LOPERS & ASSOCIATES

Soil Characterization Report

2940 Baseline Road
Ottawa, Ontario

Prepared for:
Brigil

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1. Executive Summary

Lopers & Associates ("Lopers") was retained by 3223701 Canada Inc. ("Brigil") to complete a Soil Characterization Report ("SCR") at the former commercial/industrial property with Civic address No. 2940 Baseline Road, Ottawa, Ontario ("Property" or "Site"). The SCR Property consists of the proposed Tower 3 footprint, which is approximately the southern 1/3 of the 2940 Baseline Property.

The Project Area includes the entire south 1/3 of the 2940 Baseline Road Property, which has been defined as the SCR Property. The excavation will extend from the southern Property limits, along the east and west Property limits up to the north SCR Property limits, which is the foundation for Tower 2 (under construction in the central portion of the Property). The SCR Property/Project Area has approximate area of 3,024 m^2, which is based on approximate dimensions of 48 m from the east Property limit to the west Property limit and 63 m from the southern Property limit to the north limit of the Project Area. The proposed excavation is expected to extend to approximately 9 m below the existing surface grade. It is expected that based on conventional excavation and shoring construction methodologies, the excavation will progress in 3 stages of levels or "lifts" of approximately 3 m in thickness each. Each soil excavation lift is estimated to be 9,000 m^3; this SCR applies to the Upper Lift (3 m) of excess soil to be excavated. The approximate total volume of soil to be excavated has been estimated at 27,000 m^3; this SCR will be amended to incorporate subsequent excavation depths as soil data is collected.

Soil sampling completed as part of historical environmental Site assessments was completed to provide random coverage of the potentially contaminating activity ("PCA") of a former contractor's yard at the SCR Property. Soil sampling for the purpose of the excess soil characterization report was completed in 2023 in 2 stages:

- 9 Test Pits supervised by Paterson Group in July 2023
- 16 Test Pits supervised by Lopers in September 2023

The test pits, which were situated to supplement the existing analytical soil data, were generally evenly distributed to provide Site coverage, and had increased coverage density in areas where contaminants of potential concern (CPCs) were detected and/or suspected.

There were 2 significant stratigraphic units encountered during the SCR 2023 field activities to assess the Upper Lift (3 m). Granular Fill (surficial material up to 1.8 m in thickness) and Silty Clay (underlying the granular fill, to full investigation depth, suspected native material).

Granular Fill Analytical Results

Following comparison of the granular fill analytical results to the two alternative Excess Soil Quality Standards ("ESQS") at the available reuse sites it was determined that Table 2.1 ESQS would allow for the most practical beneficial reuse of the granular fill. The following significant contaminant concentrations (concentrations in excess of the Table 2.1 ESQS) were reported by the laboratory:

- PHCs were measured at concentrations above the Table 2.1 ESQS or were suspected based on visual and/or olfactory observations in the granular fill samples from TP1-23, TP3-23, TP8-23, TP16-23 and TP17-23, near the central portion of the SCR Property and in TP23-23 and TP23-24 in the north portion of the of the SCR Property.
- Benzo(a)Pyrene was measured at concentrations above the Table 2.1 ESQS in TP1-23 and TP16-23, near the central portion of the SCR Property.
- Barium was measured at concentrations above the Table 2.1 ESQS in 2 granular fill samples from TP12-23 (northeast) and TP19-23 (north-central).
- Elevated Electrical Conductivity was reported above the Table 2.1 ESQS in 2 granular fill samples from TP24-23 (northwest) and TP26-23 (west-central).
- pH was generally found to range from 7.02 to 8.54 in the granular fill samples, which is within the acceptable range. There were four analyzed granular fill sample locations (TP18-23-G1, TP23-23-G1, TP24-23-G1 and TP26-23-G1) which had reported pHs of 10.7, 9.73, 11.9 and 9.24. Three of these four elevated pH locations require remediation to address other contaminants (noted above), while the fourth location can be discounted using the statistical method.

The aforementioned presence of significant concentrations of various analytical parameters in these 10 sampling locations make beneficial reuse of the granular fill from these areas unlikely at the alternative reuse sites. Approximately 50% of the granular fill from the Project Area will require disposal at a licensed landfill site.

There were 10 other sampling locations for granular fill from the general perimeter and south portion of the Project Area which had contaminant concentrations below the Table 2.1 ESQS; excess granular fill from these locations is recommended to be segregated for off-site beneficial reuse.

Native Silty Clay Analytical Results

Following comparison of the native silty clay analytical results to the two alternative ESQS at the available reuse sites it was determined that Table 4.1 Subsurface ESQS would allow for the most practical beneficial reuse of the Silty Clay. The following significant contaminant concentrations (concentrations in excess of the Table 4.1 ESQS) were reported by the laboratory:

- PHCs were measured at concentrations above the Table 4.1 ESQS or were suspected based on visual and/or olfactory observations in the silty clay samples from TP1-23 and

TP17-23, near the central portion of the SCR Property. An excavation sidewall sample from the Tower 2 excavation also identified PHCs in the northeast portion of the Project Area.

- Vanadium, which is a naturally occurring metal commonly found at elevated concentrations in Ottawa clays, was reported in 12 of the 18 silty clay samples from various testing locations across the Project Area. While these 12 silty clay samples did exceed the SCS, all 18 silty clay samples analyzed had vanadium concentrations in compliance with Table 4.1 ESQS for subsurface placement.

The presence of significant concentrations of PHCs in the 3 aforementioned sampling locations make beneficial reuse of the granular fill from these areas unlikely at the alternative reuse sites. It has been estimated that approximately 20% of the native silty clay from the Upper Lift of the Project Area will require disposal at a licensed landfill site due to the presence of PHC contamination.

A total of 16 of the 19 sampling locations for native silty clay from the general perimeter and south portions of the Project Area had contaminant concentrations below the Table 4.1 ESQS; excess silty clay from these locations is recommended to be segregated for off-site beneficial reuse.

mSPLP Analytical Results

The granular fill samples were compared to the O.Reg. 406/19 Table 2.1: Leachate Screening Levels for Full Depth Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards. Both analyzed mSPLP granular fill samples were in compliance with the Table 2.1 Leachate Standards.

The native silty clay samples were compared to the O.Reg. 406/19 Table 4.1: Leachate Screening Levels for Stratified Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards.

All 3 analyzed mSPLP silty clay samples have vanadium concentrations above the Table 4.1 Leachate Standards, however, all 3 bulk soil samples (from the same locations) had vanadium concentrations in compliance with the Table 4.1 ESQS. The mSPLP silty clay vanadium concentrations were reported at 10.9, 27.6 and 48.0 ug/L compared to the Table 4.1 Leachate Standard of 6.2 ug/L.

The bulk soil data has demonstrated that the vanadium concentrations are consistently in compliance with the Table 4.1 ESQS in all analyzed silty clay samples from the project area. It is Lopers interpretation that this soil is suitable for reuse at a Table 4.1 ESQS receiving site (for subsurface placement). Issues may exist with the mSPLP procedure causing reported leachate vanadium concentrations which are higher than the Table 4.1 Leachate Standard of 6.2 ug/L.

- Lopers notes that the Table 5.1: Leachate Screening Levels for Stratified Excess Soil in a Non-Potable Ground Water Condition - Industrial, Commercial, Community Property Re-

Use, Volume Independent Standards has a Leachate Standard for Vanadium of 40.0 ug/L. The average leachate vanadium concentration in the silty clay is in compliance with the Table 5.1 Leachate Standards; this alternative re-use setting would be preferential (if available) for beneficial reuse of the native silty clay given the vanadium concentrations reported in the mSPLP samples.

- Non-potable groundwater condition standards are generally equally or less stringent than potable groundwater condition standards for soil and leachate. Management of the excess silty clay will may require a non-potable groundwater site for potential beneficial reuse due to the high vanadium concentrations reported in the mSPLP samples.
- This item warrants further discussion with the Ministry of Environment, Conservation and Parks ("MECP"), and receiving site representatives to determine a practical approach to management of the excess clays prior to finalizing the soil management plan.

2. Introduction

Lopers & Associates (Lopers) was retained by 3223701 Canada Inc. (Brigil) to complete a Soil Characterization Report (SCR) at the former commercial/industrial property with Civic address No. 2940 Baseline Road, Ottawa, Ontario ("Property" or "Site"). The SCR Property consists of the proposed Tower 3 footprint, which is approximately the southern 1/3 of the 2940 Baseline Property. The location of the SCR Property within the City of Ottawa is presented on Figure 1: Key Plan.

i. Previous Environmental Reports

1) "Phase I Environmental Site Assessment Update, 2940 Baseline Road, Ottawa, ON", dated August 2009, completed by Trow Associates Inc. for R.M. Gardiner Construction Company.
2) "Environmental Site Remediation Program, Industrial Property, 2940 Baseline Road, Ottawa, Ontario", dated December 23, 2009, completed by Paterson Group Inc. for R.M. Gardiner Construction Ltd.
3) "Environmental Soil Investigation, Proposed Development, 2940, 2946 & 2948 Baseline Road, Ottawa, Ontario", dated June 2013, completed by SPL Consultants Limited for 3223701 Canada Inc. (Brigil Platinum).
4) "Phase One Environmental Site Assessment, 2940 and 2946-2948 Baseline Road, Ottawa, Ontario", dated May 5, 2014, completed by Inspec-Sol Inc. for 3223701 Canada Inc.
5) "Phase Two Environmental Site Assessment, 2940 and 2946-2948 Baseline Road, Ottawa, Ontario", dated December 17, 2014, completed by Inspec-Sol Inc. for 3223701 Canada Inc.
6) "Phase I Environmental Site Assessment, 2940 Baseline Road, Ottawa, Ontario", dated May 11, 2018, completed by GHD Limited for 6382924 Canada Inc.
7) Field Notes and Analytical Reports from verification test pits at 2940 Baseline Road, Ottawa, Ontario. Completed by GHD Limited, June 10, 2019.
8) "Environmental Remediation Program, 2940 Baseline Road, Ottawa, Ontario", dated January 31, 2022, completed by Lopers & Associates for 3223701 Canada Inc.
9) "Phase One Environmental Site Assessment, 2940 Baseline Road, Ottawa, Ontario", dated March 21, 2022, completed by Lopers & Associates for 3223701 Canada Inc.
10) "Excess Soil Quality Assessment, 2944 Baseline Road, Ottawa, Ontario", dated August 30, 2023, completed by Paterson Group Inc. for Brigil.

It should be noted that the aforementioned reports, with reference numbers 2., 4., 5., 6., 8. and 9. were written, supervised and/or reviewed by the author of this report, Mr. Luke Lopers, P.Eng.

Additional field investigation was also completed in 2019 by GHD Limited (7.), as directed and supervised by Mr. Luke Lopers, P.Eng. which further investigated and documented environmental soil quality at the Property prior to construction.

The findings of the previous environmental reports are summarized in detail in the March 2022 Phase One ESA and the details specific to soil classification planning are summarized below.

Historical analytical data from the aforementioned reports which is specific to the Project Area at the SCR Property has been relied upon throughout this SCR.

ii. Site History

The Property was undeveloped prior to 1962 when the headquarters and service garage for a construction equipment rental company was constructed at the Property. The Property was used as a construction equipment rental and service facility until 2009. The construction offices and service bays were present on the north portion of the Property (Existing Tower 1), the central portion of the Property (Tower 2 under construction) was occupied by storage buildings, while the southern portion of the Property (SCR Property, proposed Tower 3) was used for equipment and materials storage. Brigil purchased the Property in 2010 and leased the building for operation as a commercial storefront and an electronics recycling and processing facility until 2019. Two environmental soil remediation programs have been completed at the Property in 2009 (Tower 1) and 2022 (Tower 2) at the Property, both of which were supervised by Lopers. The SCR Property is currently used as a staging and materials storage area for the adjacent residential construction project (Tower 2). The SCR Property was most recently used for commercial and light industrial purposes.

iii. Project Area

The Project Area includes the entire south 1/3 of the 2940 Baseline Road Property, which has been defined as the SCR Property. The excavation will extend from the southern Property limits, along the east and west Property limits up to the north SCR Property limits, which is the foundation for Tower 2 (under construction in the central portion of the Property).

The 2940 Baseline Property has an approximate area of 11,932 m^2.

The SCR Property/Project Area has approximate area of 3,024 m^2, which is based on approximate dimensions of 48 m from the east Property limit to the west Property limit and 63 m from the southern Property limit to the north limit of the Project Area. The north limit of the Project Area is the southern foundation wall of Tower 2, currently under construction. Figure 2: Site Plan.

The proposed excavation is expected to extend to approximately 9 m below the existing surface grade. It is expected that based on conventional excavation and shoring construction methodologies, the excavation will progress in 3 stages of levels or "lifts" of approximately 3 m in thickness each. Each soil excavation lift is estimated to be 9,000 m^3; this SCR applies to the

Upper Lift (3 m) of excess soil to be excavated. The approximate total volume of soil to be excavated has been estimated at 27,000 m^3; this SCR will be amended to incorporate subsequent excavation depths as soil data is collected.

iv. Areas of Potential Environmental Concern in the Project Area

Several potentially contaminating activities (PCA) were identified at the Property, including fuel storage, equipment servicing, historical spills and reported soil exceedances. The majority of the PCAs were historically present on the north and central portions of the Property (not at the SCR Property) and were previously assessed and/or remediated as part of historical investigations and/or recent construction activities.

Only one historical PCA was interpreted as an area of potential environmental concern (APEC). The use of the SCR Property by an equipment rental contractor is considered a significant PCA associated with O.Reg. 153/04 PCA Item 52: "Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems". This PCA is considered to contribute to an APECwhich covers the entire Project Area at the SCR Property.

3. Sampling Media and Locations

i. Soil Sampling Locations in the Project Area

Soil sampling completed as part of historical environmental Site assessments was completed to provide random coverage of the APEC of a former contractor's yard. Historical data was relied upon for the purposes of this investigation where reliable reporting and analytical results were available.

