **WT2400552**	Page	: 1 of 7
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B\	Date Samples Received	: 08-Jan-2024 16:30
PO	: ----	Date Analysis Commenced	: 10-Jan-2024
C-O-C number	: ----	Issue Date	: 16-Jan-2024 14:41
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niki Goebel		Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-SS1	BH1-24-SS7	BH1-24-SS9	DUP-01/07	BH1-24-SS3
					Client sampling date / time	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00
						WT2400552-001	WT2400552-002	WT2400552-003	WT2400552-004	WT2400552-005
						Result	Result	Result	Result	Result
Physical Tests										
Conductivity (1:2 leachate)	----	E100-L/WT	0.00500	mS/cm		0.190	----	1.08	----	----
Moisture	----	E144/WT	0.25	%		7.81	23.5	26.7	19.7	----
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	0.10	pH units		7.78	----	7.78	----	----
Particle Size										
Grain size curve	----	E185/SK	-	-		----	See Attached	----	----	See Attached
Percent Passing										
Passing (9.5mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (4.75mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (19mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (25.4mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (38.1mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (50.8mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (76.2mm)	----	E181/SK	1.0	%		----	100	----	----	100
Passing (1.0mm)	----	E182/SK	1.0	%		----	99.9	----	----	99.7
Passing (0.841mm)	----	E182/SK	1.0	%		----	99.9	----	----	99.7
Passing (0.50mm)	----	E182/SK	1.0	%		----	99.8	----	----	99.4
Passing (0.420mm)	----	E182/SK	1.0	%		----	99.8	----	----	99.4
Passing (0.250mm)	----	E182/SK	1.0	%		----	99.4	----	----	99.0
Passing (0.149mm)	----	E182/SK	1.0	%		----	94.8	----	----	95.6
Passing (0.125mm)	----	E182/SK	1.0	%		----	87.9	----	----	91.8
Passing (0.075mm)	----	E182/SK	1.0	%		----	73.5	----	----	84.0
Passing (0.063mm)	----	E182/SK	1.0	%		----	67.8	----	----	80.7
Passing (0.05mm)	----	E182/SK	1.0	%		----	61.5	----	----	77.2
Passing (0.0312mm)	----	E183/SK	1.0	%		----	53.6	----	----	68.6
Passing (0.020mm)	----	E183/SK	1.0	%		----	48.9	----	----	59.8
Passing (0.005mm)	----	E183/SK	1.0	%		----	39.7	----	----	40.2
Passing (0.004mm)	----	E183/SK	1.0	%		----	37.7	----	----	37.5
Passing (0.002mm)	----	E183/SK	1.0	%		----	32.4	----	----	29.1

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-SS1	BH1-24-SS7	BH1-24-SS9	DUP-01/07	BH1-24-SS3
					Client sampling date / time	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00
						WT2400552-001	WT2400552-002	WT2400552-003	WT2400552-004	WT2400552-005
						Result	Result	Result	Result	Result
Percent Passing										
Passing (2.0mm)	----	E181/SK	1.0	%		----	100	----	----	100
Cyanides										
Cyanide, weak acid dissociable	----	E336A/WT	0.050	mg/kg		<0.050	----	<0.050	----	----
Fixed-Ratio Extractables										
Calcium, soluble ion content	7440-70-2	E484/WT	0.50	mg/L		6.42	----	62.9	----	----
Magnesium, soluble ion content	7439-95-4	E484/WT	0.50	mg/L		1.41	----	19.5	----	----
Sodium, soluble ion content	17341-25-2	E484/WT	0.50	mg/L		12.4	----	98.3	----	----
Sodium adsorption ratio [SAR]	----	E484/WT	0.10	-		1.15	----	2.78	----	----
Metals										
Antimony	7440-36-0	E440C/WT	0.10	mg/kg		<0.10	----	<0.10	----	----
Arsenic	7440-38-2	E440C/WT	0.10	mg/kg		2.13	----	1.66	----	----
Barium	7440-39-3	E440C/WT	0.50	mg/kg		104	----	215	----	----
Beryllium	7440-41-7	E440C/WT	0.10	mg/kg		0.28	----	0.51	----	----
Boron	7440-42-8	E440C/WT	5.0	mg/kg		6.1	----	5.0	----	----
Boron, hot water soluble	7440-42-8	E487/WT	0.10	mg/kg		0.18	----	<0.10	----	----
Cadmium	7440-43-9	E440C/WT	0.020	mg/kg		0.049	----	0.076	----	----
Chromium	7440-47-3	E440C/WT	0.50	mg/kg		16.8	----	44.8	----	----
Cobalt	7440-48-4	E440C/WT	0.10	mg/kg		5.82	----	12.2	----	----
Copper	7440-50-8	E440C/WT	0.50	mg/kg		12.4	----	24.3	----	----
Lead	7439-92-1	E440C/WT	0.50	mg/kg		5.77	----	4.59	----	----
Mercury	7439-97-6	E510C/WT	0.0050	mg/kg		0.0096	----	<0.0050	----	----
Molybdenum	7439-98-7	E440C/WT	0.10	mg/kg		0.86	----	0.66	----	----
Nickel	7440-02-0	E440C/WT	0.50	mg/kg		11.2	----	25.9	----	----
Selenium	7782-49-2	E440C/WT	0.20	mg/kg		<0.20	----	0.28	----	----
Silver	7440-22-4	E440C/WT	0.10	mg/kg		<0.10	----	<0.10	----	----
Thallium	7440-28-0	E440C/WT	0.050	mg/kg		0.109	----	0.242	----	----
Uranium	7440-61-1	E440C/WT	0.050	mg/kg		0.444	----	1.15	----	----
Vanadium	7440-62-2	E440C/WT	0.20	mg/kg		24.0	----	69.3	----	----
Zinc	7440-66-6	E440C/WT	2.0	mg/kg		22.0	----	66.4	----	----
Speciated Metals										

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-SS1	BH1-24-SS7	BH1-24-SS9	DUP-01/07	BH1-24-SS3
					Client sampling date / time	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00
						WT2400552-001	WT2400552-002	WT2400552-003	WT2400552-004	WT2400552-005
						Result	Result	Result	Result	Result
Speciated Metals										
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	0.10	mg/kg		0.16	----	0.14	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Benzene	71-43-2	E611D/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	----
Bromodichloromethane	75-27-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Bromoform	75-25-2	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Bromomethane	74-83-9	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Carbon tetrachloride	56-23-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Chlorobenzene	108-90-7	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Chloroform	67-66-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dibromochloromethane	124-48-1	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloromethane	75-09-2	E611D/WT	0.045	mg/kg		<0.045	<0.045	<0.045	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.050	mg/kg		----	----	<0.050	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.075	mg/kg		<0.050	<0.050	----	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.030	mg/kg		----	----	<0.030	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	----	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.030	mg/kg		----	----	<0.030	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.050	mg/kg		<0.050	<0.050	----	<0.050	----
Ethylbenzene	100-41-4	E611D/WT	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	----

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-SS1	BH1-24-SS7	BH1-24-SS9	DUP-01/07	BH1-24-SS3
					Client sampling date / time	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00
						WT2400552-001	WT2400552-002	WT2400552-003	WT2400552-004	WT2400552-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Hexane, n-	110-54-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	----
Styrene	100-42-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethylene	127-18-4	E611D/WT	0.050	mg/kg		0.832	<0.050	<0.050	<0.050	----
Toluene	108-88-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethylene	79-01-6	E611D/WT	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Vinyl chloride	75-01-4	E611D/WT	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	----
Xylene, m+p-	179601-23-1	E611D/WT	0.030	mg/kg		<0.030	<0.030	<0.030	<0.030	----
Xylene, o-	95-47-6	E611D/WT	0.030	mg/kg		<0.030	<0.030	<0.030	<0.030	----
Xylenes, total	1330-20-7	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
BTEX, total	----	E611D/WT	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WT	5.0	mg/kg		----	----	<5.0	----	----
F2 (C10-C16)	----	E601.SG-L/WT	10	mg/kg		----	----	<10	----	----
F3 (C16-C34)	----	E601.SG-L/WT	50	mg/kg		----	----	<50	----	----
F4 (C34-C50)	----	E601.SG-L/WT	50	mg/kg		----	----	<50	----	----
F1-BTEX	----	EC580/WT	5.0	mg/kg		----	----	<5.0	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	80	mg/kg		----	----	<80	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	-		----	----	YES	----	----
Hydrocarbons Surrogates										

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: BH1-24-SS1	BH1-24-SS7	BH1-24-SS9	DUP-01/07	BH1-24-SS3
					Client sampling date / time: 07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00	07-Jan-2024 00:00
					WT2400552-001	WT2400552-002	WT2400552-003	WT2400552-004	WT2400552-005
					Result	Result	Result	Result	Result
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	1.0	%	----	----	89.2	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	1.0	%	----	----	110	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611D/WT	0.10	%	93.5	85.9	92.3	94.5	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	0.10	%	101	92.8	97.7	102	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2400552**	Page	: 1 of 14
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B\	Date Samples Received	: 08-Jan-2024 16:30
PO	: ----	Issue Date	: 16-Jan-2024 14:41
C-O-C number	: ----		
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Volatile Organic Compounds	Anonymous	Anonymous	Acetone	67-64-1	E611D	146 % MES	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E336A	07-Jan-2024	10-Jan-2024	14 days	4 days	✓	12-Jan-2024	14 days	2 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E336A	07-Jan-2024	10-Jan-2024	14 days	4 days	✓	12-Jan-2024	14 days	2 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial										
BH1-24-SS9	E581.F1	07-Jan-2024	10-Jan-2024	40 days	4 days	✓	10-Jan-2024	40 days	4 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E601.SG-L	07-Jan-2024	11-Jan-2024	14 days	5 days	✓	12-Jan-2024	40 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E487	07-Jan-2024	12-Jan-2024	180 days	5 days	✓	12-Jan-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E487	07-Jan-2024	12-Jan-2024	180 days	5 days	✓	12-Jan-2024	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E510C	07-Jan-2024	11-Jan-2024	28 days	5 days	✓	12-Jan-2024	28 days	5 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E510C	07-Jan-2024	11-Jan-2024	28 days	5 days	✓	12-Jan-2024	28 days	5 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E440C	07-Jan-2024	11-Jan-2024	180 days	5 days	✓	12-Jan-2024	180 days	6 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E440C	07-Jan-2024	11-Jan-2024	180 days	5 days	✓	12-Jan-2024	180 days	6 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E484	07-Jan-2024	12-Jan-2024	180 days	5 days	✓	12-Jan-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E484	07-Jan-2024	12-Jan-2024	180 days	5 days	✓	12-Jan-2024	180 days	0 days	✓
Particle Size : Grain Size Report (Attachment) Hydrometer/Sieve Method										
Paper Bag (Brown)										
BH1-24-SS3	E185	07-Jan-2024	----	----	----		16-Jan-2024	----	----	
Particle Size : Grain Size Report (Attachment) Hydrometer/Sieve Method										
Paper Bag (Brown)										
BH1-24-SS7	E185	07-Jan-2024	----	----	----		16-Jan-2024	----	----	
Percent Passing : Particle Size Analysis - Hydrometer										
Paper Bag (Brown)										
BH1-24-SS3	E183	07-Jan-2024	11-Jan-2024	365 days	5 days	✓	11-Jan-2024	365 days	5 days	✓
Percent Passing : Particle Size Analysis - Hydrometer										
Paper Bag (Brown)										
BH1-24-SS7	E183	07-Jan-2024	11-Jan-2024	365 days	5 days	✓	11-Jan-2024	365 days	5 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Percent Passing : Particle Size Analysis - Sieve <2mm										
Paper Bag (Brown) BH1-24-SS3	E182	07-Jan-2024	11-Jan-2024	365 days	5 days	✓	11-Jan-2024	365 days	5 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
Paper Bag (Brown) BH1-24-SS7	E182	07-Jan-2024	11-Jan-2024	365 days	5 days	✓	11-Jan-2024	365 days	5 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
Paper Bag (Brown) BH1-24-SS3	E181	07-Jan-2024	11-Jan-2024	365 days	5 days	✓	11-Jan-2024	365 days	5 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
Paper Bag (Brown) BH1-24-SS7	E181	07-Jan-2024	11-Jan-2024	365 days	5 days	✓	11-Jan-2024	365 days	5 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap BH1-24-SS1	E100-L	07-Jan-2024	12-Jan-2024	30 days	5 days	✓	12-Jan-2024	30 days	6 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap BH1-24-SS9	E100-L	07-Jan-2024	12-Jan-2024	30 days	5 days	✓	12-Jan-2024	30 days	6 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap BH1-24-SS1	E144	07-Jan-2024	----	----	----		10-Jan-2024	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap BH1-24-SS7	E144	07-Jan-2024	----	----	----		10-Jan-2024	----	4 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap BH1-24-SS9	E144	07-Jan-2024	----	----	----		10-Jan-2024	----	4 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-01/07	E144	07-Jan-2024	----	----	----		10-Jan-2024	----	4 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E108A	07-Jan-2024	11-Jan-2024	30 days	5 days	✓	15-Jan-2024	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E108A	07-Jan-2024	11-Jan-2024	30 days	5 days	✓	15-Jan-2024	30 days	9 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH1-24-SS1	E532	07-Jan-2024	11-Jan-2024	30 days	5 days	✓	15-Jan-2024	7 days	4 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH1-24-SS9	E532	07-Jan-2024	11-Jan-2024	30 days	5 days	✓	15-Jan-2024	7 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial										
BH1-24-SS1	E611D	07-Jan-2024	10-Jan-2024	40 days	4 days	✓	10-Jan-2024	40 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial										
BH1-24-SS7	E611D	07-Jan-2024	10-Jan-2024	40 days	4 days	✓	10-Jan-2024	40 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial										
BH1-24-SS9	E611D	07-Jan-2024	10-Jan-2024	40 days	4 days	✓	10-Jan-2024	40 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial										
DUP-01/07	E611D	07-Jan-2024	10-Jan-2024	40 days	4 days	✓	10-Jan-2024	40 days	4 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1299638	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1299338	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1299681	1	15	6.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1299636	1	16	6.2	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1299634	1	8	12.5	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1299639	1	13	7.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1299640	1	15	6.6	5.0	✓
Moisture Content by Gravimetry	E144	1298914	1	7	14.2	5.0	✓
Particle Size Analysis - Hydrometer	E183	1300400	1	2	50.0	5.0	✓
Particle Size Analysis - Sieve <2mm	E182	1300399	1	2	50.0	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1299961	1	14	7.1	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1299637	1	16	6.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1299337	1	15	6.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1298937	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1299638	2	13	15.3	10.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1299338	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1299681	1	15	6.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1299636	2	16	12.5	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1299634	2	8	25.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1299639	2	13	15.3	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1299640	2	15	13.3	10.0	✓
Moisture Content by Gravimetry	E144	1298914	1	7	14.2	5.0	✓
Particle Size Analysis - Hydrometer	E183	1300400	1	2	50.0	5.0	✓
Particle Size Analysis - Sieve <2mm	E182	1300399	1	2	50.0	5.0	✓
Particle Size Analysis - Sieve >2mm	E181	1300398	1	2	50.0	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1299961	1	14	7.1	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1299637	2	16	12.5	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1299337	1	15	6.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1298937	1	4	25.0	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1299638	1	13	7.6	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1299338	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1299681	1	15	6.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1299636	1	16	6.2	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Hexavalent Chromium (Cr VI) by IC	E532	1299634	1	8	12.5	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1299639	1	13	7.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1299640	1	15	6.6	5.0	✓
Moisture Content by Gravimetry	E144	1298914	1	7	14.2	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1299637	1	16	6.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1299337	1	15	6.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1298937	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
CCME PHC - F1 by Headspace GC-FID	E581.F1	1299338	1	12	8.3	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1299681	1	15	6.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1299337	1	15	6.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1298937	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, 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 by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode. This method is equivalent to ASTM D4972 and is acceptable for topsoil analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Particle Size Analysis - Sieve >2mm	E181 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913-17 (mod)	Soil samples are disaggregated and sieved through a 2mm sieve. Material retained on the sieve is then further sieved through a series of sieves. The amount passing through the sieves is measured gravimetrically.
Particle Size Analysis - Sieve <2mm	E182 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913-17 (mod)	Soil samples are disaggregated and sieved through a 2mm sieve. Material passed through the sieve is then further disaggregated using calgon solution and passed through a series of sieves. The amount passing through the sieves is measured gravimetrically.
Particle Size Analysis - Hydrometer	E183 ALS Environmental - Saskatoon	Soil/Solid	ASTM D7928-21 (mod)	Soil material is separated from coarse material (>2mm). A specimen is then disaggregated through mixing with Calgon solution. The material is then suspended in solution wherein regular hydrometer readings are taken at specific time intervals. The principles of Stokes' Law are applied to determine the amount of material remaining in solution as well as the maximum particle size remaining in solution at the specified time.
Grain Size Report (Attachment) Hydrometer/Sieve Method	E185 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913/D7928	A grain size curve is a graphical representation of the particle sizing of a sample representing the percent passing against the effective particle size.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	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.
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	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).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, 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 by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak 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)

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Waterloo	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **WT2400552**	Page	: 1 of 16
Client	: Lopers & Associates	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 613 225 8279
Project	: LOP23-029B\	Date Samples Received	: 08-Jan-2024 16:30
PO	: ----	Date Analysis Commenced	: 10-Jan-2024
C-O-C number	: ----	Issue Date	: 16-Jan-2024 14:41
Sampler	: CLIENT 613 327 9073		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niki Goebel		Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1298914)											
WT2400299-007	Anonymous	Moisture	----	E144	0.25	%	19.3	19.1	0.778%	20%	----
Physical Tests (QC Lot: 1299636)											
WT2339955-001	Anonymous	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	1.38 mS/cm	1400	1.00%	20%	----
Physical Tests (QC Lot: 1299961)											
WT2400463-003	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	6.95	6.87	1.16%	5%	----
Percent Passing (QC Lot: 1300399)											
WT2400552-002	BH1-24-SS7	Passing (0.05mm)	----	E182	1.0	%	61.5	63.9	3.83%	15%	----
		Passing (0.063mm)	----	E182	1.0	%	67.8	69.1	1.87%	15%	----
		Passing (0.075mm)	----	E182	1.0	%	73.5	73.8	0.328%	15%	----
		Passing (0.125mm)	----	E182	1.0	%	87.9	88.2	0.253%	15%	----
		Passing (0.149mm)	----	E182	1.0	%	94.8	95.1	0.225%	15%	----
		Passing (0.250mm)	----	E182	1.0	%	99.4	99.5	0.106%	15%	----
		Passing (0.420mm)	----	E182	1.0	%	99.8	99.8	0.0559%	15%	----
		Passing (0.50mm)	----	E182	1.0	%	99.8	99.8	0.0492%	15%	----
		Passing (0.841mm)	----	E182	1.0	%	99.9	99.9	0.0254%	15%	----
		Passing (1.0mm)	----	E182	1.0	%	99.9	99.9	0.0216%	15%	----
Percent Passing (QC Lot: 1300400)											
WT2400552-002	BH1-24-SS7	Passing (0.002mm)	----	E183	1.0	%	32.4	33.4	2.97%	15%	----
		Passing (0.004mm)	----	E183	1.0	%	37.7	39.1	3.54%	15%	----
		Passing (0.005mm)	----	E183	1.0	%	39.7	41.0	3.22%	15%	----
		Passing (0.020mm)	----	E183	1.0	%	48.9	51.8	5.80%	15%	----
		Passing (0.0312mm)	----	E183	1.0	%	53.6	56.9	6.07%	15%	----
Cyanides (QC Lot: 1298937)											
WT2400552-001	BH1-24-SS1	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1299637)											
WT2339955-001	Anonymous	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	6.67	6.56	1.66%	30%	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	0.84	0.78	0.06	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	264	262	0.760%	30%	----
Metals (QC Lot: 1299638)											
WT2400552-001	BH1-24-SS1	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.18	0.18	0.004	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1299639)											
WT2400552-001	BH1-24-SS1	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0096	0.0080	0.0016	Diff <2x LOR	----
Metals (QC Lot: 1299640)											
WT2400552-001	BH1-24-SS1	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	2.13	2.04	4.47%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	104	97.5	6.06%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.28	0.30	0.02	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	6.1	7.2	1.0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.049	0.051	0.002	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	16.8	17.4	3.30%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	5.82	5.72	1.58%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	12.4	11.9	3.46%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	5.77	5.67	1.71%	40%	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.86	0.92	5.98%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	11.2	11.2	0.148%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.109	0.111	0.002	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.444	0.474	6.70%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	24.0	24.6	2.62%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	22.0	21.8	1.22%	30%	----
Speciated Metals (QC Lot: 1299634)											
WT2400552-001	BH1-24-SS1	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	0.16	0.17	0.008	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1299337)											
WT2400596-007	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1299337) - continued											
WT2400596-007	Anonymous	Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1299338)											
WT2400596-007	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1299681)											
WT2400636-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10 µg/g	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50 µg/g	<50	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1299681) - continued											
WT2400636-001	Anonymous	F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50 µg/g	<50	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1298914)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1299636)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Cyanides (QCLot: 1298937)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1299637)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1299638)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1299639)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1299640)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Speciated Metals (QCLot: 1299634)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1299337)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1299337) - continued						
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1299338)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1299681)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1298914)									
Moisture	----	E144	0.25	%	50 %	99.2	90.0	110	----
Physical Tests (QCLot: 1299636)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	99.1	90.0	110	----
Physical Tests (QCLot: 1299961)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	99.8	98.0	102	----
Cyanides (QCLot: 1298937)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	85.5	80.0	120	----
Metals (QCLot: 1299637)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	104	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	100	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	101	80.0	120	----
Metals (QCLot: 1299638)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	108	70.0	130	----
Metals (QCLot: 1299639)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	112	80.0	120	----
Metals (QCLot: 1299640)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	107	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	97.1	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	92.2	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	91.4	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	99.1	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	99.3	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	99.6	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	105	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	99.5	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	98.8	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	102	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	90.4	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	100.0	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1299640) - continued									
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	104	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	101	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	98.0	80.0	120	----
Speciated Metals (QCLot: 1299634)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	96.0	80.0	120	----
Volatile Organic Compounds (QCLot: 1299337)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	128	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	91.9	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	96.8	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	96.6	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	91.7	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	89.9	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	91.6	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	96.5	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	97.8	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	100	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	92.6	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	89.3	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	89.3	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	58.2	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	96.3	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	105	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	91.3	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	95.5	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	96.0	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	102	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	98.2	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	95.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	93.8	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	86.5	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	88.9	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	120	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	115	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	94.8	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1299337) - continued									
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	90.8	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	94.2	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	108	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	88.2	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	86.9	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	89.9	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	101	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	91.6	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	84.2	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	85.9	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	88.1	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	88.5	70.0	130	----
Hydrocarbons (QCLot: 1299338)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	96.4	80.0	120	----
Hydrocarbons (QCLot: 1299681)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	671.175 mg/kg	108	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1384.058 mg/kg	112	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	738.5 mg/kg	115	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1298937)										
WT2400552-001	BH1-24-SS1	Cyanide, weak acid dissociable	----	E336A	1.15 mg/kg	1.25 mg/kg	90.8	70.0	130	----
Volatile Organic Compounds (QCLot: 1299337)										
WT2400596-007	Anonymous	Acetone	67-64-1	E611D	3.01 mg/kg	3.125 mg/kg	146	50.0	140	MES
		Benzene	71-43-2	E611D	2.02 mg/kg	3.125 mg/kg	98.4	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.13 mg/kg	3.125 mg/kg	104	50.0	140	----
		Bromoform	75-25-2	E611D	2.08 mg/kg	3.125 mg/kg	101	50.0	140	----
		Bromomethane	74-83-9	E611D	2.04 mg/kg	3.125 mg/kg	99.6	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	2.00 mg/kg	3.125 mg/kg	97.2	50.0	140	----
		Chlorobenzene	108-90-7	E611D	1.99 mg/kg	3.125 mg/kg	97.0	50.0	140	----
		Chloroform	67-66-3	E611D	2.13 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	2.14 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.18 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.02 mg/kg	3.125 mg/kg	98.4	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	1.93 mg/kg	3.125 mg/kg	93.8	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	1.93 mg/kg	3.125 mg/kg	94.0	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	1.77 mg/kg	3.125 mg/kg	86.2	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.14 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.31 mg/kg	3.125 mg/kg	112	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.08 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.10 mg/kg	3.125 mg/kg	102	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.15 mg/kg	3.125 mg/kg	105	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.26 mg/kg	3.125 mg/kg	110	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.16 mg/kg	3.125 mg/kg	105	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	1.95 mg/kg	3.125 mg/kg	95.0	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	1.91 mg/kg	3.125 mg/kg	93.1	50.0	140	----
		Ethylbenzene	100-41-4	E611D	1.88 mg/kg	3.125 mg/kg	91.8	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.08 mg/kg	3.125 mg/kg	101	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.54 mg/kg	3.125 mg/kg	124	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.56 mg/kg	3.125 mg/kg	125	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.03 mg/kg	3.125 mg/kg	98.9	50.0	140	----
		Styrene	100-42-5	E611D	1.98 mg/kg	3.125 mg/kg	96.6	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1299337) - continued										
WT2400596-007	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	2.07 mg/kg	3.125 mg/kg	101	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.40 mg/kg	3.125 mg/kg	117	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	1.93 mg/kg	3.125 mg/kg	93.8	50.0	140	----
		Toluene	108-88-3	E611D	1.89 mg/kg	3.125 mg/kg	92.1	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	1.98 mg/kg	3.125 mg/kg	96.4	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.20 mg/kg	3.125 mg/kg	107	50.0	140	----
		Trichloroethylene	79-01-6	E611D	2.01 mg/kg	3.125 mg/kg	97.9	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	1.94 mg/kg	3.125 mg/kg	94.5	50.0	140	----
		Vinyl chloride	75-01-4	E611D	2.06 mg/kg	3.125 mg/kg	100	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	3.86 mg/kg	6.25 mg/kg	93.9	50.0	140	----
		Xylene, o-	95-47-6	E611D	1.93 mg/kg	3.125 mg/kg	94.0	50.0	140	----
Hydrocarbons (QCLot: 1299338)										
WT2400596-007	Anonymous	F1 (C6-C10)	----	E581.F1	40.4 mg/kg	62.5 mg/kg	98.5	60.0	140	----
Hydrocarbons (QCLot: 1299681)										
WT2400636-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	517 mg/kg	671.175 mg/kg	95.6	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1120 mg/kg	1384.058 mg/kg	100.0	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	608 mg/kg	738.5 mg/kg	102	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1299636)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1384 µS/cm	98.4	70.0	130	----
Percent Passing (QCLot: 1300398)									
	RM	Passing (19mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (2.0mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (25.4mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (38.1mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (4.75mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (50.8mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (76.2mm)	----	E181	100 %	100	90.0	110	----
	RM	Passing (9.5mm)	----	E181	100 %	100	90.0	110	----
Percent Passing (QCLot: 1300399)									
	RM	Passing (0.05mm)	----	E182	54.08 %	99.8	90.0	110	----
	RM	Passing (0.063mm)	----	E182	57.14 %	100	90.8	109	----
	RM	Passing (0.075mm)	----	E182	60.15 %	100	91.4	109	----
	RM	Passing (0.125mm)	----	E182	68.19 %	100.0	92.7	107	----
	RM	Passing (0.149mm)	----	E182	72.05 %	99.7	93.1	107	----
	RM	Passing (0.250mm)	----	E182	82.27 %	99.0	94.1	106	----
	RM	Passing (0.420mm)	----	E182	89.94 %	99.0	94.6	105	----
	RM	Passing (0.50mm)	----	E182	91.15 %	99.1	94.7	105	----
	RM	Passing (0.841mm)	----	E182	95.64 %	99.4	94.9	105	----
	RM	Passing (1.0mm)	----	E182	96.31 %	99.5	94.9	105	----
Percent Passing (QCLot: 1300400)									
	RM	Passing (0.002mm)	----	E183	24.64 %	84.2	76.0	124	----
	RM	Passing (0.004mm)	----	E183	29.3 %	91.2	80.0	120	----
	RM	Passing (0.005mm)	----	E183	31.16 %	92.6	82.0	118	----
	RM	Passing (0.020mm)	----	E183	43.27 %	94.1	87.0	113	----
	RM	Passing (0.0312mm)	----	E183	48.23 %	96.0	88.0	112	----
Metals (QCLot: 1299637)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Metals (QCLot: 1299637) - continued									
	RM	Calcium, soluble ion content	7440-70-2	E484	43.54 mg/L	103	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	15.24 mg/L	99.7	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	33.47 mg/L	101	70.0	130	----
Metals (QCLot: 1299638)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.366 mg/kg	95.9	60.0	140	----
Metals (QCLot: 1299639)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	103	70.0	130	----
Metals (QCLot: 1299640)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	85.4	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	108	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	110	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	98.3	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	121	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	103	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	102	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	105	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	106	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	102	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	101	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	105	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	95.6	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	88.2	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	101	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	103	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	102	70.0	130	----
Speciated Metals (QCLot: 1299634)									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	89.3	70.0	130	----

US-35
SQ-406

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 22 -

Page of

Environmental Division
Waterloo
Work Order Reference
WT2400552

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	LOPERS & ASSOCIATES - LOPE100
Contact:	Luke Lopers
Phone:	613-327-9073
	Company address below will appear on the final report
Street:	30 Lansfield Way
City/Province:	Ottawa, ON
Postal Code:	K2G 3V8

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 Luke@Lopers.ca
Email 2
Email 3

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 min
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge mi
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge mi
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge mi
☐ Same day [E2] if received by 10am M-S - 200% rush surcha
Additional fees may apply to rush requests on weeke
Date and Time Required for all E&P TATs:

Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax Luke@Lopers.ca
Email 2

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

Project Information

ALS Account # / Quote #:	LOPE100/WT2023LOPE1000002
Job #:	LOP23-029B\
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): WT2400552
ALS Contact: Costas Farassoglou
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	Metals & Inorganics	BTEX/F1-F4	VOC/F1-F4	PAH	VOCs	Grain Size	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH1-24-SS1	07-Jan-24		SOIL	4	X				X				
	BH1-24-SS7	07-Jan-24		SOIL	4					X	X			
	BH1-24-SS9	07-Jan-24		SOIL	4	X		X						
	DUP-01/07	07-Jan-24		SOIL	3					X				
	BH1-24-SS3	07-Jan-24		SOIL	1						X			
				SOIL										
				SOIL										
				SOIL										
				SOIL										
				SOIL										
				SOIL										
				SOIL										

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO
Are samples for human consumption/ use?
☐ YES ☐ NO

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

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					6.6		

SHIPMENT RELEASE (client use)

Released by: Luke Lop Date: Jan 8/2024 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Tammy Chartrand Date: Jan. 8th/24 Time: 4:30

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 01/10/24 Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION
WHITE - LABORATORY COPY YELLOW - CLIENT COPY
FEB 2022 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**.

CERTIFICATE OF ANALYSIS

Work Order	: **WT2402708**	Page	: 1 of 7
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 05-Feb-2024 16:20
PO	: ----	Date Analysis Commenced	: 07-Feb-2024
C-O-C number	: ----	Issue Date	: 12-Feb-2024 14:26
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Josphin Masihi	Analyst	Centralized Prep, Waterloo, Ontario
Josphin Masihi	Analyst	Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
SUR-ND	*Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.*

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: BH2-24-SS1	BH2-24-SS7	----	----	----
					Client sampling date / time: 05-Feb-2024 11:00	05-Feb-2024 13:00	----	----	----
					WT2402708-001	WT2402708-002	--------	--------	--------
					Result	Result	----	----	----
Physical Tests									
Conductivity (1:2 leachate)	----	E100-L/WT	0.00500	mS/cm	0.433	----	----	----	----
Moisture	----	E144/WT	0.25	%	4.38	20.5	----	----	----
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	0.10	pH units	7.75	----	----	----	----
Cyanides									
Cyanide, weak acid dissociable	----	E336A/WT	0.050	mg/kg	<0.050	----	----	----	----
Fixed-Ratio Extractables									
Calcium, soluble ion content	7440-70-2	E484/WT	0.50	mg/L	3.90	----	----	----	----
Magnesium, soluble ion content	7439-95-4	E484/WT	0.50	mg/L	1.25	----	----	----	----
Sodium, soluble ion content	17341-25-2	E484/WT	0.50	mg/L	67.0	----	----	----	----
Sodium adsorption ratio [SAR]	----	E484/WT	0.10	-	7.56	----	----	----	----
Metals									
Antimony	7440-36-0	E440C/WT	0.10	mg/kg	<0.10	----	----	----	----
Arsenic	7440-38-2	E440C/WT	0.10	mg/kg	1.90	----	----	----	----
Barium	7440-39-3	E440C/WT	0.50	mg/kg	124	----	----	----	----
Beryllium	7440-41-7	E440C/WT	0.10	mg/kg	0.42	----	----	----	----
Boron	7440-42-8	E440C/WT	5.0	mg/kg	7.0	----	----	----	----
Boron, hot water soluble	7440-42-8	E487/WT	0.10	mg/kg	0.27	----	----	----	----
Cadmium	7440-43-9	E440C/WT	0.020	mg/kg	0.067	----	----	----	----
Chromium	7440-47-3	E440C/WT	0.50	mg/kg	32.4	----	----	----	----
Cobalt	7440-48-4	E440C/WT	0.10	mg/kg	8.33	----	----	----	----
Copper	7440-50-8	E440C/WT	0.50	mg/kg	19.2	----	----	----	----
Lead	7439-92-1	E440C/WT	0.50	mg/kg	4.91	----	----	----	----
Mercury	7439-97-6	E510C/WT	0.0050	mg/kg	0.0130	----	----	----	----
Molybdenum	7439-98-7	E440C/WT	0.10	mg/kg	1.62	----	----	----	----
Nickel	7440-02-0	E440C/WT	0.50	mg/kg	16.9	----	----	----	----
Selenium	7782-49-2	E440C/WT	0.20	mg/kg	<0.20	----	----	----	----
Silver	7440-22-4	E440C/WT	0.10	mg/kg	<0.10	----	----	----	----
Thallium	7440-28-0	E440C/WT	0.050	mg/kg	0.152	----	----	----	----
Uranium	7440-61-1	E440C/WT	0.050	mg/kg	0.573	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	BH2-24-SS1	BH2-24-SS7	----	----	----
					Client sampling date / time	05-Feb-2024 11:00	05-Feb-2024 13:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2402708-001	WT2402708-002	--------	--------	--------
						Result	Result	----	----	----
Metals										
Vanadium	7440-62-2	E440C/WT	0.20	mg/kg		41.2	----	----	----	----
Zinc	7440-66-6	E440C/WT	2.0	mg/kg		39.2	----	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	0.10	mg/kg		0.21	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	0.50	mg/kg		----	<0.50	----	----	----
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		0.0058	----	----	----	----
Benzene	71-43-2	E611D/WT	0.0050	mg/kg		----	<0.0050	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Bromoform	75-25-2	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Bromomethane	74-83-9	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Chloroform	67-66-3	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloromethane	75-09-2	E611D/WT	0.045	mg/kg		----	<0.045	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.030	mg/kg		----	<0.030	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.030	mg/kg		----	<0.030	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	BH2-24-SS1	BH2-24-SS7	----	----	----
					Client sampling date / time	05-Feb-2024 11:00	05-Feb-2024 13:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2402708-001	WT2402708-002	--------	--------	--------
						Result	Result	----	----	----
Volatile Organic Compounds										
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		<0.015	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.015	mg/kg		----	<0.015	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	0.50	mg/kg		----	<0.50	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	0.50	mg/kg		----	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.040	mg/kg		----	<0.040	----	----	----
Styrene	100-42-5	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg		<0.050	----	----	----	----
Toluene	108-88-3	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.010	mg/kg		----	<0.010	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
Vinyl chloride	75-01-4	E611D/WT	0.020	mg/kg		----	<0.020	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		<0.030	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	0.030	mg/kg		----	<0.030	----	----	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		<0.030	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.030	mg/kg		----	<0.030	----	----	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		<0.050	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.050	mg/kg		----	<0.050	----	----	----
BTEX, total	----	E611A/WT	0.10	mg/kg		<0.10	----	----	----	----
BTEX, total	----	E611D/WT	0.10	mg/kg		----	<0.10	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WT	5.0	mg/kg		<5.0	<5.0	----	----	----
F2 (C10-C16)	----	E601.SG-L/WT	10	mg/kg		<10	<10	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	BH2-24-SS1	BH2-24-SS7	----	----	----
					Client sampling date / time	05-Feb-2024 11:00	05-Feb-2024 13:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2402708-001	WT2402708-002	--------	--------	--------
						Result	Result	----	----	----
Hydrocarbons										
F3 (C16-C34)	----	E601.SG-L/WT	50	mg/kg		<50	<50	----	----	----
F4 (C34-C50)	----	E601.SG-L/WT	50	mg/kg		<50	<50	----	----	----
F1-BTEX	----	EC580/WT	5.0	mg/kg		<5.0	<5.0	----	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	80	mg/kg		<80	<80	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	-		YES	YES	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	1.0	%		97.0	103	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	1.0	%		57.5 SUR-ND	95.0	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		91.9	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	0.10	%		----	92.2	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		105	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	0.10	%		----	96.2	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Anthracene	120-12-7	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Chrysene	218-01-9	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Fluorene	86-73-7	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	BH2-24-SS1	BH2-24-SS7	----	----	----
					Client sampling date / time	05-Feb-2024 11:00	05-Feb-2024 13:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2402708-001	WT2402708-002	--------	--------	--------
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.030	mg/kg		<0.030	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.030	mg/kg		<0.030	----	----	----	----
Naphthalene	91-20-3	E641A/WT	0.010	mg/kg		<0.010	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Pyrene	129-00-0	E641A/WT	0.050	mg/kg		<0.050	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A/WT	0.1	%		103	----	----	----	----
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		89.6	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		100	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		100	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2402708**	Page	: 1 of 11
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 05-Feb-2024 16:20
PO	: ----	Issue Date	: 12-Feb-2024 14:29
C-O-C number	: ----		
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Regular Sample Surrogates

Sub-Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Hydrocarbons Surrogates	WT2402708-001	BH2-24-SS1	Dichlorotoluene, 3,4-	95-75-0	57.5 %	60.0-140 %	Recovery less than lower data quality objective

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E336A	05-Feb-2024	07-Feb-2024	14 days	2 days	✓	08-Feb-2024	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH2-24-SS7	E581.F1	05-Feb-2024	07-Feb-2024	14 days	2 days	✓	07-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH2-24-SS1	E581.F1	05-Feb-2024	08-Feb-2024	14 days	3 days	✓	08-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS7	E601.SG-L	05-Feb-2024	07-Feb-2024	14 days	2 days	✓	08-Feb-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E601.SG-L	05-Feb-2024	07-Feb-2024	14 days	3 days	✓	08-Feb-2024	40 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E487	05-Feb-2024	09-Feb-2024	180 days	4 days	✓	09-Feb-2024	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E510C	05-Feb-2024	08-Feb-2024	28 days	3 days	✓	09-Feb-2024	28 days	4 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E440C	05-Feb-2024	08-Feb-2024	180 days	3 days	✓	09-Feb-2024	180 days	4 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E484	05-Feb-2024	09-Feb-2024	180 days	4 days	✓	09-Feb-2024	180 days	0 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E100-L	05-Feb-2024	09-Feb-2024	30 days	4 days	✓	09-Feb-2024	30 days	4 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E144	05-Feb-2024	----	----	----		07-Feb-2024	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS7	E144	05-Feb-2024	----	----	----		07-Feb-2024	----	2 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E108A	05-Feb-2024	07-Feb-2024	30 days	2 days	✓	08-Feb-2024	30 days	3 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E641A	05-Feb-2024	07-Feb-2024	60 days	3 days	✓	08-Feb-2024	40 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2-24-SS1	E532	05-Feb-2024	07-Feb-2024	30 days	2 days	✓	08-Feb-2024	7 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH2-24-SS1	E611A	05-Feb-2024	08-Feb-2024	14 days	3 days	✓	08-Feb-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH2-24-SS7	E611D	05-Feb-2024	07-Feb-2024	14 days	2 days	✓	07-Feb-2024	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1325673	1	14	7.1	5.0	✓
BTEX by Headspace GC-MS	E611A	1326317	1	16	6.2	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1325867	2	30	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1325647	1	7	14.2	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1325671	1	14	7.1	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1325669	1	14	7.1	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1325674	1	14	7.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1325675	1	19	5.2	5.0	✓
Moisture Content by Gravimetry	E144	1325981	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1325648	1	6	16.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1325705	1	1	100.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1325670	1	14	7.1	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1325866	1	14	7.1	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1325655	1	14	7.1	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1325673	2	14	14.2	10.0	✓
BTEX by Headspace GC-MS	E611A	1326317	1	16	6.2	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1325867	2	30	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1325647	1	7	14.2	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1325671	2	14	14.2	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1325669	2	14	14.2	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1325674	2	14	14.2	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1325675	2	19	10.5	10.0	✓
Moisture Content by Gravimetry	E144	1325981	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1325648	1	6	16.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1325705	1	1	100.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1325670	2	14	14.2	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1325866	1	14	7.1	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1325655	1	14	7.1	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1325673	1	14	7.1	5.0	✓
BTEX by Headspace GC-MS	E611A	1326317	1	16	6.2	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1325867	2	30	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1325647	1	7	14.2	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1325671	1	14	7.1	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Hexavalent Chromium (Cr VI) by IC	E532	1325669	1	14	7.1	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1325674	1	14	7.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1325675	1	19	5.2	5.0	✓
Moisture Content by Gravimetry	E144	1325981	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1325648	1	6	16.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1325670	1	14	7.1	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1325866	1	14	7.1	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1325655	1	14	7.1	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1326317	1	16	6.2	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1325867	2	30	6.6	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1325647	1	7	14.2	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1325648	1	6	16.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1325866	1	14	7.1	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1325655	1	14	7.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, 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 by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode. This method is equivalent to ASTM D4972 and is acceptable for topsoil analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	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).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, 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 by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak 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)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

QUALITY CONTROL REPORT

Work Order	: **WT2402708**	Page	: 1 of 19
Client	: Lopers & Associates	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 05-Feb-2024 16:20
PO	: ----	Date Analysis Commenced	: 07-Feb-2024
C-O-C number	: ----	Issue Date	: 12-Feb-2024 14:32
Sampler	: CLIENT 613 327 9073		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	Waterloo VOC, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Josphin Masihi	Analyst	Waterloo Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1325671)											
WT2402700-002	Anonymous	Conductivity (1:2 leachate)	----	E100-L	10.0	µS/cm	0.0798 mS/cm	86.0	6.20	Diff <2x LOR	----
Physical Tests (QC Lot: 1325705)											
WT2402708-001	BH2-24-SS1	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.75	7.84	1.15%	5%	----
Physical Tests (QC Lot: 1325981)											
HA2400271-021	Anonymous	Moisture	----	E144	0.25	%	21.5	22.7	5.26%	20%	----
Cyanides (QC Lot: 1325655)											
WT2402700-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1325670)											
WT2402700-002	Anonymous	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	0.58	0.60	0.02	Diff <2x LOR	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	1.27	1.28	0.01	Diff <2x LOR	----
Metals (QC Lot: 1325673)											
WT2402700-001	Anonymous	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Metals (QC Lot: 1325674)											
WT2402700-001	Anonymous	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0051	0.0050	0.00009	Diff <2x LOR	----
Metals (QC Lot: 1325675)											
WT2402700-001	Anonymous	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	0.63	0.60	0.03	Diff <2x LOR	----
		Barium	7440-39-3	E440C	0.50	mg/kg	104	103	1.11%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.19	0.22	0.03	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.052	0.050	0.001	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	17.0	17.7	4.05%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	8.17	8.27	1.21%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	20.1	20.9	4.04%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	1.95	1.96	0.02	Diff <2x LOR	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.84	0.81	3.91%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	10.8	11.4	4.74%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1325675) - continued											
WT2402700-001	Anonymous	Thallium	7440-28-0	E440C	0.050	mg/kg	0.107	0.111	0.004	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.513	0.584	13.0%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	54.4	55.3	1.52%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	41.4	41.9	1.28%	30%	----
Speciated Metals (QC Lot: 1325669)											
WT2402700-001	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	0.13	0.13	0.005	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1325866)											
WT2402774-001	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	0.0406	0.0406	0.00%	40%	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	0.043	0.042	0.0004	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	0.073	0.072	0.001	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1325866) - continued											
WT2402774-001	Anonymous	Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	0.424	0.422	0.501%	40%	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	0.182	0.182	0.194%	40%	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	0.060	0.059	0.001	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1326317)											
WT2402646-001	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	0.0597	0.0590	1.23%	40%	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	5.19	5.27	1.49%	40%	----
		Toluene	108-88-3	E611A	0.050	mg/kg	2.41	2.45	1.93%	40%	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	16.0	16.2	1.71%	40%	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	9.79	9.82	0.286%	40%	----
Hydrocarbons (QC Lot: 1325647)											
WT2402656-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<11	10	10	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	95	139	44	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	68	109	40	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1325867)											
WT2402774-001	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1326318)											
WT2402646-001	Anonymous	F1 (C6-C10)	----	E581.F1	5.8	mg/kg	252	285	12.4%	30%	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1325648)											
WT2402656-001	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	0.054	0.004	Diff <2x LOR	J
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	0.117	0.155	0.038	Diff <2x LOR	J
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	0.212	0.286	29.6%	50%	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	0.230	0.317	31.7%	50%	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	0.335	0.435	25.9%	50%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1325648) - continued											
WT2402656-001	Anonymous	Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	0.154	0.204	0.050	Diff <2x LOR	J
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	0.123	0.167	0.044	Diff <2x LOR	J
		Chrysene	218-01-9	E641A	0.050	mg/kg	0.233	0.288	21.0%	50%	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	0.557	0.744	28.8%	50%	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	0.054	0.068	0.014	Diff <2x LOR	J
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	0.170	0.237	32.5%	50%	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	0.020	0.023	0.003	Diff <2x LOR	J
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	0.402	0.556	32.0%	50%	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	0.440	0.580	27.6%	50%	----

Qualifiers

Qualifier	*Description*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1325671)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1325981)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1325655)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1325670)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1325673)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1325674)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1325675)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Speciated Metals (QCLot: 1325669)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1325866)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1325866) - continued						
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1326317)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1325647)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1325867)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1326318)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1325648)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1325648) - continued						
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1325671)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	99.0	90.0	110	----
Physical Tests (QCLot: 1325705)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1325981)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Cyanides (QCLot: 1325655)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	93.5	80.0	120	----
Metals (QCLot: 1325670)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	108	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	104	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	104	80.0	120	----
Metals (QCLot: 1325673)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	106	70.0	130	----
Metals (QCLot: 1325674)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	110	80.0	120	----
Metals (QCLot: 1325675)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	115	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	110	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	108	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	104	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	104	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	105	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	103	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	104	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	112	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	103	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	103	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	103	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	102	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1325675) - continued									
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	105	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	106	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	102	80.0	120	----
Speciated Metals (QCLot: 1325669)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	99.0	80.0	120	----
Volatile Organic Compounds (QCLot: 1325866)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	112	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	106	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	109	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	97.8	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	110	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	114	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	105	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	111	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	108	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	103	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	108	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	108	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	109	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	66.0	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	105	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	105	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	104	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	104	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	107	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	115	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	101	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	92.9	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	88.2	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	104	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	104	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	106	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	94.8	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	104	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1325866) - continued									
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	108	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	117	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	112	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	104	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	108	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	105	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	116	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	107	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	96.9	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	110	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	104	70.0	130	----
Volatile Organic Compounds (QCLot: 1326317)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	98.6	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	109	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	111	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	106	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	108	70.0	130	----
Hydrocarbons (QCLot: 1325647)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	671.175 mg/kg	98.9	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1384.058 mg/kg	107	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	738.5 mg/kg	126	70.0	130	----
Hydrocarbons (QCLot: 1325867)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	93.9	80.0	120	----
Hydrocarbons (QCLot: 1326318)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	97.0	80.0	120	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1325648)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	91.2	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	93.8	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	99.3	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	93.8	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	93.1	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	97.1	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	92.9	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1325648) - continued									
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	89.7	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	81.4	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	87.1	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	94.8	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	96.0	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	95.3	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	80.1	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	88.0	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	79.0	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	91.0	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	91.4	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1325655)										
WT2402700-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	1.14 mg/kg	1.25 mg/kg	91.5	70.0	130	----
Volatile Organic Compounds (QCLot: 1325866)										
WT2402774-001	Anonymous	Acetone	67-64-1	E611D	3.79 mg/kg	3.125 mg/kg	113	50.0	140	----
		Benzene	71-43-2	E611D	3.50 mg/kg	3.125 mg/kg	105	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	3.60 mg/kg	3.125 mg/kg	108	50.0	140	----
		Bromoform	75-25-2	E611D	3.31 mg/kg	3.125 mg/kg	99.0	50.0	140	----
		Bromomethane	74-83-9	E611D	4.15 mg/kg	3.125 mg/kg	124	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	3.67 mg/kg	3.125 mg/kg	110	50.0	140	----
		Chlorobenzene	108-90-7	E611D	3.40 mg/kg	3.125 mg/kg	101	50.0	140	----
		Chloroform	67-66-3	E611D	3.66 mg/kg	3.125 mg/kg	109	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	3.64 mg/kg	3.125 mg/kg	109	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	3.50 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	3.48 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	3.40 mg/kg	3.125 mg/kg	102	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	3.47 mg/kg	3.125 mg/kg	104	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	4.06 mg/kg	3.125 mg/kg	121	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	3.51 mg/kg	3.125 mg/kg	105	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	3.56 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	3.56 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	3.45 mg/kg	3.125 mg/kg	103	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	3.54 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dichloromethane	75-09-2	E611D	3.90 mg/kg	3.125 mg/kg	116	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	3.36 mg/kg	3.125 mg/kg	100	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	3.03 mg/kg	3.125 mg/kg	90.5	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	2.85 mg/kg	3.125 mg/kg	85.3	50.0	140	----
		Ethylbenzene	100-41-4	E611D	3.30 mg/kg	3.125 mg/kg	98.8	50.0	140	----
		Hexane, n-	110-54-3	E611D	3.57 mg/kg	3.125 mg/kg	107	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	3.57 mg/kg	3.125 mg/kg	107	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	3.18 mg/kg	3.125 mg/kg	94.9	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	3.42 mg/kg	3.125 mg/kg	102	50.0	140	----
		Styrene	100-42-5	E611D	3.32 mg/kg	3.125 mg/kg	99.3	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1325866) - continued										
WT2402774-001	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	3.54 mg/kg	3.125 mg/kg	106	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	3.99 mg/kg	3.125 mg/kg	119	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	3.52 mg/kg	3.125 mg/kg	105	50.0	140	----
		Toluene	108-88-3	E611D	3.26 mg/kg	3.125 mg/kg	97.5	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	3.47 mg/kg	3.125 mg/kg	104	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	3.53 mg/kg	3.125 mg/kg	106	50.0	140	----
		Trichloroethylene	79-01-6	E611D	3.71 mg/kg	3.125 mg/kg	111	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	3.81 mg/kg	3.125 mg/kg	114	50.0	140	----
		Vinyl chloride	75-01-4	E611D	3.95 mg/kg	3.125 mg/kg	118	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	6.91 mg/kg	6.25 mg/kg	103	50.0	140	----
		Xylene, o-	95-47-6	E611D	3.30 mg/kg	3.125 mg/kg	98.6	50.0	140	----
Volatile Organic Compounds (QCLot: 1326317)										
WT2402646-001	Anonymous	Benzene	71-43-2	E611A	2.26 mg/kg	3.125 mg/kg	96.5	60.0	140	----
		Ethylbenzene	100-41-4	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	MS-B
		Toluene	108-88-3	E611A	2.32 mg/kg	3.125 mg/kg	99.1	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	ND mg/kg	6.25 mg/kg	ND	60.0	140	MS-B
		Xylene, o-	95-47-6	E611A	ND mg/kg	3.125 mg/kg	ND	60.0	140	MS-B
Hydrocarbons (QCLot: 1325647)										
WT2402656-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	547 mg/kg	671.175 mg/kg	94.5	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1160 mg/kg	1384.058 mg/kg	97.7	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	532 mg/kg	738.5 mg/kg	83.5	60.0	140	----
Hydrocarbons (QCLot: 1325867)										
WT2402774-001	Anonymous	F1 (C6-C10)	----	E581.F1	57.2 mg/kg	62.5 mg/kg	85.5	60.0	140	----
Hydrocarbons (QCLot: 1326318)										
WT2402646-001	Anonymous	F1 (C6-C10)	----	E581.F1	ND mg/kg	62.5 mg/kg	ND	60.0	140	MS-B
Polycyclic Aromatic Hydrocarbons (QCLot: 1325648)										
WT2402656-001	Anonymous	Acenaphthene	83-32-9	E641A	0.395 mg/kg	0.5 mg/kg	98.0	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.402 mg/kg	0.5 mg/kg	99.7	50.0	140	----
		Anthracene	120-12-7	E641A	0.451 mg/kg	0.5 mg/kg	112	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.414 mg/kg	0.5 mg/kg	102	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.425 mg/kg	0.5 mg/kg	105	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.421 mg/kg	0.5 mg/kg	104	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.391 mg/kg	0.5 mg/kg	97.0	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.404 mg/kg	0.5 mg/kg	100	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1325648) - continued										
WT2402656-001	Anonymous	Chrysene	218-01-9	E641A	0.311 mg/kg	0.5 mg/kg	77.1	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.355 mg/kg	0.5 mg/kg	88.0	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.394 mg/kg	0.5 mg/kg	97.6	50.0	140	----
		Fluorene	86-73-7	E641A	0.408 mg/kg	0.5 mg/kg	101	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.433 mg/kg	0.5 mg/kg	107	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.359 mg/kg	0.5 mg/kg	89.1	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.399 mg/kg	0.5 mg/kg	98.8	50.0	140	----
		Naphthalene	91-20-3	E641A	0.378 mg/kg	0.5 mg/kg	93.7	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.413 mg/kg	0.5 mg/kg	102	50.0	140	----
		Pyrene	129-00-0	E641A	0.389 mg/kg	0.5 mg/kg	96.4	50.0	140	----

Qualifiers

Qualifier	Description
MS-B	*Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1325671)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1384 µS/cm	100	70.0	130	----
Metals (QCLot: 1325670)									
	RM	Calcium, soluble ion content	7440-70-2	E484	43.54 mg/L	103	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	15.24 mg/L	102	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	33.47 mg/L	102	70.0	130	----
Metals (QCLot: 1325673)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.366 mg/kg	109	60.0	140	----
Metals (QCLot: 1325674)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	110	70.0	130	----
Metals (QCLot: 1325675)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	99.4	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	100	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	114	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	114	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	126	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	109	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	106	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	106	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	107	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	106	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	111	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	105	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	120	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	102	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	102	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	107	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	103	70.0	130	----
Speciated Metals (QCLot: 1325669)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Speciated Metals (QCLot: 1325669) - continued									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	95.1	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	LOPERS & ASSOCIATES - LOPE100
Contact:	Luke Lopers
Phone:	613-327-9073
	Company address below will appear on the final report
Street:	30 Lansfield Way
City/Province:	Ottawa, ON
Postal Code:	K2G 3V8
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 Luke@Lopers.ca

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax Luke@Lopers.ca

Email 2

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 minir

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge mini

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge mini

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge mini

☐ Same day [E2] if received by 10am M-S - 200% rush surcharg

Additional fees may apply to rush requests on weekenc

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please c

Environmental Division Waterloo

Work Order Reference

WT2402708

Telephone : +1 519 886 6910

Project Information

ALS Account # / Quote #:	LOPE100/WT2023LOPE1000002
Job #:	LOP23-029B\
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): WT2402708 RJ

ALS Contact: Costas Farassoglou Sampler:

Analysis Re

Indicate Filtered (F), Preserved (P) or Filtered an

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	Metals & Inorganics	BTEX/F1-F4	VOC/F1-F4	PAH	SAMPLES ON HOLD	EXTENDED STORAGE REI	SUSPECTED HAZARD (see
	BH2-24-SS1	05-FEB-24	11:00 AM	SOIL	5	X	X	X	X			
	BH2-24-SS7	05-FEB-24	1:00 PM	SOIL	3		X	X				
				SOIL								
				SOIL								
				SOIL								
				SOIL								
				SOIL								
				SOIL								
				SOIL								
				SOIL								
				SOIL								
				SOIL								

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

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

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			
3.6				10.5			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	February 5, 2024	

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
COSTAS F.	5/2/2024	11:20

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
A	7-FEB-24	900

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 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**.

SOL- 689

CM

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2405697**	Page	: 1 of 14
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 13-Mar-2024 14:00
PO	: ----	Date Analysis Commenced	: 15-Mar-2024
C-O-C number	: ----	Issue Date	: 20-Mar-2024 16:26
Sampler	: Client		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Inorganics, Waterloo, Ontario
Melissa Freeman		Metals, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Robert Braun	Soils Team Supervisor	Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Tristan Stapells		Inorganics, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

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. Guidelines 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.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Sample Comments

Sample	Client Id	Comment
WT2405697-002	mSPLP-24-01	RRQC/RRR: Recovery is outside ALS control limits. Associated non-detect sample results have not been affected.

Qualifiers

Qualifier	Description
RRR	*Refer to report comments for issues regarding this analysis.*
SUR-ND	*Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.*