Soil sampling for the purpose of excess soil characterization was completed in 2023 in 2 stages:

- Stage 1: 9 Test Pits supervised by Paterson Group in July 2023
- Stage 2: 16 Test Pits supervised by Lopers in September 2023

The test pits, which were situated to supplement the existing analytical soil data, were generally evenly distributed to provide Site coverage, and had increased coverage density in areas where contaminants of potential concern (CPCs) were detected and/or suspected. The locations of the 2023 test pits and historical sampling locations are shown on Figure 3: Test Hole Location Plan.

ii. Crushed Rock Sampling Locations in the Project Area

Sampling and laboratory analysis of crushed rock as part of historical environmental Site assessments was completed to provide random coverage of the APEC of a former contractor's yard.

Crushed rock sampling for the purpose of excess soil characterization was completed in 2023 as part of both stages of the test pits.

The general surface cover across the entire SCR Property includes a layer of crushed rock/granular fill material. This material was sampled at sufficient frequency and spatial distribution to provide an appropriate re-use classification.

4. Investigation Method

i. General

The investigation method for this SCR Report involved an assessment of the soil and/or crushed rock quality for the associated CPCs across the Project Area. Investigation of soil and crushed rock was completed with a test pit sampling program using a rubber tired backhoe with a steel excavator bucket with stainless-steel split spoons used to recover soil samples. Historical borehole sampling programs using truck-mounted CME drill rigs were completed by others in 2013 and 2021.

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 of the CPCs.

ii. Test Pits

The test pit field program was completed by Lopers on September 26, 2023, under full-time supervision by Lopers & Associates personnel. Sixteen (16) supplemental test pits (TP11-23 through TP26-23) were dug at the Site. The test pits were dug by the excavation subcontractor R.W. Tomlinson Ltd., located at 100 Citigate Drive, Ottawa, ON K2J 6K7. The hydraulic excavator used for the field program was a Case rubber tired backhoe. Soil samples were collected directly from the excavator bucket with a serialized trowel and a gloved hand. The field technician used sterile nitrile gloves, which were changed prior to the handling of each soil sample to reduce the potential of cross-contamination.

Soil samples were collected directly from exposed sidewalls using the excavator bucket and from the excavated stockpiled soil from the corresponding test pit, when appropriate. The test pits were dug to approximate depths ranging from 0.3 to 3.0 meters below ground surface (m BGS). Continuous soil sampling was completed in the test pits. Detailed soil descriptions of the stratigraphy for the 2023 Test Pits supervised by Lopers are included on the Lopers 2023 Test Pit Stratigraphic Logs provided in Appendix B.

iii. Soil Sampling

As described above, soil samples were recovered using stainless steel split spoons or steel trowels/shovels. 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 the historical borehole in the Project Area are included on the SPL borehole log provided in Appendix C.

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 test pit 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 used for soil sample screening as part of this SCR was obtained from Maxim Environmental and Safety Inc. and was calibrated by Maxim on September 20, 2023. 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 Test Pit and Borehole Logs in Appendix B. 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 test pit within the APEC and the SAP identified proposed soil analysis in that location, 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 the 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. Sediment: Sampling

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

vi. Analytical Testing

Soil analytical testing as part of the 2023 analytical programs was conducted by ALS Environmental (ALS) and Paracel Laboratories Ltd. (Paracel). All laboratories conducting analysis as part of this SCR 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 all analysis completed as part of this SCR including, but not limited to, metals, organics and conventionals in various matrices.

vii. Residue Management Procedures

Soil excavated as part of the 2023 Test Pit sampling programs was temporarily re-instated in the location and approximate representative depths from which it was excavated.

viii. Elevation Surveying

An elevation survey was completed on the existing boreholes/monitoring wells which could be located on the northern portion of the Property (and the adjacent property to the west) as part of the fieldwork for the 2014 Inspec-Sol Phase Two ESA. The boreholes/monitoring wells were surveyed relative to a temporary benchmark of the top of the catch basin to the west of BH1(MW), for which a geodetic elevation of 77.66 m was used. Elevation surveying was not part of the mandate of this SCR; average depth from surface (in m BGS) was used throughout this SCR to characterize the soil profile of the Project Area.

ix. 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.

Following sample collection, the 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 samples between the field technician and the analytical laboratory.

The stainless steel shovel and/or trowel, which were the only sampling apparatus 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 following soil samples were submitted to the laboratory as blind field duplicate samples.

- DUP01 as a duplicate sample of TP4-23-G2
- DUPA-09/26 as a duplicate sample of TP17-23-G2
- DUPB-09/26 as a duplicate sample of TP19-23-G1
- DUPC-09/26 as a duplicate sample of TP16-23-G1
- DUPD-09/26 as a duplicate sample of TP23-23-G2

These duplicate samples were analyzed for PHCs, BTEXs, PAHs and metals & inorganics, which provide blind quality assurance and quality control QA/QC validation for all soil parameters analyzed as part of this SCR.

5. Physical Environment

i. Stratigraphy

Based on the observations of soil samples collected during the SCR field program and historical investigations, there were three stratigraphic units identified at the SCR Property, which include:

Silty Sand and Gravel (Fill)

A layer of silty sand and gravel fill material, ranging from approximately 0.3 to 1.8 m in thickness, was encountered from ground surface in all of the test pits Lopers dug as part of the SCR. This material was identified to consist of silty sand and gravel, was loose to compact and generally brown to grey. This layer was encountered in dry to moist conditions.

Silty Clay

A layer of silty clay was encountered immediately below the granular fill layer in all of the test pits dug as part of this SCR, and as part of all historical boreholes drilled at the Site. The silty clay layer is present below the surficial granular fill and extends to a depths greater than 9 m BGS in the Project Area. This material was identified to consist of silty clay, was grey or brown-grey. This layer was encountered at varying moisture conditions, generally moist and firm at shallow depths becoming wet and soft at depths ranging from 2.0 to 2.4 m BGS.

Sandy Silt with Gravel (Till)

A layer of sandy silty with gravel, was encountered below the silty clay layer at a depth of 9.1 m BGS during a historical geotechnical drilling investigation. The till layer was not encountered as part of the 2023 test pits and has been interpreted to be deeper than the final depth of excavation for the proposed Project. This material reportedly consisted of grey sandy silt with

gravel and some clay. The Till was compact and wet. This material was found to be underlain by Limestone bedrock at a depth of approximately 16.7 m BGS.

ii. Water Table Interpretation

No groundwater table measurements were completed as part of the SCR fieldwork. Static groundwater levels were measured in monitoring wells historically present at the Site between 2009 and 2014 and were generally found to range from between 2 to 3 m BGS. Based on moisture contents observed in the test pit samples, the static groundwater table is estimated to be approximately 3 m BGS. It should be noted that the foundations of Tower 1 and Tower 2 are under a steady state of dewatering and are expected to depress the elevation of the local groundwater table.

6. Soil Classification Information from Areas Where Samples Were Taken

i. Minimum Sampling Requirements

A review of the approximate excavation footprint and estimated volume of anticipated excavated soil was completed. It was estimated that the approximate excavation footprint for Tower 3 is 3,000 m^2. With an average lift (stage of excavation) depth of 3 m, the approximate volume of excess soil per lift was estimated to be 9,000 m^3. Based on assumed depth of 3 lifts (9 m), the expected volume of excess soil generated by the project is 27,000 m^3. O. Reg. 406/19 is prescriptive of the quantity of samples to be analyzed for laboratory analysis based on expected volume of excess soil. The regulation stipulates the following sampling/analytical frequency:

In Situ Sampling:

- *A minimum of 3 soil samples must be collected and analyzed if area to be excavated is <600m^3;*
- *If > 600m^3, at least one sample must be collected and analyzed for each 200m^3 for the first 10,000m^3;*
- *At least one sample must be collected and analyzed for each additional 450m^3 after the first 10,000 m^3;*
- *At least one sample must be collected and analyzed for each additional 2,000m^3 after the first 40,000m^3 of excavated soil;*
- *The minimum leachate (mSPLP) sample frequency is three samples, plus 10% of the required number of soil samples detailed in Table 2 of Schedule E, to O. Reg. 153/04, Minimum Stockpile Sampling Frequency.*

Based on the assumptions stated above of the excavation footprint, lift thickness and total depth, the following sample quantities will/have been collected for laboratory analysis.

Table 1: Soil Analysis Summary by Excavation Stage

Lift to be Sampled	Sampling Depths (m BGS)	Soil Volume (m^3)	Sample Quantity	Analytical Parameters
Upper Lift	0 to 3	9,000	45	BTEXs, PHCs, Metals & Inorganics, PAHs
Middle Lift	3 to 6	9,000	28	BTEXs, PHCs, Metals & Inorganics, PAHs
Lower Lift	6 to 9	9,000	22	BTEXs, PHCs, Metals & Inorganics, PAHs
Total	0 to 9	27,000	95	BTEXs, PHCs, Metals & Inorganics, PAHs

Historical samples and samples collected by Paterson in July 2023 were reviewed and incorporated into the sampling requirements; it was determined that there were 23 previously analyzed samples for all the mandatory parameters.

Based on the prescribed sampling frequency, at least 72 additional soil samples will be analyzed to comply with the SCR requirements stipulated in O.Reg 406/19. Lopers submitted between 24 and 29 (depending on analytical parameters) additional soil samples for analysis of the aforementioned analytical parameters as part of sampling and analysis of the Upper Lift. Increased sampling frequency was undertaken for the Upper Lift as this portion of the SCR Property was more exposed to historical spills and surficial uses; the static groundwater table is also interpreted to be within the Upper Lift, hence limiting further downward migration of PHC contaminants. Certain parameter sets could be reduced in frequency for future excavation Lifts if it can be demonstrated that the CPCs were limited in depth and have been sufficiently delineated.

A total of 9 samples will also be analyzed for mSPLP leachate to comply with the SCR requirements stipulated in O.Reg 406/19. Five mSPLP samples have been analyzed for metals, VOCs and sVOCs as part of sampling and analysis for the Upper Lift.

At least 3 samples have been analyzed for toxicity characteristic leaching procedure (TCLP) leachate analysis of metals and inorganics, PAHs, Benzene, Flashpoint and pH, which is appropriate for landfill disposal considerations.

ii. Sampling Locations

The APEC of a historical contractor's yard has resulted in an APEC which covers the entire Project Area. Based on historical sampling, there were some historical PHC impacts in the centre of the SCR Property in the shallow subsurface.

The sampling locations in the first lift consisted of a regular distribution of test pits across the Project Area, with higher density test pit placement to delineate the PHC impacts in the centre of the Site. Sampling of the first lift was also completed in both the granular fill and native silty clay layers, to classify the environmental soil quality of both types of material.

iii. Parameter Groups for Laboratory Analysis

The minimum analytical parameters for excess soil classification as identified in O.Reg. 409/19 are PHCs, BTEXs, Metals & Inorganic Parameters. The 2022 Phase One ESA identified the APEC of a contractor's yard, which is interpreted to be generally associated with the contaminants of potential environmental concern (CPCs) PHCs, BTEXs, Metals & Inorganic and PAH Parameters. Soil pH analysis was completed wherever metals & inorganic parameters were analyzed.

The samples were analyzed for all CPCs as part of analysis of the first lift (upper 3 m of soil).

iv. Field Sample Collection Schedule

There were 3 sampling events completed in 2023 as part of the environmental soil characterization for the 1st lift, the sampling was completed on the following dates:

- July 10, 2023 – Paterson Group Dug 5 Test Pits
- July 31, 2023 – Paterson Group Dug 5 Test Pits
- September 26, 2023 – Lopers Dug 16 Test Pits

The sample collection dates for all laboratory analysis are included in Table 2: Excess Soil Analytical Results following the text and Figures of this report.

v. Laboratory Analysis Schedule

The laboratory analysis was completed by a subcontracted environmental laboratory within 5 business days of sample collection for each of the 3 sampling events completed in 2023 as part of the environmental soil characterization for the 1st lift.

vi. Contaminants with Measurable Concentrations

All the parameter groups submitted for laboratory analysis had at least some parameters with measurable concentrations, which were detected and reported above the laboratory method detection limits (MDLs). The measurable contaminant concentrations are summarized in Table 2: Excess Soil Analytical Results.

vii. Contaminant Distribution

Granular Fill

PHCs and Benzo(a)pyrene are present in the granular fill in the central and north portions of the SCR Property. There were visual (staining, asphalt pieces) and/or olfactory (fuel odour) indications of contamination in some of the locations where these contaminants were detected. It was interpreted that the poor-quality fill material in these locations extends to the clay below.

Barium or Electrical Conductivity were also measured above the ESQS in four of the granular fill samples in close proximity to the PHCs and PAHs noted above.

Granular fill is present in the Upper Lift only, was encountered at thicknesses ranging from 0.3 to 1.8 m and has an approximate average thickness of 0.75 m. Based on the contaminant distribution it is estimated that approximately 50% of the granular fill (in the central and northwest portions of the Project Area) will require landfill disposal.

Silty Clay

PHCs concentrations exceeding the ESQS were present in the silty clay samples from TP1-23 and TP17-23, near the central portion of the SCR Property. An excavation sidewall sample from the Tower 2 excavation also identified PHCs in the northeast portion of the Project Area. It is estimated that the lower extent of the Upper Lift will provide vertical delineation of the PHC soil impacts.

PAHs were not detected in any of the silty clay samples. It has been interpreted that the Benzo(a)pyrene soil impacts were limited to the granular fill material and have not migrated vertically into the silty clay below.

Vanadium, which is a naturally occurring metal commonly found at elevated concentrations in Ottawa clays, was reported in 12 of the 18 silty clay samples from various testing locations across the Project Area.

Silty Clay was found below the granular fill in the Upper Lift, was encountered at thicknesses ranging from 1.2 to 3.0 m and has an average thickness of 2.25 m. Based on the contaminant distribution, specifically PHC impacts in the central and northeast portions of the Project Area, it is estimated that approximately 20% of the silty clay will require landfill disposal.

viii. Field Soil Screening Results

Initial field screening of the soil samples consisted of visual and olfactory observations made at the time of sample collection during the test pit program. There were fuel odours observed in the granular fill and silty clay samples analyzed from TP17-23. There were no odours or staining observed in any of the other samples collected by Lopers. The soil samples with notable fuel odours resulted in laboratory analytical results with PHC concentrations above the potential excess soil re-use standards.

Additional field screening of the soil samples was completed using an RKI Eagle. Notable RKI Eagle readings were observed from the granular fill and silty clay in TP17-23 at 20 ppm to 65 ppm. These elevated RKI readings are expected to be associated with the PHC contamination encountered at this location. All other soil samples collected and screened by Lopers had RKI readings between 0 and 20 ppm, which is not interpreted to be representative of significant PHC impacts. The readings of the RKI Eagle are shown on the Test Pit and Borehole Logs in Appendix D.