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TCLP-24-01	mSPLP-24-01	----	----	----	----	----
				Sampling date/time	13-Mar-2024 00:00	13-Mar-2024 00:00	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2405697-001	WT2405697-002	--------	--------	--------	--------	--------
TCLP Anions & Nutrients											
Fluoride, TCLP	16984-48-8	E240.F/WT	mg/L		<10	----	----	----	----	----	----
Nitrate (as N), TCLP	14797-55-8	E240.NO3/WT	mg/L		<5.0	----	----	----	----	----	----
Nitrite (as N), TCLP	14797-65-0	E240.NO2/WT	mg/L		<5.0	----	----	----	----	----	----
Nitrate + Nitrite (as N), TCLP	----	EC240.N+N/WT	mg/L		<7.50	----	----	----	----	----	----
TCLP Extractables											
Aldrin + Dieldrin, TCLP	----	E661B/WT	mg/L		<0.00015	----	----	----	----	----	----
Aldrin, TCLP	309-00-2	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Aroclor 1016, TCLP	12674-11-2	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1221, TCLP	11104-28-2	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1232, TCLP	11141-16-5	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1242, TCLP	53469-21-9	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1248, TCLP	12672-29-6	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1254, TCLP	11097-69-1	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1260, TCLP	11096-82-5	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1262, TCLP	37324-23-5	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Aroclor 1268, TCLP	11100-14-4	E688A/WT	mg/L		<0.00020	----	----	----	----	----	----
Benzo(a)pyrene, TCLP	50-32-8	E644/WT	mg/L		<0.00050	----	----	----	----	----	----
Chlordane, cis- (alpha), TCLP	5103-71-9	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Chlordane, total, TCLP	57-74-9	E661B/WT	mg/L		<0.00015	----	----	----	----	----	----
Chlordane, trans- (gamma), TCLP	5103-74-2	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Cyanide, weak acid dissociable, TCLP	----	E337A/WT	mg/L		<0.10	----	----	----	----	----	----
DDD, 2,4'-, TCLP	53-19-0	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
DDD, 4,4'-, TCLP	72-54-8	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
DDE, 2,4'-, TCLP	3424-82-6	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
DDE, 4,4'-, TCLP	72-55-9	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
DDT + metabolites, total, TCLP	----	E661B/WT	mg/L		<0.00025	----	----	----	----	----	----
DDT, 2,4'-, TCLP	789-02-6	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
DDT, 4,4'-, TCLP	50-29-3	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TCLP-24-01	mSPLP-24-01	----	----	----	----	----
				Sampling date/time	13-Mar-2024 00:00	13-Mar-2024 00:00	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2405697-001	WT2405697-002	--------	--------	--------	--------	--------
TCLP Extractables											
Dieldrin, TCLP	60-57-1	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Endrin, TCLP	72-20-8	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Heptachlor + Heptachlor epoxide, TCLP	----	E661B/WT	mg/L		<0.00015	----	----	----	----	----	----
Heptachlor epoxide, TCLP	1024-57-3	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Heptachlor, TCLP	76-44-8	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Hexachlorocyclohexane, gamma-, TCLP	58-89-9	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Methoxychlor, TCLP	72-43-5	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Oxychlordane, TCLP	27304-13-8	E661B/WT	mg/L		<0.00010	----	----	----	----	----	----
Decachlorobiphenyl, TCLP	2051-24-3	E688A/WT	%		84.7	----	----	----	----	----	----
Tetrachloro-m-xylene, TCLP	877-09-8	E688A/WT	%		97.9	----	----	----	----	----	----
TCLP Extractables Surrogates											
Chrysene-d12, TCLP	1719-03-5	E644/WT	%		133 SUR-ND	----	----	----	----	----	----
Decachlorobiphenyl, TCLP	2051-24-3	E661B/WT	%		123	----	----	----	----	----	----
Naphthalene-d8, TCLP	1146-65-2	E644/WT	%		104	----	----	----	----	----	----
Phenanthrene-d10, TCLP	1517-22-2	E644/WT	%		118	----	----	----	----	----	----
Tetrachloro-m-xylene, TCLP	877-09-8	E661B/WT	%		80.8	----	----	----	----	----	----
TCLP Metals											
Arsenic, TCLP	7440-38-2	E444/WT	mg/L		<1.0	----	----	----	----	----	----
pH, TCLP 1st preliminary	----	EPP444/WT	pH units		9.40	----	----	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/WT	pH units		5.48	----	----	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/WT	pH units		2.90	----	----	----	----	----	----
pH, TCLP final	----	EPP444/WT	pH units		6.08	----	----	----	----	----	----
Barium, TCLP	7440-39-3	E444/WT	mg/L		<2.5	----	----	----	----	----	----
Boron, TCLP	7440-42-8	E444/WT	mg/L		<0.50	----	----	----	----	----	----
Cadmium, TCLP	7440-43-9	E444/WT	mg/L		<0.050	----	----	----	----	----	----
Chromium, TCLP	7440-47-3	E444/WT	mg/L		<0.25	----	----	----	----	----	----
Lead, TCLP	7439-92-1	E444/WT	mg/L		<0.25	----	----	----	----	----	----
Selenium, TCLP	7782-49-2	E444/WT	mg/L		<0.10	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TCLP-24-01	mSPLP-24-01	----	----	----	----	----
				Sampling date/time	13-Mar-2024 00:00	13-Mar-2024 00:00	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2405697-001	WT2405697-002	--------	--------	--------	--------	--------
TCLP Metals											
Silver, TCLP	7440-22-4	E444/WT	mg/L		<0.050	----	----	----	----	----	----
Uranium, TCLP	7440-61-1	E444/WT	mg/L		<0.20	----	----	----	----	----	----
Mercury, TCLP	7439-97-6	E512/WT	mg/L		<0.0010	----	----	----	----	----	----
TCLP VOCs											
Benzene, TCLP	71-43-2	E615B/WT	mg/L		<0.0050	----	----	----	----	----	----
Carbon tetrachloride, TCLP	56-23-5	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Chlorobenzene, TCLP	108-90-7	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Chloroform, TCLP	67-66-3	E615B/WT	mg/L		<0.10	----	----	----	----	----	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichloroethane, 1,2-, TCLP	107-06-2	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichloroethylene, 1,1-, TCLP	75-35-4	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichloromethane, TCLP	75-09-2	E615B/WT	mg/L		<0.10	----	----	----	----	----	----
Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B/WT	mg/L		<0.10	----	----	----	----	----	----
Tetrachloroethylene, TCLP	127-18-4	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Trichloroethylene, TCLP	79-01-6	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Vinyl chloride, TCLP	75-01-4	E615B/WT	mg/L		<0.050	----	----	----	----	----	----
TCLP VOCs Surrogates											
Bromofluorobenzene, 4-, TCLP	460-00-4	E615B/WT	%		100	----	----	----	----	----	----
Difluorobenzene, 1,4-, TCLP	540-36-3	E615B/WT	%		96.6	----	----	----	----	----	----
ON mSPLP Extractables (target pH= 5)											
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B/WT	µg/L		----	<0.40	----	----	----	----	----
bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B/WT	µg/L		----	<0.40	----	----	----	----	----
Chloroaniline, 4-, mSPLP	106-47-8	E657B/WT	µg/L		----	<0.40 RRR	----	----	----	----	----
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B/WT	µg/L		----	<0.40	----	----	----	----	----
Diethyl phthalate, mSPLP	84-66-2	E657B/WT	µg/L		----	0.25	----	----	----	----	----
Dimethyl phthalate, mSPLP	131-11-3	E657B/WT	µg/L		----	<0.20	----	----	----	----	----
Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B/WT	µg/L		----	<1.0	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TCLP-24-01	mSPLP-24-01	----	----	----	----	----
				Sampling date/time	13-Mar-2024 00:00	13-Mar-2024 00:00	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2405697-001	WT2405697-002	--------	--------	--------	--------	--------
ON mSPLP Extractables (target pH= 5)											
Dinitrotoluene, 2,4 + 2,6-, mSPLP	n/a	E657B/WT	µg/L	----	<0.57		----	----	----	----	----
Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B/WT	µg/L	----	<0.40 RRR		----	----	----	----	----
Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B/WT	µg/L	----	<0.40 RRR		----	----	----	----	----
Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B/WT	µg/L	----	<0.50		----	----	----	----	----
ON mSPLP Extractables Surrogates (target pH= 5)											
Fluorobiphenyl, 2-, mSPLP	321-60-8	E657B/WT	%	----	86.0		----	----	----	----	----
Nitrobenzene-d5, mSPLP	4165-60-0	E657B/WT	%	----	97.4		----	----	----	----	----
Terphenyl-d14, p-, mSPLP	1718-51-0	E657B/WT	%	----	89.5		----	----	----	----	----
Tribromophenol, 2,4,6-, mSPLP	118-79-6	E657B/WT	%	----	116		----	----	----	----	----
ON mSPLP Metal (target pH= 5)											
Antimony, mSPLP	7440-36-0	E443/WT	µg/L	----	<0.50		----	----	----	----	----
Arsenic, mSPLP	7440-38-2	E443/WT	µg/L	----	<1.0		----	----	----	----	----
Barium, mSPLP	7440-39-3	E443/WT	µg/L	----	27		----	----	----	----	----
Beryllium, mSPLP	7440-41-7	E443/WT	µg/L	----	<0.50		----	----	----	----	----
Boron, mSPLP	7440-42-8	E443/WT	µg/L	----	10		----	----	----	----	----
Cadmium, mSPLP	7440-43-9	E443/WT	µg/L	----	<0.10		----	----	----	----	----
Chromium, mSPLP	7440-47-3	E443/WT	µg/L	----	<5.0		----	----	----	----	----
Cobalt, mSPLP	7440-48-4	E443/WT	µg/L	----	<1.0		----	----	----	----	----
Copper, mSPLP	7440-50-8	E443/WT	µg/L	----	<5.0		----	----	----	----	----
Lead, mSPLP	7439-92-1	E443/WT	µg/L	----	<1.0		----	----	----	----	----
Molybdenum, mSPLP	7439-98-7	E443/WT	µg/L	----	2.91		----	----	----	----	----
Nickel, mSPLP	7440-02-0	E443/WT	µg/L	----	<1.0		----	----	----	----	----
pH, mSPLP final	n/a	EPP443/WT	pH units	----	9.61		----	----	----	----	----
pH, mSPLP initial	n/a	EPP443/WT	pH units	----	9.67		----	----	----	----	----
Selenium, mSPLP	7782-49-2	E443/WT	µg/L	----	<1.0		----	----	----	----	----
Silver, mSPLP	7440-22-4	E443/WT	µg/L	----	<0.25		----	----	----	----	----
Thallium, mSPLP	7440-28-0	E443/WT	µg/L	----	<0.50		----	----	----	----	----
Uranium, mSPLP	7440-61-1	E443/WT	µg/L	----	<2.0		----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TCLP-24-01	mSPLP-24-01	----	----	----	----	----
				Sampling date/time	13-Mar-2024 00:00	13-Mar-2024 00:00	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2405697-001	WT2405697-002	--------	--------	--------	--------	--------
ON mSPLP Metal (target pH= 5)											
Vanadium, mSPLP	7440-62-2	E443/WT	µg/L	----	4.60	----	----	----	----	----	----
Zinc, mSPLP	7440-66-6	E443/WT	µg/L	----	<5.0	----	----	----	----	----	----
ON mSPLP OCP (target pH= 5)											
Dieldrin, mSPLP	60-57-1	E662A/WT	µg/L	----	<0.0080	----	----	----	----	----	----
Endrin, mSPLP	72-20-8	E662A/WT	µg/L	----	<0.010	----	----	----	----	----	----
Heptachlor epoxide, mSPLP	1024-57-3	E662A/WT	µg/L	----	<0.0080	----	----	----	----	----	----
Heptachlor, mSPLP	76-44-8	E662A/WT	µg/L	----	<0.0080	----	----	----	----	----	----
ON mSPLP OCPs Surrogates (target pH= 5)											
Decachlorobiphenyl, mSPLP	2051-24-3	E662A/WT	%	----	73.3	----	----	----	----	----	----
Tetrachloro-m-xylene, mSPLP	877-09-8	E662A/WT	%	----	74.1	----	----	----	----	----	----
mSPLP VOCs Surrogates											
Bromofluorobenzene, 4-, mSPLP	460-00-4	E619D/WT	%	----	113	----	----	----	----	----	----
Difluorobenzene, 1,4-, mSPLP	540-36-3	E619D/WT	%	----	102	----	----	----	----	----	----
ON mSPLP VOC (reagent water)											
Bromomethane, mSPLP	74-83-9	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Carbon tetrachloride, mSPLP	56-23-5	E619D/WT	µg/L	----	<0.20	----	----	----	----	----	----
Chloroform, mSPLP	67-66-3	E619D/WT	µg/L	----	<1.00	----	----	----	----	----	----
Dibromoethane, 1,2-, mSPLP	106-93-4	E619D/WT	µg/L	----	<0.20	----	----	----	----	----	----
Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloroethane, 1,1-, mSPLP	75-34-3	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloroethane, 1,2-, mSPLP	107-06-2	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloropropane, 1,2-, mSPLP	78-87-5	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-, mSPLP	542-75-6	E619D/WT	µg/L	----	<0.30	----	----	----	----	----	----
Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D/WT	µg/L	----	<0.20	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TCLP-24-01	mSPLP-24-01	----	----	----	----	----
				Sampling date/time	13-Mar-2024 00:00	13-Mar-2024 00:00	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
				WT2405697-001	WT2405697-002	--------	--------	--------	--------	--------	
ON mSPLP VOC (reagent water)											
Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D/WT	µg/L	----	<0.20	----	----	----	----	----	
Dioxane, 1,4-, mSPLP	123-91-1	E619D/WT	µg/L	----	<2.0	----	----	----	----	----	
Extraction fluid	----	EPP584/WT	-	----	fluid #3	----	----	----	----	----	
Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	
Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	
Tetrachloroethylene, mSPLP	127-18-4	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	
Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	
Trichloroethylene, mSPLP	79-01-6	E619D/WT	µg/L	----	<0.50	----	----	----	----	----	
Polychlorinated Biphenyls											
Polychlorinated biphenyls [PCBs], total, TCLP	----	E688A/WT	mg/L	<0.00060	----	----	----	----	----	----	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON406(LSL) T1-LSL-RPIIC C	ON406(LSL) T2.1-LSL-ICC	ON406(LSL) T2.1-LSL-RPI	ON406(LSL) T4.1-LSL-SSS -ICC	ON406(LSL) T4.1-LSL-SSS -RPI	ONWCR Sch. 4	
TCLP Anions & Nutrients									
Fluoride, TCLP	16984-48-8	mg/L						**150 mg/L**	
Nitrate (as N), TCLP	14797-55-8	mg/L						--	
Nitrate + Nitrite (as N), TCLP	----	mg/L						**1000 mg/L**	
Nitrite (as N), TCLP	14797-65-0	mg/L						--	
TCLP Extractables									
Aldrin + Dieldrin, TCLP	----	mg/L						**0.07 mg/L**	
Aldrin, TCLP	309-00-2	mg/L						--	
Aroclor 1016, TCLP	12674-11-2	mg/L						--	
Aroclor 1221, TCLP	11104-28-2	mg/L						--	
Aroclor 1232, TCLP	11141-16-5	mg/L						--	
Aroclor 1242, TCLP	53469-21-9	mg/L						--	
Aroclor 1248, TCLP	12672-29-6	mg/L						--	
Aroclor 1254, TCLP	11097-69-1	mg/L						--	
Aroclor 1260, TCLP	11096-82-5	mg/L						--	
Aroclor 1262, TCLP	37324-23-5	mg/L						--	
Aroclor 1268, TCLP	11100-14-4	mg/L						--	
Benzo(a)pyrene, TCLP	50-32-8	mg/L						**0.001 mg/L**	
Chlordane, cis- (alpha), TCLP	5103-71-9	mg/L						--	
Chlordane, total, TCLP	57-74-9	mg/L						**0.7 mg/L**	
Chlordane, trans- (gamma), TCLP	5103-74-2	mg/L						--	
Cyanide, weak acid dissociable, TCLP	----	mg/L						--	
DDD, 2,4'-, TCLP	53-19-0	mg/L						--	
DDD, 4,4'-, TCLP	72-54-8	mg/L						--	
DDE, 2,4'-, TCLP	3424-82-6	mg/L						--	
DDE, 4,4'-, TCLP	72-55-9	mg/L						--	
DDT + metabolites, total, TCLP	----	mg/L						**3 mg/L**	
DDT, 2,4'-, TCLP	789-02-6	mg/L						--	
DDT, 4,4'-, TCLP	50-29-3	mg/L						--	
Decachlorobiphenyl, TCLP	2051-24-3	%						--	
Dieldrin, TCLP	60-57-1	mg/L						--	
Endrin, TCLP	72-20-8	mg/L						**0.02 mg/L**	
Heptachlor + Heptachlor epoxide, TCLP	----	mg/L						**0.3 mg/L**	
Heptachlor epoxide, TCLP	1024-57-3	mg/L						--	
Heptachlor, TCLP	76-44-8	mg/L						--	
Hexachlorocyclohexane, gamma-, TCLP	58-89-9	mg/L						**0.4 mg/L**	
Methoxychlor, TCLP	72-43-5	mg/L						**90 mg/L**	

Analyte	CAS Number	Unit	ON406(LSL) T1-LSL-RPIICC	ON406(LSL) T2.1-LSL-ICC	ON406(LSL) T2.1-LSL-RPI	ON406(LSL) T4.1-LSL-SSS-ICC	ON406(LSL) T4.1-LSL-SSS-RPI	ONWCR Sch. 4	
TCLP Extractables - Continued									
Oxychlordane, TCLP	27304-13-8	mg/L						--	
Tetrachloro-m-xylene, TCLP	877-09-8	%						--	
TCLP Extractables Surrogates									
Chrysene-d12, TCLP	1719-03-5	%						--	
Decachlorobiphenyl, TCLP	2051-24-3	%						--	
Naphthalene-d8, TCLP	1146-65-2	%						--	
Phenanthrene-d10, TCLP	1517-22-2	%						--	
Tetrachloro-m-xylene, TCLP	877-09-8	%						--	
TCLP Metals									
Arsenic, TCLP	7440-38-2	mg/L						**2.5 mg/L**	
Barium, TCLP	7440-39-3	mg/L						**100 mg/L**	
Boron, TCLP	7440-42-8	mg/L						**500 mg/L**	
Cadmium, TCLP	7440-43-9	mg/L						**0.5 mg/L**	
Chromium, TCLP	7440-47-3	mg/L						**5 mg/L**	
Lead, TCLP	7439-92-1	mg/L						**5 mg/L**	
Mercury, TCLP	7439-97-6	mg/L						**0.1 mg/L**	
pH, TCLP 1st preliminary	----	pH units						--	
pH, TCLP 2nd preliminary	----	pH units						--	
pH, TCLP extraction fluid initial	----	pH units						--	
pH, TCLP final	----	pH units						--	
Selenium, TCLP	7782-49-2	mg/L						**1 mg/L**	
Silver, TCLP	7440-22-4	mg/L						**5 mg/L**	
Uranium, TCLP	7440-61-1	mg/L						**10 mg/L**	
TCLP VOCs									
Benzene, TCLP	71-43-2	mg/L						**0.5 mg/L**	
Carbon tetrachloride, TCLP	56-23-5	mg/L						**0.5 mg/L**	
Chlorobenzene, TCLP	108-90-7	mg/L						**8 mg/L**	
Chloroform, TCLP	67-66-3	mg/L						**10 mg/L**	
Dichlorobenzene, 1,2-, TCLP	95-50-1	mg/L						**20 mg/L**	
Dichlorobenzene, 1,4-, TCLP	106-46-7	mg/L						**0.5 mg/L**	
Dichloroethane, 1,2-, TCLP	107-06-2	mg/L						**0.5 mg/L**	
Dichloroethylene, 1,1-, TCLP	75-35-4	mg/L						**1.4 mg/L**	
Dichloromethane, TCLP	75-09-2	mg/L						**5 mg/L**	
Methyl ethyl ketone [MEK], TCLP	78-93-3	mg/L						**200 mg/L**	
Tetrachloroethylene, TCLP	127-18-4	mg/L						**3 mg/L**	
Trichloroethylene, TCLP	79-01-6	mg/L						**5 mg/L**	
Vinyl chloride, TCLP	75-01-4	mg/L						**0.2 mg/L**	
Bromofluorobenzene, 4-, TCLP	460-00-4	%						--	

Analyte	CAS Number	Unit	ON406(LSL) T1-LSL-RPIIC C	ON406(LSL) T2.1-LSL-ICC	ON406(LSL) T2.1-LSL-RPI	ON406(LSL) T4.1-LSL-SSS -ICC	ON406(LSL) T4.1-LSL-SSS -RPI	ONWCR Sch. 4	
TCLP VOCs Surrogates - Continued									
Difluorobenzene, 1,4-, TCLP	540-36-3	%						--	
ON mSPLP Extractables (target pH= 5)									
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	µg/L	4 µg/L	4 µg/L	4 µg/L	4 µg/L	4 µg/L		
bis(2-Chloroethyl) ether, mSPLP	111-44-4	µg/L	5 µg/L	5 µg/L	5 µg/L	5 µg/L	5 µg/L		
Chloroaniline, 4-, mSPLP	106-47-8	µg/L	10 µg/L	10 µg/L	10 µg/L	10 µg/L	10 µg/L		
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Diethyl phthalate, mSPLP	84-66-2	µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L		
Dimethyl phthalate, mSPLP	131-11-3	µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L		
Dinitrophenol, 2,4-, mSPLP	51-28-5	µg/L	10 µg/L	10 µg/L	10 µg/L	10 µg/L	10 µg/L		
Dinitrotoluene, 2,4 + 2,6-, mSPLP	n/a	µg/L	5 µg/L	5 µg/L	5 µg/L	5 µg/L	5 µg/L		
Dinitrotoluene, 2,4-, mSPLP	121-14-2	µg/L	--	--	--	--	--		
Dinitrotoluene, 2,6-, mSPLP	606-20-2	µg/L	--	--	--	--	--		
Trichlorophenol, 2,4,6-, mSPLP	88-06-2	µg/L	0.75 µg/L	0.75 µg/L	0.75 µg/L	0.75 µg/L	0.75 µg/L		
ON mSPLP Extractables Surrogates (target pH= 5)									
Fluorobiphenyl, 2-, mSPLP	321-60-8	%	--	--	--	--	--		
Nitrobenzene-d5, mSPLP	4165-60-0	%	--	--	--	--	--		
Terphenyl-d14, p-, mSPLP	1718-51-0	%	--	--	--	--	--		
Tribromophenol, 2,4,6-, mSPLP	118-79-6	%	--	--	--	--	--		
ON mSPLP Metal (target pH= 5)									
Antimony, mSPLP	7440-36-0	µg/L	--	6 µg/L	6 µg/L	6 µg/L	6 µg/L		
Arsenic, mSPLP	7440-38-2	µg/L	--	--	--	13 µg/L	--		
Barium, mSPLP	7440-39-3	µg/L	--	1000 µg/L	1000 µg/L	1000 µg/L	1000 µg/L		
Beryllium, mSPLP	7440-41-7	µg/L	--	4 µg/L	4 µg/L	4 µg/L	4 µg/L		
Boron, mSPLP	7440-42-8	µg/L	--	5000 µg/L	5000 µg/L	5000 µg/L	5000 µg/L		
Cadmium, mSPLP	7440-43-9	µg/L	--	0.5 µg/L	--	0.5 µg/L	0.5 µg/L		
Chromium, mSPLP	7440-47-3	µg/L	--	50 µg/L	50 µg/L	50 µg/L	50 µg/L		
Cobalt, mSPLP	7440-48-4	µg/L	--	3.8 µg/L	3.8 µg/L	3.8 µg/L	3.8 µg/L		
Copper, mSPLP	7440-50-8	µg/L	--	14 µg/L	14 µg/L	14 µg/L	14 µg/L		
Lead, mSPLP	7439-92-1	µg/L	--	--	--	4 µg/L	4 µg/L		
Molybdenum, mSPLP	7439-98-7	µg/L	23 µg/L	23 µg/L	23 µg/L	23 µg/L	23 µg/L		
Nickel, mSPLP	7440-02-0	µg/L	--	78 µg/L	78 µg/L	78 µg/L	78 µg/L		
pH, mSPLP final	n/a	pH units	--	--	--	--	--		
pH, mSPLP initial	n/a	pH units	--	--	--	--	--		
Selenium, mSPLP	7782-49-2	µg/L	--	10 µg/L	10 µg/L	10 µg/L	10 µg/L		
Silver, mSPLP	7440-22-4	µg/L	0.3 µg/L	0.3 µg/L	0.3 µg/L	0.3 µg/L	0.3 µg/L		
Thallium, mSPLP	7440-28-0	µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L		
Uranium, mSPLP	7440-61-1	µg/L	--	20 µg/L	20 µg/L	20 µg/L	20 µg/L		
Vanadium, mSPLP	7440-62-2	µg/L	--	--	--	6.2 µg/L	6.2 µg/L		

Analyte	CAS Number	Unit	ON406(LSL) T1-LSL-RPIIC C	ON406(LSL) T2.1-LSL-ICC	ON406(LSL) T2.1-LSL-RPI	ON406(LSL) T4.1-LSL-SSS -ICC	ON406(LSL) T4.1-LSL-SSS -RPI	ONWCR Sch. 4	
ON mSPLP Metal (target pH= 5) - Continued									
Zinc, mSPLP	7440-66-6	µg/L	--	180 µg/L	180 µg/L	180 µg/L	180 µg/L		
ON mSPLP OCP (target pH= 5)									
Dieldrin, mSPLP	60-57-1	µg/L	0.095 µg/L	0.097 µg/L	0.097 µg/L	0.097 µg/L	0.097 µg/L		
Endrin, mSPLP	72-20-8	µg/L	0.061 µg/L	0.062 µg/L	0.062 µg/L	0.062 µg/L	0.062 µg/L		
Heptachlor epoxide, mSPLP	1024-57-3	µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L	0.01 µg/L		
Heptachlor, mSPLP	76-44-8	µg/L	0.01 µg/L	--	--	--	--		
ON mSPLP OCPs Surrogates (target pH= 5)									
Decachlorobiphenyl, mSPLP	2051-24-3	%	--	--	--	--	--		
Tetrachloro-m-xylene, mSPLP	877-09-8	%	--	--	--	--	--		
mSPLP VOCs Surrogates									
Bromofluorobenzene, 4-, mSPLP	460-00-4	%	--	--	--	--	--		
Difluorobenzene, 1,4-, mSPLP	540-36-3	%	--	--	--	--	--		
Bromomethane, mSPLP	74-83-9	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Carbon tetrachloride, mSPLP	56-23-5	µg/L	0.2 µg/L	0.2 µg/L	0.2 µg/L	0.2 µg/L	0.2 µg/L		
Chloroform, mSPLP	67-66-3	µg/L	1 µg/L	--	--	--	--		
Dibromoethane, 1,2-, mSPLP	106-93-4	µg/L	0.2 µg/L	0.2 µg/L	0.2 µg/L	0.2 µg/L	0.2 µg/L		
Dichlorobenzene, 1,2-, mSPLP	95-50-1	µg/L	0.55 µg/L	0.55 µg/L	0.55 µg/L	0.55 µg/L	0.55 µg/L		
Dichlorobenzene, 1,4-, mSPLP	106-46-7	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Dichloroethane, 1,1-, mSPLP	75-34-3	µg/L	0.5 µg/L	--	--	--	--		
Dichloroethane, 1,2-, mSPLP	107-06-2	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Dichloroethylene, 1,1-, mSPLP	75-35-4	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Dichloroethylene, cis-1,2-, mSPLP	156-59-2	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Dichloroethylene, trans-1,2-, mSPLP	156-60-5	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Dichloropropane, 1,2-, mSPLP	78-87-5	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Dichloropropylene, cis+trans-1,3-, mSPLP	542-75-6	µg/L	0.5 µg/L	--	--	--	--		
Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	µg/L	--	--	--	--	--		
Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	µg/L	--	--	--	--	--		
Dioxane, 1,4-, mSPLP	123-91-1	µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L	2 µg/L		
Extraction fluid	----	-	--	--	--	--	--		
Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	µg/L	0.5 µg/L	--	--	--	--		
Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Tetrachloroethylene, mSPLP	127-18-4	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Trichloroethane, 1,1,2-, mSPLP	79-00-5	µg/L	0.5 µg/L	--	--	--	--		
Trichloroethylene, mSPLP	79-01-6	µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L	0.5 µg/L		
Polychlorinated Biphenyls									
Polychlorinated biphenyls [PCBs], total, TCLP	----	mg/L						0.3 mg/L	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON406(LSL)		Ontario Regulation 406/19 - Excess Soils Leachate Screening Levels (LSL) (12-April-2022)
	T1-LSL-RPIICC	406 T1 - Leachate Screening levels - Res/Park/Inst/Ind/Com/Commu Property Use
	T2.1-LSL-ICC	406 T2.1 - Leachate Screening Levels - Ind/Com/Commu Property Use
	T2.1-LSL-RPI	406 T2.1 - Leachate Screening Levels - Res/Park/Inst Property Use
	T4.1-LSL-SSS-ICC	406 T4.1 - Leachate Screening Levels - Subsurface - Ind/Com/Commu Property Use
	T4.1-LSL-SSS-RPI	406 T4.1 - Leachate Screening Levels - Subsurface - Res/Park/Inst Property Use
ONWCR		Ontario MECP, General Waste Control Regulation No. 347/90,558/00
	Sch. 4	Schedule 4 Leachate Quality Criteria

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2405697**	Page	: 1 of 11
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 13-Mar-2024 14:00
PO	: ----	Issue Date	: 20-Mar-2024 16:26
C-O-C number	: ----		
Sampler	: Client		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
TCLP Extractables	QC-MRG2-1370439002	----	DDT, 4,4'-, TCLP	50-29-3	E661B	38.1 % LCS-L	50.0-150%	Recovery less than lower control limit
ON mSPLP OCP (target pH= 5)	QC-1370468-002	----	Endrin, mSPLP	72-20-8	E662A	45.1 % LCS-L	50.0-150%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
LCS-L	*Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.*

Matrix Spike (MS) Recoveries								
ON mSPLP Extractables (target pH= 5)	Anonymous	Anonymous	Chloroaniline, 4-, mSPLP	106-47-8	E657B	38.8 % RRQC	50.0-140%	Recovery less than lower data quality objective
ON mSPLP Extractables (target pH= 5)	Anonymous	Anonymous	Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	146 % RRQC	50.0-140%	Recovery greater than upper data quality objective
ON mSPLP Extractables (target pH= 5)	Anonymous	Anonymous	Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	146 % RRQC	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

Regular Sample Surrogates

Sub-Matrix: **Soil**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
TCLP Extractables Surrogates	WT2405697-001	TCLP-24-01	Chrysene-d12, TCLP	1719-03-5	133 %	60.0-130 %	Recovery greater than upper data quality objective