There was some visual evidence of poor environmental quality fill, consisting of trace amounts of asphalt and/or brick, observed in the granular fill samples collected from TP16-23, TP18-23,

TP19-23 and TP24-23. The soil samples with notable asphalt pieces generally resulted in laboratory analytical results with PAHs, metals and/or inorganic concentrations above the potential excess soil re-use standards.

ix. Impediments

The SCR Property had most recently been used as a staging area for the construction of Tower 2, located to the north of the Project Area. The north portion of the SCR Property had been excavated to approximately 3 m BGS as part of the Tower 2 excavation and a significant side wall slope was present along the north SCR Property limit. There were various pieces of equipment and construction materials stored along the south portion of the Project Area. The backhoe used for Lopers' test pits was only able to dig to depths ranging from 0.3 to 1.0 m BGS in the areas of TP18-23, TP19-23, TP25-23 and TP26-23 as the granular fill in the southwest portion of the Project Area was heavily compacted and/or large boulders were present.

x. Deviations from Sampling and Analysis Plan

Test pits in the north portion of the Project Area were revised to be located as close as practical to the northern SCR Property limit. Test pit locations were revised along the southern Property limit to provide representative coverage of the Project Area to accommodate for equipment and material storage. Only granular fill samples were collected for laboratory analysis in the locations where the subsurface digging could not proceed to the full depth of the 1st lift.

7. Laboratory Analytical Results

i. Applicable Site Condition Standard and Excess Soil Quality Standards

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 standards ("SCS") for a property.

The full depth generic site condition standards, with non-potable groundwater, medium to 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 Property (Table 3 SCS). It is expected that minimal beneficial soil reuse alternatives are present at the Property, given that the entire footprint of the Project Area and adjacent lands owned by Brigil will ultimately be excavated for underground structures. The Table 3 SCS have been considered, but have not been used for comparison as part of this SCR.

Through Ontario Regulation 409/19 (O.Reg. 409/19) the MECP has provided the conditions to determine the applicable beneficial reuse standards for the receiving site. The Project Leader (Brigil) has selected an excavation contractor who has provided two options for beneficial reuse

standards at available soil receiving sites. The following reuse standards were used for comparison of the soil analytical results:

- Table 2.1: Full Depth Excess Soil Quality Standards for Industrial/Commercial/Community Property Use, in a Potable Ground Water Condition, for subsurface placement, volume independent.
- Table 4.1: Stratified Excess Soil Quality Standards for Industrial/Commercial/Community Property Use, in a Potable Ground Water Condition, for subsurface placement, volume independent.

ii. Excess Soil Analytical Results

The laboratory certificates of analysis for the analyzed soil samples included as part of this SCR are included as Appendix E. The Excess Soil Analytical Results are presented in Table 2 following the text and figures of this report.

Granular Fill Analytical Results

Following comparison of the granular fill analytical results to the two alternative ESQS at the available receiving sites it was determined that Table 2.1 ESQS would allow for the most practical beneficial reuse of the granular fill. The following significant contaminant concentrations (concentrations in excess of the ESQS) were reported by the laboratory:

- PHCs were measured at concentrations above the Table 2.1 ESQS or were suspected based on visual and/or olfactory observations in the granular fill samples from TP1-23, TP3-23, TP8-23, TP16-23 and TP17-23, near the central portion of the SCR Property and in TP23-23 and TP23-24 in the north portion of the of the SCR Property.
- Benzo(a)Pyrene was measured at concentrations above the Table 2.1 ESQS in TP1-23 and TP16-23, near the central portion of the SCR Property.
- Barium was measured at concentrations above the Table 2.1 ESQS in 2 granular fill samples from TP12-23 (northeast) and TP19-23 (north-central).
- Elevated Electrical Conductivity was reported above the Table 2.1 ESQS in 2 granular fill samples from TP24-23 (northwest) and TP26-23 (west-central).
- pH was generally found to range from 7.22 to 8.54 in the granular fill samples, which is within the acceptable range. There were four analyzed granular fill sample locations (TP18-23-G1, TP23-23-G1, TP24-23-G1 and TP26-23-G1) which had reported pHs of 10.7, 9.73, 11.9 and 9.24. Three of these four elevated pH locations require remediation to address other contaminants (noted above), while the fourth location can be discounted using the statistical method.

The aforementioned presence of significant concentrations of various analytical parameters in these 10 sampling locations make beneficial reuse of the granular fill from these areas unlikely at the alternative reuse sites. Approximately 50% of the granular fill from the Project Area will require disposal at a licensed landfill site.

There were 10 other sampling locations for granular fill from the general perimeter and south portion of the Project Area which had contaminant concentrations below the Table 2.1 ESQS; excess granular fill from these locations is recommended to be segregated for off-site beneficial reuse.

Native Silty Clay Analytical Results

Following comparison of the native silty clay analytical results to the two alternative ESQS at the available receiving sites it was determined that Table 4.1 Subsurface ESQS would allow for the most practical beneficial reuse of the Silty Clay. The following significant contaminant concentrations (concentrations in excess of the ESQS) were reported by the laboratory:

- PHCs were measured at concentrations above the Table 4.1 ESQS or were suspected based on visual and/or olfactory observations in the silty clay samples from TP1-23 and TP17-23, near the central portion of the SCR Property. An excavation sidewall sample from the Tower 2 excavation also identified PHCs in the northeast portion of the Project Area.
- Vanadium, which is a naturally occurring metal commonly found at elevated concentrations in Ottawa clays, was reported in 12 of the 18 silty clay samples from various testing locations across the Project Area. While these 12 silty clay samples did exceed the SCS, all 18 silty clay samples analyzed had vanadium concentrations in compliance with Table 4.1 ESQS for subsurface placement.
- pH was found to range from 7.02 to 7.93 in the silty clay samples, which is within the acceptable range for subsurface placement.

The presence of significant concentrations of PHCs in the 3 aforementioned sampling locations make beneficial reuse of the silty clay from these areas unlikely at the alternative reuse sites. It has been estimated that approximately 20% of the native silty clay from the Upper Lift of the Project Area will require disposal at a licensed landfill site due to the presence of PHC contamination.

A total of 16 of the 19 sampling locations for native silty clay from the general perimeter and south portions of the Project Area had contaminant concentrations below the Table 4.1 ESQS; excess silty clay from these locations is recommended to be segregated for off-site beneficial reuse.

iii. mSPLP and TCLP Excess Soil Analytical Results

Five mSPLP samples were submitted for laboratory analysis for metals, VOCs and sVOCs from the Upper Lift of the proposed excavation. Two of the analyzed mSPLP samples were from granular fill samples, while the other 3 analyzed mSPLP samples were collected from the native silty clay. The laboratory certificates of analysis for the analyzed mSPLP samples included as part of this SCR are included as Appendix E. The Excess Soil mSPLP Analytical Results are presented in Table 3 following the text and figures of this report.

The granular fill samples were compared to the O.Reg. 406/19 Table 2.1: Leachate Screening Levels for Full Depth Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards. Both analyzed mSPLP granular fill samples were in compliance with the Table 2.1 Leachate Standards.

The native silty clay samples were compared to the O.Reg. 406/19 Table 4.1: Leachate Screening Levels for Stratified Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards.

- All 3 analyzed mSPLP silty clay samples have vanadium concentrations above the Table 4.1 Leachate Standards, however, all 3 bulk soil samples (from the same locations) had vanadium concentrations in compliance with the Table 4.1 ESQS. The mSPLP silty clay vanadium concentrations were reported at 10.9, 27.6 and 48.0 ug/L compared to the Table 4.1 Leachate Standard of 6.2 ug/L. Lopers notes that the Table 5.1: Leachate Screening Levels for Stratified Excess Soil in a Non-Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards has a Leachate Standard for Vanadium of 40.0 ug/L. The average leachate vanadium concentration in the silty clay is in compliance with the Table 5.1 Leachate Standards; this alternative re-use setting would be preferential (if available) for beneficial reuse of the native silty clay given the vanadium concentrations reported in the mSPLP samples.

Three samples were also selected as a waste characterization samples for laboratory analysis of toxicity characteristic leaching procedure (TCLP) analysis for ignitability, leachate metals & inorganics, leachate VOCs and leachate organics (PAHs and polychlorinated biphenyls (PCBs)). This TCLP sample was compared to the criteria specified in schedule IV of O.Reg. 558/00 and no measured parameter exceeded the toxicity criteria. Any excess soil designated for landfill disposal can be treated as solid non-hazardous waste.

8. Quality Assurance and Quality Control Results

The following soil samples analyzed as blind field duplicate samples.

- DUP01 as a duplicate sample of TP4-23-G2
- DUPA-09/26 as a duplicate sample of TP17-23-G2
- DUPB-09/26 as a duplicate sample of TP19-23-G1
- DUPC-09/26 as a duplicate sample of TP16-23-G1
- DUPD-09/26 as a duplicate sample of TP23-23-G2

These duplicate samples were analyzed for PHCs, BTEXs, PAHs and metals & inorganics, which provide blind quality assurance and quality control QA/QC validation for all soil parameters analyzed as part of this SCR.

The soil sample DUP01 was reportedly submitted to the laboratory as a blind field duplicate sample of TP4-23-G2 for PHCs, BTEXs, PAHs and metals and inorganics during the July 2023 Paterson Sampling Program. The duplicate results were generally comparable to the original sample results for metals, with relative percent differences ("RPDs") ranging from 6 to 25% (where detectable levels of contaminants were reported by the laboratory); a 50% RPD was observed for arsenic, however both reported concentrations are considered low. Non detectable contaminant concentrations were observed for PAHs, BTEXs and the F1 and F4 ranges of PHCs in both the original and duplicate sample results. Low level PHC concentrations were present in the original sample but were not detected in the duplicate sample; it is suspected that the worst-case soil collected may have been used in jarring the original sample.

The soil samples DUPA-09/26, DUPB-09/26, DUPC-09/26 and DUPD-09/26 were submitted to the laboratory as blind field duplicate samples of TP17-23-G2, TP19-23-G1, TP16-23-G1 and TP23-23-G2 for PHCs, BTEXs, PAHs and metals and inorganics during the September 2023 Lopers Sampling Program. The duplicate results had low variability compared to the original sample results for PHCs, BTEXs, PAHs and metals & inorganics with relative percent differences generally ranging from 0 to 44% (where detectable levels of contaminants were reported by the laboratory), with the following noted exceptions:

- A 58% RPD was observed for Cadmium in DUPC-09/26, however both reported concentrations are considered low.
- RPDs ranging from 29 to 67% were observed for select PAH parameters in DUPB-09/26, however both samples had reported concentrations which are considered low. PAHs in soil duplicate samples have historically been found to have higher variability due to the heterogeneous nature of fill and random distribution of this type of contaminant within the soil matrix.

The laboratories made no qualifying statements for outliers related to quality control samples. The qualifying remarks in certificates of analysis regarding the laboratories own QA/QC procedures (Outliers in laboratory recommended holding times for sample containers and frequency of quality control samples) are not expected to impact the validity of qualified sample results.

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.

9. Excess Soil Designated for Landfill Disposal

Lateral and vertical delineation of contaminants in the soil from the Upper Lift of the proposed excavation in the Project Area was completed by digging 25 test pits (in 2023) and submission of 51 samples (historically and in 2023).

Soil impacted with PHC was observed in the granular fill and native silty clay stratigraphic units and has been designated as excess soil which will require landfill disposal. Limited PAH, metals and inorganic impacts were also identified in the granular fill which will also require landfill disposal.

Granular fill is present in the Upper Lift (3 m) only, was encountered at thicknesses ranging from 0.3 to 1.8 m and has an approximate average thickness of 0.75 m. Based on the contaminant distribution it is estimated that approximately 50% of the granular fill (in the central and northwest portions of the Project Area) will require landfill disposal. The approximate volume of granular fill designed for landfill disposal has been estimated to be 1,125 m^3.

Silty Clay was found below the granular fill in the Upper Lift, was encountered at thicknesses ranging from 1.2 to 3.0 m and has an average thickness of 2.25 m. Based on the contaminant distribution, specifically PHC impacts in the central and northeast portions of the Project Area, it is estimated that approximately 20% of the silty clay will require landfill disposal. The approximate volume of silty clay designed for landfill disposal has been estimated to be 1,800 m^3.

Further delineation of the soil quality will be undertaken for subsequent excavation lifts upon commencement of the excavation work. Where warranted, lateral confirmation of remediation sampling will be completed during excavation of the Upper Lift of the proposed excavation. The subsequent sample collection will be completed by digging test holes in a subsequent excavation lift while the active lift is under excavation. Sample collection and analytical testing completed as part of excavation work in progress will ensure that the minimum sampling requirements stipulated in O.Reg. 406/19 are met while collecting representative worst case and/or delineation samples.

10. Conclusions and Recommendations

i. Excess Soil Characterization and Recommendations

Granular Fill Analytical Results

Following comparison of the granular fill analytical results to the two alternative ESQS at the available reuse sites it was determined that Table 2.1 ESQS would allow for the most practical beneficial reuse of the granular fill. The following significant contaminant concentrations (concentrations in excess of the Table 2.1 ESQS) were reported by the laboratory:

- PHCs were measured at concentrations above the Table 2.1 ESQS or were suspected based on visual and/or olfactory observations in the granular fill samples from TP1-23, TP3-23, TP8-23, TP16-23 and TP17-23, near the central portion of the SCR Property and in TP23-23 and TP23-24 in the north portion of the of the SCR Property.
- Benzo(a)Pyrene was measured at concentrations above the Table 2.1 ESQS in TP1-23 and TP16-23, near the central portion of the SCR Property.
- Barium was measured at concentrations above the Table 2.1 ESQS in 2 granular fill samples from TP12-23 (northeast) and TP19-23 (north-central).
- Elevated Electrical Conductivity was reported above the Table 2.1 ESQS in 2 granular fill samples from TP24-23 (northwest) and TP26-23 (west-central).
- pH was generally found to range from 7.02 to 8.54 in the granular fill samples, which is within the acceptable range. There were four analyzed granular fill sample locations (TP18-23-G1, TP23-23-G1, TP24-23-G1 and TP26-23-G1) which had reported pHs of 10.7, 9.73, 11.9 and 9.24. Three of these four elevated pH locations require remediation to address other contaminants (noted above), while the fourth location can be discounted using the statistical method.