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
mSPLP VOCs : VOCs by Headspace GC-MS (ON mSPLP)										
Glass vial (sodium bisulfate) mSPLP-24-01	E619D	18-Mar-2024	19-Mar-2024	19 days	7 days	✓	19-Mar-2024	19 days	7 days	✓
ON mSPLP Extractables (target pH= 5) : BNA by GC-MS (mSPLP)										
Amber glass/Teflon lined cap mSPLP-24-01	E657B	17-Mar-2024	18-Mar-2024	11 days	6 days	✓	19-Mar-2024	40 days	1 days	✓
ON mSPLP Metal (target pH= 5) : Metals by CRC ICPMS (mSPLP)										
HDPE - total (lab preserved) mSPLP-24-01	E443	17-Mar-2024	18-Mar-2024	184 days	5 days	✓	18-Mar-2024	184 days	6 days	✓
ON mSPLP Metal (target pH= 5) : mSPLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 14 day HT (e.g. CN, SVOC, NOx) mSPLP-24-01	EPP443	13-Mar-2024	17-Mar-2024	----	----		----	14 days	4 days	✓
ON mSPLP OCP (target pH= 5) : OC Pesticides by GC-MS-MS (ON mSPLP)										
Amber glass/Teflon lined cap mSPLP-24-01	E662A	17-Mar-2024	18-Mar-2024	18 days	6 days	✓	20-Mar-2024	18 days	8 days	✓
ON mSPLP VOC (reagent water) : mSPLP Leachate Preparation (VOCs and Cyanide)										
Lab Split - ZHE Leach 14 day HT(eg. CN BTEX) mSPLP-24-01	EPP584	13-Mar-2024	18-Mar-2024	----	----		----	14 days	5 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS (TCLP)										
Amber glass/Teflon lined cap TCLP-24-01	E688A	15-Mar-2024	18-Mar-2024	16 days	6 days	✓	19-Mar-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Extractables : Fluoride by IC (TCLP)										
HDPE [ON MECP]										
TCLP-24-01	E240.F	15-Mar-2024	18-Mar-2024	30 days	6 days	✓	18-Mar-2024	30 days	6 days	✓
TCLP Extractables : Nitrate by IC (TCLP)										
HDPE [ON MECP]										
TCLP-24-01	E240.NO3	15-Mar-2024	18-Mar-2024	9 days	6 days	✓	18-Mar-2024	9 days	6 days	✓
TCLP Extractables : Nitrite by IC (TCLP)										
HDPE [ON MECP]										
TCLP-24-01	E240.NO2	15-Mar-2024	18-Mar-2024	9 days	6 days	✓	18-Mar-2024	9 days	6 days	✓
TCLP Extractables : OCPs by GC-MS-MS (TCLP)										
Amber glass/Teflon lined cap										
TCLP-24-01	E661B	15-Mar-2024	18-Mar-2024	9 days	6 days	✓	20-Mar-2024	40 days	2 days	✓
TCLP Extractables : PAHs by GC-MS (TCLP)										
Amber glass/Teflon lined cap (sodium bisulfate)										
TCLP-24-01	E644	15-Mar-2024	18-Mar-2024	16 days	6 days	✓	19-Mar-2024	40 days	1 days	✓
TCLP Extractables : PCB Aroclors by GC-MS (TCLP)										
Amber glass/Teflon lined cap										
TCLP-24-01	E688A	15-Mar-2024	18-Mar-2024	16 days	6 days	✓	19-Mar-2024	40 days	1 days	✓
TCLP Extractables : WAD Cyanide (TCLP)										
HDPE - total (sodium hydroxide)										
TCLP-24-01	E337A	15-Mar-2024	18-Mar-2024	16 days	6 days	✓	18-Mar-2024	16 days	6 days	✓
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved)										
TCLP-24-01	E512	15-Mar-2024	18-Mar-2024	30 days	5 days	✓	18-Mar-2024	30 days	5 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved)										
TCLP-24-01	E444	15-Mar-2024	18-Mar-2024	182 days	5 days	✓	18-Mar-2024	182 days	5 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 14 day HT (e.g. CN, SVOC, NOx)										
TCLP-24-01	EPP444	13-Mar-2024	15-Mar-2024	----	----		----	14 days	2 days	✓
TCLP VOCs : VOCs by Headspace GC-MS (TCLP)										
Glass vial (sodium bisulfate)										
TCLP-24-01	E615B	15-Mar-2024	18-Mar-2024	16 days	6 days	✓	18-Mar-2024	16 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BNA by GC-MS (mSPLP)	E657B	1370540	1	4	25.0	5.0	✓
Fluoride by IC (TCLP)	E240.F	1370160	1	6	16.6	5.0	✓
Mercury by CVAAS (TCLP)	E512	1369909	1	12	8.3	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1370052	1	5	20.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1369801	1	16	6.2	5.0	✓
Nitrate by IC (TCLP)	E240.NO3	1370158	1	6	16.6	5.0	✓
Nitrite by IC (TCLP)	E240.NO2	1370159	1	6	16.6	5.0	✓
OC Pesticides by GC-MS-MS (ON mSPLP)	E662A	1370468	1	3	33.3	5.0	✓
OCPs by GC-MS-MS (TCLP)	E661B	1370439	1	1	100.0	5.0	✓
PAHs by GC-MS (TCLP)	E644	1370416	1	3	33.3	5.0	✓
PCB Aroclors by GC-MS (TCLP)	E688A	1370440	1	2	50.0	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1371649	1	3	33.3	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	1370207	1	8	12.5	5.0	✓
WAD Cyanide (TCLP)	E337A	1370375	1	6	16.6	5.0	✓
Laboratory Control Samples (LCS)							
BNA by GC-MS (mSPLP)	E657B	1370540	1	4	25.0	5.0	✓
Fluoride by IC (TCLP)	E240.F	1370160	1	6	16.6	5.0	✓
Mercury by CVAAS (TCLP)	E512	1369909	1	12	8.3	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1370052	1	5	20.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1369801	1	16	6.2	5.0	✓
Nitrate by IC (TCLP)	E240.NO3	1370158	1	6	16.6	5.0	✓
Nitrite by IC (TCLP)	E240.NO2	1370159	1	6	16.6	5.0	✓
OC Pesticides by GC-MS-MS (ON mSPLP)	E662A	1370468	1	3	33.3	5.0	✓
OCPs by GC-MS-MS (TCLP)	E661B	1370439	1	1	100.0	5.0	✓
PAHs by GC-MS (TCLP)	E644	1370416	1	3	33.3	5.0	✓
PCB Aroclors by GC-MS (TCLP)	E688A	1370440	1	2	50.0	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1371649	1	3	33.3	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	1370207	1	8	12.5	5.0	✓
WAD Cyanide (TCLP)	E337A	1370375	1	6	16.6	5.0	✓
Method Blanks (MB)							
BNA by GC-MS (mSPLP)	E657B	1370540	1	4	25.0	5.0	✓
Fluoride by IC (TCLP)	E240.F	1370160	1	6	16.6	5.0	✓
Mercury by CVAAS (TCLP)	E512	1369909	1	12	8.3	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1370052	1	5	20.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1369801	1	16	6.2	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Nitrate by IC (TCLP)	E240.NO3	1370158	1	6	16.6	5.0	✓
Nitrite by IC (TCLP)	E240.NO2	1370159	1	6	16.6	5.0	✓
OC Pesticides by GC-MS-MS (ON mSPLP)	E662A	1370468	1	3	33.3	5.0	✓
OCPs by GC-MS-MS (TCLP)	E661B	1370439	1	1	100.0	5.0	✓
PAHs by GC-MS (TCLP)	E644	1370416	1	3	33.3	5.0	✓
PCB Aroclors by GC-MS (TCLP)	E688A	1370440	1	2	50.0	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1371649	1	3	33.3	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	1370207	1	8	12.5	5.0	✓
WAD Cyanide (TCLP)	E337A	1370375	1	6	16.6	5.0	✓
Matrix Spikes (MS)							
BNA by GC-MS (mSPLP)	E657B	1370540	1	4	25.0	5.0	✓
Fluoride by IC (TCLP)	E240.F	1370160	1	6	16.6	5.0	✓
Mercury by CVAAS (TCLP)	E512	1369909	1	12	8.3	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1370052	1	5	20.0	5.0	✓
Metals by CRC ICPMS (TCLP)	E444	1369801	1	16	6.2	5.0	✓
Nitrate by IC (TCLP)	E240.NO3	1370158	1	6	16.6	5.0	✓
Nitrite by IC (TCLP)	E240.NO2	1370159	1	6	16.6	5.0	✓
OC Pesticides by GC-MS-MS (ON mSPLP)	E662A	1370468	1	3	33.3	5.0	✓
OCPs by GC-MS-MS (TCLP)	E661B	1370439	1	1	100.0	5.0	✓
PAHs by GC-MS (TCLP)	E644	1370416	1	3	33.3	5.0	✓
PCB Aroclors by GC-MS (TCLP)	E688A	1370440	1	2	50.0	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1371649	1	3	33.3	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	1370207	1	8	12.5	5.0	✓
WAD Cyanide (TCLP)	E337A	1370375	1	6	16.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Fluoride by IC (TCLP)	E240.F ALS Environmental - Waterloo	Soil/Solid	EPA 1311/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite by IC (TCLP)	E240.NO2 ALS Environmental - Waterloo	Soil/Solid	EPA 1311/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (TCLP)	E240.NO3 ALS Environmental - Waterloo	Soil/Solid	EPA 1311/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
WAD Cyanide (TCLP)	E337A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals by CRC ICPMS (mSPLP)	E443 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	An extract produced by the modified Simulated Precipitation Leachate Procedure (mSPLP) as per E9003 (ON MECP), is analyzed by Collision/Reaction Cell ICPMS.
Metals by CRC ICPMS (TCLP)	E444 ALS Environmental - Waterloo	Soil/Solid	EPA 1311/6020B (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by Collision/Reaction Cell ICPMS.
Mercury by CVAAS (TCLP)	E512 ALS Environmental - Waterloo	Soil/Solid	SW 846 -1311/245.1 CVAA ON TCLP LEACHATE	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by CVAAS.
VOCs by Headspace GC-MS (TCLP)	E615B ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs by Headspace GC-MS (ON mSPLP)	E619D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by GC-MS (TCLP)	E644 ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by GC-MS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
BNA by GC-MS (mSPLP)	E657B ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	BNA are analyzed by GC-MS.
OCPs by GC-MS-MS (TCLP)	E661B ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	OCPs are analyzed by GC-MS-MS.
OC Pesticides by GC-MS-MS (ON mSPLP)	E662A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Pesticides are analyzed by GC-MS-MS
PCB Aroclors by GC-MS (TCLP)	E688A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	PCB Aroclors are analyzed by GC-MS
Nitrate and Nitrite (as N), (TCLP) (Calculation)	EC240.N+N ALS Environmental - Waterloo	Soil/Solid	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis (TCLP)	EP582 ALS Environmental - Waterloo	Soil/Solid	EPA 5021A (mod)	Liquid obtained after the TCLP process is prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs Preparation for Headspace Analysis (mSPLP)	EP586 ALS Environmental - Waterloo	Soil/Solid	EPA 5021A (mod)	Liquid obtained after the mSPLP process is prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Extraction (TCLP)	EP602 ALS Environmental - Waterloo	Soil/Solid	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
BNA Extraction (mSPLP)	EP657B ALS Environmental - Waterloo	Soil/Solid	EPA 3510C (mod)	SVOCs are extracted from aqueous sample using DCM liquid-liquid extraction.
Pesticides, PCB, and Neutral Extractable Chlorinated Hydrocarbons Extraction (TCLP)	EP661 ALS Environmental - Waterloo	Soil/Solid	EPA 3511 (mod)	Samples are extracted from aqueous sample using an organic solvent liquid-liquid extraction.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Pesticides, PCB, and Neutral Extractable Chlorinated Hydrocarbons Extraction (mSPLP)	EP662A ALS Environmental - Waterloo	Soil/Solid	EPA 3511 (mod)	Samples are extracted from aqueous sample using an organic solvent liquid-liquid extraction.
mSPLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP443 ALS Environmental - Waterloo	Soil/Solid	E9003	Preparation of the modified Synthetic Precipitation Leaching Procedure, ON MECP 2020 . A representative subsample of soil excluding stones and passed through a 9.5 mm sieve, (100 grams) is leached (18 ± 2 hours) with 2.0 liters of leaching fluid #2 (pH 5, 60:40 weight mixture of H2SO4:HNO3). The resulting slurry is filtered through a 0.6 - 0.8 um glass fiber filter for semi-volatile organics and for metals analysis, the leachate is filtered through a 0.45um metal free filter.
TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP444 ALS Environmental - Waterloo	Soil/Solid	EPA 1311	Preparation of a Toxicity Characteristic Leaching Procedure (TCLP) solid sample involves particle size reduction, homogenization, then determination of appropriate extraction fluid. A measured portion of fresh subsample is placed in an extraction bottle with the appropriate extraction fluid then tumbled in a rotary extractor for 18+/- 2 hours at 23 +/- 2 C. The liquid leachate is filtered to separate from solids then bottled and prepared for analytical tests.
TCLP Leachate Preparation (VOCs)	EPP582 ALS Environmental - Waterloo	Soil/Solid	EPA 1311	An extract produced by the Toxicity Characteristic Leaching Procedure (TCLP) as per EPA 1311.
mSPLP Leachate Preparation (VOCs and Cyanide)	EPP584 ALS Environmental - Waterloo	Soil/Solid	E9003	The excess soil sample (25 grams) is leached in a Zero Headspace Extractor (ZHE) with 500 mL extraction fluid #3 (reagent water) for 18 ± 2 hours. Collect the filtered extract (0.6 - 0.8 um glass fiber) from the ZHE device. The sample is transferred into PTFE-lined septum-capped glass vials (with no headspace) for analysis of VOCs. A minimum of 50 mL leachate is collected in a glass or plastic container, preserved with sodium hydroxide to a pH >12 at the time of collection and submitted for cyanide analysis.

QUALITY CONTROL REPORT

Work Order	: **WT2405697**	Page	: 1 of 18
Client	: Lopers & Associates	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 13-Mar-2024 14:00
PO	: ----	Date Analysis Commenced	: 15-Mar-2024
C-O-C number	: ----	Issue Date	: 20-Mar-2024 16:13
Sampler	: Client 613 327 9073		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
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Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
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Melissa Freeman		Waterloo Metals, Waterloo, Ontario
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Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Robert Braun	Soils Team Supervisor	Waterloo Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Tristan Stapells		Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
TCLP Extractables (QC Lot: 1370158)											
WT2405697-001	TCLP-24-01	Nitrate (as N), TCLP	14797-55-8	E240.NO3	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
TCLP Extractables (QC Lot: 1370159)											
WT2405697-001	TCLP-24-01	Nitrite (as N), TCLP	14797-65-0	E240.NO2	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
TCLP Extractables (QC Lot: 1370160)											
WT2405697-001	TCLP-24-01	Fluoride, TCLP	16984-48-8	E240.F	10	mg/L	<10	<10	0	Diff <2x LOR	----
TCLP Extractables (QC Lot: 1370375)											
WT2405697-001	TCLP-24-01	Cyanide, weak acid dissociable, TCLP	----	E337A	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
TCLP Extractables (QC Lot: 1370416)											
WT2405988-001	Anonymous	Benzo(a)pyrene, TCLP	50-32-8	E644	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
TCLP Extractables (QC Lot: 1370439)											
WT2405697-001	TCLP-24-01	Aldrin, TCLP	309-00-2	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Chlordane, cis- (alpha), TCLP	5103-71-9	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Chlordane, trans- (gamma), TCLP	5103-74-2	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		DDD, 2,4'-, TCLP	53-19-0	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		DDD, 4,4'-, TCLP	72-54-8	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		DDE, 2,4'-, TCLP	3424-82-6	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		DDE, 4,4'-, TCLP	72-55-9	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		DDT, 2,4'-, TCLP	789-02-6	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		DDT, 4,4'-, TCLP	50-29-3	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Dieldrin, TCLP	60-57-1	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Endrin, TCLP	72-20-8	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Heptachlor epoxide, TCLP	1024-57-3	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Heptachlor, TCLP	76-44-8	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
TCLP Extractables (QC Lot: 1370439) - continued											
WT2405697-001	TCLP-24-01	Hexachlorocyclohexane, gamma-, TCLP	58-89-9	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Methoxychlor, TCLP	72-43-5	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
		Oxychlordane, TCLP	27304-13-8	E661B	0.10	µg/L	<0.00010 mg/L	<0.10	0	Diff <2x LOR	----
TCLP Extractables (QC Lot: 1370440)											
WT2405697-001	TCLP-24-01	Aroclor 1016, TCLP	12674-11-2	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1221, TCLP	11104-28-2	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1232, TCLP	11141-16-5	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1242, TCLP	53469-21-9	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1248, TCLP	12672-29-6	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1254, TCLP	11097-69-1	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1260, TCLP	11096-82-5	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1262, TCLP	37324-23-5	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
		Aroclor 1268, TCLP	11100-14-4	E688A	0.20	µg/L	<0.00020 mg/L	<0.20	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 1369801)											
WT2405697-001	TCLP-24-01	Arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
		Boron, TCLP	7440-42-8	E444	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	----
		Selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Uranium, TCLP	7440-61-1	E444	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
TCLP Metals (QC Lot: 1369909)											
WT2405697-001	TCLP-24-01	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
TCLP VOCs (QC Lot: 1370207)											
WT2405988-001	Anonymous	Benzene, TCLP	71-43-2	E615B	5.0	µg/L	<0.0050 mg/L	<5.0	0	Diff <2x LOR	----
		Carbon tetrachloride, TCLP	56-23-5	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Chlorobenzene, TCLP	108-90-7	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
TCLP VOCs (QC Lot: 1370207) - continued											
WT2405988-001	Anonymous	Chloroform, TCLP	67-66-3	E615B	100	µg/L	<0.10 mg/L	<100	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Dichloroethane, 1,2-, TCLP	107-06-2	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Dichloromethane, TCLP	75-09-2	E615B	100	µg/L	<0.10 mg/L	<100	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	100	µg/L	<0.10 mg/L	<100	0	Diff <2x LOR	----
		Tetrachloroethylene, TCLP	127-18-4	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Trichloroethylene, TCLP	79-01-6	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----
		Vinyl chloride, TCLP	75-01-4	E615B	50	µg/L	<0.050 mg/L	<50	0	Diff <2x LOR	----
ON mSPLP Extractables (target pH= 5) (QC Lot: 1370540)											
WT2405618-005	Anonymous	bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Diethyl phthalate, mSPLP	84-66-2	E657B	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dimethyl phthalate, mSPLP	131-11-3	E657B	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
ON mSPLP Metal (target pH= 5) (QC Lot: 1370052)											
WT2405958-004	Anonymous	Antimony, mSPLP	7440-36-0	E443	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Arsenic, mSPLP	7440-38-2	E443	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Barium, mSPLP	7440-39-3	E443	0.002	mg/L	<2 µg/L	<0.002	0	Diff <2x LOR	----
		Beryllium, mSPLP	7440-41-7	E443	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Boron, mSPLP	7440-42-8	E443	0.010	mg/L	<10 µg/L	<0.010	0	Diff <2x LOR	----
		Cadmium, mSPLP	7440-43-9	E443	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Chromium, mSPLP	7440-47-3	E443	0.0050	mg/L	<5.0 µg/L	<0.0050	0	Diff <2x LOR	----
		Cobalt, mSPLP	7440-48-4	E443	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Copper, mSPLP	7440-50-8	E443	0.0050	mg/L	<5.0 µg/L	<0.0050	0	Diff <2x LOR	----
		Lead, mSPLP	7439-92-1	E443	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Molybdenum, mSPLP	7439-98-7	E443	0.00050	mg/L	0.56 µg/L	0.00059	0.00003	Diff <2x LOR	----
		Nickel, mSPLP	7440-02-0	E443	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
ON mSPLP Metal (target pH= 5) (QC Lot: 1370052) - continued											
WT2405958-004	Anonymous	Selenium, mSPLP	7782-49-2	E443	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Silver, mSPLP	7440-22-4	E443	0.00025	mg/L	<0.25 µg/L	<0.00025	0	Diff <2x LOR	----
		Thallium, mSPLP	7440-28-0	E443	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Uranium, mSPLP	7440-61-1	E443	0.0020	mg/L	<2.0 µg/L	<0.0020	0	Diff <2x LOR	----
		Vanadium, mSPLP	7440-62-2	E443	0.00050	mg/L	1.18 µg/L	0.00114	0.00005	Diff <2x LOR	----
		Zinc, mSPLP	7440-66-6	E443	0.0050	mg/L	<5.0 µg/L	<0.0050	0	Diff <2x LOR	----
ON mSPLP OCP (target pH= 5) (QC Lot: 1370468)											
WT2405697-002	mSPLP-24-01	Dieldrin, mSPLP	60-57-1	E662A	0.0080	µg/L	<0.0080	<0.0080	0	Diff <2x LOR	----
		Endrin, mSPLP	72-20-8	E662A	0.010	µg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Heptachlor epoxide, mSPLP	1024-57-3	E662A	0.0080	µg/L	<0.0080	<0.0080	0	Diff <2x LOR	----
		Heptachlor, mSPLP	76-44-8	E662A	0.0080	µg/L	<0.0080	<0.0080	0	Diff <2x LOR	----
mSPLP VOCs (QC Lot: 1371649)											
WT2405697-002	mSPLP-24-01	Bromomethane, mSPLP	74-83-9	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride, mSPLP	56-23-5	E619D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chloroform, mSPLP	67-66-3	E619D	1.00	µg/L	<1.00	<1.00	0	Diff <2x LOR	----
		Dibromoethane, 1,2-, mSPLP	106-93-4	E619D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-, mSPLP	75-34-3	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-, mSPLP	107-06-2	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropane, 1,2-, mSPLP	78-87-5	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dioxane, 1,4-, mSPLP	123-91-1	E619D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene, mSPLP	127-18-4	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene, mSPLP	79-01-6	E619D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
TCLP Extractables (QCLot: 1370158)						
Nitrate (as N), TCLP	14797-55-8	E240.NO3	5	mg/L	<5.0	----
TCLP Extractables (QCLot: 1370159)						
Nitrite (as N), TCLP	14797-65-0	E240.NO2	5	mg/L	<5.0	----
TCLP Extractables (QCLot: 1370160)						
Fluoride, TCLP	16984-48-8	E240.F	10	mg/L	<10	----
TCLP Extractables (QCLot: 1370375)						
Cyanide, weak acid dissociable, TCLP	----	E337A	0.1	mg/L	<0.10	----
TCLP Extractables (QCLot: 1370416)						
Benzo(a)pyrene, TCLP	50-32-8	E644	0.5	µg/L	<0.50	----
TCLP Extractables (QCLot: 1370439)						
Aldrin, TCLP	309-00-2	E661B	0.1	µg/L	<0.10	----
Chlordane, cis- (alpha), TCLP	5103-71-9	E661B	0.1	µg/L	<0.10	----
Chlordane, trans- (gamma), TCLP	5103-74-2	E661B	0.1	µg/L	<0.10	----
DDD, 2,4'-, TCLP	53-19-0	E661B	0.1	µg/L	<0.10	----
DDD, 4,4'-, TCLP	72-54-8	E661B	0.1	µg/L	<0.10	----
DDE, 2,4'-, TCLP	3424-82-6	E661B	0.1	µg/L	<0.10	----
DDE, 4,4'-, TCLP	72-55-9	E661B	0.1	µg/L	<0.10	----
DDT, 2,4'-, TCLP	789-02-6	E661B	0.1	µg/L	<0.10	----
DDT, 4,4'-, TCLP	50-29-3	E661B	0.1	µg/L	<0.10	----
Dieldrin, TCLP	60-57-1	E661B	0.1	µg/L	<0.10	----
Endrin, TCLP	72-20-8	E661B	0.1	µg/L	<0.10	----
Heptachlor epoxide, TCLP	1024-57-3	E661B	0.1	µg/L	<0.10	----
Heptachlor, TCLP	76-44-8	E661B	0.1	µg/L	<0.10	----
Hexachlorocyclohexane, gamma-, TCLP	58-89-9	E661B	0.1	µg/L	<0.10	----
Methoxychlor, TCLP	72-43-5	E661B	0.1	µg/L	<0.10	----
Oxychlordane, TCLP	27304-13-8	E661B	0.1	µg/L	<0.10	----
TCLP Extractables (QCLot: 1370440)						
Aroclor 1016, TCLP	12674-11-2	E688A	0.2	µg/L	<0.20	----
Aroclor 1221, TCLP	11104-28-2	E688A	0.2	µg/L	<0.20	----
Aroclor 1232, TCLP	11141-16-5	E688A	0.2	µg/L	<0.20	----
Aroclor 1242, TCLP	53469-21-9	E688A	0.2	µg/L	<0.20	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
TCLP Extractables (QCLot: 1370440) - continued						
Aroclor 1248, TCLP	12672-29-6	E688A	0.2	µg/L	<0.20	----
Aroclor 1254, TCLP	11097-69-1	E688A	0.2	µg/L	<0.20	----
Aroclor 1260, TCLP	11096-82-5	E688A	0.2	µg/L	<0.20	----
Aroclor 1262, TCLP	37324-23-5	E688A	0.2	µg/L	<0.20	----
Aroclor 1268, TCLP	11100-14-4	E688A	0.2	µg/L	<0.20	----
TCLP Metals (QCLot: 1369801)						
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
TCLP Metals (QCLot: 1369909)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP VOCs (QCLot: 1370207)						
Benzene, TCLP	71-43-2	E615B	5	µg/L	<5.0	----
Carbon tetrachloride, TCLP	56-23-5	E615B	25	µg/L	<25	----
Chlorobenzene, TCLP	108-90-7	E615B	25	µg/L	<25	----
Chloroform, TCLP	67-66-3	E615B	100	µg/L	<100	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	25	µg/L	<25	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	25	µg/L	<25	----
Dichloroethane, 1,2-, TCLP	107-06-2	E615B	25	µg/L	<25	----
Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	25	µg/L	<25	----
Dichloromethane, TCLP	75-09-2	E615B	100	µg/L	<100	----
Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	100	µg/L	<100	----
Tetrachloroethylene, TCLP	127-18-4	E615B	25	µg/L	<25	----
Trichloroethylene, TCLP	79-01-6	E615B	25	µg/L	<25	----
Vinyl chloride, TCLP	75-01-4	E615B	50	µg/L	<50	----
ON mSPLP Extractables (target pH= 5) (QCLot: 1370540)						
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	0.4	µg/L	<0.40	----
bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	0.4	µg/L	<0.40	----
Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.4	µg/L	<0.40	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
ON mSPLP Extractables (target pH= 5) (QCLot: 1370540) - continued						
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	0.4	µg/L	<0.40	----
Diethyl phthalate, mSPLP	84-66-2	E657B	0.2	µg/L	<0.20	----
Dimethyl phthalate, mSPLP	131-11-3	E657B	0.2	µg/L	<0.20	----
Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	1	µg/L	<1.0	----
Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	0.4	µg/L	<0.40	----
Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	0.4	µg/L	<0.40	----
Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	0.5	µg/L	<0.50	----
ON mSPLP Metal (target pH= 5) (QCLot: 1370052)						
Antimony, mSPLP	7440-36-0	E443	0.0005	mg/L	<0.00050	----
Arsenic, mSPLP	7440-38-2	E443	0.001	mg/L	<0.0010	----
Barium, mSPLP	7440-39-3	E443	0.002	mg/L	<0.002	----
Beryllium, mSPLP	7440-41-7	E443	0.0005	mg/L	<0.00050	----
Boron, mSPLP	7440-42-8	E443	0.01	mg/L	<0.010	----
Cadmium, mSPLP	7440-43-9	E443	0.0001	mg/L	<0.00010	----
Chromium, mSPLP	7440-47-3	E443	0.005	mg/L	<0.0050	----
Cobalt, mSPLP	7440-48-4	E443	0.001	mg/L	<0.0010	----
Copper, mSPLP	7440-50-8	E443	0.005	mg/L	<0.0050	----
Lead, mSPLP	7439-92-1	E443	0.001	mg/L	<0.0010	----
Molybdenum, mSPLP	7439-98-7	E443	0.0005	mg/L	<0.00050	----
Nickel, mSPLP	7440-02-0	E443	0.001	mg/L	<0.0010	----
Selenium, mSPLP	7782-49-2	E443	0.001	mg/L	<0.0010	----
Silver, mSPLP	7440-22-4	E443	0.00025	mg/L	<0.00025	----
Thallium, mSPLP	7440-28-0	E443	0.0005	mg/L	<0.00050	----
Uranium, mSPLP	7440-61-1	E443	0.002	mg/L	<0.0020	----
Vanadium, mSPLP	7440-62-2	E443	0.0005	mg/L	<0.00050	----
Zinc, mSPLP	7440-66-6	E443	0.005	mg/L	<0.0050	----
ON mSPLP OCP (target pH= 5) (QCLot: 1370468)						
Dieldrin, mSPLP	60-57-1	E662A	0.008	µg/L	<0.0080	----
Endrin, mSPLP	72-20-8	E662A	0.01	µg/L	<0.010	----
Heptachlor epoxide, mSPLP	1024-57-3	E662A	0.008	µg/L	<0.0080	----
Heptachlor, mSPLP	76-44-8	E662A	0.008	µg/L	<0.0080	----
mSPLP VOCs (QCLot: 1371649)						
Bromomethane, mSPLP	74-83-9	E619D	0.5	µg/L	<0.50	----
Carbon tetrachloride, mSPLP	56-23-5	E619D	0.2	µg/L	<0.20	----
Chloroform, mSPLP	67-66-3	E619D	1	µg/L	<1.00	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
mSPLP VOCs (QCLot: 1371649) - continued						
Dibromoethane, 1,2-, mSPLP	106-93-4	E619D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-, mSPLP	75-34-3	E619D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-, mSPLP	107-06-2	E619D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D	0.5	µg/L	<0.50	----
Dichloropropane, 1,2-, mSPLP	78-87-5	E619D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D	0.2	µg/L	<0.20	----
Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D	0.2	µg/L	<0.20	----
Dioxane, 1,4-, mSPLP	123-91-1	E619D	2	µg/L	<2.0	----
Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D	0.5	µg/L	<0.50	----
Tetrachloroethylene, mSPLP	127-18-4	E619D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D	0.5	µg/L	<0.50	----
Trichloroethylene, mSPLP	79-01-6	E619D	0.5	µg/L	<0.50	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
TCLP Extractables (QCLot: 1370158)									
Nitrate (as N), TCLP	14797-55-8	E240.NO3	5	mg/L	2.5 mg/L	96.8	85.0	115	----
TCLP Extractables (QCLot: 1370159)									
Nitrite (as N), TCLP	14797-65-0	E240.NO2	5	mg/L	0.5 mg/L	94.3	85.0	115	----
TCLP Extractables (QCLot: 1370160)									
Fluoride, TCLP	16984-48-8	E240.F	10	mg/L	1 mg/L	83.5	70.0	130	----
TCLP Extractables (QCLot: 1370375)									
Cyanide, weak acid dissociable, TCLP	----	E337A	0.1	mg/L	6.25 mg/L	91.6	70.0	130	----
TCLP Extractables (QCLot: 1370416)									
Benzo(a)pyrene, TCLP	50-32-8	E644	0.5	µg/L	0.5263 µg/L	122	60.0	140	----
TCLP Extractables (QCLot: 1370439)									
Aldrin, TCLP	309-00-2	E661B	0.1	µg/L	0.2 µg/L	93.6	50.0	150	----
Chlordane, cis- (alpha), TCLP	5103-71-9	E661B	0.1	µg/L	0.2 µg/L	96.8	50.0	150	----
Chlordane, trans- (gamma), TCLP	5103-74-2	E661B	0.1	µg/L	0.2 µg/L	97.1	50.0	150	----
DDD, 2,4'-, TCLP	53-19-0	E661B	0.1	µg/L	0.2 µg/L	134	50.0	150	----
DDD, 4,4'-, TCLP	72-54-8	E661B	0.1	µg/L	0.2 µg/L	122	50.0	150	----
DDE, 2,4'-, TCLP	3424-82-6	E661B	0.1	µg/L	0.2 µg/L	92.5	50.0	150	----
DDE, 4,4'-, TCLP	72-55-9	E661B	0.1	µg/L	0.2 µg/L	90.0	50.0	150	----
DDT, 2,4'-, TCLP	789-02-6	E661B	0.1	µg/L	0.2 µg/L	59.4	50.0	150	----
DDT, 4,4'-, TCLP	50-29-3	E661B	0.1	µg/L	0.2 µg/L	# 38.1	50.0	150	LCS-L
Dieldrin, TCLP	60-57-1	E661B	0.1	µg/L	0.2 µg/L	134	50.0	150	----
Endrin, TCLP	72-20-8	E661B	0.1	µg/L	0.2 µg/L	75.5	50.0	150	----
Heptachlor epoxide, TCLP	1024-57-3	E661B	0.1	µg/L	0.2 µg/L	137	50.0	150	----
Heptachlor, TCLP	76-44-8	E661B	0.1	µg/L	0.2 µg/L	75.3	50.0	150	----
Hexachlorocyclohexane, gamma-, TCLP	58-89-9	E661B	0.1	µg/L	0.2 µg/L	82.3	50.0	150	----
Methoxychlor, TCLP	72-43-5	E661B	0.1	µg/L	0.2 µg/L	55.8	50.0	150	----
Oxychlordane, TCLP	27304-13-8	E661B	0.1	µg/L	0.2 µg/L	102	50.0	150	----
TCLP Extractables (QCLot: 1370440)									
Aroclor 1016, TCLP	12674-11-2	E688A	0.2	µg/L	0.2 µg/L	96.5	65.0	130	----
Aroclor 1221, TCLP	11104-28-2	E688A	0.2	µg/L	0.2 µg/L	96.5	65.0	130	----
Aroclor 1232, TCLP	11141-16-5	E688A	0.2	µg/L	0.2 µg/L	96.5	65.0	130	----
Aroclor 1242, TCLP	53469-21-9	E688A	0.2	µg/L	0.2 µg/L	96.5	65.0	130	----
Aroclor 1248, TCLP	12672-29-6	E688A	0.2	µg/L	0.2 µg/L	88.0	65.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
TCLP Extractables (QCLot: 1370440) - continued									
Aroclor 1254, TCLP	11097-69-1	E688A	0.2	µg/L	0.2 µg/L	74.6	65.0	130	----
Aroclor 1260, TCLP	11096-82-5	E688A	0.2	µg/L	0.2 µg/L	89.1	65.0	130	----
Aroclor 1262, TCLP	37324-23-5	E688A	0.2	µg/L	0.2 µg/L	89.1	65.0	130	----
Aroclor 1268, TCLP	11100-14-4	E688A	0.2	µg/L	0.2 µg/L	89.1	65.0	130	----
TCLP Metals (QCLot: 1369801)									
Arsenic, TCLP	7440-38-2	E444	1	mg/L	0.05 mg/L	109	70.0	130	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	0.0125 mg/L	106	70.0	130	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	0.05 mg/L	98.8	70.0	130	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	0.005 mg/L	102	70.0	130	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	0.0125 mg/L	103	70.0	130	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	0.025 mg/L	98.4	70.0	130	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	0.05 mg/L	102	70.0	130	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	0.005 mg/L	96.8	70.0	130	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	0.00025 mg/L	94.9	70.0	130	----
TCLP Metals (QCLot: 1369909)									
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	0.0001 mg/L	92.7	70.0	130	----
TCLP VOCs (QCLot: 1370207)									
Benzene, TCLP	71-43-2	E615B	5	µg/L	250 µg/L	97.9	70.0	130	----
Carbon tetrachloride, TCLP	56-23-5	E615B	25	µg/L	250 µg/L	102	60.0	140	----
Chlorobenzene, TCLP	108-90-7	E615B	25	µg/L	250 µg/L	95.3	70.0	130	----
Chloroform, TCLP	67-66-3	E615B	100	µg/L	250 µg/L	105	70.0	130	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	25	µg/L	250 µg/L	97.1	70.0	130	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	25	µg/L	250 µg/L	96.5	70.0	130	----
Dichloroethane, 1,2-, TCLP	107-06-2	E615B	25	µg/L	250 µg/L	104	70.0	130	----
Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	25	µg/L	250 µg/L	99.9	70.0	130	----
Dichloromethane, TCLP	75-09-2	E615B	100	µg/L	250 µg/L	110	70.0	130	----
Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	100	µg/L	250 µg/L	97.3	50.0	150	----
Tetrachloroethylene, TCLP	127-18-4	E615B	25	µg/L	250 µg/L	102	70.0	130	----
Trichloroethylene, TCLP	79-01-6	E615B	25	µg/L	250 µg/L	103	70.0	130	----
Vinyl chloride, TCLP	75-01-4	E615B	50	µg/L	250 µg/L	99.7	60.0	130	----
ON mSPLP Extractables (target pH= 5) (QCLot: 1370540)									
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	0.4	µg/L	1.6 µg/L	80.8	50.0	140	----
bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	0.4	µg/L	1.6 µg/L	84.9	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
ON mSPLP Extractables (target pH= 5) (QCLot: 1370540) - continued									
Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.4	µg/L	1.6 µg/L	71.0	50.0	140	----
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	0.4	µg/L	1.6 µg/L	95.9	50.0	140	----
Diethyl phthalate, mSPLP	84-66-2	E657B	0.2	µg/L	6.4 µg/L	90.8	50.0	140	----
Dimethyl phthalate, mSPLP	131-11-3	E657B	0.2	µg/L	6.4 µg/L	92.8	50.0	140	----
Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	1	µg/L	4.8 µg/L	71.9	50.0	140	----
Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	0.4	µg/L	1.6 µg/L	139	50.0	140	----
Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	0.4	µg/L	1.6 µg/L	131	50.0	140	----
Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	0.5	µg/L	4.8 µg/L	99.0	50.0	140	----
ON mSPLP Metal (target pH= 5) (QCLot: 1370052)									
Antimony, mSPLP	7440-36-0	E443	0.0005	mg/L	0.05 mg/L	104	70.0	130	----
Arsenic, mSPLP	7440-38-2	E443	0.001	mg/L	0.05 mg/L	103	70.0	130	----
Barium, mSPLP	7440-39-3	E443	0.002	mg/L	0.0125 mg/L	101	70.0	130	----
Beryllium, mSPLP	7440-41-7	E443	0.0005	mg/L	0.005 mg/L	90.5	70.0	130	----
Boron, mSPLP	7440-42-8	E443	0.01	mg/L	0.05 mg/L	89.7	70.0	130	----
Cadmium, mSPLP	7440-43-9	E443	0.0001	mg/L	0.005 mg/L	101	70.0	130	----
Chromium, mSPLP	7440-47-3	E443	0.005	mg/L	0.0125 mg/L	97.3	70.0	130	----
Cobalt, mSPLP	7440-48-4	E443	0.001	mg/L	0.0125 mg/L	96.4	70.0	130	----
Copper, mSPLP	7440-50-8	E443	0.005	mg/L	0.0125 mg/L	95.3	70.0	130	----
Lead, mSPLP	7439-92-1	E443	0.001	mg/L	0.025 mg/L	96.1	70.0	130	----
Molybdenum, mSPLP	7439-98-7	E443	0.0005	mg/L	0.0125 mg/L	98.8	70.0	130	----
Nickel, mSPLP	7440-02-0	E443	0.001	mg/L	0.025 mg/L	94.5	70.0	130	----
Selenium, mSPLP	7782-49-2	E443	0.001	mg/L	0.05 mg/L	97.8	70.0	130	----
Silver, mSPLP	7440-22-4	E443	0.00025	mg/L	0.005 mg/L	91.8	70.0	130	----
Thallium, mSPLP	7440-28-0	E443	0.0005	mg/L	0.05 mg/L	98.8	70.0	130	----
Uranium, mSPLP	7440-61-1	E443	0.002	mg/L	0.00025 mg/L	90.0	70.0	130	----
Vanadium, mSPLP	7440-62-2	E443	0.0005	mg/L	0.025 mg/L	99.7	70.0	130	----
Zinc, mSPLP	7440-66-6	E443	0.005	mg/L	0.025 mg/L	95.5	70.0	130	----
ON mSPLP OCP (target pH= 5) (QCLot: 1370468)									
Dieldrin, mSPLP	60-57-1	E662A	0.008	µg/L	0.2 µg/L	99.0	50.0	150	----
Endrin, mSPLP	72-20-8	E662A	0.01	µg/L	0.2 µg/L	# 45.1	50.0	150	LCS-L
Heptachlor epoxide, mSPLP	1024-57-3	E662A	0.008	µg/L	0.2 µg/L	102	50.0	150	----
Heptachlor, mSPLP	76-44-8	E662A	0.008	µg/L	0.2 µg/L	55.8	50.0	150	----
mSPLP VOCs (QCLot: 1371649)									

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
mSPLP VOCs (QCLot: 1371649) - continued									
Bromomethane, mSPLP	74-83-9	E619D	0.5	µg/L	100 µg/L	117	70.0	130	----
Carbon tetrachloride, mSPLP	56-23-5	E619D	0.2	µg/L	100 µg/L	126	70.0	130	----
Chloroform, mSPLP	67-66-3	E619D	1	µg/L	100 µg/L	116	70.0	130	----
Dibromoethane, 1,2-, mSPLP	106-93-4	E619D	0.2	µg/L	100 µg/L	101	70.0	130	----
Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D	0.5	µg/L	100 µg/L	107	70.0	130	----
Dichloroethane, 1,1-, mSPLP	75-34-3	E619D	0.5	µg/L	100 µg/L	88.9	70.0	130	----
Dichloroethane, 1,2-, mSPLP	107-06-2	E619D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D	0.5	µg/L	100 µg/L	114	70.0	130	----
Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloropropane, 1,2-, mSPLP	78-87-5	E619D	0.5	µg/L	100 µg/L	98.8	70.0	130	----
Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D	0.2	µg/L	100 µg/L	95.4	70.0	130	----
Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D	0.2	µg/L	100 µg/L	89.7	70.0	130	----
Dioxane, 1,4-, mSPLP	123-91-1	E619D	2	µg/L	100 µg/L	88.8	60.0	140	----
Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D	0.5	µg/L	100 µg/L	114	70.0	130	----
Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D	0.5	µg/L	100 µg/L	90.3	70.0	130	----
Tetrachloroethylene, mSPLP	127-18-4	E619D	0.5	µg/L	100 µg/L	125	70.0	130	----
Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D	0.5	µg/L	100 µg/L	100	70.0	130	----
Trichloroethylene, mSPLP	79-01-6	E619D	0.5	µg/L	100 µg/L	128	70.0	130	----

Qualifiers

Qualifier	Description
LCS-L	*Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
TCLP Extractables (QCLot: 1370158)										
WT2405697-001	TCLP-24-01	Nitrate (as N), TCLP	14797-55-8	E240.NO3	48.3 mg/L	50 mg/L	96.6	50.0	140	----
TCLP Extractables (QCLot: 1370159)										
WT2405697-001	TCLP-24-01	Nitrite (as N), TCLP	14797-65-0	E240.NO2	9.0 mg/L	10 mg/L	90.4	50.0	140	----
TCLP Extractables (QCLot: 1370160)										
WT2405697-001	TCLP-24-01	Fluoride, TCLP	16984-48-8	E240.F	16 mg/L	20 mg/L	78.6	50.0	140	----
TCLP Extractables (QCLot: 1370375)										
WT2405697-001	TCLP-24-01	Cyanide, weak acid dissociable, TCLP	----	E337A	5.68 mg/L	6.25 mg/L	90.8	50.0	140	----
TCLP Extractables (QCLot: 1370416)										
WT2405988-001	Anonymous	Benzo(a)pyrene, TCLP	50-32-8	E644	0.60 µg/L	0.5263 µg/L	115	50.0	140	----
TCLP Extractables (QCLot: 1370439)										
WT2405697-001	TCLP-24-01	Aldrin, TCLP	309-00-2	E661B	0.19 µg/L	0.2 µg/L	94.2	50.0	150	----
		Chlordane, cis- (alpha), TCLP	5103-71-9	E661B	0.19 µg/L	0.2 µg/L	94.1	50.0	150	----
		Chlordane, trans- (gamma), TCLP	5103-74-2	E661B	0.21 µg/L	0.2 µg/L	107	50.0	150	----
		DDD, 2,4'-, TCLP	53-19-0	E661B	0.26 µg/L	0.2 µg/L	132	50.0	150	----
		DDD, 4,4'-, TCLP	72-54-8	E661B	0.23 µg/L	0.2 µg/L	116	50.0	150	----
		DDE, 2,4'-, TCLP	3424-82-6	E661B	0.19 µg/L	0.2 µg/L	93.3	50.0	150	----
		DDE, 4,4'-, TCLP	72-55-9	E661B	0.19 µg/L	0.2 µg/L	96.4	50.0	150	----
		DDT, 2,4'-, TCLP	789-02-6	E661B	0.13 µg/L	0.2 µg/L	64.2	50.0	150	----
		DDT, 4,4'-, TCLP	50-29-3	E661B	0.11 µg/L	0.2 µg/L	54.1	50.0	150	----
		Dieldrin, TCLP	60-57-1	E661B	0.28 µg/L	0.2 µg/L	139	50.0	150	----
		Endrin, TCLP	72-20-8	E661B	0.19 µg/L	0.2 µg/L	97.2	50.0	150	----
		Heptachlor epoxide, TCLP	1024-57-3	E661B	0.26 µg/L	0.2 µg/L	128	50.0	150	----
		Heptachlor, TCLP	76-44-8	E661B	0.14 µg/L	0.2 µg/L	68.2	50.0	150	----
		Hexachlorocyclohexane, gamma-, TCLP	58-89-9	E661B	0.18 µg/L	0.2 µg/L	88.6	50.0	150	----
		Methoxychlor, TCLP	72-43-5	E661B	0.10 µg/L	0.2 µg/L	50.8	50.0	150	----
		Oxychlordane, TCLP	27304-13-8	E661B	0.20 µg/L	0.2 µg/L	102	50.0	150	----
TCLP Extractables (QCLot: 1370440)										
WT2405697-001	TCLP-24-01	Aroclor 1016, TCLP	12674-11-2	E688A	0.22 µg/L	0.2 µg/L	110	50.0	150	----
		Aroclor 1221, TCLP	11104-28-2	E688A	0.22 µg/L	0.2 µg/L	110	50.0	150	----
		Aroclor 1232, TCLP	11141-16-5	E688A	0.22 µg/L	0.2 µg/L	110	50.0	150	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
TCLP Extractables (QCLot: 1370440) - continued										
WT2405697-001	TCLP-24-01	Aroclor 1242, TCLP	53469-21-9	E688A	0.22 µg/L	0.2 µg/L	110	50.0	150	----
		Aroclor 1248, TCLP	12672-29-6	E688A	0.22 µg/L	0.2 µg/L	110	50.0	150	----
		Aroclor 1254, TCLP	11097-69-1	E688A	0.18 µg/L	0.2 µg/L	90.1	50.0	150	----
		Aroclor 1260, TCLP	11096-82-5	E688A	0.24 µg/L	0.2 µg/L	119	50.0	150	----
		Aroclor 1262, TCLP	37324-23-5	E688A	0.24 µg/L	0.2 µg/L	120	50.0	150	----
		Aroclor 1268, TCLP	11100-14-4	E688A	0.24 µg/L	0.2 µg/L	120	50.0	150	----
TCLP Metals (QCLot: 1369801)										
WT2405697-001	TCLP-24-01	Arsenic, TCLP	7440-38-2	E444	5.6 mg/L	5 mg/L	113	50.0	140	----
		Barium, TCLP	7440-39-3	E444	13.6 mg/L	12.5 mg/L	109	50.0	140	----
		Boron, TCLP	7440-42-8	E444	10.4 mg/L	10 mg/L	104	50.0	140	----
		Cadmium, TCLP	7440-43-9	E444	0.263 mg/L	0.25 mg/L	105	50.0	140	----
		Chromium, TCLP	7440-47-3	E444	1.35 mg/L	1.25 mg/L	108	50.0	140	----
		Lead, TCLP	7439-92-1	E444	9.86 mg/L	10 mg/L	98.6	50.0	140	----
		Selenium, TCLP	7782-49-2	E444	5.47 mg/L	5 mg/L	109	50.0	140	----
		Silver, TCLP	7440-22-4	E444	0.092 mg/L	0.1 mg/L	91.8	50.0	140	----
		Uranium, TCLP	7440-61-1	E444	4.89 mg/L	5 mg/L	97.8	50.0	140	----
TCLP Metals (QCLot: 1369909)										
WT2405697-001	TCLP-24-01	Mercury, TCLP	7439-97-6	E512	0.0030 mg/L	0.003 mg/L	98.5	50.0	140	----
TCLP VOCs (QCLot: 1370207)										
WT2405988-001	Anonymous	Benzene, TCLP	71-43-2	E615B	200 µg/L	250 µg/L	80.2	50.0	140	----
		Carbon tetrachloride, TCLP	56-23-5	E615B	206 µg/L	250 µg/L	82.6	50.0	140	----
		Chlorobenzene, TCLP	108-90-7	E615B	209 µg/L	250 µg/L	83.5	50.0	140	----
		Chloroform, TCLP	67-66-3	E615B	220 µg/L	250 µg/L	87.7	50.0	140	----
		Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	225 µg/L	250 µg/L	90.0	50.0	140	----
		Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	222 µg/L	250 µg/L	88.8	50.0	140	----
		Dichloroethane, 1,2-, TCLP	107-06-2	E615B	216 µg/L	250 µg/L	86.5	50.0	140	----
		Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	196 µg/L	250 µg/L	78.4	50.0	140	----
		Dichloromethane, TCLP	75-09-2	E615B	220 µg/L	250 µg/L	88.1	50.0	140	----
		Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	210 µg/L	250 µg/L	83.5	50.0	140	----
		Tetrachloroethylene, TCLP	127-18-4	E615B	219 µg/L	250 µg/L	87.6	50.0	140	----
		Trichloroethylene, TCLP	79-01-6	E615B	215 µg/L	250 µg/L	86.0	50.0	140	----
		Vinyl chloride, TCLP	75-01-4	E615B	188 µg/L	250 µg/L	75.1	50.0	140	----
ON mSPLP Extractables (target pH= 5) (QCLot: 1370540)										
WT2405618-005	Anonymous	bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	1.50 µg/L	1.6 µg/L	84.3	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
ON mSPLP Extractables (target pH= 5) (QCLot: 1370540) - continued										
WT2405618-005	Anonymous	bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	1.52 µg/L	1.6 µg/L	85.2	50.0	140	----
		Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.69 µg/L	1.6 µg/L	38.8	50.0	140	RRQC
		Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	1.05 µg/L	1.6 µg/L	58.9	50.0	140	----
		Diethyl phthalate, mSPLP	84-66-2	E657B	6.77 µg/L	6.4 µg/L	95.2	50.0	140	----
		Dimethyl phthalate, mSPLP	131-11-3	E657B	6.97 µg/L	6.4 µg/L	98.1	50.0	140	----
		Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	5.1 µg/L	4.8 µg/L	96.4	50.0	140	----
		Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	2.59 µg/L	1.6 µg/L	146	50.0	140	RRQC
		Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	2.60 µg/L	1.6 µg/L	146	50.0	140	RRQC
		Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	5.50 µg/L	4.8 µg/L	103	50.0	140	----
ON mSPLP Metal (target pH= 5) (QCLot: 1370052)										
WT2405958-004	Anonymous	Antimony, mSPLP	7440-36-0	E443	5.02 mg/L	5 mg/L	100	50.0	140	----
		Arsenic, mSPLP	7440-38-2	E443	5.26 mg/L	5 mg/L	105	50.0	140	----
		Barium, mSPLP	7440-39-3	E443	13.2 mg/L	12.5 mg/L	106	50.0	140	----
		Beryllium, mSPLP	7440-41-7	E443	0.236 mg/L	0.25 mg/L	94.5	50.0	140	----
		Boron, mSPLP	7440-42-8	E443	9.58 mg/L	10 mg/L	95.8	50.0	140	----
		Cadmium, mSPLP	7440-43-9	E443	0.261 mg/L	0.25 mg/L	104	50.0	140	----
		Chromium, mSPLP	7440-47-3	E443	1.24 mg/L	1.25 mg/L	99.4	50.0	140	----
		Cobalt, mSPLP	7440-48-4	E443	0.244 mg/L	0.25 mg/L	97.7	50.0	140	----
		Copper, mSPLP	7440-50-8	E443	2.41 mg/L	2.5 mg/L	96.4	50.0	140	----
		Lead, mSPLP	7439-92-1	E443	9.56 mg/L	10 mg/L	95.6	50.0	140	----
		Molybdenum, mSPLP	7439-98-7	E443	1.23 mg/L	1.25 mg/L	98.4	50.0	140	----
		Nickel, mSPLP	7440-02-0	E443	2.41 mg/L	2.5 mg/L	96.3	50.0	140	----
		Selenium, mSPLP	7782-49-2	E443	5.15 mg/L	5 mg/L	103	50.0	140	----
		Silver, mSPLP	7440-22-4	E443	0.0866 mg/L	0.1 mg/L	86.6	50.0	140	----
		Thallium, mSPLP	7440-28-0	E443	4.83 mg/L	5 mg/L	96.7	50.0	140	----
		Uranium, mSPLP	7440-61-1	E443	4.60 mg/L	5 mg/L	92.1	70.0	130	----
		Vanadium, mSPLP	7440-62-2	E443	0.759 mg/L	0.75 mg/L	101	50.0	140	----
		Zinc, mSPLP	7440-66-6	E443	9.87 mg/L	10 mg/L	98.7	50.0	140	----
ON mSPLP OCP (target pH= 5) (QCLot: 1370468)										
WT2405697-002	mSPLP-24-01	Dieldrin, mSPLP	60-57-1	E662A	0.209 µg/L	0.2 µg/L	104	50.0	150	----
		Endrin, mSPLP	72-20-8	E662A	0.161 µg/L	0.2 µg/L	80.4	50.0	150	----
		Heptachlor epoxide, mSPLP	1024-57-3	E662A	0.232 µg/L	0.2 µg/L	116	50.0	150	----
		Heptachlor, mSPLP	76-44-8	E662A	0.116 µg/L	0.2 µg/L	58.1	50.0	150	----
mSPLP VOCs (QCLot: 1371649)										
WT2405697-002	mSPLP-24-01	Bromomethane, mSPLP	74-83-9	E619D	105 µg/L	100 µg/L	105	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
mSPLP VOCs (QCLot: 1371649) - continued										
WT2405697-002	mSPLP-24-01	Carbon tetrachloride, mSPLP	56-23-5	E619D	112 µg/L	100 µg/L	112	50.0	140	----
		Chloroform, mSPLP	67-66-3	E619D	107 µg/L	100 µg/L	107	50.0	140	----
		Dibromoethane, 1,2-, mSPLP	106-93-4	E619D	96.8 µg/L	100 µg/L	96.8	50.0	140	----
		Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D	98.6 µg/L	100 µg/L	98.6	50.0	140	----
		Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D	98.8 µg/L	100 µg/L	98.8	50.0	140	----
		Dichloroethane, 1,1-, mSPLP	75-34-3	E619D	98.3 µg/L	100 µg/L	98.3	50.0	140	----
		Dichloroethane, 1,2-, mSPLP	107-06-2	E619D	98.1 µg/L	100 µg/L	98.1	50.0	140	----
		Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D	97.1 µg/L	100 µg/L	97.1	50.0	140	----
		Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D	107 µg/L	100 µg/L	107	50.0	140	----
		Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D	92.7 µg/L	100 µg/L	92.7	50.0	140	----
		Dichloropropane, 1,2-, mSPLP	78-87-5	E619D	92.1 µg/L	100 µg/L	92.1	50.0	140	----
		Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D	86.2 µg/L	100 µg/L	86.2	50.0	140	----
		Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D	83.1 µg/L	100 µg/L	83.1	50.0	140	----
		Dioxane, 1,4-, mSPLP	123-91-1	E619D	92.6 µg/L	100 µg/L	92.6	50.0	140	----
		Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D	106 µg/L	100 µg/L	106	50.0	140	----
		Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D	88.4 µg/L	100 µg/L	88.4	50.0	140	----
		Tetrachloroethylene, mSPLP	127-18-4	E619D	112 µg/L	100 µg/L	112	50.0	140	----
		Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D	96.1 µg/L	100 µg/L	96.1	50.0	140	----
		Trichloroethylene, mSPLP	79-01-6	E619D	115 µg/L	100 µg/L	115	50.0	140	----

Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

T-79

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo

Work Order Reference

WT2405697

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	LOPERS & ASSOCIATES - LOPE100	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☒ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Luke Lopers	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim
Phone:	613-327-9073	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minir
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minir
Street:	30 Lansfield Way	Email 1 or Fax Luke@Lopers.ca	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minir
City/Province:	Ottawa, ON	Email 2	☐ Same day [E2] if received by 10am M-S - 200% rush surcharg
Postal Code:	K2G 3V8	Email 3	Additional fees may apply to rush requests on weekend
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Recipients**	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX	For all tests with rush TATs requested, please co...
Company:		Email 1 or Fax Luke@Lopers.ca	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	LOPE100/WT2023LOPE1000002	AFE/Cost Center:	PO#
Job #:	LOP23-029B	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Costas Farassoglou

Sampler:

Analysis Request

NUMBER OF CONTAINERS — 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	Metals & Inorganics (TCLP)	BTEX/F1-F4	TCLP OCP	VOC (TCLP)	TCLP B.N.P.	TCLP PCB	mSPLP VOCs	mSPLP Metals	mSPLP sVOCs	mSPLP OCP	mSPLP 1,4-Dioxane	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TCLP-24-01	13-MAR-24		SOIL	X		X	X	X	X								
	mSPLP-24-01	13-MAR-24		SOIL							X	X	X	X	X			
				SOIL														
				SOIL														
				SOIL														
				SOIL														
				SOIL														
				SOIL														
				SOIL														
				SOIL														
				SOIL														
				SOIL														

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	O. Reg 347 (TCLP)
Are samples for human consumption/ use? ☐ YES ☐ NO	O. Reg 406/19 (mSPLP)

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			
11.4				9.6			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: March 13, 2024	Time: 2:00PM	Received by: LR	Date: 03/13/24	Time: 14:00	Received by:	Date: 14-MAR-24	Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 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.**

CERTIFICATE OF ANALYSIS

Work Order	: **WT2405173**	Page	: 1 of 17
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 07-Mar-2024 14:00
PO	: ----	Date Analysis Commenced	: 08-Mar-2024
C-O-C number	: ----	Issue Date	: 14-Mar-2024 10:22
Sampler	: Client		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.
Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Sample Comments

Sample	Client Id	*Comment*
WT2405173-006	BH12-24-GW1	sample was lab-filtered for Dissolved Cr6.

Qualifiers

Qualifier	*Description*
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLHC	*Detection Limit Raised: Dilution required due to high concentration of test analyte(s).*
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.*
PEHT	*Parameter exceeded recommended holding time prior to analysis.*
RRR	*Refer to report comments for issues regarding this analysis.*

SP	*Sample was preserved at the laboratory.*
SRU	*Sample Received Unpreserved. Results may be biased low for indicated parameter(s).*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	BH4-24-GW1	BH5-24-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-001	WT2405173-002	WT2405173-003	WT2405173-004	WT2405173-005
						Result	Result	Result	Result	Result
Physical Tests										
Conductivity	----	E100/WT	0.0010	mS/cm		----	8.52	----	----	7.26
pH	----	E108/WT	0.10	pH units		----	8.22	----	----	8.17
Anions and Nutrients										
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		----	2500 DLDS	----	----	2060 DLDS
Cyanides										
Cyanide, weak acid dissociable	----	E336/WT	2.0	µg/L		----	<2.0	----	----	<2.0
Dissolved Metals										
Antimony, dissolved	7440-36-0	E421/WT	0.10	µg/L		----	<1.00 DLHC	----	----	<1.00 DLHC
Arsenic, dissolved	7440-38-2	E421/WT	0.10	µg/L		----	<1.00 DLHC	----	----	<1.00 DLHC
Barium, dissolved	7440-39-3	E421/WT	0.10	µg/L		----	459 DLHC	----	----	471 DLHC
Beryllium, dissolved	7440-41-7	E421/WT	0.020	µg/L		----	<0.200 DLHC	----	----	<0.200 DLHC
Boron, dissolved	7440-42-8	E421/WT	10	µg/L		----	<100 DLHC	----	----	<100 DLHC
Cadmium, dissolved	7440-43-9	E421/WT	0.0050	µg/L		----	0.106 DLHC	----	----	0.0826 DLHC
Chromium, dissolved	7440-47-3	E421/WT	0.50	µg/L		----	<5.00 DLHC	----	----	<5.00 DLHC
Cobalt, dissolved	7440-48-4	E421/WT	0.10	µg/L		----	<1.00 DLHC	----	----	<1.00 DLHC
Copper, dissolved	7440-50-8	E421/WT	0.20	µg/L		----	<2.00 DLHC	----	----	<2.00 DLHC
Lead, dissolved	7439-92-1	E421/WT	0.050	µg/L		----	<0.500 DLHC	----	----	<0.500 DLHC
Mercury, dissolved	7439-97-6	E509/WT	0.0050	µg/L		----	<0.0050	----	----	<0.0050
Molybdenum, dissolved	7439-98-7	E421/WT	0.050	µg/L		----	1.85 DLHC	----	----	0.604 DLHC
Nickel, dissolved	7440-02-0	E421/WT	0.50	µg/L		----	<5.00 DLHC	----	----	<5.00 DLHC
Selenium, dissolved	7782-49-2	E421/WT	0.050	µg/L		----	<0.500 DLHC	----	----	<0.500 DLHC
Silver, dissolved	7440-22-4	E421/WT	0.010	µg/L		----	0.216 DLHC	----	----	<0.100 DLHC
Sodium, dissolved	7440-23-5	E421/WT	50	µg/L		----	1140000 DLHC	----	----	1010000 DLHC
Thallium, dissolved	7440-28-0	E421/WT	0.010	µg/L		----	<0.100 DLHC	----	----	<0.100 DLHC
Uranium, dissolved	7440-61-1	E421/WT	0.010	µg/L		----	6.07 DLHC	----	----	3.93 DLHC
Vanadium, dissolved	7440-62-2	E421/WT	0.50	µg/L		----	<5.00 DLHC	----	----	<5.00 DLHC
Zinc, dissolved	7440-66-6	E421/WT	1.0	µg/L		----	<10.0 DLHC	----	----	<10.0 DLHC
Dissolved mercury filtration location	----	EP509/WT	-	-		----	Field	----	----	Field
Dissolved metals filtration location	----	EP421/WT	-	-		----	Field	----	----	Field

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	BH4-24-GW1	BH5-24-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-001	WT2405173-002	WT2405173-003	WT2405173-004	WT2405173-005
						Result	Result	Result	Result	Result
Speciated Metals										
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	0.50	µg/L		----	3.38	----	----	2.56 PEHT, SRU
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		5.01 OWP	4.40	2.06	0.57 OWP	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	BH4-24-GW1	BH5-24-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-001	WT2405173-002	WT2405173-003	WT2405173-004	WT2405173-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		1.77 OWP	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	0.97 OWP	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	0.63 OWP	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	1.60	<0.50
BTEX, total	----	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	1.6	<1.0
Hydrocarbons										
F1 (C6-C10)	----	E581.F1-L/WT	25	µg/L		----	<25	<25	----	<25
F2 (C10-C16)	----	E601.SG/WT	100	µg/L		----	<100	<100	----	<100
F3 (C16-C34)	----	E601.SG/WT	250	µg/L		----	<250	<250	----	<250
F4 (C34-C50)	----	E601.SG/WT	250	µg/L		----	<250	<250	----	<250
F1-BTEX	----	EC580/WT	25	µg/L		----	<25	<25	----	<25
Hydrocarbons, total (C6-C50)	n/a	EC581SG/WT	240	µg/L		----	<370	<370	----	<370
Chromatogram to baseline at nC50	n/a	E601.SG/WT	-	-		----	YES	YES	----	YES
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/WT	1.0	%		----	91.0	88.4	----	86.8
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	1.0	%		----	88.2	95.4	----	71.8
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		93.8	96.4	96.7	92.6	95.3
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		98.6	98.4	97.7	99.3	98.0
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	BH4-24-GW1	BH5-24-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-001	WT2405173-002	WT2405173-003	WT2405173-004	WT2405173-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Acenaphthylene	208-96-8	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Anthracene	120-12-7	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/WT	0.0050	µg/L		----	<0.0050	----	----	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Chrysene	218-01-9	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.0050	µg/L		----	<0.0050	----	----	<0.0050
Fluoranthene	206-44-0	E641A/WT	0.010	µg/L		----	<0.010	----	----	0.012
Fluorene	86-73-7	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.010	µg/L		----	<0.010	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.010	µg/L		----	0.019	----	----	<0.010
Methylnaphthalene, 1+2-	----	E641A/WT	0.015	µg/L		----	0.050	----	----	<0.015
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.010	µg/L		----	0.031	----	----	<0.010
Naphthalene	91-20-3	E641A/WT	0.050	µg/L		----	0.050	----	----	<0.050
Phenanthrene	85-01-8	E641A/WT	0.020	µg/L		----	<0.020	----	----	<0.020
Pyrene	129-00-0	E641A/WT	0.010	µg/L		----	<0.010	----	----	0.039
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		----	115	----	----	115
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		----	98.2	----	----	97.1
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		----	108	----	----	106
Polychlorinated Biphenyls										
Aroclor 1016	12674-11-2	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1221	11104-28-2	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1232	11141-16-5	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1242	53469-21-9	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1248	12672-29-6	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1254	11097-69-1	E687/WT	0.020	µg/L		----	----	----	----	<0.020

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	BH4-24-GW1	BH5-24-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-001	WT2405173-002	WT2405173-003	WT2405173-004	WT2405173-005
						Result	Result	Result	Result	Result
Polychlorinated Biphenyls										
Aroclor 1260	11096-82-5	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1262	37324-23-5	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Aroclor 1268	11100-14-4	E687/WT	0.020	µg/L		----	----	----	----	<0.020
Polychlorinated biphenyls [PCBs], total	----	E687/WT	0.060	µg/L		----	----	----	----	<0.060
Polychlorinated Biphenyls Surrogates										
Decachlorobiphenyl	2051-24-3	E687/WT	0.1	%		----	----	----	----	116
Tetrachloro-m-xylene	877-09-8	E687/WT	0.1	%		----	----	----	----	106

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH12-24-GW1	BH13-24-GW1	BH15-24-GW1	MW-2-GW1	MW-3-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-006	WT2405173-007	WT2405173-008	WT2405173-009	WT2405173-010
						Result	Result	Result	Result	Result
Physical Tests										
Conductivity	----	E100/WT	0.0010	mS/cm		8.71	----	----	----	6.09
pH	----	E108/WT	0.10	pH units		8.22	----	----	----	7.63
Anions and Nutrients										
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		2550 DLDS	----	----	----	1800 DLDS
Cyanides										
Cyanide, weak acid dissociable	----	E336/WT	2.0	µg/L		<2.0 SP	----	----	----	<2.0
Dissolved Metals										
Antimony, dissolved	7440-36-0	E421/WT	0.10	µg/L		<1.00 DLHC	----	----	----	<1.00 DLHC
Arsenic, dissolved	7440-38-2	E421/WT	0.10	µg/L		<1.00 DLHC	----	----	----	<1.00 DLHC
Barium, dissolved	7440-39-3	E421/WT	0.10	µg/L		482 DLHC	----	----	----	405 DLHC
Beryllium, dissolved	7440-41-7	E421/WT	0.020	µg/L		<0.200 DLHC	----	----	----	<0.200 DLHC
Boron, dissolved	7440-42-8	E421/WT	10	µg/L		<100 DLHC	----	----	----	<100 DLHC
Cadmium, dissolved	7440-43-9	E421/WT	0.0050	µg/L		0.113 DLHC	----	----	----	<0.0500 DLHC
Chromium, dissolved	7440-47-3	E421/WT	0.50	µg/L		<5.00 DLHC	----	----	----	<5.00 DLHC
Cobalt, dissolved	7440-48-4	E421/WT	0.10	µg/L		<1.00 DLHC	----	----	----	<1.00 DLHC
Copper, dissolved	7440-50-8	E421/WT	0.20	µg/L		<2.00 DLHC	----	----	----	<2.00 DLHC
Lead, dissolved	7439-92-1	E421/WT	0.050	µg/L		<0.500 DLHC	----	----	----	<0.500 DLHC
Mercury, dissolved	7439-97-6	E509/WT	0.0050	µg/L		<0.0050	----	----	----	<0.0050
Molybdenum, dissolved	7439-98-7	E421/WT	0.050	µg/L		1.60 DLHC	----	----	----	1.22 DLHC
Nickel, dissolved	7440-02-0	E421/WT	0.50	µg/L		<5.00 DLHC	----	----	----	<5.00 DLHC
Selenium, dissolved	7782-49-2	E421/WT	0.050	µg/L		<0.500 DLHC	----	----	----	<0.500 DLHC
Silver, dissolved	7440-22-4	E421/WT	0.010	µg/L		0.578 DLHC	----	----	----	<0.100 DLHC
Sodium, dissolved	7440-23-5	E421/WT	50	µg/L		1210000 DLHC	----	----	----	571000 DLHC
Thallium, dissolved	7440-28-0	E421/WT	0.010	µg/L		<0.100 DLHC	----	----	----	<0.100 DLHC
Uranium, dissolved	7440-61-1	E421/WT	0.010	µg/L		6.20 DLHC	----	----	----	11.8 DLHC
Vanadium, dissolved	7440-62-2	E421/WT	0.50	µg/L		5.12 DLHC	----	----	----	<5.00 DLHC
Zinc, dissolved	7440-66-6	E421/WT	1.0	µg/L		<10.0 DLHC	----	----	----	<10.0 DLHC
Dissolved mercury filtration location	----	EP509/WT	-	-		Field	----	----	----	Field
Dissolved metals filtration location	----	EP421/WT	-	-		Field	----	----	----	Field
Speciated Metals										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH12-24-GW1	BH13-24-GW1	BH15-24-GW1	MW-2-GW1	MW-3-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-006	WT2405173-007	WT2405173-008	WT2405173-009	WT2405173-010
						Result	Result	Result	Result	Result
Speciated Metals										
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	0.50	µg/L		3.98 PEHT, RRR, SRU	----	----	----	<0.50 PEHT, SRU
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	----	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	----	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	----	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		4.07	2.76 OWP	----	6.86	15.8 OWP
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	----	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	----	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	----	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	----	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	----	<20	<20