The aforementioned presence of significant concentrations of various analytical parameters in these 10 sampling locations make beneficial reuse of the granular fill from these areas unlikely at the alternative reuse sites. Approximately 50% of the granular fill from the Project Area will require disposal at a licensed landfill site.

There were 10 other sampling locations for granular fill from the general perimeter and south portion of the Project Area which had contaminant concentrations below the Table 2.1 ESQS; excess granular fill from these locations is recommended to be segregated for off-site beneficial reuse.

Native Silty Clay Analytical Results

Following comparison of the native silty clay analytical results to the two alternative ESQS at the available reuse sites it was determined that Table 4.1 Subsurface ESQS would allow for the most practical beneficial reuse of the Silty Clay. The following significant contaminant concentrations (concentrations in excess of the Table 4.1 ESQS) were reported by the laboratory:

- PHCs were measured at concentrations above the Table 4.1 ESQS or were suspected based on visual and/or olfactory observations in the silty clay samples from TP1-23 and TP17-23, near the central portion of the SCR Property. An excavation sidewall sample from the Tower 2 excavation also identified PHCs in the northeast portion of the Project Area.
- Vanadium, which is a naturally occurring metal commonly found at elevated concentrations in Ottawa clays, was reported in 12 of the 18 silty clay samples from various testing locations across the Project Area. While these 12 silty clay samples did exceed the SCS, all 18 silty clay samples analyzed had vanadium concentrations in compliance with Table 4.1 ESQS for subsurface placement.

The presence of significant concentrations of PHCs in the 3 aforementioned sampling locations make beneficial reuse of the silty clay from these areas unlikely at the alternative reuse sites. It has been estimated that approximately 20% of the native silty clay from the Upper Lift of the Project Area will require disposal at a licensed landfill site due to the presence of PHC contamination.

A total of 16 of the 19 sampling locations for native silty clay from the general perimeter and south portions of the Project Area had contaminant concentrations below the Table 4.1 ESQS; excess silty clay from these locations is recommended to be segregated for off-site beneficial reuse.

mSPLP Analytical Results

The granular fill samples were compared to the O.Reg. 406/19 Table 2.1: Leachate Screening Levels for Full Depth Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards. Both analyzed mSPLP granular fill samples were in compliance with the Table 2.1 Leachate Standards.

The native silty clay samples were compared to the O.Reg. 406/19 Table 4.1: Leachate Screening Levels for Stratified Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards.

All 3 analyzed mSPLP silty clay samples have vanadium concentrations above the Table 4.1 Leachate Standards, however, all 3 bulk soil samples (from the same locations) had vanadium concentrations in compliance with the Table 4.1 ESQS. The mSPLP silty clay vanadium concentrations were reported at 10.9, 27.6 and 48.0 ug/L compared to the Table 4.1 Leachate Standard of 6.2 ug/L.

The bulk soil data has demonstrated that the vanadium concentrations are consistently in compliance with the Table 4.1 ESQS in all analyzed silty clay samples from the project area. It is Lopers interpretation that this soil is suitable for reuse at a Table 4.1 ESQS receiving site (for subsurface placement). Issues may exist with the mSPLP procedure which cause reported leachate vanadium concentrations which are higher than the Table 4.1 Leachate Standard of 6.2 ug/L.

- Lopers notes that the Table 5.1: Leachate Screening Levels for Stratified Excess Soil in a Non-Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards has a Leachate Standard for Vanadium of 40.0 ug/L. The average leachate vanadium concentration in the silty clay is in compliance with the Table 5.1 Leachate Standards; this alternative re-use setting would be preferential (if available) for beneficial reuse of the native silty clay given the vanadium concentrations reported in the mSPLP samples.
- Non-potable groundwater condition standards are generally equally or less stringent than potable groundwater condition standards for soil and leachate. Management of the excess silty clay will may require a non-potable groundwater site for potential beneficial reuse due to the high vanadium concentrations reported in the mSPLP samples.
- Data validation confirmation has been requested from the laboratory for the mSPLP analytical results with respect to vanadium. This item warrants further discussion with the Ministry of Environment, Conservation and Parks ("MECP"), and receiving site representatives to determine a practical approach to management of the excess clays prior to finalizing the soil management plan.

ii. QP Statement

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 and environmental soil characterization and soil management projects since 2007. Mr. Lopers has been an author, project manager and/or peer reviewer for hundreds of Phase One ESAs, Phase Two ESAs, environmental remediation programs, previously filed RSCs and environmental screening studies. I am the Qualified Person and confirm the findings and conclusions of the Soil Characterization Report.

The reviewer for this study is Ms. Natasha Corrin, P.Eng., QP_{RA}. Ms. Corrin is a professional engineer and senior risk assessor with over 20 years of experience working in contaminated sites. Natasha is designated as a Qualified Person for Risk Assessment (QP_{RA}) in Ontario. Over the years, Natasha has been a member of MECP Vendor of Record Peer Review teams, conducting peer reviews on behalf of the Ministry. Recently, Natasha has been applying her knowledge for beneficial soil reuse programs including the development of site specific excess soil quality standards.

The qualifications of the assessor/Qualified Person are included in Appendix F.

Sincerely,

Luke Lopers, P.Eng., QP_{ESA}
Senior Environmental Engineer

Natasha Corrin, P.Eng., QP_{RA}
Senior Risk Assessor

11. Limitations

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

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

This SCR has been prepared for the sole use of Brigil as an environmental soil characterization assessment for the purposes of excess soil management planning for the Project Area at the SCR Property. No other party is permitted to rely on the conclusions or findings of this report without the written consent of Lopers & Associates and Brigil.

Changes to the physical setting of the SCR Property, Phase One Study Area and applicable regulations governing Phase One and Two Environmental Site Assessments (O.Reg. 153/04) and Excess Soil Management (O.Reg. 406/19) have the potential to influence the validity of the conclusions and opinions presented in this SCR.

12. References

Legal Survey Plan, Fairhall, Moffatt & Woodland Limited, dated January 8, 2018.

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

Google Earth, Visited August through October, 2023.

"Rules for Soil Management and Excess Soil Quality Standards" for use under the Environmental Protection Act, R.S.O. 1990, c. E.19, produced by the Ontario Ministry of the Environment, dated December 8, 2020.

"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.

"Environmental Site Remediation Program, Industrial Property, 2940 Baseline Road, Ottawa, Ontario", dated December 23, 2009, completed by Paterson Group Inc. for R.M. Gardiner Construction Ltd.

"Environmental Soil Investigation, Proposed Development, 2940, 2946 & 2948 Baseline Road, Ottawa, Ontario", dated June 2013, completed by SPL Consultants Limited for 3223701 Canada Inc. (Brigil).

"Phase Two Environmental Site Assessment, 2940 and 2946-2948 Baseline Road, Ottawa, Ontario", dated December 17, 2014, completed by Inspec-Sol Inc. for 3223701 Canada Inc.

"Environmental Remediation Program, 2940 Baseline Road, Ottawa, Ontario", dated January 31, 2022, completed by Lopers & Associates for 3223701 Canada Inc.

"Phase One Environmental Site Assessment, 2940 Baseline Road, Ottawa, Ontario", dated March 21, 2022, completed by Lopers & Associates for 3223701 Canada Inc.

"Excess Soil Quality Assessment, 2944 Baseline Road, Ottawa, Ontario", dated August 30, 2023, completed by Paterson Group Inc. for Brigil.

ALS Certificate of Analysis – Report # WT2331029 - Soil Sample Submission September 26, 2023

ALS Certificate of Analysis – Report # WT2331179 - mSPLP Sample Submission September 26, 2023

Paracel Certificate of Analysis – Report # 2329221 - Soil Sample Submission July 19, 2023

Paracel Certificate of Analysis – Report # 2331085 - Soil Sample Submission July 31, 2023

Paracel Certificate of Analysis – Report # 2331084 - TCLP Sample Submission July 31, 2023

Paracel Certificate of Analysis – Report # 2146312 - Soil Sample Submission November 9, 2021

Paracel Certificate of Analysis – Report # 2149106 - Soil Sample Submission November 29, 2021

ALS Certificate of Analysis – Report # L1298752 - Soil Sample Submission May 6, 2013

Paracel Certificate of Analysis – Report # 0949080 - Soil Sample Submission December 2, 2009

13. Appendices

Appendix A – Sampling and Analysis Plan

Appendix B – Lopers 2023 Test Pit Stratigraphic Logs

Appendix C – Historical Borehole Logs

Appendix D – Certificates of Equipment Calibration

Appendix E – Laboratory Certificates of Analysis

Appendix F – Qualifications of Assessors

Figures

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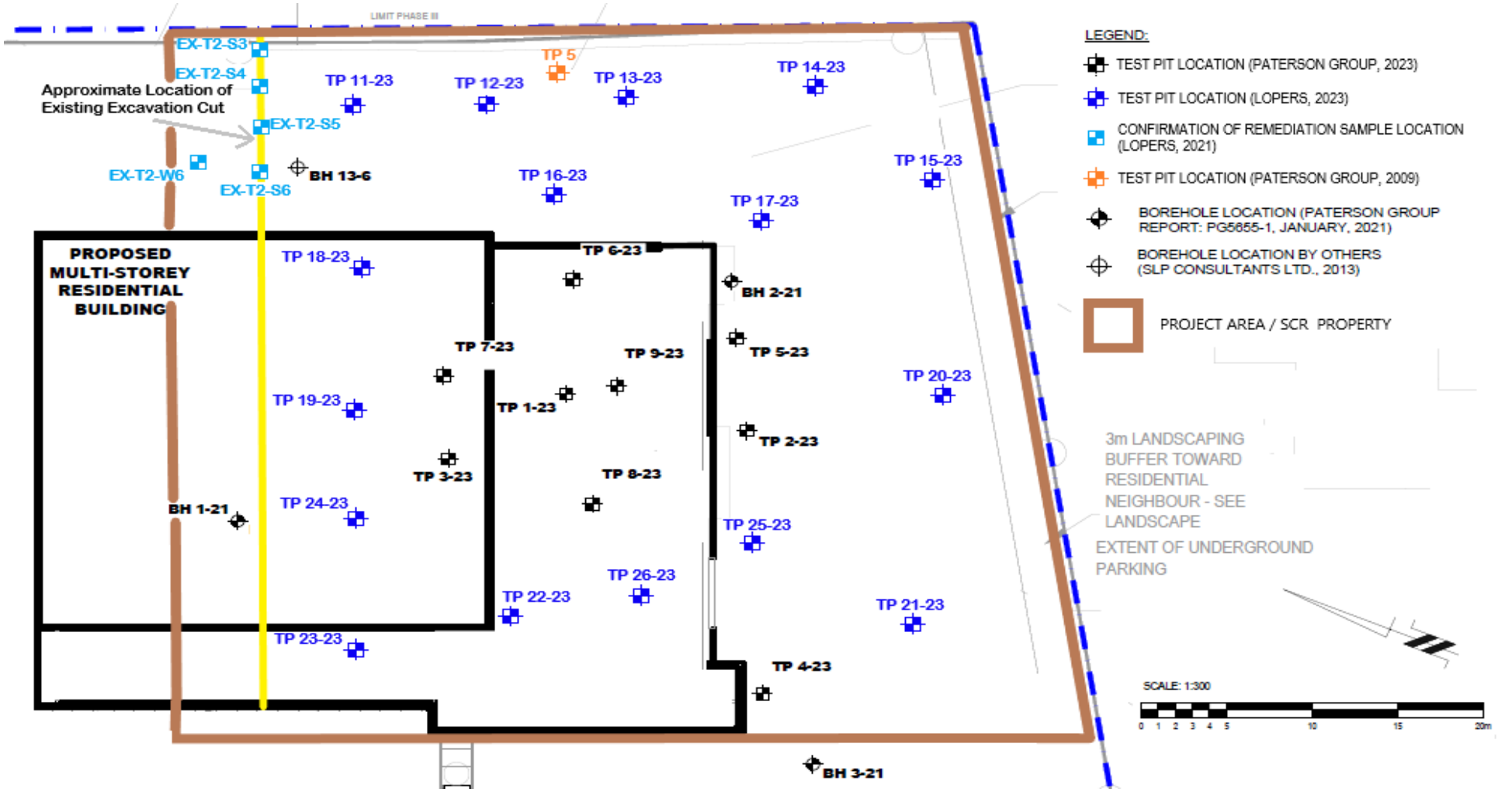
Figure 1: Key Plan
Soil Characterization Report
2940 Baseline Road, Ottawa, Ontario
Brigil

Project Reference No:	LOP23-012D
Drawing No.:	LOP23-012D-1
Date:	September 29, 2023
Author:	L. Lopers
Source:	geoOttawa, Base Mapping

LOPERS & ASSOCIATES

Figure 2: Site Plan
Soil Characterization Report
2940 Baseline Road, Ottawa, Ontario
Brigil

Project Reference No:	LOP23-012D
Drawing No.:	LOP23-012D-2
Date:	September 29, 2023
Author:	L. Lopers
Source:	geoOttawa, 2002 Aerial Imagery



LOPERS & ASSOCIATES

Figure 3: Test Hole Location Plan
Soil Characterization Report
2940 Baseline Road, Ottawa, Ontario
Brigil

Project Reference No:	LOP23-012D
Drawing No.:	LOP23-012D-2
Date:	September 29, 2023
Author:	L. Lopers
Source:	geoOttawa, 2002 Aerial Imagery