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH12-24-GW1	BH13-24-GW1	BH15-24-GW1	MW-2-GW1	MW-3-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-006	WT2405173-007	WT2405173-008	WT2405173-009	WT2405173-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	0.61 OWP	----	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	----	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	----	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	----	<0.50	<0.50
BTEX, total	----	E611D/WT	1.0	µg/L		<1.0	<1.0	----	<1.0	<1.0
Hydrocarbons										
F1 (C6-C10)	----	E581.F1-L/WT	25	µg/L		<25	----	----	----	----
F2 (C10-C16)	----	E601.SG/WT	100	µg/L		<100	----	----	----	----
F3 (C16-C34)	----	E601.SG/WT	250	µg/L		<250	----	----	----	----
F4 (C34-C50)	----	E601.SG/WT	250	µg/L		<250	----	----	----	----
F1-BTEX	----	EC580/WT	25	µg/L		<25	----	----	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581SG/WT	240	µg/L		<370	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG/WT	-	-		YES	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/WT	1.0	%		85.2	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1-L/WT	1.0	%		92.9	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		96.9	92.0	----	93.2	93.5
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.8	99.0	----	99.0	99.6
Polycyclic Aromatic Hydrocarbons										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH12-24-GW1	BH13-24-GW1	BH15-24-GW1	MW-2-GW1	MW-3-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-006	WT2405173-007	WT2405173-008	WT2405173-009	WT2405173-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Acenaphthylene	208-96-8	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Anthracene	120-12-7	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Benz(a)anthracene	56-55-3	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Benzo(a)pyrene	50-32-8	E641A/WT	0.0050	µg/L		<0.0050	----	----	----	0.0070
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.010	µg/L		<0.010	----	----	----	0.013
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.010	µg/L		<0.010	----	----	----	0.014
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Chrysene	218-01-9	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.0050	µg/L		<0.0050	----	----	----	<0.0050
Fluoranthene	206-44-0	E641A/WT	0.010	µg/L		<0.010	----	----	----	0.014
Fluorene	86-73-7	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.010	µg/L		<0.010	----	----	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.010	µg/L		0.020	----	----	----	<0.010
Methylnaphthalene, 1+2-	----	E641A/WT	0.015	µg/L		0.060	----	----	----	<0.015
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.010	µg/L		0.040	----	----	----	<0.010
Naphthalene	91-20-3	E641A/WT	0.050	µg/L		0.068	----	----	----	<0.050
Phenanthrene	85-01-8	E641A/WT	0.020	µg/L		<0.020	----	----	----	<0.020
Pyrene	129-00-0	E641A/WT	0.010	µg/L		<0.010	----	----	----	0.018
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		113	----	----	----	122
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		112	----	----	----	116
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		112	----	----	----	114
Polychlorinated Biphenyls										
Aroclor 1016	12674-11-2	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1221	11104-28-2	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1232	11141-16-5	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1242	53469-21-9	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1248	12672-29-6	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1254	11097-69-1	E687/WT	0.020	µg/L		----	----	<0.020	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH12-24-GW1	BH13-24-GW1	BH15-24-GW1	MW-2-GW1	MW-3-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-006	WT2405173-007	WT2405173-008	WT2405173-009	WT2405173-010
						Result	Result	Result	Result	Result
Polychlorinated Biphenyls										
Aroclor 1260	11096-82-5	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1262	37324-23-5	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Aroclor 1268	11100-14-4	E687/WT	0.020	µg/L		----	----	<0.020	----	----
Polychlorinated biphenyls [PCBs], total	----	E687/WT	0.060	µg/L		----	----	<0.060	----	----
Polychlorinated Biphenyls Surrogates										
Decachlorobiphenyl	2051-24-3	E687/WT	0.1	%		----	----	117	----	----
Tetrachloro-m-xylene	877-09-8	E687/WT	0.1	%		----	----	105	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-12-GW1	BH1-23-GW1	BH2-23-GW1	BH3-23-GW1	BH4-23-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-011	WT2405173-012	WT2405173-013	WT2405173-014	WT2405173-015
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	1.70	<0.50
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		6.95	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-12-GW1	BH1-23-GW1	BH2-23-GW1	BH3-23-GW1	BH4-23-GW1
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00	06-Mar-2024 00:00
						WT2405173-011	WT2405173-012	WT2405173-013	WT2405173-014	WT2405173-015
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
BTEX, total	----	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		93.0	90.9	93.1	92.2	93.2
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		99.0	98.3	98.8	98.5	99.0

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH5-23-GW1	TRIP BLANK	----	----	----
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	----	----	----
						WT2405173-016	WT2405173-017	--------	--------	--------
						Result	Result	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	----	----	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BH5-23-GW1	TRIP BLANK	----	----	----
					Client sampling date / time	06-Mar-2024 00:00	06-Mar-2024 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2405173-016	WT2405173-017	--------	--------	--------
						Result	Result	----	----	----
Volatile Organic Compounds										
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Vinyl chloride	75-01-4	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	----	----	----
BTEX, total	----	E611D/WT	1.0	µg/L		<1.0	<1.0	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		93.4	92.8	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		98.7	98.9	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2405173**	Page	: 1 of 15
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 07-Mar-2024 14:00
PO	: ----	Issue Date	: 14-Mar-2024 10:22
C-O-C number	: ----		
Sampler	: Client		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Volatile Organic Compounds	QC-1361150-002	----	Methyl ethyl ketone [MEK]	78-93-3	E611D	69.4 % MES	70.0-130%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] BH12-24-GW1	E235.Cl	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	11-Mar-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] BH2-24-GW1	E235.Cl	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	11-Mar-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] BH5-24-GW1	E235.Cl	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	11-Mar-2024	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW-3-GW1	E235.Cl	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	11-Mar-2024	28 days	6 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH2-24-GW1	E336	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) BH5-24-GW1	E336	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) MW-3-GW1	E336	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
HDPE [ON MECP] BH12-24-GW1	E336	06-Mar-2024	11-Mar-2024	42 hrs	127 hrs	× EHTL	11-Mar-2024	42 hrs	128 hrs	× EHTL
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH12-24-GW1	E509	06-Mar-2024	09-Mar-2024	28 days	3 days	✓	11-Mar-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH2-24-GW1	E509	06-Mar-2024	09-Mar-2024	28 days	3 days	✓	11-Mar-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH5-24-GW1	E509	06-Mar-2024	09-Mar-2024	28 days	3 days	✓	11-Mar-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-3-GW1	E509	06-Mar-2024	09-Mar-2024	28 days	3 days	✓	11-Mar-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) BH12-24-GW1	E421	06-Mar-2024	08-Mar-2024	180 days	3 days	✓	08-Mar-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) BH2-24-GW1	E421	06-Mar-2024	08-Mar-2024	180 days	3 days	✓	08-Mar-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) BH5-24-GW1	E421	06-Mar-2024	08-Mar-2024	180 days	3 days	✓	08-Mar-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW-3-GW1	E421	06-Mar-2024	08-Mar-2024	180 days	3 days	✓	08-Mar-2024	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH12-24-GW1	E581.F1-L	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH2-24-GW1	E581.F1-L	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH3-24-GW1	E581.F1-L	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level)										
Glass vial (sodium bisulfate) BH5-24-GW1	E581.F1-L	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH12-24-GW1	E601.SG	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH2-24-GW1	E601.SG	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BH5-24-GW1	E601.SG	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) [ON MECP] BH3-24-GW1	E601.SG	06-Mar-2024	12-Mar-2024	40 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP] BH12-24-GW1	E100	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	13-Mar-2024	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH2-24-GW1	E100	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	13-Mar-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH5-24-GW1	E100	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	13-Mar-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
MW-3-GW1	E100	06-Mar-2024	11-Mar-2024	28 days	5 days	✓	13-Mar-2024	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
BH12-24-GW1	E108	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	13-Mar-2024	14 days	7 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
BH2-24-GW1	E108	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	13-Mar-2024	14 days	7 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
BH5-24-GW1	E108	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	13-Mar-2024	14 days	7 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
MW-3-GW1	E108	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	13-Mar-2024	14 days	7 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Amber glass/Teflon lined cap [ON MECP]										
BH15-24-GW1	E687	06-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	40 days	0 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Amber glass/Teflon lined cap [ON MECP]										
BH5-24-GW1	E687	06-Mar-2024	12-Mar-2024	14 days	7 days	✓	12-Mar-2024	40 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH12-24-GW1	E641A	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH2-24-GW1	E641A	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH5-24-GW1	E641A	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) [ON MECP]										
MW-3-GW1	E641A	06-Mar-2024	12-Mar-2024	14 days	6 days	✓	12-Mar-2024	40 days	1 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH12-24-GW1	E532A	06-Mar-2024	----	----	----		08-Mar-2024	28 days	3 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH2-24-GW1	E532A	06-Mar-2024	----	----	----		08-Mar-2024	28 days	3 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH5-24-GW1	E532A	06-Mar-2024	----	----	----		08-Mar-2024	28 days	3 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
MW-3-GW1	E532A	06-Mar-2024	----	----	----		08-Mar-2024	28 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BH1-23-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH1-24-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH13-24-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH2-23-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH3-23-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH4-23-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH4-24-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH5-23-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-12-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-2-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW-3-GW1	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK	E611D	06-Mar-2024	08-Mar-2024	14 days	3 days	✓	08-Mar-2024	14 days	3 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH12-24-GW1	E611D	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH2-24-GW1	E611D	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH3-24-GW1	E611D	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH5-24-GW1	E611D	06-Mar-2024	11-Mar-2024	14 days	5 days	✓	11-Mar-2024	14 days	5 days	✓

Legend & Qualifier Definitions

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1361151	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1361202	1	17	5.8	5.0	✓
Conductivity in Water	E100	1361205	1	13	7.6	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1359359	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1360215	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1359938	1	19	5.2	5.0	✓
pH by Meter	E108	1361204	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1359399	2	40	5.0	5.0	✓
WAD Cyanide	E336	1359206	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1361151	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1361202	1	17	5.8	5.0	✓
Conductivity in Water	E100	1361205	1	13	7.6	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1359359	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1360215	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1359938	1	19	5.2	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1362415	2	18	11.1	5.0	✓
PCB Aroclors by GC-MS	E687	1363144	1	15	6.6	4.7	✓
pH by Meter	E108	1361204	1	20	5.0	5.0	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1362416	2	17	11.7	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1359399	2	40	5.0	5.0	✓
WAD Cyanide	E336	1359206	1	10	10.0	5.0	✓
Method Blanks (MB)							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1361151	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1361202	1	17	5.8	5.0	✓
Conductivity in Water	E100	1361205	1	13	7.6	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1359359	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1360215	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1359938	1	19	5.2	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	1362415	2	18	11.1	5.0	✓
PCB Aroclors by GC-MS	E687	1363144	1	15	6.6	4.7	✓
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG	1362416	2	17	11.7	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1359399	2	40	5.0	5.0	✓
WAD Cyanide	E336	1359206	1	10	10.0	5.0	✓
Matrix Spikes (MS)							

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L	1361151	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1361202	1	17	5.8	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1359359	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1360215	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1359938	1	19	5.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1359399	2	40	5.0	5.0	✓
WAD Cyanide	E336	1359206	1	10	10.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. sample pretreatment involved field or lab filtration following by sample preservation.
CCME PHC - F1 by Headspace GC-FID (Low Level)	E581.F1-L ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID	E601.SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1 (mod)	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
PCB Aroclors by GC-MS	E687 ALS Environmental - Waterloo	Water	EPA 8270E (mod)	PCB Aroclors are analyzed by GC-MS
F1-BTEX	EC580 ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
SUM F1 to F4 where F2-F4 is SG treated	EC581SG ALS Environmental - Waterloo	Water	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Pesticides, PCB, and Neutral Extractable Chlorinated Hydrocarbons Extraction	EP660 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Samples are extracted from aqueous sample using an organic solvent liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: **WT2405173**	Page	: 1 of 22
Client	: Lopers & Associates	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 07-Mar-2024 14:00
PO	: ----	Date Analysis Commenced	: 08-Mar-2024
C-O-C number	: ----	Issue Date	: 14-Mar-2024 10:22
Sampler	: Client 613 327 9073		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Waterloo Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Waterloo Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1361204)											
WT2405161-006	Anonymous	pH	----	E108	0.10	pH units	8.16	8.07	1.11%	4%	----
Physical Tests (QC Lot: 1361205)											
WT2405161-006	Anonymous	Conductivity	----	E100	2.0	µS/cm	2550	2540	0.393%	10%	----
Anions and Nutrients (QC Lot: 1361202)											
WT2405138-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	17.3	17.2	0.488%	20%	----
Cyanides (QC Lot: 1359206)											
EO2401635-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1359938)											
HA2400468-001	Anonymous	Antimony, dissolved	7440-36-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00100	mg/L	0.104	0.105	0.578%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.100	mg/L	0.105	0.100	0.005	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000500	mg/L	0.00101	0.000991	0.000017	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.500	mg/L	279	277	0.923%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000100	mg/L	0.000145	0.000150	0.000004	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1360215)											
WT2404948-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1360216)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1360216) - continued											
HA2400468-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1359359)											
VA24A4710-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1359399)											
WT2405161-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	0.69	0.67	0.02	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1359399) - continued											
WT2405161-001	Anonymous	Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1361150)											
WT2405173-002	BH2-24-GW1	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	4.40	4.51	2.47%	30%	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1361150) - continued											
WT2405173-002	BH2-24-GW1	Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1361151)											
WT2405173-002	BH2-24-GW1	F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1361205)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 1361202)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1359206)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Dissolved Metals (QCLot: 1359938)						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Dissolved Metals (QCLot: 1360215)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1360216)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1359359)						
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1359399)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1359399) - continued						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1359399) - continued						
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 1361150)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1361150) - continued						
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1361151)						
F1 (C6-C10)	----	E581.F1-L	25	µg/L	<25	----
Hydrocarbons (QCLot: 1362416)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Hydrocarbons (QCLot: 1362419)						
F2 (C10-C16)	----	E601.SG	100	µg/L	<100	----
F3 (C16-C34)	----	E601.SG	250	µg/L	<250	----
F4 (C34-C50)	----	E601.SG	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1362415)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1362415) - continued						
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1362418)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Polychlorinated Biphenyls (QCLot: 1363144)						
Aroclor 1016	12674-11-2	E687	0.02	µg/L	<0.020	----
Aroclor 1221	11104-28-2	E687	0.02	µg/L	<0.020	----
Aroclor 1232	11141-16-5	E687	0.02	µg/L	<0.020	----
Aroclor 1242	53469-21-9	E687	0.02	µg/L	<0.020	----
Aroclor 1248	12672-29-6	E687	0.02	µg/L	<0.020	----
Aroclor 1254	11097-69-1	E687	0.02	µg/L	<0.020	----
Aroclor 1260	11096-82-5	E687	0.02	µg/L	<0.020	----
Aroclor 1262	37324-23-5	E687	0.02	µg/L	<0.020	----
Aroclor 1268	11100-14-4	E687	0.02	µg/L	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1361204)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1361205)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	102	90.0	110	----
Anions and Nutrients (QCLot: 1361202)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Cyanides (QCLot: 1359206)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	95.2	80.0	120	----
Dissolved Metals (QCLot: 1359938)									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	96.0	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	97.4	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	98.0	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	97.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	95.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	92.8	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	93.3	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	91.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	92.0	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	96.0	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	94.5	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	90.7	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	92.6	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	91.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	99.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	94.4	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	99.6	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	94.3	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	92.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	98.2	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	98.6	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1359359)									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	0.025 mg/L	95.6	80.0	120	----
Volatile Organic Compounds (QCLot: 1359399)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	98.8	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	95.6	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	93.3	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	91.2	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	103	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	99.2	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	95.0	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	94.9	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	86.8	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	85.5	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	96.3	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	97.6	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	98.6	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	99.2	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	93.6	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	93.3	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	97.4	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	91.6	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	92.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	92.7	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	87.7	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	90.5	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	76.2	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	95.3	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	95.2	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	92.2	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	97.8	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	92.6	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1359399) - continued									
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	97.7	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	88.6	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	96.8	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	101	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	105	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	98.0	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	88.6	70.0	130	----
Volatile Organic Compounds (QCLot: 1361150)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	80.9	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	92.5	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	84.7	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	89.8	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	103	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	93.3	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	94.1	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	87.0	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	81.5	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	93.6	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	96.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	101	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	94.4	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	83.9	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	99.2	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	90.4	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	88.9	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	79.1	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	76.6	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	97.8	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	94.4	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	# 69.4	70.0	130	MES
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	71.7	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	97.5	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1361150) - continued									
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	90.8	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	93.7	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	85.3	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	96.0	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	84.7	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	97.1	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	98.8	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	99.7	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	97.6	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	94.8	70.0	130	----
Hydrocarbons (QCLot: 1361151)									
F1 (C6-C10)	----	E581.F1-L	25	µg/L	2000 µg/L	91.9	80.0	120	----
Hydrocarbons (QCLot: 1362416)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3768 µg/L	103	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7770.15 µg/L	110	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4145.96 µg/L	113	70.0	130	----
Hydrocarbons (QCLot: 1362419)									
F2 (C10-C16)	----	E601.SG	100	µg/L	3768 µg/L	107	70.0	130	----
F3 (C16-C34)	----	E601.SG	250	µg/L	7770.15 µg/L	107	70.0	130	----
F4 (C34-C50)	----	E601.SG	250	µg/L	4145.96 µg/L	107	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1362415)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	113	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	116	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	112	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	125	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	114	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	115	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	122	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	105	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	124	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	112	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	129	50.0	140	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1362415) - continued									
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	125	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	134	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	110	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	112	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	103	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	126	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	122	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1362418)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	105	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	104	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	109	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	120	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	111	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	108	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	125	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	101	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	113	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	120	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	123	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	117	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	128	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	97.7	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	99.5	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	98.2	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	121	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	113	50.0	140	----
Polychlorinated Biphenyls (QCLot: 1363144)									
Aroclor 1016	12674-11-2	E687	0.02	µg/L	0.2 µg/L	119	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.02	µg/L	0.2 µg/L	119	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.02	µg/L	0.2 µg/L	119	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.02	µg/L	0.2 µg/L	119	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.02	µg/L	0.2 µg/L	112	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.02	µg/L	0.2 µg/L	102	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.02	µg/L	0.2 µg/L	125	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.02	µg/L	0.2 µg/L	125	60.0	140	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polychlorinated Biphenyls (QCLot: 1363144) - continued									
Aroclor 1268	11100-14-4	E687	0.02	µg/L	0.2 µg/L	125	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1361202)										
WT2405138-001	Anonymous	Chloride	16887-00-6	E235.Cl	99.3 mg/L	100 mg/L	99.3	75.0	125	----
Cyanides (QCLot: 1359206)										
EO2401635-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.116 mg/L	0.125 mg/L	93.0	75.0	125	----
Dissolved Metals (QCLot: 1359938)										
HA2400468-002	Anonymous	Antimony, dissolved	7440-36-0	E421	0.0534 mg/L	0.05 mg/L	107	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0578 mg/L	0.05 mg/L	116	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00539 mg/L	0.005 mg/L	108	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.051 mg/L	0.05 mg/L	102	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00512 mg/L	0.005 mg/L	102	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0122 mg/L	0.0125 mg/L	97.9	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0119 mg/L	0.0125 mg/L	95.3	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0118 mg/L	0.0125 mg/L	94.1	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0251 mg/L	0.025 mg/L	100	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0128 mg/L	0.0125 mg/L	102	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0233 mg/L	0.025 mg/L	93.3	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0606 mg/L	0.05 mg/L	121	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00484 mg/L	0.005 mg/L	96.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0493 mg/L	0.05 mg/L	98.6	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.000260 mg/L	0.00025 mg/L	104	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0252 mg/L	0.025 mg/L	101	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0259 mg/L	0.025 mg/L	104	70.0	130	----
Dissolved Metals (QCLot: 1360215)										
WT2404948-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000921 mg/L	0.0001 mg/L	92.1	70.0	130	----
Dissolved Metals (QCLot: 1360216)										
HA2400468-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000816 mg/L	0.0001 mg/L	81.6	70.0	130	----
Speciated Metals (QCLot: 1359359)										
VA24A4710-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0410 mg/L	0.04 mg/L	102	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1359399)										
WT2405161-001	Anonymous	Acetone	67-64-1	E611D	95 µg/L	100 µg/L	95.3	60.0	140	----
		Benzene	71-43-2	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	91.9 µg/L	100 µg/L	91.9	60.0	140	----
		Bromoform	75-25-2	E611D	88.1 µg/L	100 µg/L	88.1	60.0	140	----
		Bromomethane	74-83-9	E611D	97.0 µg/L	100 µg/L	97.0	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Chlorobenzene	108-90-7	E611D	92.5 µg/L	100 µg/L	92.5	60.0	140	----
		Chloroform	67-66-3	E611D	93.2 µg/L	100 µg/L	93.2	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	87.4 µg/L	100 µg/L	87.4	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	85.7 µg/L	100 µg/L	85.7	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	92.0 µg/L	100 µg/L	92.0	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	96.4 µg/L	100 µg/L	96.4	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	91.1 µg/L	100 µg/L	91.1	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	94.6 µg/L	100 µg/L	94.6	60.0	140	----
		Dichloromethane	75-09-2	E611D	95.5 µg/L	100 µg/L	95.5	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	89.5 µg/L	100 µg/L	89.5	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	85.8 µg/L	100 µg/L	85.8	60.0	140	----
		Ethylbenzene	100-41-4	E611D	86.0 µg/L	100 µg/L	86.0	60.0	140	----
		Hexane, n-	110-54-3	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	88 µg/L	100 µg/L	87.9	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	74 µg/L	100 µg/L	74.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		Styrene	100-42-5	E611D	92.5 µg/L	100 µg/L	92.5	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	92.2 µg/L	100 µg/L	92.2	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	97.7 µg/L	100 µg/L	97.7	60.0	140	----
		Toluene	108-88-3	E611D	90.7 µg/L	100 µg/L	90.7	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	95.3 µg/L	100 µg/L	95.3	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	89.6 µg/L	100 µg/L	89.6	60.0	140	----
		Trichloroethylene	79-01-6	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1359399) - continued										
WT2405161-001	Anonymous	Trichlorofluoromethane	75-69-4	E611D	95.8 µg/L	100 µg/L	95.8	60.0	140	----
		Vinyl chloride	75-01-4	E611D	96.7 µg/L	100 µg/L	96.7	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	192 µg/L	200 µg/L	95.8	60.0	140	----
		Xylene, o-	95-47-6	E611D	89.0 µg/L	100 µg/L	89.0	60.0	140	----
Volatile Organic Compounds (QCLot: 1361150)										
WT2405173-002	BH2-24-GW1	Acetone	67-64-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Benzene	71-43-2	E611D	90.3 µg/L	100 µg/L	90.3	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Bromoform	75-25-2	E611D	87.9 µg/L	100 µg/L	87.9	60.0	140	----
		Bromomethane	74-83-9	E611D	81.2 µg/L	100 µg/L	81.2	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	92.1 µg/L	100 µg/L	92.1	60.0	140	----
		Chlorobenzene	108-90-7	E611D	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Chloroform	67-66-3	E611D	93.8 µg/L	100 µg/L	93.8	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	89.6 µg/L	100 µg/L	89.6	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	90.6 µg/L	100 µg/L	90.6	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	89.9 µg/L	100 µg/L	89.9	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	72.9 µg/L	100 µg/L	72.9	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	92.3 µg/L	100 µg/L	92.3	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	93.5 µg/L	100 µg/L	93.5	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	88.4 µg/L	100 µg/L	88.4	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Dichloromethane	75-09-2	E611D	92.8 µg/L	100 µg/L	92.8	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	92.9 µg/L	100 µg/L	92.9	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	86.3 µg/L	100 µg/L	86.3	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	82.8 µg/L	100 µg/L	82.8	60.0	140	----
		Ethylbenzene	100-41-4	E611D	88.6 µg/L	100 µg/L	88.6	60.0	140	----
		Hexane, n-	110-54-3	E611D	79.3 µg/L	100 µg/L	79.3	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	88 µg/L	100 µg/L	87.6	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	90 µg/L	100 µg/L	90.1	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	95.7 µg/L	100 µg/L	95.7	60.0	140	----
		Styrene	100-42-5	E611D	88.1 µg/L	100 µg/L	88.1	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	91.3 µg/L	100 µg/L	91.3	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1361150) - continued										
WT2405173-002	BH2-24-GW1	Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	92.3 µg/L	100 µg/L	92.3	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	91.3 µg/L	100 µg/L	91.3	60.0	140	----
		Toluene	108-88-3	E611D	88.5 µg/L	100 µg/L	88.5	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	92.2 µg/L	100 µg/L	92.2	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	90.7 µg/L	100 µg/L	90.7	60.0	140	----
		Trichloroethylene	79-01-6	E611D	92.3 µg/L	100 µg/L	92.3	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	83.3 µg/L	100 µg/L	83.3	60.0	140	----
		Vinyl chloride	75-01-4	E611D	83.2 µg/L	100 µg/L	83.2	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	179 µg/L	200 µg/L	89.3	60.0	140	----
		Xylene, o-	95-47-6	E611D	88.3 µg/L	100 µg/L	88.3	60.0	140	----
Hydrocarbons (QCLot: 1361151)										
WT2405173-002	BH2-24-GW1	F1 (C6-C10)	----	E581.F1-L	1440 µg/L	2000 µg/L	72.0	60.0	140	----

UW-756 SC-606
OR-803 CN-677
GC-596
MM-395

Chain of Custody (COC) / Analytical Request Form

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Canada Toll Free: 1 800 668 9878

COC Number: 22 -

Page 1 of 2

Environmental Division
Waterloo
Work Order Reference
WT2405173

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	LOPERS & ASSOCIATES - LOPE100
Contact:	Luke Lopers
Phone:	613-327-9073
	Company address below will appear on the final report
Street:	30 Lansfield Way
City/Province:	Ottawa, ON
Postal Code:	K2G 3V8
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 Luke@Lopers.ca
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX
Email 1 or Fax Luke@Lopers.ca
Email 2

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges appl
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharg
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharg
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharg
☐ Same day [E2] if received by 10am M-S - 200% rush su
Additional fees may apply to rush requests on we
Date and Time Required for all E&P TATs:

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

Project Information

ALS Account # / Quote #:	LOPE100/WT2023LOPE1000002
Job #:	LOP23-029B
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):

ALS Contact: Costas Farassoglou

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	Metals & Inorganics	BTEX/F1-F4	VOC	PAH	PCB	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH1-24-GW1	06-MAR-24		WATER	2			X					
	BH2-24-GW1			WATER	11	X	X	X	X				
	BH3-24-GW1			WATER	4		X	X					
	BH4-24-GW1			WATER	2			X					
	BH5-24-GW1			WATER	13	X	X	X	X	X			
	BH12-24-GW1			WATER	11	X	X	X	X				
	BH13-24-GW1			WATER	2			X					
	BH15-24-GW1			WATER	2					X			
	MW-2-GW1			WATER	2			X					
	MW-3-GW1			WATER	9	X		X	X				
	MW-12-GW1			WATER	2			X					
	BH1-23-GW1			WATER	2			X					

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☑ NO

Are samples for human consumption/ use?
☐ YES ☑ NO

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

O.Reg 153/04 Table 3

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			
15.3				1.4			

SHIPMENT RELEASE (client use)

Released by: Date: March 7, 2024 Time: 2:00PM

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: LR Date: 03/07/24 Time: 14:00

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 8-MAR-24 Time: 10:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 2 of 2

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Report To	Contact and company name below will appear on the final report
Company:	LOPERS & ASSOCIATES - LOPE100
Contact:	Luke Lopers
Phone:	613-327-9073
	Company address below will appear on the final report
Street:	30 Lansfield Way
City/Province:	Ottawa, ON
Postal Code:	K2G 3V8
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 Luke@Lopers.ca
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX
Email 1 or Fax Luke@Lopers.ca
Email 2

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 for 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 #:	LOPE100/WT2023LOPE1000002
Job #:	LOP23-029B
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):

ALS Contact: Costas Farassoglou **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	Metals & Inorganics	BTEX/F1-F4	VOC	PAH	PCB	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH2-23-GW1	06-MAR-24		GW ~~SOIL~~				X					
	BH3-23-GW1			~~SOIL~~				X					
	BH4-23-GW1			~~SOIL~~				X					
	BH5-23-GW1			SOIL				X					
	TRIP BLANK			SOIL				X					
				SOIL									
				SOIL									
				SOIL									
				SOIL									
				SOIL									
				SOIL									
				SOIL									

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

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

O. Reg 153/04 Table 3

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			
15.3				1.4			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	Mar-7-2024	2:00 PM

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
LR	03/07/24	14:00

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
AP	8-MAR-24	10:10

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY FEB 2022 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**.

CERTIFICATE OF ANALYSIS

Work Order	: **WT2403940**	Page	: 1 of 12
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 22-Feb-2024 12:30
PO	: ----	Date Analysis Commenced	: 25-Feb-2024
C-O-C number	: ----	Issue Date	: 29-Feb-2024 19:46
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH3-24-SS1	BH3-24-SS6	BH4-24-SS2	BH4-24-SS8	BH5-24-SS1
					Client sampling date / time	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00
						WT2403940-001	WT2403940-002	WT2403940-003	WT2403940-004	WT2403940-005
						Result	Result	Result	Result	Result
Physical Tests										
Conductivity (1:2 leachate)	----	E100-L/WT	0.00500	mS/cm		0.575	0.969	----	----	0.332
Moisture	----	E144/WT	0.25	%		21.8	26.0	19.5	32.4	10.7
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	0.10	pH units		7.83	7.33	----	----	7.43
Cyanides										
Cyanide, weak acid dissociable	----	E336A/WT	0.050	mg/kg		<0.050	<0.050	----	----	<0.050
Fixed-Ratio Extractables										
Calcium, soluble ion content	7440-70-2	E484/WT	0.50	mg/L		21.5	3.51	----	----	4.16
Magnesium, soluble ion content	7439-95-4	E484/WT	0.50	mg/L		38.6	0.96	----	----	5.18
Sodium, soluble ion content	17341-25-2	E484/WT	0.50	mg/L		124	175	----	----	59.0
Sodium adsorption ratio [SAR]	----	E484/WT	0.10	-		3.70	21.4	----	----	4.56
Metals										
Antimony	7440-36-0	E440C/WT	0.10	mg/kg		<0.10	<0.10	----	----	<0.10
Arsenic	7440-38-2	E440C/WT	0.10	mg/kg		3.94	1.64	----	----	3.48
Barium	7440-39-3	E440C/WT	0.50	mg/kg		172	262	----	----	119
Beryllium	7440-41-7	E440C/WT	0.10	mg/kg		0.78	0.64	----	----	0.52
Boron	7440-42-8	E440C/WT	5.0	mg/kg		12.1	<5.0	----	----	12.2
Boron, hot water soluble	7440-42-8	E487/WT	0.10	mg/kg		0.19	<0.10	----	----	0.19
Cadmium	7440-43-9	E440C/WT	0.020	mg/kg		0.168	0.096	----	----	0.124
Chromium	7440-47-3	E440C/WT	0.50	mg/kg		46.8	48.0	----	----	25.7
Cobalt	7440-48-4	E440C/WT	0.10	mg/kg		12.2	13.9	----	----	8.94
Copper	7440-50-8	E440C/WT	0.50	mg/kg		24.1	26.7	----	----	15.5
Lead	7439-92-1	E440C/WT	0.50	mg/kg		12.6	5.12	----	----	9.03
Mercury	7439-97-6	E510C/WT	0.0050	mg/kg		0.0471	<0.0050	----	----	0.0407
Molybdenum	7439-98-7	E440C/WT	0.10	mg/kg		0.71	0.29	----	----	0.72
Nickel	7440-02-0	E440C/WT	0.50	mg/kg		29.2	28.3	----	----	21.3
Selenium	7782-49-2	E440C/WT	0.20	mg/kg		<0.20	<0.20	----	----	<0.20
Silver	7440-22-4	E440C/WT	0.10	mg/kg		0.16	<0.10	----	----	0.14
Thallium	7440-28-0	E440C/WT	0.050	mg/kg		0.246	0.253	----	----	0.215
Uranium	7440-61-1	E440C/WT	0.050	mg/kg		0.730	0.630	----	----	0.614

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH3-24-SS1	BH3-24-SS6	BH4-24-SS2	BH4-24-SS8	BH5-24-SS1
					Client sampling date / time	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00
						WT2403940-001	WT2403940-002	WT2403940-003	WT2403940-004	WT2403940-005
						Result	Result	Result	Result	Result
Metals										
Vanadium	7440-62-2	E440C/WT	0.20	mg/kg		68.6	72.6	----	----	48.0
Zinc	7440-66-6	E440C/WT	2.0	mg/kg		67.2	78.1	----	----	37.2
Speciated Metals										
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	0.10	mg/kg		0.28	0.18	----	----	0.30
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		----	----	----	----	<0.0050
Benzene	71-43-2	E611D/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	----
Bromodichloromethane	75-27-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Bromoform	75-25-2	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Bromomethane	74-83-9	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Carbon tetrachloride	56-23-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Chlorobenzene	108-90-7	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Chloroform	67-66-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dibromochloromethane	124-48-1	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloromethane	75-09-2	E611D/WT	0.045	mg/kg		<0.045	<0.045	<0.045	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.030	mg/kg		<0.030	<0.030	<0.030	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.030	mg/kg		<0.030	<0.030	<0.030	<0.030	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH3-24-SS1	BH3-24-SS6	BH4-24-SS2	BH4-24-SS8	BH5-24-SS1
					Client sampling date / time	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00
						WT2403940-001	WT2403940-002	WT2403940-003	WT2403940-004	WT2403940-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		----	----	----	----	<0.015
Ethylbenzene	100-41-4	E611D/WT	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	----
Hexane, n-	110-54-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	----
Styrene	100-42-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethylene	127-18-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg		----	----	----	----	<0.050
Toluene	108-88-3	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethylene	79-01-6	E611D/WT	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Vinyl chloride	75-01-4	E611D/WT	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		----	----	----	----	<0.030
Xylene, m+p-	179601-23-1	E611D/WT	0.030	mg/kg		<0.030	<0.030	<0.030	<0.030	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		----	----	----	----	<0.030
Xylene, o-	95-47-6	E611D/WT	0.030	mg/kg		<0.030	<0.030	<0.030	<0.030	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		----	----	----	----	<0.050
Xylenes, total	1330-20-7	E611D/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
BTEX, total	----	E611A/WT	0.10	mg/kg		----	----	----	----	<0.10
BTEX, total	----	E611D/WT	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WT	5.0	mg/kg		----	----	----	----	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	10	mg/kg		----	----	----	----	<10

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH3-24-SS1	BH3-24-SS6	BH4-24-SS2	BH4-24-SS8	BH5-24-SS1
					Client sampling date / time	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00
						WT2403940-001	WT2403940-002	WT2403940-003	WT2403940-004	WT2403940-005
						Result	Result	Result	Result	Result
Hydrocarbons										
F3 (C16-C34)	----	E601.SG-L/WT	50	mg/kg		----	----	----	----	<50
F4 (C34-C50)	----	E601.SG-L/WT	50	mg/kg		----	----	----	----	<50
F1-BTEX	----	EC580/WT	5.0	mg/kg		----	----	----	----	<5.0
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	80	mg/kg		----	----	----	----	<80
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	-		----	----	----	----	YES
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	1.0	%		----	----	----	----	111
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	1.0	%		----	----	----	----	116
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		----	----	----	----	102
Bromofluorobenzene, 4-	460-00-4	E611D/WT	0.10	%		108	89.2	89.7	92.1	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		----	----	----	----	105
Difluorobenzene, 1,4-	540-36-3	E611D/WT	0.10	%		114	96.5	96.0	97.8	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Acenaphthylene	208-96-8	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Anthracene	120-12-7	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Benz(a)anthracene	56-55-3	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Chrysene	218-01-9	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Fluoranthene	206-44-0	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Fluorene	86-73-7	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH3-24-SS1	BH3-24-SS6	BH4-24-SS2	BH4-24-SS8	BH5-24-SS1
					Client sampling date / time	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00	21-Feb-2024 00:00
						WT2403940-001	WT2403940-002	WT2403940-003	WT2403940-004	WT2403940-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.030	mg/kg		----	----	----	----	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.030	mg/kg		----	----	----	----	<0.030
Naphthalene	91-20-3	E641A/WT	0.010	mg/kg		----	----	----	----	<0.010
Phenanthrene	85-01-8	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Pyrene	129-00-0	E641A/WT	0.050	mg/kg		----	----	----	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A/WT	0.1	%		----	----	----	----	86.7
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		----	----	----	----	105
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		----	----	----	----	91.3
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		----	----	----	----	94.9
Polychlorinated Biphenyls										
Aroclor 1016	12674-11-2	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1221	11104-28-2	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1232	11141-16-5	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1242	53469-21-9	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1248	12672-29-6	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1254	11097-69-1	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1260	11096-82-5	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1262	37324-23-5	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Aroclor 1268	11100-14-4	E687/WT	0.010	mg/kg		----	----	----	----	<0.010
Polychlorinated biphenyls [PCBs], total	----	E687/WT	0.030	mg/kg		----	----	----	----	<0.030
Polychlorinated Biphenyls Surrogates										
Decachlorobiphenyl	2051-24-3	E687/WT	0.1	%		----	----	----	----	133
Tetrachloro-m-xylene	877-09-8	E687/WT	0.1	%		----	----	----	----	92.9

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH5-24-SS7	BH6-24-SS1	BH6-24-SS4	BH7-24-SS1	BH7-24-SS5
					Client sampling date / time	21-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00
						WT2403940-006	WT2403940-007	WT2403940-008	WT2403940-009	WT2403940-010
						Result	Result	Result	Result	Result
Physical Tests										
Conductivity (1:2 leachate)	----	E100-L/WT	0.00500	mS/cm		1.39	1.29	1.43	3.37	1.82
Moisture	----	E144/WT	0.25	%		20.1	21.0	26.8	20.2	27.0
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	0.10	pH units		7.45	7.72	7.15	7.41	7.39
Cyanides										
Cyanide, weak acid dissociable	----	E336A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Fixed-Ratio Extractables										
Calcium, soluble ion content	7440-70-2	E484/WT	0.50	mg/L		13.1	3.20	4.25	77.5	22.2
Magnesium, soluble ion content	7439-95-4	E484/WT	0.50	mg/L		3.44	0.71	0.74	19.2	5.95
Sodium, soluble ion content	17341-25-2	E484/WT	0.50	mg/L		244	246	270	596	316
Sodium adsorption ratio [SAR]	----	E484/WT	0.10	-		15.5	32.4	31.8	15.7	15.4
Metals										
Antimony	7440-36-0	E440C/WT	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	7440-38-2	E440C/WT	0.10	mg/kg		1.36	1.82	1.64	1.91	1.72
Barium	7440-39-3	E440C/WT	0.50	mg/kg		188	280	235	301	302
Beryllium	7440-41-7	E440C/WT	0.10	mg/kg		0.46	0.66	0.59	0.82	0.72
Boron	7440-42-8	E440C/WT	5.0	mg/kg		<5.0	5.4	<5.0	6.1	<5.0
Boron, hot water soluble	7440-42-8	E487/WT	0.10	mg/kg		<0.10	0.16	0.12	0.27	<0.10
Cadmium	7440-43-9	E440C/WT	0.020	mg/kg		0.067	0.091	0.075	0.127	0.092
Chromium	7440-47-3	E440C/WT	0.50	mg/kg		39.9	51.1	49.4	62.1	58.8
Cobalt	7440-48-4	E440C/WT	0.10	mg/kg		10.8	14.8	13.9	16.2	16.2
Copper	7440-50-8	E440C/WT	0.50	mg/kg		21.3	29.1	27.5	24.4	31.8
Lead	7439-92-1	E440C/WT	0.50	mg/kg		3.98	6.28	4.93	7.50	5.73
Mercury	7439-97-6	E510C/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	0.0163	0.0052
Molybdenum	7439-98-7	E440C/WT	0.10	mg/kg		0.27	0.35	0.28	0.27	0.30
Nickel	7440-02-0	E440C/WT	0.50	mg/kg		22.9	29.8	28.1	33.4	33.8
Selenium	7782-49-2	E440C/WT	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Silver	7440-22-4	E440C/WT	0.10	mg/kg		0.14	<0.10	<0.10	<0.10	<0.10
Thallium	7440-28-0	E440C/WT	0.050	mg/kg		0.213	0.287	0.256	0.312	0.302
Uranium	7440-61-1	E440C/WT	0.050	mg/kg		0.558	0.655	0.658	0.579	0.637
Vanadium	7440-62-2	E440C/WT	0.20	mg/kg		58.0	72.4	66.3	77.2	78.4

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH5-24-SS7	BH6-24-SS1	BH6-24-SS4	BH7-24-SS1	BH7-24-SS5
					Client sampling date / time	21-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00
						WT2403940-006	WT2403940-007	WT2403940-008	WT2403940-009	WT2403940-010
						Result	Result	Result	Result	Result
Metals										
Zinc	7440-66-6	E440C/WT	2.0	mg/kg		58.2	78.5	70.6	85.4	86.7
Speciated Metals										
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	0.10	mg/kg		<0.10	0.13	0.25	0.50	0.33
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	0.50	mg/kg		<0.50	----	----	----	----
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		----	<0.0050	<0.0050	<0.0050	<0.0050
Benzene	71-43-2	E611D/WT	0.0050	mg/kg		<0.0050	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	0.045	mg/kg		<0.045	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.030	mg/kg		<0.030	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.030	mg/kg		<0.030	----	----	----	----
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		----	<0.015	<0.015	<0.015	<0.015

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH5-24-SS7	BH6-24-SS1	BH6-24-SS4	BH7-24-SS1	BH7-24-SS5
					Client sampling date / time	21-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00
						WT2403940-006	WT2403940-007	WT2403940-008	WT2403940-009	WT2403940-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Ethylbenzene	100-41-4	E611D/WT	0.015	mg/kg		<0.015	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	0.50	mg/kg		<0.50	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	0.50	mg/kg		<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.040	mg/kg		<0.040	----	----	----	----
Styrene	100-42-5	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg		----	<0.050	<0.050	<0.050	<0.050
Toluene	108-88-3	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.010	mg/kg		<0.010	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	0.020	mg/kg		<0.020	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		----	<0.030	<0.030	<0.030	<0.030
Xylene, m+p-	179601-23-1	E611D/WT	0.030	mg/kg		<0.030	----	----	----	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		----	<0.030	<0.030	<0.030	<0.030
Xylene, o-	95-47-6	E611D/WT	0.030	mg/kg		<0.030	----	----	----	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		----	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611D/WT	0.050	mg/kg		<0.050	----	----	----	----
BTEX, total	----	E611A/WT	0.10	mg/kg		----	<0.10	<0.10	<0.10	<0.10
BTEX, total	----	E611D/WT	0.10	mg/kg		<0.10	----	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.F1/WT	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	10	mg/kg		<10	<10	<10	<10	<10
F3 (C16-C34)	----	E601.SG-L/WT	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH5-24-SS7	BH6-24-SS1	BH6-24-SS4	BH7-24-SS1	BH7-24-SS5
					Client sampling date / time	21-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00
						WT2403940-006	WT2403940-007	WT2403940-008	WT2403940-009	WT2403940-010
						Result	Result	Result	Result	Result
Hydrocarbons										
F4 (C34-C50)	----	E601.SG-L/WT	50	mg/kg		<50	72	<50	<50	<50
F1-BTEX	----	EC580/WT	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	80	mg/kg		<80	<80	<80	<80	<80
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	-		YES	YES	YES	YES	YES
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	1.0	%		111	110	115	111	111
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	1.0	%		92.8	89.6	94.6	98.8	81.7
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		----	92.5	86.5	93.2	85.1
Bromofluorobenzene, 4-	460-00-4	E611D/WT	0.10	%		86.8	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		----	96.8	90.9	97.5	90.0
Difluorobenzene, 1,4-	540-36-3	E611D/WT	0.10	%		91.5	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Anthracene	120-12-7	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Chrysene	218-01-9	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Fluoranthene	206-44-0	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Fluorene	86-73-7	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	0.030	mg/kg		----	<0.030	----	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH5-24-SS7	BH6-24-SS1	BH6-24-SS4	BH7-24-SS1	BH7-24-SS5
					Client sampling date / time	21-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00	22-Feb-2024 00:00
						WT2403940-006	WT2403940-007	WT2403940-008	WT2403940-009	WT2403940-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 2-	91-57-6	E641A/WT	0.030	mg/kg		----	<0.030	----	<0.030	----
Naphthalene	91-20-3	E641A/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Phenanthrene	85-01-8	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Pyrene	129-00-0	E641A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A/WT	0.1	%		----	82.6	----	88.7	----
Chrysene-d12	1719-03-5	E641A/WT	0.1	%		----	93.4	----	105	----
Naphthalene-d8	1146-65-2	E641A/WT	0.1	%		----	91.7	----	92.0	----
Phenanthrene-d10	1517-22-2	E641A/WT	0.1	%		----	94.2	----	96.6	----
Polychlorinated Biphenyls										
Aroclor 1016	12674-11-2	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1221	11104-28-2	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1232	11141-16-5	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1242	53469-21-9	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1248	12672-29-6	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1254	11097-69-1	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1260	11096-82-5	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1262	37324-23-5	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Aroclor 1268	11100-14-4	E687/WT	0.010	mg/kg		<0.010	----	----	----	----
Polychlorinated biphenyls [PCBs], total	----	E687/WT	0.030	mg/kg		<0.030	----	----	----	----
Polychlorinated Biphenyls Surrogates										
Decachlorobiphenyl	2051-24-3	E687/WT	0.1	%		107	----	----	----	----
Tetrachloro-m-xylene	877-09-8	E687/WT	0.1	%		90.0	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2403940**	Page	: 1 of 21
Client	: **Lopers & Associates**	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 613 327 9073	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 22-Feb-2024 12:30
PO	: ----	Issue Date	: 29-Feb-2024 19:46
C-O-C number	: ----		
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Polychlorinated Biphenyls	Anonymous	Anonymous	Aroclor 1254	11097-69-1	E687	165 % E	50.0-150%	Recovery greater than upper data quality objective
Polychlorinated Biphenyls	Anonymous	Anonymous	Aroclor 1260	11096-82-5	E687	179 % E	50.0-150%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	*Description*
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH6-24-SS1	E336A	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH6-24-SS4	E336A	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH7-24-SS1	E336A	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH7-24-SS5	E336A	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH3-24-SS1	E336A	21-Feb-2024	27-Feb-2024	14 days	7 days	✓	28-Feb-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH3-24-SS6	E336A	21-Feb-2024	27-Feb-2024	14 days	7 days	✓	28-Feb-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP] BH5-24-SS1	E336A	21-Feb-2024	27-Feb-2024	14 days	7 days	✓	28-Feb-2024	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E336A	21-Feb-2024	27-Feb-2024	14 days	7 days	✓	28-Feb-2024	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH5-24-SS7	E581.F1	21-Feb-2024	25-Feb-2024	14 days	5 days	✓	25-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH6-24-SS1	E581.F1	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH6-24-SS4	E581.F1	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH7-24-SS1	E581.F1	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH7-24-SS5	E581.F1	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH5-24-SS1	E581.F1	21-Feb-2024	26-Feb-2024	14 days	6 days	✓	26-Feb-2024	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E601.SG-L	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E601.SG-L	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E601.SG-L	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E601.SG-L	22-Feb-2024	27-Feb-2024	14 days	6 days	✓	28-Feb-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E601.SG-L	21-Feb-2024	27-Feb-2024	14 days	7 days	✓	28-Feb-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E601.SG-L	21-Feb-2024	27-Feb-2024	14 days	7 days	✓	28-Feb-2024	40 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E487	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E487	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E487	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E487	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E487	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E487	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E487	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E487	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E510C	22-Feb-2024	29-Feb-2024	28 days	7 days	✓	29-Feb-2024	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E510C	22-Feb-2024	29-Feb-2024	28 days	7 days	✓	29-Feb-2024	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E510C	22-Feb-2024	29-Feb-2024	28 days	7 days	✓	29-Feb-2024	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E510C	22-Feb-2024	29-Feb-2024	28 days	7 days	✓	29-Feb-2024	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E510C	21-Feb-2024	28-Feb-2024	28 days	8 days	✓	29-Feb-2024	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E510C	21-Feb-2024	28-Feb-2024	28 days	8 days	✓	29-Feb-2024	28 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E510C	21-Feb-2024	29-Feb-2024	28 days	8 days	✓	29-Feb-2024	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E510C	21-Feb-2024	29-Feb-2024	28 days	8 days	✓	29-Feb-2024	28 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E440C	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E440C	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E440C	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E440C	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E440C	21-Feb-2024	28-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E440C	21-Feb-2024	28-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E440C	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	9 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E440C	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	9 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E484	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E484	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E484	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E484	22-Feb-2024	29-Feb-2024	180 days	7 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E484	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E484	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	0 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E484	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E484	21-Feb-2024	29-Feb-2024	180 days	8 days	✓	29-Feb-2024	180 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E100-L	22-Feb-2024	29-Feb-2024	30 days	7 days	✓	29-Feb-2024	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E100-L	22-Feb-2024	29-Feb-2024	30 days	7 days	✓	29-Feb-2024	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E100-L	22-Feb-2024	29-Feb-2024	30 days	7 days	✓	29-Feb-2024	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E100-L	22-Feb-2024	29-Feb-2024	30 days	7 days	✓	29-Feb-2024	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E100-L	21-Feb-2024	29-Feb-2024	30 days	8 days	✓	29-Feb-2024	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E100-L	21-Feb-2024	29-Feb-2024	30 days	8 days	✓	29-Feb-2024	30 days	8 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E100-L	21-Feb-2024	29-Feb-2024	30 days	8 days	✓	29-Feb-2024	30 days	9 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E100-L	21-Feb-2024	29-Feb-2024	30 days	8 days	✓	29-Feb-2024	30 days	9 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E144	22-Feb-2024	----	----	----		27-Feb-2024	----	5 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E144	22-Feb-2024	----	----	----		27-Feb-2024	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E144	22-Feb-2024	----	----	----		27-Feb-2024	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E144	22-Feb-2024	----	----	----		27-Feb-2024	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E144	21-Feb-2024	----	----	----		27-Feb-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E144	21-Feb-2024	----	----	----		27-Feb-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH4-24-SS2	E144	21-Feb-2024	----	----	----		27-Feb-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH4-24-SS8	E144	21-Feb-2024	----	----	----		27-Feb-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E144	21-Feb-2024	----	----	----		27-Feb-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E144	21-Feb-2024	----	----	----		27-Feb-2024	----	6 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E108A	22-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E108A	22-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E108A	22-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E108A	22-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	30 days	7 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E108A	21-Feb-2024	28-Feb-2024	30 days	7 days	✓	28-Feb-2024	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E108A	21-Feb-2024	28-Feb-2024	30 days	7 days	✓	28-Feb-2024	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E108A	21-Feb-2024	27-Feb-2024	30 days	7 days	✓	28-Feb-2024	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E108A	21-Feb-2024	27-Feb-2024	30 days	7 days	✓	28-Feb-2024	30 days	8 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E687	21-Feb-2024	28-Feb-2024	365 days	7 days	✓	28-Feb-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E687	21-Feb-2024	28-Feb-2024	365 days	7 days	✓	28-Feb-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E641A	22-Feb-2024	27-Feb-2024	60 days	6 days	✓	28-Feb-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E641A	22-Feb-2024	27-Feb-2024	60 days	6 days	✓	28-Feb-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E641A	21-Feb-2024	27-Feb-2024	60 days	7 days	✓	28-Feb-2024	40 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS1	E532	22-Feb-2024	27-Feb-2024	30 days	5 days	✓	28-Feb-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH6-24-SS4	E532	22-Feb-2024	27-Feb-2024	30 days	5 days	✓	28-Feb-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS1	E532	22-Feb-2024	27-Feb-2024	30 days	5 days	✓	28-Feb-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH7-24-SS5	E532	22-Feb-2024	27-Feb-2024	30 days	5 days	✓	28-Feb-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS1	E532	21-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH3-24-SS6	E532	21-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS1	E532	21-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH5-24-SS7	E532	21-Feb-2024	27-Feb-2024	30 days	6 days	✓	28-Feb-2024	7 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH6-24-SS1	E611A	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH6-24-SS4	E611A	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH7-24-SS1	E611A	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH7-24-SS5	E611A	22-Feb-2024	26-Feb-2024	14 days	5 days	✓	26-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH5-24-SS1	E611A	21-Feb-2024	26-Feb-2024	14 days	6 days	✓	26-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH3-24-SS1	E611D	21-Feb-2024	25-Feb-2024	14 days	5 days	✓	25-Feb-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH3-24-SS6	E611D	21-Feb-2024	25-Feb-2024	14 days	5 days	✓	25-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH4-24-SS2	E611D	21-Feb-2024	25-Feb-2024	14 days	5 days	✓	25-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH4-24-SS8	E611D	21-Feb-2024	25-Feb-2024	14 days	5 days	✓	25-Feb-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH5-24-SS7	E611D	21-Feb-2024	25-Feb-2024	14 days	5 days	✓	25-Feb-2024	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1345622	2	20	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1345138	1	20	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1344270	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1345624	1	20	5.0	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1345618	2	25	8.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1345392	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1345620	2	14	14.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1345621	2	30	6.6	5.0	✓
Moisture Content by Gravimetry	E144	1345625	2	40	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1345623	1	5	20.0	5.0	✓
PCB Aroclors by GC-MS	E687	1346852	1	11	9.0	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1345619	2	40	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1345617	2	24	8.3	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1344269	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1346815	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1345622	4	20	20.0	10.0	✓
BTEX by Headspace GC-MS	E611A	1345138	1	20	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1344270	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1345624	1	20	5.0	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1345618	4	25	16.0	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1345392	2	20	10.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1345620	4	14	28.5	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1345621	4	30	13.3	10.0	✓
Moisture Content by Gravimetry	E144	1345625	2	40	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1345623	1	5	20.0	5.0	✓
PCB Aroclors by GC-MS	E687	1346852	1	11	9.0	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1345619	2	40	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1345617	4	24	16.6	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1344269	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1346815	1	20	5.0	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1345622	2	20	10.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1345138	1	20	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1344270	2	36	5.5	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1345624	1	20	5.0	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1345618	2	25	8.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1345392	1	20	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1345620	2	14	14.2	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1345621	2	30	6.6	5.0	✓
Moisture Content by Gravimetry	E144	1345625	2	40	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1345623	1	5	20.0	5.0	✓
PCB Aroclors by GC-MS	E687	1346852	1	11	9.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1345617	2	24	8.3	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1344269	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1346815	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1345138	1	20	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1344270	2	36	5.5	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1345624	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1345623	1	5	20.0	5.0	✓
PCB Aroclors by GC-MS	E687	1346852	1	11	9.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1344269	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1346815	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, 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 by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode. This method is equivalent to ASTM D4972 and is acceptable for topsoil analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	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).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PCB Aroclors by GC-MS	E687 ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	PCB Aroclors are analyzed by GC-MS
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, 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 by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak 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)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Pesticides, PCB, PAH, and Neutral Extractable Chlorinated Hydrocarbons Extraction	EP660 ALS Environmental - Waterloo	Soil/Solid	EPA 3570 (mod)	A homogenized subsample is extracted with organic solvents using a mechanical shaker.

QUALITY CONTROL REPORT

Work Order	: **WT2403940**	Page	: 1 of 22
Client	: Lopers & Associates	Laboratory	: ALS Environmental - Waterloo
Contact	: Luke Lopers	Account Manager	: Costas Farassoglou
Address	: 30 Lansfield Way Ottawa ON Canada K2G 3V8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: 613 225 8279
Project	: LOP23-029B	Date Samples Received	: 22-Feb-2024 12:30
PO	: ----	Date Analysis Commenced	: 25-Feb-2024
C-O-C number	: ----	Issue Date	: 29-Feb-2024 19:46
Sampler	: CLIENT 613 327 9073		
Site	:		
Quote number	: SOA 2024		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	Waterloo VOC, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1345618)											
WT2403940-006	BH5-24-SS7	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	1.39 mS/cm	1420	1.85%	20%	----
Physical Tests (QC Lot: 1345619)											
WT2403940-005	BH5-24-SS1	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.43	7.61	2.39%	5%	----
Physical Tests (QC Lot: 1345625)											
WT2403940-005	BH5-24-SS1	Moisture	----	E144	0.25	%	10.7	10.1	5.97%	20%	----
Physical Tests (QC Lot: 1345636)											
WT2403900-001	Anonymous	Moisture	----	E144	0.25	%	19.4	19.4	0.0810%	20%	----
Physical Tests (QC Lot: 1346893)											
WT2403940-001	BH3-24-SS1	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.83	7.84	0.128%	5%	----
Physical Tests (QC Lot: 1347031)											
WT2404042-001	Anonymous	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	0.178 mS/cm	188	5.64%	20%	----
Cyanides (QC Lot: 1346815)											
WT2403940-001	BH3-24-SS1	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1345617)											
WT2403940-006	BH5-24-SS7	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	13.1	13.3	1.52%	30%	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	3.44	3.52	2.30%	30%	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	244	249	2.03%	30%	----
Metals (QC Lot: 1345620)											
WT2403940-005	BH5-24-SS1	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0407	0.0405	0.369%	40%	----
Metals (QC Lot: 1345621)											
WT2403940-005	BH5-24-SS1	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	3.48	3.55	2.10%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	119	125	4.40%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.52	0.55	0.03	Diff <2x LOR	----
		Boron	7440-42-8	E440C	5.0	mg/kg	12.2	12.9	0.7	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.124	0.112	0.012	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	25.7	27.9	8.34%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	8.94	9.20	2.88%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	15.5	15.8	1.66%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	9.03	8.51	5.87%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1345621) - continued											
WT2403940-005	BH5-24-SS1	Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.72	0.74	2.41%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	21.3	21.8	2.32%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	0.14	0.15	0.008	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.215	0.212	0.003	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.614	0.659	7.02%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	48.0	53.7	11.2%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	37.2	37.5	0.630%	30%	----
Metals (QC Lot: 1345622)											
WT2403940-005	BH5-24-SS1	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.19	0.21	0.02	Diff <2x LOR	----
Metals (QC Lot: 1347027)											
WT2403940-001	BH3-24-SS1	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.19	0.20	0.004	Diff <2x LOR	----
Metals (QC Lot: 1347028)											
WT2403940-001	BH3-24-SS1	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	3.94	3.86	2.06%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	172	175	1.98%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.78	0.75	3.79%	30%	----
		Boron	7440-42-8	E440C	5.0	mg/kg	12.1	11.5	0.6	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.168	0.168	0.542%	30%	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	46.8	45.8	2.12%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	12.2	11.7	3.65%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	24.1	23.2	4.02%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	12.6	11.9	5.92%	40%	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.71	0.70	1.07%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	29.2	28.6	2.06%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	0.16	0.16	0.003	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.246	0.232	0.014	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.730	0.682	6.81%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	68.6	66.8	2.66%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	67.2	65.6	2.51%	30%	----
Metals (QC Lot: 1347029)											
WT2403940-001	BH3-24-SS1	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0471	0.0449	4.82%	40%	----
Metals (QC Lot: 1347030)											