Tables

Table 2: Excess Soil Analytical Results

2940 Baseline Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 406/19 Table 2.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	O.Reg. 406/19 Table 4.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	Sample ID:	TP1-23-G1	TP1-23-G3	TP2-23-G3	TP2-23-G5	TP3-23-G1	TP3-23-G5	TP4-23-G2	TP4-23-G4	DUP01	TP5-23-G2	TP6-23-G2	TP7-23-G2	TP7-23-G5	TP8-23-G1
					Sample Depth:	***	***	***	***	***	***	***	***	Duplicate Sample of TP4-23-G4	***	***	***	***	***
					Soil Type:	Granular Fill	Clay	Clay	Clay	Granular Fill	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Granular Fill
					Sample Date:	July 10, 2023	July 10, 2023	July 10, 2023	July 10, 2023	July 10, 2023	July 10, 2023	July 10, 2023	July 10, 2023	July 10, 2023	July 31, 2023	July 31, 2023	July 31, 2023	July 31, 2023	July 31, 2023
					Laboratory Sample ID:														
Petroluem Hydrocarbons (PHCs)																			
F1 PHCs (C6-C10)	ug/g	5	25	25		< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
F2 PHCs (C10-C16)	ug/g	10	26	26		< 4	212	< 4	< 4	< 4	< 4	< 4	21	< 4	< 4	< 4	< 4	< 4	< 4
F3 PHCs (C16-C34)	ug/g	50	240	240		122	129	< 8	< 8	178	< 8	< 8	88	< 8	< 8	< 8	51	< 8	283
F4 PHCs (C34-C50)	ug/g	50	3300	6900		68	< 6	< 6	< 6	72	< 6	< 6	< 6	< 6	< 6	< 6	22	< 6	91
F4G PHCs (gravimetric)	ug/g	50	3300	6900															
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)																			
Benzene	ug/g	0.02	0.02	0.02		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	ug/g	0.05	0.05	1.9		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.05	0.2	7.8		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
m/p-Xylene	ug/g	0.05	NV	NV		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
o-Xylene	ug/g	0.05	NV	NV		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	ug/g	0.05	0.091	3		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons																			
Acenaphthene	ug/g	0.02	2.5	2.5		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
Acenaphthylene	ug/g	0.02	0.093	0.093		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	ug/g	0.02	0.16	0.16		0.07	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05
Benzo[a]anthracene	ug/g	0.02	0.92	0.92		0.42	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.2
Benzo[a]pyrene	ug/g	0.02	0.31	0.31		0.43	<0.02	<0.02	<0.02	0.16	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.18
Benzo[b]fluoranthene	ug/g	0.02	3.2	3.2		0.52	<0.02	<0.02	<0.02	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.21
Benzo[g,h,i]perylene	ug/g	0.02	13	110		0.41	<0.02	<0.02	<0.02	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.14
Benzo[k]fluoranthene	ug/g	0.02	3.1	3.1		0.23	<0.02	<0.02	<0.02	0.07	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.13
Chrysene	ug/g	0.02	9.4	9.4		0.37	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.19
Dibenzo[a,h]anthracene	ug/g	0.02	0.7	1		0.08	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03
Fluoranthene	ug/g	0.02	2.8	1100		0.92	<0.02	<0.02	<0.02	0.29	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.49
Fluorene	ug/g	0.02	6.8	6.8		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03
Indeno[1,2,3-cd]pyrene	ug/g	0.02	0.76	260		0.35	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.13
1-Methylnaphthalene	ug/g	0.02	0.59	8.7		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	ug/g	0.02	0.59	8.7		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	ug/g	0.04	0.59	8.7		<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	ug/g	0.01	0.2	23		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01
Phenanthrene	ug/g	0.02	12	23		0.4	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.21
Pyrene	ug/g	0.02	28	70		0.64	<0.02	<0.02	<0.02	0.23	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.32
Metals																			
Antimony	ug/g	1.0	40(U)	63(U)		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	ug/g	1.0	18(U)	39(U)		3.3	8	3.5	4.4	3.8	3.4	7.9	3.6	4.7	5.6	3.6	4	2.6	3
Barium	ug/g	1.0	670(U)	7700(U)		281	237	205	329	230	317	222	278	192	218	319	212	248	199
Beryllium	ug/g	0.5	8(U)	60(U)		<0.5	1	0.7	0.8	<0.5	0.8	0.9	0.7	0.7	0.8	0.8	0.7	0.6	<0.5
Boron, available	ug/g	0.1	2	NV		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	ug/g	5.0	120	5000		9.6	13.7	9.2	9.2	11.3	6.3	11.4	6.5	9.1	11.2	7.3	8.6	6.5	7.8
Cadmium	ug/g	0.5	1.9	7.9		0.6	<0.5	<0.5	<0.5	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (VI)	ug/g	0.2	8	40		-	-	-	-	-	-	-	-	-	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chromium	ug/g	1.0	160	11000		29	74.6	55.8	97.8	17.6	83.4	64.8	81.8	53.4	58	89.2	51.5	61.7	30.1
Cobalt	ug/g	1.0	80	2500		9.4	21	14.9	22.9	7.5	20.5	19.1	19.2	15.6	16.9	20.2	13.6	14.9	8.4
Copper	ug/g	1.0	230	1900		21.7	40.3	27.5	42.5	16.2	38.9	37.1	36.3	28.7	31.5	41.3	31	31.4	21.2
Lead	ug/g	1.0	120	1000		43.1	9.2	6.9	6.8	95.2	6.8	7.8	5.8	6.6	7	5.9	9.2	4.4	37.9
Mercury	ug/g	0.005	0.27	1.9		-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	ug/g	1.0	40	1200		2.6	1.2	<1.0	1.2	<1.0	<1.0	1.6	1.1	1.7	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel	ug/g	1.0	270	510		19.3	45.5	31	53.3	11.9	47.5	38.6	44.9	32.3	35.3	48.5	30.1	34.5	17.5
Selenium	ug/g	1.0	5.5	1200		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	ug/g	0.2	40	490		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Thallium	ug/g	0.5	3.3	33		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Uranium	ug/g	1.0	33	300		<1.0	1.2	<1.0	1.3	<1.0	1.1	1.1	1.1	<1.0	<1.0	<1.0	<1.0	1.1	<1.0
Vanadium	ug/g	1.0	86	160		38.4	97.1	75.6	113	21.2	100	88.6	94.6	73.9	77.9	99.5	64.5	75	34.7
Zinc	ug/g	5.0	340	15000		69.1	121	91.8	134	83.1	126	110	111	88.2	97.5	119	82.7	87.6	62
General Inorganics																			
SAR	N/A	0.01	12	12		0.61	1.2	1.24	1.19	0.36	1.3	1.6	1.04	1.36	1.17	1.58	0.46	0.73	0.59
Conductivity	uS/cm	5	1.4	1.4		0.363	0.554	0.241	0.389	0.466	0.473	0.873	0.455	0.275	0.466	0.362	0.298	0.238	0.379
Cyanide, free	ug/g	0.03	0.05	0.05															
pH	pH Units	0.05	NV	NV		7.92	-	-	-	-	7.66	-	-	-	-	-	-	-	-

*** - Sample Collected by Paterson Group. Soil Type assumed based on sample ID and/or contaminant distribution.
Sample depths & soil type not specified

NV - No value listed in MECP site condition standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds O.Reg. 406/19 Table 2.1: I/C/C Property Re-Use, Volume Independent standards

Exceeds O.Reg. 406/19 Table 4.1: I/C/C Property Re-Use, Volume Independent standards

Table 2: Excess Soil Analytical Results

2940 Baseline Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 406/19 Table 2.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	O.Reg. 406/19 Table 4.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	Sample ID:	TP11-23-G1	TP11-23-G2	TP12-23-G1	TP12-23-G2	TP13-23-G1	TP13-23-G2	TP14-23-G1	TP14-23-G2	TP15-23-G1	TP15-23-G2	TP16-23-G1	DUPC-09/26	TP16-23-G2	TP17-23-G1	TP17-23-G2	DUPA-09/26
					Sample Depth:	0.0-1.5 m BGS	1.5-2.1 m BGS	0.0-1.0 m BGS	1.0-2.5 m BGS	0.0-1.1 m BGS	1.1-2.7 m BGS	0.0-1.5 m BGS	1.5-2.4 m BGS	0.0-1.8 m BGS	1.8-2.7 m BGS	0.0-1.0 m BGS	Duplicate Sample of TP16-23-G1	1.0 to 3.0 m BGS	0.0-0.6 m BGS	0.6-2.3 m BGS	Duplicate Sample of TP17-23-G2
					Soil Type:	Granular Fill	Clay	Granular Fill	Clay	Granular Fill	Clay	Granular Fill	Clay	Granular Fill	Clay	Granular Fill	00:00	Clay	Granular Fill	Clay	Clay
					Sample Date:	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023
					Laboratory Sample ID:	WT2331029-001	WT2331029-002	WT2331029-003	WT2331029-004	WT2331029-005	WT2331029-006	WT2331029-007	WT2331029-008	WT2331029-009	WT2331029-010	WT2331029-011	WT2331029-029	WT2331029-012	WT2331029-013	WT2331029-014	WT2331029-027
Petroluem Hydrocarbons (PHCs)																					
F1 PHCs (C6-C10)	ug/g	5	25	25		<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.7		<5.0	<5.0	6.4
F2 PHCs (C10-C16)	ug/g	10	26	26		<10	<10		<10	<10	<10	<10	<10	<10	<10	<10	<10		56	419	269
F3 PHCs (C16-C34)	ug/g	50	240	240		<50	<50		<50	<50	<50	79	<50	228	<50	215	287		233	334	221
F4 PHCs (C34-C50)	ug/g	50	3300	6900		<50	<50		<50	<50	<50	90	<50	187	<50	258	229		138	<50	<50
F4G PHCs (gravimetric)	ug/g	50	3300	6900										920		1760	1360		820		
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)																					
Benzene	ug/g	0.02	0.02	0.02		<0.0050	<0.0050		<0.0050	<0.0050	<0.0050	0.0102	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		<0.0050	<0.0050	<0.0050
Ethylbenzene	ug/g	0.05	0.05	1.9		<0.015	<0.015		<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		<0.015	<0.015	<0.015
Toluene	ug/g	0.05	0.2	7.8		<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050	<0.050
m/p-Xylene	ug/g	0.05	NV	NV		<0.030	<0.030		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030		<0.030	<0.030	<0.030
o-Xylene	ug/g	0.05	NV	NV		<0.030	<0.030		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030		<0.030	<0.030	<0.030
Xylenes, total	ug/g	0.05	0.091	3		<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons																					
Acenaphthene	ug/g	0.02	2.5	2.5		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.076	
Acenaphthylene	ug/g	0.02	0.093	0.093		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Anthracene	ug/g	0.02	0.16	0.16		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.074	0.066	<0.050	0.061	<0.130	
Benzo[a]anthracene	ug/g	0.02	0.92	0.92		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.440	0.453	<0.050	0.204	<0.050	
Benzo[a]pyrene	ug/g	0.02	0.31	0.31		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.551	0.512	<0.050	0.211	<0.050	
Benzo[b]fluoranthene	ug/g	0.02	3.2	3.2		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.856	0.783	<0.050	0.339	<0.050	
Benzo[g,h,i]perylene	ug/g	0.02	13	110		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.589	0.400	<0.050	0.224	<0.050	
Benzo[k]fluoranthene	ug/g	0.02	3.1	3.1		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.294	0.301	<0.050	0.121	<0.050	
Chrysene	ug/g	0.02	9.4	9.4		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.499	0.497	<0.050	0.230	<0.050	
Dibenzo[a,h]anthracene	ug/g	0.02	0.7	1		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.103	0.087	<0.050	<0.050	<0.050	
Fluoranthene	ug/g	0.02	2.8	1100		<0.050	<0.050	0.066	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.952	0.898	<0.050	0.394	0.065	
Fluorene	ug/g	0.02	6.8	6.8		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Indeno[1,2,3-cd]pyrene	ug/g	0.02	0.76	260		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.546	0.424	<0.050	0.212	<0.050	
1-Methylnaphthalene	ug/g	0.02	0.59	8.7		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.037	<0.030	
2-Methylnaphthalene	ug/g	0.02	0.59	8.7		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	<0.030	
Methylnaphthalene (1&2)	ug/g	0.04	0.59	8.7		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.067	<0.050	
Naphthalene	ug/g	0.01	0.2	23		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	0.014	
Phenanthrene	ug/g	0.02	12	23		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.300	0.249	<0.050	0.217	<0.050	
Pyrene	ug/g	0.02	28	70		<0.050	<0.050	0.055	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.783	0.735	<0.050	0.328	0.071	
Metals																					
Antimony	ug/g	1.0	40(U)	63(U)		<0.10	<0.10	0.11	<0.10	<0.10	<0.10	0.15	<0.10	0.31	0.11	0.16	<0.10	<0.10	0.19	0.10	
Arsenic	ug/g	1.0	18(U)	39(U)		3.91	3.81	2.94	2.83	2.49	3.28	2.68	3.14	2.77	4.85	2.11	2.13	1.96	3.23	4.01	
Barium	ug/g	1.0	670(U)	7700(U)		317	331	1130	371	153	360	322	276	206	273	126	120	317	456	260	
Beryllium	ug/g	0.5	8(U)	60(U)		1.02	0.96	0.51	0.91	0.47	0.94	0.56	0.92	0.38	0.96	0.31	0.29	0.77	0.61	0.88	
Boron, available	ug/g	0.1	2	NV		0.16	0.16	0.57	0.23	0.44	0.20	1.02	<0.10	0.80	0.46	0.36	0.30	0.29	0.55	0.37	
Boron	ug/g	5.0	120	5000		11.7	10.5	15.5	8.9	5.8	9.8	11.7	13.1	12.7	16.3	5.9	6.0	7.7	10.5	13.2	
Cadmium	ug/g	0.5	1.9	7.9		0.083	0.084	0.080	0.081	0.047	0.090	0.142	0.082	0.206	0.074	0.292	0.159	0.083	0.435	0.076	
Chromium (VI)	ug/g	0.2	8	40		0.16	0.15	0.10	<0.10	0.24	0.20	<0.10	<0.10	<0.10	<0.10	0.17	<0.10	0.15	0.13	<0.10	
Chromium	ug/g	1.0	160	11000		63.8	73.6	28.6	77.1	33.7	79.7	48.5	60.9	24.0	67.8	20.2	19.1	68.8	48.5	64.9	
Cobalt	ug/g	1.0	80	2500		17.6	18.4	9.73	19.6	8.64	19.9	12.4	16.6	9.71	18.5	6.61	6.16	16.8	12.6	17.2	
Copper	ug/g	1.0	230	1900		34.3	37.5	16.7	34.7	18.8	38.4	25.1	29.4	24.1	34.9	13.2	12.8	31.2	25.7	32.4	
Lead	ug/g	1.0	120	1000		8.54	7.54	10.2	6.93	4.69	7.23	16.6	7.78	22.8	8.02	18.2	15.8	5.90	50.4	35.8	
Mercury	ug/g	0.005	0.27	1.9		0.0069	0.0063	0.0428	<0.0050	0.0059	<0.0050	0.0218	<0.0050	0.0304	0.0052	0.0151	0.0136	<0.0050	0.0196	0.0059	
Molybdenum	ug/g	1.0	40	1200		0.34	0.52	0.62	0.37	0.31	0.46	0.95	0.58	1.24	1.16	0.56	0.51	0.92	0.92	1.33	
Nickel	ug/g	1.0	270	510		37.1	40.2	19.4	42.7	19.1	43.7	29.5	34.6	19.3	39.0	12.7	11.4	37.1	26.0	36.9	
Selenium	ug/g	1.0	5.5	1200		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Silver	ug/g	0.2	40	490		<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	<0.10	<0.10	<0.10	0.15	<0.10	
Thallium	ug/g	0.5	3.3	33		0.350	0.358	0.219	0.389	0.160	0.411	0.274	0.317	0.228	0.338	0.140	0.118	0.353	0.276	0.332	
Uranium	ug/g	1.0	33	300		0.704	0.636	0.858	0.642	0.502	0.637	0.612	0.688	0.611	0.999	0.527	0.586	0.974	0.709	0.970	
Vanadium	ug/g	1.0	86	160		84.8	90.8	37.0	94.0	45.9	96.3	49.9	82.8	28.0	90.1	31.9	30.4	90.1	60.1	83.6	
Zinc	ug/g	5.0	340	15000		99.5	105	42.9	111	45.8	111	73.8	95.2	82.5	102	43.5	37.7	96.5	89.8	96.6	
General Inorganics																					
SAR	N/A	0.01	12	12		0.55	2.82	0.62	1.56	0.85	1.08	0.51	1.33	1.86	2.14	1.16	1.18	2.56	1.50	1.88	
Conductivity	uS/cm	5	1.4	1.4		0.157	0.253	0.662	0.364	0.246	0.233	0.680	0.267	0.384	0.645	0.368	0.344	0.445	0.481	0.573	
Cyanide, free	ug/g	0.03	0.05	0.05		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
pH	pH Units	0.05	NV	NV		7.22	7.02	7.78	7.15	7.52	7.33	7.34	7.45	7.54	7.47	7.45	7.63	7.51	7.48	7.38	

*** - Sample Collected by Paterson Group. Soil Type assumed based on sample ID and/or contaminant distribution.
Sample depths & soil type not specified

NV - No value listed in MECP site condition standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds O.Reg. 406/19 Table 2.1: I/C/C Property Re-Use, Volume Independent standards

Exceeds O.Reg. 406/19 Table 4.1: I/C/C Property Re-Use, Volume Independent standards

Table 2: Excess Soil Analytical Results

2940 Baseline Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 406/19 Table 2.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	O.Reg. 406/19 Table 4.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	Sample ID:	TP18-23-G1	TP19-23-G1	DUPB-09/26 Duplicate Sample of TP19-23-G1	TP20-23-G2	TP21-23-G1	TP21-23-G2	TP22-23-G1	TP22-23-G2	TP23-23-G1	TP23-23-G2	DUPD-09/26 Duplicate of TP23-23-G2	TP24-23-G1	TP25-23-G1	TP26-23-G1
					Sample Depth:	0.0-1.0 m BGS	0.0-0.3 m BGS	00:00	0.0-0.3 m BGS	0.0-0.3 m BGS	0.3-2.7 m BGS	0.0-0.5 m BGS	0.5-3.0 m BGS	0.0-0.5 m BGS	0.5-2.5 m BGS	00:00	0.0-0.3 m BGS	0.0-0.3 m BGS	0.0-0.3 m BGS
					Soil Type:	Granular Fill	Granular Fill	00:00	Clay	Granular Fill	Clay	Granular Fill	Clay	Granular Fill	Clay	00:00	Granular Fill	Granular Fill	Granular Fill
					Sample Date:	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023	September 26, 2023
					Laboratory Sample ID:	WT2331029-015	WT2331029-016	WT2331029-028	WT2331029-017	WT2331029-018	WT2331029-019	WT2331029-020	WT2331029-021	WT2331029-022	WT2331029-023	WT2331029-030	WT2331029-024	WT2331029-025	WT2331029-026
Petroluem Hydrocarbons (PHCs)																			
F1 PHCs (C6-C10)	ug/g	5	25	25		5.9			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
F2 PHCs (C10-C16)	ug/g	10	26	26		<10			<10	<10	<10	<10	18	29	<10	<10	98		
F3 PHCs (C16-C34)	ug/g	50	240	240		68			<50	85	<50	82	<50	24100	<50	<50	826		
F4 PHCs (C34-C50)	ug/g	50	3300	6900		61			<50	131	<50	<50	<50	4220	<50	<50	<50		
F4G PHCs (gravimetric)	ug/g	50	3300	6900						840									
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)																			
Benzene	ug/g	0.02	0.02	0.02		0.0053			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050		
Ethylbenzene	ug/g	0.05	0.05	1.9		<0.015			<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015		
Toluene	ug/g	0.05	0.2	7.8		<0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
m/p-Xylene	ug/g	0.05	NV	NV		0.036			<0.030	<0.030	<0.030	0.037	<0.030	0.039	<0.030	<0.030	0.035		
o-Xylene	ug/g	0.05	NV	NV		<0.030			<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030		
Xylenes, total	ug/g	0.05	0.091	3		<0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Polycyclic Aromatic Hydrocarbons																			
Acenaphthene	ug/g	0.02	2.5	2.5		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.02	0.093	0.093		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	ug/g	0.02	0.16	0.16		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo[a]anthracene	ug/g	0.02	0.92	0.92		0.067	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.069	<0.050
Benzo[a]pyrene	ug/g	0.02	0.31	0.31		0.058	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo[b]fluoranthene	ug/g	0.02	3.2	3.2		0.099	0.085	0.056	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.098	<0.050
Benzo[g,h,i]perylene	ug/g	0.02	13	110		0.061	0.057	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo[k]fluoranthene	ug/g	0.02	3.1	3.1		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	ug/g	0.02	9.4	9.4		0.079	0.071	0.053	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.084	<0.050
Dibenzo[a,h]anthracene	ug/g	0.02	0.7	1		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.02	2.8	1100		0.127	0.102	0.051	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.090	<0.050
Fluorene	ug/g	0.02	6.8	6.8		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno[1,2,3-cd]pyrene	ug/g	0.02	0.76	260		0.054	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1-Methylnaphthalene	ug/g	0.02	0.59	8.7		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.02	0.59	8.7		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Methylnaphthalene (1&2)	ug/g	0.04	0.59	8.7		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	ug/g	0.01	0.2	23		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	ug/g	0.02	12	23		<0.050	0.055	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	ug/g	0.02	28	70		0.110	0.084	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.082	<0.050
Metals																			
Antimony	ug/g	1.0	40(U)	63(U)		0.16	0.11	<0.10	<0.10	0.12	0.10	0.10	<0.10	0.25	<0.10	<0.10	0.79	0.12	0.10
Arsenic	ug/g	1.0	18(U)	39(U)		1.94	2.03	1.97	4.68	1.99	4.46	2.11	3.19	2.28	2.57	2.24	2.96	2.62	1.87
Barium	ug/g	1.0	670(U)	7700(U)		317	694	845	258	153	241	260	420	475	433	388	466	623	460
Beryllium	ug/g	0.5	8(U)	60(U)		0.43	0.48	0.48	0.85	0.40	0.84	0.41	1.02	0.53	1.05	0.86	0.89	0.53	0.42
Boron, available	ug/g	0.1	2	NV		1.40	1.10	1.28	0.33	0.41	0.34	1.00	0.65	1.40	0.45	0.46	0.54	1.16	1.13
Boron	ug/g	5.0	120	5000		17.7	25.8	27.8	13.6	9.2	12.8	16.8	11.3	30.4	11.0	9.3	30.6	23.5	23.8
Cadmium	ug/g	0.5	1.9	7.9		0.091	0.056	0.058	0.078	0.096	0.074	0.063	0.106	0.063	0.115	0.101	0.135	0.069	0.051
Chromium (VI)	ug/g	0.2	8	40		<0.10	<0.10	<0.10	<0.10	0.18	0.12	<0.10	<0.10	<0.10	<0.10	<0.10	0.45	<0.10	<0.10
Chromium	ug/g	1.0	160	11000		21.2	22.3	24.2	61.3	26.7	59.2	23.9	93.4	23.0	93.9	84.1	36.4	29.2	19.6
Cobalt	ug/g	1.0	80	2500		6.27	6.97	7.42	17.2	7.48	16.7	7.67	21.5	7.19	22.2	20.2	8.85	8.12	6.19
Copper	ug/g	1.0	230	1900		14.0	13.5	12.9	32.5	16.6	31.4	14.4	39.9	13.4	40.0	36.1	17.8	14.8	11.1
Lead	ug/g	1.0	120	1000		14.1	11.0	10.9	7.54	16.6	7.16	11.9	6.72	12.3	7.17	6.11	16.6	10.5	9.64
Mercury	ug/g	0.005	0.27	1.9		0.0132	0.0126	0.0140	0.0055	0.0118	0.0050	0.0174	<0.0050	0.0138	<0.0050	<0.0050	0.0108	0.0116	0.0112
Molybdenum	ug/g	1.0	40	1200		0.93	0.91	0.90	0.78	0.62	1.19	0.79	1.29	0.78	1.33	1.13	1.57	0.91	0.82
Nickel	ug/g	1.0	270	510		14.2	15.0	16.0	36.2	16.5	35.4	17.2	50.3	16.9	50.9	46.3	23.2	17.5	13.5
Selenium	ug/g	1.0	5.5	1200		<0.20	<0.20	<0.20	<0.20	<0.20	0.20	<0.20	<0.20	<0.30	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	ug/g	0.2	40	490		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.15	<0.10	<0.10	0.10	<0.10	<0.10
Thallium	ug/g	0.5	3.3	33		0.204	0.203	0.217	0.324	0.180	0.314	0.232	0.457	0.363	0.493	0.425	0.255	0.205	0.185
Uranium	ug/g	1.0	33	300		0.464	0.487	0.530	0.758	0.450	0.970	0.487	1.28	0.565	1.34	1.27	1.15	0.632	0.555
Vanadium	ug/g	1.0	86	160		25.1	25.3	28.2	85.1	30.5	80.1	27.7	116	21.2	122	108	47.6	35.3	21.0
Zinc	ug/g	5.0	340	15000		41.5	31.7	32.8	97.4	46.0	92.0	39.0	129	98.9	136	120	107	48.2	42.4
General Inorganics																			
SAR	N/A	0.01	12	12		1.19	0.79	1.06	2.11	3.51	3.17	1.72	1.56	0.18	1.60	1.68	0.96	4.81	5.00
Conductivity	uS/cm	5	1.4	1.4		0.938	0.936	0.795	0.475	0.303	0.499	1.27	0.444	0.562	0.517	0.516	1.45	1.31	1.88
Cyanide, free	ug/g	0.03	0.05	0.05		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
pH	pH Units	0.05	NV	NV		10.7	8.09	8.67	7.34	7.98	7.33	8.42	7.93	9.73	7.59	7.75	11.9	8.54	9.24

*** - Sample Collected by Paterson Group. Soil Type assumed based on sample ID and/or contaminant distribution.
Sample depths & soil type not specified

NV - No value listed in MECP site condition standards

\- - Not Analyzed

ND - Not detected above laboratory method detection limits

Exceeds O.Reg. 406/19 Table 2.1: I/C/C Property Re-Use, Volume Independent standards

Exceeds O.Reg. 406/19 Table 4.1: I/C/C Property Re-Use, Volume Independent standards