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1347030) - continued											
WT2404042-001	Anonymous	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	3.96	4.18	5.40%	30%	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	1.98	2.08	0.10	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	11.2	12.0	6.90%	30%	----
Speciated Metals (QC Lot: 1345392)											
WT2403722-001	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	0.12	0.10	0.02	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1344269)											
WT2403970-001	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1344269) - continued											
WT2403970-001	Anonymous	Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1345138)											
TY2401690-002	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1344270)											
WT2403970-001	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1345139)											
TY2401690-002	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1345624)											
WT2403940-005	BH5-24-SS1	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	<10	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1345623)											
WT2403940-005	BH5-24-SS1	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1345623) - continued											
WT2403940-005	BH5-24-SS1	Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Polychlorinated Biphenyls (QC Lot: 1346852)											
WT2404094-001	Anonymous	Aroclor 1016	12674-11-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1221	11104-28-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1232	11141-16-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1242	53469-21-9	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1248	12672-29-6	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1254	11097-69-1	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1260	11096-82-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1262	37324-23-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1268	11100-14-4	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1345618)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1345625)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1345636)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1347031)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Cyanides (QCLot: 1346815)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1345617)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1345620)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1345621)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1345621) - continued						
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----
Metals (QCLot: 1345622)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1347027)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1347028)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----
Metals (QCLot: 1347029)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1347030)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Speciated Metals (QCLot: 1345392)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1344269)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1344269) - continued						
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1344269) - continued						
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1345138)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1344270)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1345139)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1345624)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1345623)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1345623) - continued						
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----
Polychlorinated Biphenyls (QCLot: 1346852)						
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	<0.010	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	<0.010	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	<0.010	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1345618)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	99.1	90.0	110	----
Physical Tests (QCLot: 1345619)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	99.6	98.0	102	----
Physical Tests (QCLot: 1345625)									
Moisture	----	E144	0.25	%	50 %	98.9	90.0	110	----
Physical Tests (QCLot: 1345636)									
Moisture	----	E144	0.25	%	50 %	99.6	90.0	110	----
Physical Tests (QCLot: 1346893)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	99.6	98.0	102	----
Physical Tests (QCLot: 1347031)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	97.3	90.0	110	----
Cyanides (QCLot: 1346815)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	95.5	80.0	120	----
Metals (QCLot: 1345617)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	108	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	103	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	105	80.0	120	----
Metals (QCLot: 1345620)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	110	80.0	120	----
Metals (QCLot: 1345621)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	111	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	118	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	119	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	105	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	102	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	108	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	116	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	114	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	114	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	109	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1345621) - continued									
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	109	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	114	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	110	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	107	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	106	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	108	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	117	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	110	80.0	120	----
Metals (QCLot: 1345622)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	105	70.0	130	----
Metals (QCLot: 1347027)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	108	70.0	130	----
Metals (QCLot: 1347028)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	118	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	110	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	109	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	101	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	102	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	113	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	110	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	109	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	108	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	106	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	109	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	106	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	97.0	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	105	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	97.3	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	116	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	107	80.0	120	----
Metals (QCLot: 1347029)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	118	80.0	120	----
Metals (QCLot: 1347030)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	108	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	103	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1347030) - continued									
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	106	80.0	120	----
Speciated Metals (QCLot: 1345392)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	97.4	80.0	120	----
Volatile Organic Compounds (QCLot: 1344269)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	128	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	96.3	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	101	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	98.2	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	94.0	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	94.6	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	98.3	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	100	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	95.0	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	94.0	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	95.7	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	54.7	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	91.8	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	108	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	91.1	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	97.3	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	94.6	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	106	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	98.5	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	105	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	102	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	86.3	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	81.2	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	125	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	105	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	94.2	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	91.1	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	95.4	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1344269) - continued									
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	109	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	93.0	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	87.1	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	93.3	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	100	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	96.7	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	86.7	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	85.3	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	92.5	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	88.5	70.0	130	----
Volatile Organic Compounds (QCLot: 1345138)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	93.2	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	85.3	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	95.7	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	88.7	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	88.9	70.0	130	----
Hydrocarbons (QCLot: 1344270)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	81.4	80.0	120	----
Hydrocarbons (QCLot: 1345139)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	96.3	80.0	120	----
Hydrocarbons (QCLot: 1345624)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	671.175 mg/kg	115	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1384.058 mg/kg	117	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	738.5 mg/kg	114	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1345623)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	91.4	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	92.0	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	92.0	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	106	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	86.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	99.0	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	89.7	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	101	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	103	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1345623) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	86.5	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	95.7	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	94.9	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	93.9	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	81.6	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	83.5	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	78.5	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	91.6	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	94.3	60.0	130	----
Polychlorinated Biphenyls (QCLot: 1346852)									
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	0.01 mg/kg	129	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	0.01 mg/kg	129	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	0.01 mg/kg	129	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	0.01 mg/kg	119	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	0.01 mg/kg	88.4	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	0.01 mg/kg	100.0	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	0.01 mg/kg	124	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	0.01 mg/kg	65.7	60.0	140	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	0.01 mg/kg	65.7	60.0	140	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1346815)										
WT2403940-001	BH3-24-SS1	Cyanide, weak acid dissociable	----	E336A	1.20 mg/kg	1.25 mg/kg	96.4	70.0	130	----
Volatile Organic Compounds (QCLot: 1344269)										
WT2403970-001	Anonymous	Acetone	67-64-1	E611D	3.20 mg/kg	3.125 mg/kg	119	50.0	140	----
		Benzene	71-43-2	E611D	2.69 mg/kg	3.125 mg/kg	100	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.76 mg/kg	3.125 mg/kg	103	50.0	140	----
		Bromoform	75-25-2	E611D	2.78 mg/kg	3.125 mg/kg	104	50.0	140	----
		Bromomethane	74-83-9	E611D	2.98 mg/kg	3.125 mg/kg	111	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	2.65 mg/kg	3.125 mg/kg	98.9	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.62 mg/kg	3.125 mg/kg	97.7	50.0	140	----
		Chloroform	67-66-3	E611D	2.72 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	2.72 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.75 mg/kg	3.125 mg/kg	102	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.64 mg/kg	3.125 mg/kg	98.4	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.65 mg/kg	3.125 mg/kg	98.7	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.68 mg/kg	3.125 mg/kg	100.0	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.63 mg/kg	3.125 mg/kg	98.1	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.74 mg/kg	3.125 mg/kg	102	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.91 mg/kg	3.125 mg/kg	108	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.69 mg/kg	3.125 mg/kg	100	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.70 mg/kg	3.125 mg/kg	101	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.69 mg/kg	3.125 mg/kg	100	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.93 mg/kg	3.125 mg/kg	109	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.72 mg/kg	3.125 mg/kg	102	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.84 mg/kg	3.125 mg/kg	106	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	2.74 mg/kg	3.125 mg/kg	102	50.0	140	----
		Ethylbenzene	100-41-4	E611D	2.44 mg/kg	3.125 mg/kg	91.0	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.66 mg/kg	3.125 mg/kg	99.1	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	3.06 mg/kg	3.125 mg/kg	114	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.66 mg/kg	3.125 mg/kg	99.0	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.66 mg/kg	3.125 mg/kg	99.4	50.0	140	----
		Styrene	100-42-5	E611D	2.54 mg/kg	3.125 mg/kg	94.7	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1344269) - continued										
WT2403970-001	Anonymous	Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	2.64 mg/kg	3.125 mg/kg	98.4	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.93 mg/kg	3.125 mg/kg	109	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	2.62 mg/kg	3.125 mg/kg	97.8	50.0	140	----
		Toluene	108-88-3	E611D	2.46 mg/kg	3.125 mg/kg	91.9	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.62 mg/kg	3.125 mg/kg	97.7	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.73 mg/kg	3.125 mg/kg	102	50.0	140	----
		Trichloroethylene	79-01-6	E611D	2.71 mg/kg	3.125 mg/kg	101	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	2.66 mg/kg	3.125 mg/kg	99.4	50.0	140	----
		Vinyl chloride	75-01-4	E611D	2.85 mg/kg	3.125 mg/kg	106	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	5.20 mg/kg	6.25 mg/kg	97.0	50.0	140	----
		Xylene, o-	95-47-6	E611D	2.48 mg/kg	3.125 mg/kg	92.4	50.0	140	----
Volatile Organic Compounds (QCLot: 1345138)										
TY2401690-002	Anonymous	Benzene	71-43-2	E611A	2.55 mg/kg	3.125 mg/kg	93.1	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.25 mg/kg	3.125 mg/kg	82.3	60.0	140	----
		Toluene	108-88-3	E611A	2.50 mg/kg	3.125 mg/kg	91.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.62 mg/kg	6.25 mg/kg	84.4	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.35 mg/kg	3.125 mg/kg	85.8	60.0	140	----
Hydrocarbons (QCLot: 1344270)										
WT2403970-001	Anonymous	F1 (C6-C10)	----	E581.F1	52.5 mg/kg	62.5 mg/kg	97.9	60.0	140	----
Hydrocarbons (QCLot: 1345139)										
TY2401690-002	Anonymous	F1 (C6-C10)	----	E581.F1	47.2 mg/kg	62.5 mg/kg	86.2	60.0	140	----
Hydrocarbons (QCLot: 1345624)										
WT2403940-005	BH5-24-SS1	F2 (C10-C16)	----	E601.SG-L	585 mg/kg	671.175 mg/kg	106	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1310 mg/kg	1384.058 mg/kg	114	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	754 mg/kg	738.5 mg/kg	124	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1345623)										
WT2403940-005	BH5-24-SS1	Acenaphthene	83-32-9	E641A	0.392 mg/kg	0.5 mg/kg	94.9	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.391 mg/kg	0.5 mg/kg	94.7	50.0	140	----
		Anthracene	120-12-7	E641A	0.386 mg/kg	0.5 mg/kg	93.4	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.406 mg/kg	0.5 mg/kg	98.2	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.366 mg/kg	0.5 mg/kg	88.6	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.411 mg/kg	0.5 mg/kg	99.4	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.366 mg/kg	0.5 mg/kg	88.6	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.419 mg/kg	0.5 mg/kg	101	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1345623) - continued										
WT2403940-005	BH5-24-SS1	Chrysene	218-01-9	E641A	0.384 mg/kg	0.5 mg/kg	93.0	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.362 mg/kg	0.5 mg/kg	87.7	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.400 mg/kg	0.5 mg/kg	96.9	50.0	140	----
		Fluorene	86-73-7	E641A	0.402 mg/kg	0.5 mg/kg	97.4	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.379 mg/kg	0.5 mg/kg	91.7	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.373 mg/kg	0.5 mg/kg	90.4	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.384 mg/kg	0.5 mg/kg	92.9	50.0	140	----
		Naphthalene	91-20-3	E641A	0.346 mg/kg	0.5 mg/kg	83.9	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.387 mg/kg	0.5 mg/kg	93.7	50.0	140	----
		Pyrene	129-00-0	E641A	0.392 mg/kg	0.5 mg/kg	95.0	50.0	140	----
Polychlorinated Biphenyls (QCLot: 1346852)										
WT2404094-001	Anonymous	Aroclor 1016	12674-11-2	E687	0.012 mg/kg	0.01 mg/kg	119	50.0	150	----
		Aroclor 1221	11104-28-2	E687	0.012 mg/kg	0.01 mg/kg	119	50.0	150	----
		Aroclor 1232	11141-16-5	E687	0.012 mg/kg	0.01 mg/kg	119	50.0	150	----
		Aroclor 1242	53469-21-9	E687	0.011 mg/kg	0.01 mg/kg	111	50.0	150	----
		Aroclor 1248	12672-29-6	E687	0.012 mg/kg	0.01 mg/kg	119	50.0	150	----
		Aroclor 1254	11097-69-1	E687	0.016 mg/kg	0.01 mg/kg	165	50.0	150	E
		Aroclor 1260	11096-82-5	E687	0.018 mg/kg	0.01 mg/kg	179	50.0	150	E

Qualifiers

Qualifier	Description
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1345618)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1384 µS/cm	97.0	70.0	130	----
Physical Tests (QCLot: 1347031)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1384 µS/cm	98.8	70.0	130	----
Metals (QCLot: 1345617)									
	RM	Calcium, soluble ion content	7440-70-2	E484	43.54 mg/L	104	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	15.24 mg/L	101	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	33.47 mg/L	102	70.0	130	----
Metals (QCLot: 1345620)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	106	70.0	130	----
Metals (QCLot: 1345621)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	96.2	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	105	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	114	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	105	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	109	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	106	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	109	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	106	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	105	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	97.3	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	104	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	108	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	87.3	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	101	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	101	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	107	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	102	70.0	130	----
Metals (QCLot: 1345622)									

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1345622) - continued									
	RM	Boron, hot water soluble	7440-42-8	E487	1.366 mg/kg	128	60.0	140	----
Metals (QCLot: 1347027)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.366 mg/kg	104	60.0	140	----
Metals (QCLot: 1347028)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	96.9	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	111	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	118	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	112	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	116	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	105	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	114	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	108	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	111	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	99.8	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	109	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	107	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	83.7	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	104	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	112	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	113	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	104	70.0	130	----
Metals (QCLot: 1347029)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	112	70.0	130	----
Metals (QCLot: 1347030)									
	RM	Calcium, soluble ion content	7440-70-2	E484	43.54 mg/L	105	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	15.24 mg/L	101	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	33.47 mg/L	103	70.0	130	----
Speciated Metals (QCLot: 1345392)									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	93.9	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Waterloo

Work Order Reference

WT2403940

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	LOPERS & ASSOCIATES - LOPE100
Contact:	Luke Lopers
Phone:	613-327-9073
	Company address below will appear on the final report
Street:	30 Lansfield Way
City/Province:	Ottawa, ON
Postal Code:	K2G 3V8
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 Luke@Lopers.ca

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX

Email 1 or Fax Luke@Lopers.ca

Email 2

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 min

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge mi

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge mi

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge mi

☐ Same day [E2] if received by 10am M-S - 200% rush surcha

Additional fees may apply to rush requests on weeke

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm or empty

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

Project Information

ALS Account # / Quote #: LOPE100/WT2023LOPE1000002

Job #: LOP23-029B

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):

ALS Contact: Costas Farassoglou

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	Metals & Inorganics	BTEX/F1-F4	VOCs	PAHs	PCBs	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH3-24-SS1	21-FEB-24		SOIL	4	X		X					
	BH3-24-SS6	21-FEB-24		SOIL	4	X		X					
	BH4-24-SS2	21-FEB-24		SOIL	3			X					
	BH4-24-SS8	21-FEB-24		SOIL	3			X					
	BH5-24-SS1	21-FEB-24		SOIL	6	X	X		X	X			
	BH5-24-SS7	21-FEB-24		SOIL	5	X	X	X		X			
	BH6-24-SS1	22-FEB-24		SOIL	5	X	X		X				
	BH6-24-SS4	22-FEB-24		SOIL	4	X	X						
	BH7-24-SS1	22-FEB-24		SOIL	5	X	X		X				
	BH7-24-SS5	22-FEB-24		SOIL	4	X	X						
				SOIL									
				SOIL									

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

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

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			
7.6				6.1			

SHIPMENT RELEASE (client use)

Released by: Date: FEB 22/2024 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: LR Date: 02/22/24 Time: 12:30

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: AP Date: 23-FEB-24 Time: 1050

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 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.

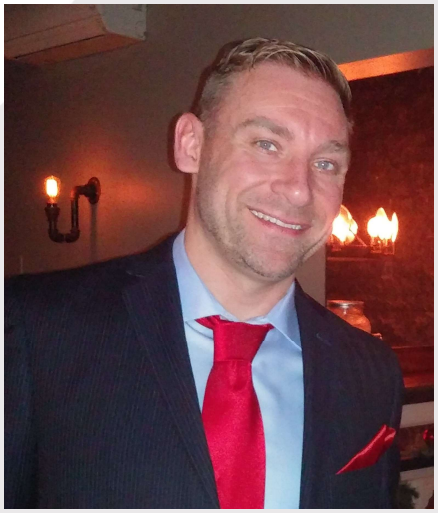
1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

SO1-849, 850

VS 155

Appendix F

Qualifications of Assessors



PROFILE

Mr. Lopers is an environmental engineer with over 16 years of experience in environmental engineering specializing in due diligence investigations. Mr. Lopers has extensive experience in Phase I and II Environmental Site Assessments; environmental remediation, and investigations; record of site condition submissions; asset inventory, designated substance surveys and abatement projects; environmental expertise on legal issues; and coordination of various monitoring programs (groundwater, surface water, air).

Mr. Lopers has participated in various Property Condition and Building Envelope mandates at various residential and commercial properties throughout Ontario.

Mr. Lopers has a strong commitment to health and safety, having experience leading a regional health and safety committee as a certified employee representative. Mr. Lopers has extensive training including OSHA 40-hour HAZWOPER, ASP Health and Safety on Construction Sites in Quebec, Ontario Working at Heights, Emergency First Aid/CPR and WHMIS.

CONTACT

EMAIL:
Luke@Lopers.ca

LUKE LOPERS

Principal
LOPERS & ASSOCIATES

EDUCATION

University of Waterloo,
B.A.Sc., Honours Environmental Engineering
Management Science Option Designation - 2002 - 2008

PROFESSIONAL EXPERIENCE

Lopers & Associates, Principal, Project Manager, Senior Environmental Engineer
Ottawa, Ontario - 2020–Present
Responsible for the management, coordination, supervision, completion and delivery of Phase I/1 and II/2 Environmental Site Assessments, Environmental Remediation Programs, Environmental litigation support, Designated Substance Surveys, scope of work development, cost estimates and proposals

GHD Limited, Project Manager, Senior Environmental Engineer
Ottawa, Ontario - 2013–2020
Responsible for the management, senior technical review, coordination, supervision, completion and delivery of Phase I/1 and II/2 Environmental Site Assessments, Environmental Remediation Programs, Environmental litigation support, Designated Substance Surveys, scope of work development, cost estimates and proposals
Office Safety Captain and Joint Health and Safety Committee team leader

Paterson Group Inc., Project Manager, Environmental Engineer
Ottawa, Ontario - 2009–2013
Responsible for supervision, completion and review for Phase I/1 and II/2 Environmental Site Assessments, Environmental Remediation Programs, Designated Substance Surveys

NEXT Environmental Inc., Site Investigation Staff
Burnaby, British Columbia - 2008–2009
Responsible for fieldwork and reporting for Stage/Phase I and II Environmental Site Assessments, Environmental Remediation Programs

PROFESSIONAL DESIGNATIONS

Licensed Professional Engineer (P.Eng.) with Professional Engineers Ontario (PEO) since 2012

Qualified Person (QP), Environmental Site Assessments with Ontario Ministry of the Environment, Conservation and Parks

PROJECT EXPERIENCE

Environmental Site Assessments

Project Engineer/Manager
Phase 1 Environmental Site Assessment | Various Clients | Ontario, Quebec and British Columbia | 2006-2020

Project Engineer/Manager for Phase I Environmental Site Assessments in support of acquisition/divestiture/regulatory requirements for various properties in Ontario, Quebec and British Columbia, including the following:

- Canadian Tire Retail Store and Gas Bar, CTR 417 - 2560 Princess Street, Kingston, Ontario
- Former Automotive Dealership and Service Garage, North Vancouver, British Columbia
- Former Philips Cable Plant, Brockville, Ontario
- Former Cornwall Cotton Mill, Cornwall, Ontario
- Retail Fuel Outlet and Automotive Service Garage, Ottawa, Ontario
- Jack Garland Airport Land, North Bay, Ontario
- Various Commercial/Residential Properties, Ontario and British Columbia
- Various Residential Properties, Ontario, Quebec and British Columbia
- Rochester Heights (811, 818 Gladstone Avenue), Ottawa, Ontario

Project Engineer/Manager
Phase Two Environmental Site Assessments | Various Clients | Various Locations | 2008-2020

Project Engineer/Manager for the following field investigation and/or regulatory reporting requirements for Phase II ESAs and other Site Investigations:

- Proposed Canadian Tire Development, CTR 693P - Terry Fox Drive at Eagleson Road, Stittsville, Ontario
- Former Retail/Private Fuel Outlets, Ottawa/North Bay/Vancouver, Canada
- Operational/Former Industrial Facilities, Ottawa/Cornwall/Sarnia/Brockville/Gananoque, Ontario
- Existing Dry Cleaning Facilities, Ottawa/Arnprior, Ontario
- Automotive Service Garages, Ottawa/Vancouver, Canada
- Various Commercial/Residential Properties, Eastern Ontario
- Tetrachloroethylene Groundwater Plume, Commercial Property, Ottawa, Ontario
- Rochester Heights (811, 818 Gladstone Avenue), Ottawa, Ontario

Project Manager
Phase One, Phase Two Environmental Site Assessments, Environmental Delineation Quality Assurance Program | Costco Wholesale | Ottawa, ON | 2014-2019

Project Manager for the completion of a Phase One ESA for the potential acquisition of a commercial property. Upon discovery of APECs at the Site and significant data gaps in previous investigations, completed a Phase Two ESA to evaluate soil and groundwater quality at the Site. Further oversight of original owner's environmental consultants was completed to ensure adequate delineation and characterization of a dNAPL groundwater plume at the Site, present at significant depths in shale bedrock, which originated as a result of a former on-Site dry-cleaning operation.

Environmental Remediation Programs

Project Engineer
Underground Fuel Storage Tank Removals and Environmental Remediation Programs in Vicinity of Active Underground Services | Ottawa, ON | 2010, 2012

Project Engineer for removal of underground heating oil storage tanks adjacent to residential buildings. Completed excavation supervision of contaminated soil around and below active underground services, including hydro, water and natural gas infrastructure at residential properties. Activities included oversight of removal of petroleum, impacted soil, and field screening and collection of confirmatory soil and groundwater samples for petroleum hydrocarbon analysis. Prepared Phase I, II and III Environmental Site Assessment reports.

Project Engineer
Retail Fuel Outlet Decommissioning and Remediation | Ottawa, ON | 2012

Project Engineer for UST removal and confirmatory soil sampling at former ESSO gas station in Ottawa, Ontario. Activities included oversight of removal of USTs and product lines, oversight of removal of petroleum-impacted soil and groundwater encountered and backfilling operations, and field screening and collection of confirmatory soil and groundwater samples for petroleum hydrocarbon analysis.

Project Engineer/Manager
Former Fuel Outlet Investigation and Remediation | Merrickville, ON | 2016-2017

Project Engineer for confirmatory soil and groundwater sampling following UST removal at former Shell gas station. Activities included oversight of removal of petroleum-impacted soil, pumping of groundwater encountered and backfilling operations, and field screening and collection of confirmatory soil and groundwater samples for petroleum hydrocarbon analysis. Additional borehole/monitoring well drilling also completed.

Record of Site Conditions

Project Manager/Engineer
Residential Redevelopment | Environmental Remediation Program and Record of Site Condition Submission | Ottawa | 2015

Project Manager for delineation of soil contamination and groundwater sampling for a former automotive garage and gas station property in Ottawa, Ontario. Presented and implemented remedial action plan to remediate on-Site contamination. Directed staff in collection of post remediation confirmatory soil and groundwater samples for contaminants of concern. Prepared remediation closure report and record of site condition supporting documentation for submission to the Ministry of the Environment and Climate Change.

Project Manager/Engineer
Industrial Development | Environmental Assessment and Record of Site Condition Submission | Township of Edwardsburgh/Cardinal | 2015

Project Manager for environmental assessments for a proposed industrial business park, in an existing industrial area within the Township of Edwardsburgh/Cardinal, Ontario. Prepared environmental assessment reports and record of site condition supporting documentation for submission to the Ministry of the Environment and Climate Change.

Excess Soil Management

Project Engineer/Manager
Management of Excess Soil | CTREL, Brigil, Ottawa Community Housing Corporation | Ottawa and Pembroke, Ontario | 2016, 2018

Project Engineer/Manager for sampling, analytical testing, development of soil management plans and monitoring during removal of excess soil generated as part of construction activities, including the following properties/facilities:

- Rochester Heights (811, 818 Gladstone Avenue), Ottawa, Ontario
- Residential redevelopment, 121 Parkdale Avenue, Ottawa, Ontario
- CTR 079, 1104 Pembroke Street East, Pembroke, Ontario
- CTR 297, 2010 Ogilvie Road, Ottawa, Ontario

Designated Substance Surveys

Project Manager

Designated Substance Surveys and Hazardous Building Materials Assessment | Ottawa, Pembroke, Southeastern Ontario | 2010-2020

Project Manager for asbestos containing material (ACM) surveys, designated substance surveys (DSSs), Hazardous Building Materials Assessments (HBMAs) or mould assessments at the following sites:

- DSSs at various municipal facilities for the City of Pembroke, Pembroke, Ontario. Preparation of Asbestos Management Plan.
- HBMAs at various institutional buildings for the Catholic District School Board of Eastern Ontario, Southeastern Ontario.
- DSSs and ACM surveys at various residential, buildings (dwellings and apartment buildings) for private residential clients, Ottawa, Ontario.
- DSS and abatement oversight during demolition, residential buildings (townhouses) for Ottawa Community Housing Corporation, 818 Gladstone Avenue, Ottawa, Ontario.

Environmental Litigation Support

Project Manager, Field Engineer, Expert Witness

Ottawa, Ontario | 2014-2020

Project Manager, Field Engineer and Expert Witness for a fuel spill, remediation program, groundwater monitoring program and litigation review for redevelopment of a residential property adjacent to a central heating plant at an institutional facility.

Education

BEng Geological Engineering, École Polytechnique de Montreal, Montreal, Quebec, 1990

MSc Geophysics, University of British Columbia, Vancouver, British Columbia, 1983

BSc Geophysics, Honours, University of British Columbia, Vancouver, British Columbia, 1980

Certifications

Registered as PMP with Project Management Institute since 2012, requalified in 2018

Qualified Person (QP) for Environmental Site Assessments with Ontario Ministry of Environment and Conservation and Parks

Professional Affiliations

Licensed as P.Eng. with the Professional Engineers of Ontario (PEO) since 1994

Licensed as Ing. with l'Ordre des ingénieurs du Québec (OIQ), 1992

Licensed as P.Eng. with NAPEG (NWT and Nunavut), since 2009.

Licensed as P.Eng with Engineers Yukon since 2018

Federal Clearance Level

Secret ID # 95251065

DON PLENDERLEITH

Senior Environmental Engineer and Project Manager

PROFESSIONAL SUMMARY

Mr. Plenderleith has been an environmental engineer for 30 years. From 1990 to 2000 he worked at specialty firms in Montreal and Ottawa where he gained field and reporting experience in site assessment and remediation of retail fuel outlets and railway yards. In 1991 and 1992 he worked on a CIDA sponsored project to assess additional water resource potential in two provinces in Indonesia. He worked for Golder for 19 years on projects in Ottawa, the North and overseas.

His expertise covers all steps in contaminated site management: Phase I, II and III environmental site assessments (ESAs), risk assessments, remedial options evaluations, remedial action plans, tender plans and specifications, remediation project oversight, long-term monitoring and project closure. He has largely concentrated on federal sites since 2002 and was Golder's initial point of contact on the Environmental Standing Offer Agreement with PSPC in the National Capital over that time.

Don led Golder's national client service team for Federal government and was responsible to Golder's management for maintaining strong relations with the federal government. Locally, he provided project management and technical direction of a variety of environmental projects from the Ottawa office. Don mentored several junior professionals. His site portfolio included: military bases, Northern sites, navigational sites, correctional facilities, research labs, commercial buildings and Canadian embassies abroad. On several multi-year projects (Kingston Penitentiary and Connaught Ranges landfill) he directed all steps of site management from initial investigations, through to site closure.

Don is equally experienced at providing strategic and portfolio-level assistance to clients as well as site-specific level work. He has written contaminated sites management plans for several federal Departments. He helped to develop components of the FCSAP project manager's tool kit and has trained federal project managers in its use. He has provided program-level assistance to the FCSAP Secretariat for funding demand forecasting and long-term strategy and risk management. For nine years he led a multi-disciplinary team that performed contaminated site liability peer reviews for the Office of the Auditor General of Canada.

Don completed his engineering degree in French and is licensed to practice in Quebec. He frequently coordinates the French language component at bilingual meetings and workshops.

PROJECT EXPERIENCE – STANDING OFFER MANAGER

Public Services and Procurement Canada, National Capital Region, Environmental Engineering Standing Offer (2002-2019).

Don managed Golder's Environmental Standing Offer Agreement (SOA) with PSPC in the National Capital Region from 2002 to 2019. He was the first point of contact with PSPC for new call-ups. He formed project teams from the approved resources and reviewed the work plans under each call-up. He was responsible and accountable for Golder's overall project performance to PSPC.

PROJECT EXPERIENCE – SENIOR PROJECT MANAGER

Phase I, II, and III and Remediation at Pittsburgh Institution and Kingston Penitentiary for PSPC/CSC near Kingston, Ontario

Environmental Site Assessment, Remediation Planning and Implementation for the Pittsburgh Institution and Kingston Penitentiary, Kingston, Ontario from 2007 to 2015 - Don was the Senior Project Manager and project reviewer for the Phase I, II and III of contaminated sites on two similar projects at these federal penitentiaries. Don performed project management and provided technical direction during the full suite of services from site assessment through to remediation. Federal project management tools, and FCSAP technical tools (GOST) were used to assist with procedural compliance. Don assisted PSPC with the tender specification for both remediation projects and performed on-site supervision during the fast-track remediation work at Pittsburgh. Don also performed senior review of the draft and final reports.

Peer Review and Liability Review of US Steel Site in Hamilton Harbour for PSPC and Transport Canada (July-August 2016)

Don was the Senior Project Manager for a Peer Review of reports pertaining to the US Steel site on Hamilton Harbour that the Hamilton Port Authority (HPA) was considering purchasing. TC requested the peer review and liability review in its oversight role over the HPA. Don brought a senior expert in at steel industry at Golder onto the project team. With his input some important gaps in the previous site assessments, management plans and liability estimates were identified to TC.

Contaminated Site Reporting and Review for Department of National Defence Ottawa, Ontario, Canada

Don has managed several projects for DND's Director General Environment, related to the financial reporting of DND's contaminated sites. He managed the EcoNet validation project in 2006, in which the systems and procedures by which site cost and liability information are input to DND's Contaminated Site database, Econet. Several of DND's major projects being run out of headquarters were reviewed in that exercise. In 2008 he assisted DND by producing the 2008 update of their Contaminated Sites Management Plan (CSMP) for Treasury Board submission. Nine divisional CSMPs were reviewed, summarized and incorporated into the departmental CSMP.

PROGRAM LEVEL WORK – FEDERAL CONTAMINATED SITES

Project Management Tools for Contaminated Sites, Ottawa, Ontario, Canada

Mr. Plenderleith developed two of the FCSAP Project Management Tools: Status Reporting and Project Risk Management. He has provided training in the tools to federal project managers country-wide. He has delivered training sessions at RPIC National Contaminated Sites workshops on several occasions on the PM Tools, the Sustainable Development Tool (SDAT), and Guidance Tool for Selection of Technologies Tools (GOST).

Assistance to FCSAP for program-level Risk Management, PWGSC/ECCC Ottawa, Ontario

Don has led a team at Golder that provided assistance to the FCSAP Secretariat from 2013 to 2019 in the areas of cost projections for funding demand estimates. He devised a method of projecting the costs of unassessed sites based on closure costs of similar sites. This tool was used to estimate the funding demand for FCSAP Phase III and past Phase III. Don assisted the Secretariat with Long-Term Strategic planning for FSCAP post 2020 when the 15-year program is due to sunset.

Secondments to Federal Departments

Mr. Plenderleith has been seconded from Golder to the Department of Foreign Affairs and International Trade (now Global Affairs Canada "GAC") on three occasions to develop their Contaminated Sites Management Plans and to fill in while GAC was staffing their full-time environmental engineer position. Through these secondments he has developed a greater understanding of the role of federal custodians in managing their programs.

PROJECT EXPERIENCE – NORTHERN SITES

DEW Line Site Monitoring, Baffin Region, DND

(2015-19)

Mr. Plenderleith was the project director of Golder's DEW Line Monitoring contract with DND from four years 2015 to 2019. He was responsible for overall program quality and liaison with the client and management of Inuit subcontractors. The project was multi-disciplinary, involving geotechnical and environmental components. Mr. Plenderleith has developed a very positive working relationship with the hamlet of Qikiqtarjuaq and the Inuit staff from that community, many of whom have returned to work with Golder every year. All Inuit Participation Targets were exceeded.

Tundra Mine Remediation Monitoring PSPC/INAC (2016-2018)

Don was the Senior project director for Golder's Remediation Monitoring of Tundra Mine (NWT) for PSPC and INAC. This project is multi-disciplinary involving surface water and groundwater environmental monitoring and aquatic monitoring for the final stages of the remediation of Tundra Mine. Don has reviewed the monthly and annual monitoring reports produced for the Water Licence. His earlier experience with the RAP for Tundra has been valuable on this project.

Remedial Options Review and Remedial Action Planning Former Water Tanker Base, Inuvik Airport, NWT 2010-12

From 2010 to 2012, Mr. Plenderleith was the technical director for the Phase III ESA detailed site assessment and remediation planning of the former Water Tanker Base at the Inuvik Airport in NWT. The work included determining the contaminants of concern, delineation of contaminated soil and seasonal groundwater areas, and assessing remedial options. The remedial action plan reviewed chemical oxidation and removal & disposal options within the constraints of northern work season, and the distance to a disposal facility. Descriptions, costs, advantages and limitations were provided for several options. GNWT performed the remediation with own forces.