Table 2: Excess Soil Analytical Results
2940 Baseline Road, Ottawa, Ontario

					Sample ID:	TP5	BH13-6 SS1A	EX-T2-W2	EX-T2-S3	EX-T2-S4	EX-T2-S5	EX-T2-S6
					Sample Depth:	0.0-1.0 m BGS	0.0-0.3 m BGS	2.2 m BGS	2.8 m BGS	3.2 m BGS	2.6 m BGS	2.5 m BGS
					Soil Type:	Granular Fill	Granular Fill	Clay	Clay	Clay	Clay	Clay
					Sample Date:	November 30, 2009	May 2, 2013	November 29, 2021	November 9, 2021	November 9, 2021	November 9, 2021	November 29, 2021
					Laborartory Sample ID:		L1298752-5					
Parameter	Units	Method Detection Limit (MDL)	O.Reg. 406/19 Table 2.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	O.Reg. 406/19 Table 4.1: Industrial, Commercial, Community Property Re-Use, Volume Independent Standards								
Petroluem Hydrocarbons (PHCs)												
F1 PHCs (C6-C10)	ug/g	5	25	25		< 10	<5.0	< 7	< 7	< 7	< 7	< 7
F2 PHCs (C10-C16)	ug/g	10	26	26		< 10	<10	< 4	< 4	< 4	109	< 4
F3 PHCs (C16-C34)	ug/g	50	240	240		< 10	<50	< 8	< 8	< 8	117	< 8
F4 PHCs (C34-C50)	ug/g	50	3300	6900		< 10	<50	< 6	< 6	< 6	< 6	< 6
F4G PHCs (gravimetric)	ug/g	50	3300	6900								
Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEXs)												
Benzene	ug/g	0.02	0.02	0.02		<0.03	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	ug/g	0.05	0.05	1.9		<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	0.05	0.2	7.8		<0.05	<0.20	<0.050	<0.050	<0.050	<0.050	<0.050
m/p-Xylene	ug/g	0.05	NV	NV		<0.05	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050
o-Xylene	ug/g	0.05	NV	NV		<0.05	<0.030	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	ug/g	0.05	0.091	3		<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	ug/g	0.02	2.5	2.5			<0.050					
Acenaphthylene	ug/g	0.02	0.093	0.093			<0.050					
Anthracene	ug/g	0.02	0.16	0.16			<0.050					
Benzo[a]anthracene	ug/g	0.02	0.92	0.92			<0.050					
Benzo[a]pyrene	ug/g	0.02	0.31	0.31			<0.050					
Benzo[b]fluoranthene	ug/g	0.02	3.2	3.2			<0.050					
Benzo[g,h,i]perylene	ug/g	0.02	13	110			<0.050					
Benzo[k]fluoranthene	ug/g	0.02	3.1	3.1			<0.050					
Chrysene	ug/g	0.02	9.4	9.4			<0.050					
Dibenzo[a,h]anthracene	ug/g	0.02	0.7	1			<0.050					
Fluoranthene	ug/g	0.02	2.8	1100			<0.050					
Fluorene	ug/g	0.02	6.8	6.8			<0.050					
Indeno[1,2,3-cd]pyrene	ug/g	0.02	0.76	260			<0.050					
1-Methylnaphthalene	ug/g	0.02	0.59	8.7			<0.030					
2-Methylnaphthalene	ug/g	0.02	0.59	8.7			<0.030					
Methylnaphthalene (1&2)	ug/g	0.04	0.59	8.7			<0.042					
Naphthalene	ug/g	0.01	0.2	23			<0.050					
Phenanthrene	ug/g	0.02	12	23			<0.050					
Pyrene	ug/g	0.02	28	70			<0.050					
Metals												
Antimony	ug/g	1.0	40(U)	63(U)			<1.0					
Arsenic	ug/g	1.0	18(U)	39(U)			<1.0					
Barium	ug/g	1.0	670(U)	7700(U)			83.3					
Beryllium	ug/g	0.5	8(U)	60(U)			<0.50					
Boron, available	ug/g	0.1	2	NV			0.16					
Boron	ug/g	5.0	120	5000			6.4					
Cadmium	ug/g	0.5	1.9	7.9			<0.50					
Chromium (VI)	ug/g	0.2	8	40			0.31					
Chromium	ug/g	1.0	160	11000			9.4					
Cobalt	ug/g	1.0	80	2500			3.8					
Copper	ug/g	1.0	230	1900			9.3					
Lead	ug/g	1.0	120	1000			7.7					
Mercury	ug/g	0.005	0.27	1.9			<0.010					
Molybdenum	ug/g	1.0	40	1200			<1.0					
Nickel	ug/g	1.0	270	510			6.6					
Selenium	ug/g	1.0	5.5	1200			<1.0					
Silver	ug/g	0.2	40	490			<0.20					
Thallium	ug/g	0.5	3.3	33			<0.50					
Uranium	ug/g	1.0	33	300			<1.0					
Vanadium	ug/g	1.0	86	160			19.9					
Zinc	ug/g	5.0	340	15000			22.5					
General Inorganics												
SAR	N/A	0.01	12	12			<0.10					
Conductivity	uS/cm	5	1.4	1.4			0.133					
Cyanide, free	ug/g	0.03	0.05	0.05			<0.050					
pH	pH Units	0.05	NV	NV			7.77					

*** - Sample Collected by Paterson Group. Soil Type assumed based on sample ID and/or contaminant distribution.
Sample depths & soil type not specified
NV - No value listed in MECP site condition standards
- - Not Analyzed
ND - Not detected above laboratory method detection limits
Exceeds O.Reg. 406/19 Table 2.1: I/C/C Property Re-Use, Volume Independent standards
Exceeds O.Reg. 406/19 Table 4.1: I/C/C Property Re-Use, Volume Independent standards

Table 3: Excess Soil mSPLP Analytical Results

2940 Baseline Road, Ottawa, Ontario

Parameter	Units	Method Detection Limit (MDL)	O.Reg. 406/19 Table 2.1: Leachate Screening Levels for Full Depth Excess Soil in a Potable Ground Water Condition - Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	O.Reg. 406/19 Table 4.1: Leachate Screening Levels for Stratified Excess Soil in a Potable Ground Water Condition Industrial, Commercial, Community Property Re-Use, Volume Independent Standards	Sample ID:	TP11-23-G2	TP15-23-G1	TP16-23-G1	TP17-23-G2	TP22-23-G2
					Sample Depth:	1.5-2.1 m BGS	0.0-1.8 m BGS	0.0-1.0 m BGS	0.6-2.3 m BGS	0.5-3.0 m BGS
					Soil Type:	Silty Clay	Granular Fill	Granular Fill	Silty Clay	Silty Clay
					Sample Date:	26-Sep-2023	26-Sep-2023	26-Sep-2023	26-Sep-2023	26-Sep-2023
					Laborartory Sample ID:	WT2331179-001	WT2331179-002	WT2331179-003	WT2331179-004	WT2331179-005
ON mSPLP Extractables (target pH= 5) (Matrix: Soil/Solid)										
Chloroaniline, 4-, mSPLP	µg/L	0.40	10	10		<0.40	<0.40	<0.40	<0.40	<0.40
Dichlorobenzidine, 3,3'-, mSPLP	µg/L	0.40	nv	0.5		<0.40	<0.40	<0.40	<0.40	<0.40
Diethyl phthalate, mSPLP	µg/L	0.20	2	2		<0.20	<0.20	<0.20	<0.22	<0.20
Dimethyl phthalate, mSPLP	µg/L	0.20	2	2		<0.20	<0.20	<0.20	<0.20	<0.20
Dinitrophenol, 2,4-, mSPLP	µg/L	1.0	nv	10		<1.0	<1.0	<1.0	<1.0	<1.0
Dinitrotoluene, 2,4 + 2,6-, mSPLP	µg/L	0.57	5	5		<0.57	<0.57	<0.57	<0.57	<0.57
Dinitrotoluene, 2,4-, mSPLP	µg/L	0.40	5	5		<0.40	<0.40	<0.40	<0.40	<0.40
Dinitrotoluene, 2,6-, mSPLP	µg/L	0.40	5	5		<0.40	<0.40	<0.40	<0.40	<0.40
Trichlorophenol, 2,4,6-, mSPLP	µg/L	0.50	0.75	0.75		<0.50	<0.50	<0.50	<0.50	<0.50
bis(2-Chloro-1-methylethyl) ether mSPLP	µg/L	0.40	4	4		<0.40	<0.40	<0.40	<0.40	<0.40
bis(2-Chloroethyl) ether, mSPLP	µg/L	0.40	5	5		<0.40	<0.40	<0.40	<0.40	<0.40
ON mSPLP Metal (target pH= 5) (Matrix: Soil/Solid)										
Antimony, mSPLP	µg/L	0.50	6	6		<0.50	0.53	<0.50	0.74	<0.50
Arsenic, mSPLP	µg/L	1.0	nv	13		3.7	<1.0	<1.0	2.2	2.4
Barium, mSPLP	µg/L	2	1000	1000		244	43	30	5	10
Beryllium, mSPLP	µg/L	0.50	4	4		0.65	<0.50	<0.50	<0.50	<0.50
Boron, mSPLP	µg/L	10	5000	5000		<10	16	<10	<10	13
Cadmium, mSPLP	µg/L	0.10	0.5	0.5		<0.10	<0.10	<0.10	<0.10	<0.10
Chromium, mSPLP	µg/L	5.0	50	50		44.1	<5.0	<5.0	<5.0	<5.0
Cobalt, mSPLP	µg/L	1.0	3.8	3.8		**8.9****	<1.0	<1.0	<1.0	<1.0
Copper, mSPLP	µg/L	5.0	14	14		**42.8****	<5.0	<5.0	10.0	12.2
Lead, mSPLP	µg/L	1.0	nv	4		**5.5****	<1.0	<1.0	<1.0	<1.0
Molybdenum, mSPLP	µg/L	0.50	23	23		<0.50	3.19	2.74	5.32	1.41
Nickel, mSPLP	µg/L	1.0	78	78		30.6	<1.0	<1.0	<1.0	1.6
Selenium, mSPLP	µg/L	1.0	10	10		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, mSPLP	µg/L	0.25	0.3	0.3		<0.25	<0.25	<0.25	<0.25	<0.25
Thallium, mSPLP	µg/L	0.50	2	2		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium, mSPLP	µg/L	2.0	20	20		<2.0	<2.0	<2.0	<2.0	<2.0
Vanadium, mSPLP	µg/L	0.50	nv	6.2		48.0	3.75	7.23	10.9	27.6
Zinc, mSPLP	µg/L	5.0	180	180		69.0	<5.0	<5.0	<5.0	<5.0
pH, mSPLP initial	pH units	0.010	nv	nv		7.66	9.14	9.08	8.80	9.26
pH, mSPLP final	pH units	0.010	nv	nv		8.28	9.32	9.25	8.94	9.31
ON mSPLP VOC (reagent water) (Matrix: Soil/Solid)										
Bromomethane, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride, mSPLP	µg/L	0.20	0.2	0.2		<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform, mSPLP	µg/L	1.00	nv	nv		<1.00	<1.00	<1.00	<1.00	<1.00
Dibromoethane, 1,2-, mSPLP	µg/L	0.20	0.2	0.2		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-, mSPLP	µg/L	0.50	0.55	0.55		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-, mSPLP	µg/L	0.50	0.5	nv		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-, mSPLP	µg/L	0.30	nv	nv		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, cis-1,3-, mSPLP	µg/L	0.20	nv	nv		<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropylene, trans-1,3-, mSPLP	µg/L	0.20	nv	nv		<0.20	<0.20	<0.20	<0.20	<0.20
Dioxane, 1,4-, mSPLP	µg/L	2.0	2	2		<2.0	<2.0	<2.0	<2.0	<2.0
Tetrachloroethane, 1,1,1,2-, mSPLP	µg/L	0.50	nv	nv		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-, mSPLP	µg/L	0.50	nv	nv		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene, mSPLP	µg/L	0.50	0.5	0.5		<0.50	<0.50	<0.50	<0.50	<0.50

nv - No value listed in MECP Re-Use Standards

- - Not Analyzed

ND - Not detected above laboratory method detection limits

8.9** - Leachate Standards not applicable as bulk soil concentrations are below background.

Exceeds O.Reg. 406/19 Table 2.1: Industrial, Comme

Exceeds O.Reg. 406/19 Table 4.1: Industrial, Commer

Appendix A

Sampling and Analysis Plan

LOPERS & ASSOCIATES

Sampling and Analysis Plan

2940 Baseline Road
Ottawa, Ontario

Prepared for:
Brigil

9/19/2023

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1. Background

Lopers & Associates (Lopers) was retained by 11034936 Canada Inc. ("Brigil") to complete a Soil Characterization Report (SCR) and Soil Management Plan (SMP) in accordance with O.Reg. 406/19 for the vacant portion of the Property with Civic address No. 2940 Baseline Road, Ottawa, Ontario ("Property"). The "SMP Property" or "Site" consists of approximately the vacant southern 1/3 of a larger parcel of land, owned by Brigil.

Lopers & Associates ("Lopers") understands that the Site is currently owned by Brigil and was historically developed and occupied for commercial and industrial use and is in the process of being redeveloped for residential use. Based on preliminary discussions and knowledge, the Site (southern portion of the Property) was formerly occupied by a contractor's yard, which was later used for commercial and light industrial purposes. The Site is being developed with a residential apartment building.

Lopers understands that Brigilis in the process of redeveloping the Site for residential use; the current concept for the building is approximately 20 storeys and would contain several underground parking levels. It has been assumed that the final depth of excavation in the project area at the Site will be 8 to 9 m below ground surface (m BGS).

i. Relevant Historical Environmental Investigation Findings:

Lopers previously completed a Phase One Environmental Site Assessment (Phase One ESA) for Brigil at the Property in March 2022; this Phase One ESA was completed in accordance with O.Reg. 153/04.

Five Potentially Contaminating Activities ("PCAs") were identified at the Phase One Property and were interpreted to contribute to a single Area of Potential Environmental Concern ("APEC") are summarized in Table 1 below.

Table 1: Potentially Contaminating Activities at the Phase One Property

APEC #	Location of APEC within the Project Area	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern
APEC #1 (PCA#1)	Not Applicable	Former private fuel outlet (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	At the Property but not at the SCR Property Northeast portion of the Phase One Property	PHCs, BTEXs
APEC #1 (PCA#2)	Not Applicable	Former service garage (O.Reg. 153/04 PCA Item 52: Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material used to Maintain Transportation Systems)	At the Property but not at the SCR Property North-central portion of the Phase One Property	PHCs, BTEXs
APEC #1 (PCA#3)	Not Applicable	Reported former Aboveground Storage Tank (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	At the Property but not at the SCR Property Central portion of the Phase One Property	PHCs, BTEXs
APEC #1 (PCA#4)	Not Applicable	Reported surficial staining and surficial soil samples with exceedances of the Site Condition Standards (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	At the Property but not at the SCR Property East-central portion of the Phase One Property	PHCs, BTEXs
APEC #1 (PCA#5)	Entire SCR Property	Former Contractor's Yard and associated Reported soil samples with exceedances of the Site Condition Standards from the approximate depth of the groundwater table (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	Entire SCR Property Majority of the south and central portions of the Phase One Property were historically part of a contractor's yard.	PHCs, BTEXs, PAHs, Metals & Inorganics

Additionally, five PCAs were identified at neighbouring properties in the Phase One Study Area and are summarized in Table 2 below. These off-Site PCAs were not considered to have contributed to any APECs at the SCR Property as they are located significant distances and/or at down- or cross-gradient orientations with respect to the Property.

Table 2: Potentially Contaminating Activities in the Phase One Study Area

PCA Report Reference No.	Potentially Contaminating Activity	Location
6	Reported former underground storage tank(s), reported spill (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	2932 Baseline Road, adjacent to the east
7	Reported Historical Oil Spill (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	Baseline Road and Monterey Drive intersection, approximately 100 m northeast
8	Rail line and former associated spur line (O.Reg. 153/04 PCA Item 46: Rail Yards, Tracks and Spurs)	Rail line approximately 180 m south, with a former spur line extending approximately 80 m southeast
9	Reported Historical Spill (O.Reg. 153/04 PCA Item: Not Applicable)	142 Valley Stream Drive, approximately 90 m south
10	Reported Texaco Pipeline (O.Reg. 153/04 PCA Item 28: Gasoline and Associated Products Storage in Fixed Tanks)	Several neighbouring properties west of Costello Avenue, the closest of which to the Property is 200 m east

The above PCA noted from the adjacent lands to the east (PCA #6) was considered to have had the potential to impact the Property. The PCAs at the other neighbouring properties in the Phase One Study Area

The Phase One ESA identified two potentially contaminating activities (PCAs) interpreted to contribute to two areas of potential environmental concern (APECs) at the Site (and several additional APECs at other portions of the larger Phase One Property). PCAs included fuel storage/spills at the former contractor's yard and in the importation of fill material of unknown environmental quality. The contaminants of potential concern (CPCs) associated with fuel storage and fuelling are generally petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylenes (BTEXs). The CPCs associated with the historical fill materials are PHCs, BTEXs, polycyclic aromatic hydrocarbons (PAHs), metals & inorganics.

Recent environmental investigations, including preliminary soil characterization, were completed at the Site by others (August 2023). Previous investigations identified petroleum hydrocarbons (PHC) impacted (above the off-Site reuse criteria) in soil on the northeast and central portions of the Site, in the area of a former fuel spill and the former contractor yard. The contaminants of potential concern (CPCs) associated with these historical activities are PHCs and benzene, toluene, ethylbenzene and xylenes (BTEXs).

Environmental remediation programs were completed at the north(east) and central(east) portions of the Phase One Property in 2009 and 2022, respectively to address historical fuel spills at the Property and neighbouring property to the northeast. These reports document the

excavation and removal of contaminated soil from APEC #1 at the Property. Confirmation of remediation sampling was completed to applicable O.Reg. 153/04 requirements for verifications sampling and analysis, and verified that the Property was in compliance with the Table 3 Residential Land Use Site Condition Standards. The verification procedures met the Ontario Guidance on Sampling and Analytical Methods for Contaminated Sites in Ontario (1997).

Additionally, it has been noted that all soil has been excavated down to 6 to 8 m BGS to the Property limits on the north and central portions of the Property as part of the active construction project for the new Site buildings. The SCR Property has not yet undergone any soil excavation. The depth of excavation work is approximately 3 to 4 m deeper than the natural static water table, which would have been the vertical limit for PHC migration as PHCs as a light non aqueous phase liquid (INAPL), which float on top of water. Previous reports also conclude that groundwater quality has been assessed to be in compliance with the Site Condition Standards, and that no further investigation or remediation is warranted at the Property.

In the event that additional contaminants or APECs are identified during the test pit/excavation sampling fieldwork, additional scope of work will be discussed with Brigil to complete supplemental laboratory analysis (as required).

2. Underground Utility Service Locates

Prior to completing the Test Pit and Excavation field investigation activities, public underground locates will be coordinated through Ontario One Call by the General Contractor and/or the Excavation Contractor. As it is understood that the Site is undeveloped with no active privately owned underground services or infrastructure, private locates have not been included in this mandate.

The locations of the proposed test pits 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 the Excavation Contractor during all excavation components of the fieldwork.

3. Preparing the Sampling and Analysis Plan

i. Locations in the Project Area to be Investigated with Sampling

Soil sampling and laboratory analysis has been historically completed in the Project Area with at least 10 test pits, 1 borehole and grab sampling from excavation sidewalls.

As part of the supplemental sampling to comply with O.Reg. 406/19, a total of up to 40 additional test pit locations have been proposed to provide coverage of the excess soils to be generated as part of the redevelopment project at the Site. A distribution of test pits will be spread over the Property, with the main focus to be delineation of fill material suspected to have been impacted by spills at the former contractor's yard at the Site. Sampling will also focus on the north property limits, which had historically been observed to have been impacted by a historical fuel spill at the adjacent property to the north.

Sampling depths will include as a minimum, collection of samples in 0.3-1.0 m intervals from the ground surface to the final depth of excavation and/or bedrock surface. Test pits will be dug to a depth of approximately 3 m within each lift of the excavation and sampling will be completed to coordinate the specific lift, with supplemental sampling required in the event where impacts are encountered and require delineation.

Sampling of each supplemental lift will precede excavation at subsequent depths until laboratory analytical results for the subsequent depths of soil has been reported, analyzed and updated within the SCR and SMP.

ii. Locations in the Project Area to where Excavations are Planned

The entirety of the Project Area will be excavated to approximately 8 to 9 m BGS. The excavation will take place in 3 vertical lifts, of approximately 3 m in thickness for each lift. All soil within the Project Area will be considered excess soil since there is no available space at the Site for beneficial reuse.

Test pits will be laterally distributed and each will be vertically profiled with representative soil sampling and analysis to determine the location, concentration and distribution of contaminants in the soil to be excavation within the Project Area by in-Situ sampling.

A sufficient number of soil samples shall be collected from representative depths and locations to allow the concentrations of any contaminants in the soil or crushed rock that is to be excavated to be known in order to meet the objectives of the sampling and analysis plan.

No stockpile sampling or stormwater management pond sampling is anticipated to be completed as part of the on-Site soil characterization activities.

4. Implementing the Sampling and Analysis Plan

i. Sample Collection Methodology

Soil samples shall be collected using professionally acceptable soil collection methods and shall be taken by or under the supervision of the qualified person.

The test pitting field program will be completed under full time supervision of Lopers & Associates personnel. The excavation subcontractor retained for the Test Pits is Tomlinson Group, located at 100 Citigate Drive, Ottawa ON K2J 6K7. Tomlinson has been retained by EBC Inc. (general contractor) on behalf of Brigil. The operation of the excavation equipment is the responsibility of the excavation subcontractor, who is trained and competent in the operation of this equipment.

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

Samples will be collected using the excavator bucket from exposed sidewalls of the test pits. The technician will collect samples from the excavator bucket using a sterilized trowel and/or gloved hands. Where practical, all non-dedicated sampling equipment must be cleaned following each use.

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 excavator bucket is to be cleaned manually should any evident fuel contamination be encountered in any of the test pits.

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.

ii. Field Screening

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

Soil samples screened in the field that have notable volatile vapour concentrations, visual and/or olfactory observations will be submitted for laboratory analysis of the CPCs. Additional sampling and analysis will also be completed to capture representative soil and fill layers, for laboratory analysis of the CPCs.

iii. Parameters for Laboratory Analysis.

At a minimum, every soil sample required to be taken must be analyzed for all of the following parameters:

i. Petroleum hydrocarbons (F1 through F4) including benzene, toluene, ethylbenzene, xylenes;
ii. Metals and hydride-forming metals (antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, uranium, vanadium and zinc);
iii. Sodium adsorption ratio (SAR) and electrical conductivity (EC) if the soil is excavated from an area where a substance has been used for the purpose of keeping the area safe for use under conditions of snow or ice, unless the soil is to be finally placed at a location referenced in subsection 1 (3) of Section D of PART I of this document;
iv. Any contaminant of potential concern (COPC) identified during the assessment of past uses
v. pH; and
vi. Leachate analysis for mSPLP metals, VOCs and sVOCs

The aforementioned list of parameters includes all COPCs which would generally have been expected to have been present at the former contractor's yard and/or previous identification of COPCs in the Project Area.

PAHs have also been included as an additional COC to the minimum analytical parameters since there is historical surficial fill material of unknown environmental quality and PAHs have historically been present in fill at contractors' yards.

iv. Soil Sample Analytical Frequency

According to O.Reg. 406/19 the following additional rules apply to samples collected using an in situ sampling approach (in relation to the area identified where sampling is required):

i. a minimum of three soil samples shall be analyzed if less than 600 cubic metres of soil will be excavated;
ii. if more than 600 cubic metres of soil will be excavated, at least one soil sample shall be analyzed for each 200 cubic metres of soil for the first 10,000 cubic metres of soil to be excavated;

iii. at least one soil sample shall be analyzed for each additional 450 cubic metres after the first 10,000 cubic metres of soil to be excavated; and
iv. at least one soil sample shall be analyzed for each additional 2,000 cubic metres after the first 40,000 cubic metres of soil to be excavated.

Historical samples and samples collected by Paterson in July 2023 were reviewed and incorporated into the sampling requirements; it was determined that there were 23 previously analyzed samples for all the mandatory parameters. Based on the prescribed sampling frequency, at least 72 additional soil samples will be analyzed to comply with the SCR requirements stipulated in O.Reg 406/19.

Table 1: Soil Analysis Summary by Excavation Stage

Lift to be Sampled	Sampling Depths (m BGS)	Soil Volume (m^3)	Sample Quantity	Analytical Parameters
Upper Lift	0 to 3	9,000	45	BTEXs, PHCs, Metals & Inorganics, PAHs
Middle Lift	3 to 6	9,000	28	BTEXs, PHCs, Metals & Inorganics, PAHs
Lower Lift	6 to 9	9,000	22	BTEXs, PHCs, Metals & Inorganics, PAHs
Total	0 to 9	27,000	95	BTEXs, PHCs, Metals & Inorganics, PAHs

Increased sampling frequency was undertaken for the Upper Lift as this portion of the SCR Property was more exposed to historical spills and surficial uses; the static groundwater table is also interpreted to be within the Upper Lift, hence limiting further downward migration of PHC contaminants. Certain parameter sets could be reduced in frequency for future excavation Lifts if it can be demonstrated that the CPCs were limited in depth and have been sufficiently delineated.

v. Leachate Sample Analytical Frequency

The following soil sampling frequencies for in-situ characterization must be satisfied to determine if the soil meets the applicable excess soil quality standards:

i. A minimum of three soil samples must be submitted for leachate analysis if less than 600 cubic metres of soil will be excavated.
ii. The soil samples submitted for leachate analysis shall be collected from the sampling locations where 90% (or higher) of the highest contaminant concentrations were found.
iii. Leachate analysis should be completed on at least 10% of the soil samples as described in paragraph 15 of subsection 2 (3) in Section B of PART I of this document, in addition to the three minimum samples, unless the qualified person can provide a rationale regarding why leachate analysis is not necessary in order to meet the general and specific objectives of the excess soil characterization.

A total of 9 samples will also be analyzed for mSPLP leachate to comply with the SCR requirements stipulated in O.Reg 406/19. The five mSPLP samples to be selected from the Upper Lift will be analyzed for metals, VOCs and sVOCs as part of sampling and analysis.

At least 3 samples have been analyzed for toxicity characteristic leaching procedure (TCLP) leachate analysis of metals and inorganics, PAHs, Benzene, Flashpoint and pH, which is appropriate for landfill disposal considerations.

vi. Field Duplicates

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

It is expected that up to 8 soil samples will be submitted for laboratory analysis as blind field duplicate soil samples as part of the SAP/SCR.

No duplicate mSPLP leachate samples have been proposed as part of this program.

vii. Handling, Storage and Analysis of Samples

Soil samples shall be collected using professionally acceptable soil collection methods and shall be taken by or under the supervision of the qualified person.

Where a sample of soil is taken, the qualified person shall ensure that the requirements of section 47 (Analytical procedures) of O. Reg. 153/04 are complied with, including but not limited to, the requirements in relation to the handling and storage of the samples, the requirement that the analyses of the samples be carried out by an accredited lab and the requirements to comply with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and as it may be amended from time to time.

5. Heavily Impacted Soil That Cannot Be Reused at a Reuse Site

The qualified person has determined that based on limited sampling and analysis, that the concentrations in soil of contaminants of concern, specifically PHCs, which exceed the potential re-use Site criteria. It has been assumed that this soil cannot be reused at a reuse site and therefore delineation of these impacts has been considered in development of this SAP.

The qualified person has determined that the only practical disposal option for the impacted soil is to transport it to a Class 1 soil management site or to a landfill Site.

Appendix B

Lopers 2023 Test Pit Stratigraphic Logs

LOPERS & ASSOCIATES

TEST PIT STRATIGRAPHIC LOGS

PROJECT NAME Soil Characterization Report
PROJECT LOCATION 2940 Baseline Road, Ottawa
PROJECT NUMBER LOP23-012D
DATE 26-Sep-23

CLIENT Brigil
FIELD SUPERVISOR L. Lopers
EXCAVATION CONTRACTOR Tomlinson
EQUIPMENT Rubber Tired Backhoe

Sample Location	Sample ID	Sample Depth	Soil Description	Soil Vapour Readings	Laboratory Analysis
TP11-23	TP11-23-G1	0.0-1.5 m BGS	CLAY - Silty Clay. Brown, firm, dry to moist.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics, mSPLP
	TP11-23-G2	1.5-2.1 m BGS	CLAY - Silty Clay. Brown to Grey,firm to soft, moist.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP12-23	TP12-23-G1	0.0-1.0 m BGS	GRANULAR FILL - Silty sand and gravel. Brown, compact, dry to moist.	15 ppm	PAHs, Metals & Inorganics
	TP12-23-G2	1.0-2.5 m BGS	CLAY - Silty Clay. Brown to Grey,firm to soft, moist.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP13-23	TP13-23-G1	0.0-1.1 m BGS	GRANULAR FILL - Silty sand with some gravel. Brown, compact, dry to moist.	10 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
	TP13-23-G2	1.1-2.7 m BGS	CLAY - Silty Clay. Brown to Grey,firm to soft, moist.	20 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP14-23	TP14-23-G1	0.0-1.5 m BGS	GRANULAR FILL - Silty sand with some gravel. Trace wood & debris. Brown, compact, dry to	10 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
	TP14-23-G2	1.5-2.4 m BGS	CLAY - Silty Clay. Brown to Grey,firm to soft, moist.	20 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP15-23	TP15-23-G1	0.0-1.8 m BGS	GRANULAR FILL - Silty sand with boulders, crushed concrete. Brown, compact, dry to moist.	25 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics, mSPLP
	TP15-23-G2	1.8-2.7 m BGS	CLAY - Silty Clay. Brown,firm to soft, moist.	5 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP16-23	TP16-23-G1	0.0-1.0 m BGS	GRANULAR FILL - Silty sand with some clay, brick and asphalt. Brown, compact, dry.	20 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics, mSPLP
	TP16-23-G2	1.0 to 3.0 m BGS	CLAY - Silty Clay with some organics. Grey,firm to soft, moist to wet.	15 ppm	PAHs, Metals & Inorganics
TP17-23	TP17-23-G1	0.0-0.6 m BGS	GRANULAR FILL - Silty sand with some clay. Brown, compact, dry to moist.	20	PHCs, BTEXs, PAHs, Metals & Inorganics
	TP17-23-G2	0.6-2.3 m BGS	CLAY - Silty Clay. Grey,firm to soft, moist to wet.	65	PHCs, BTEXs, PAHs, Metals & Inorganics, mSPLP

LOPERS & ASSOCIATES

TEST PIT STRATIGRAPHIC LOGS

PROJECT NAME Soil Characterization Report
PROJECT LOCATION 2940 Baseline Road, Ottawa
PROJECT NUMBER LOP23-012D
DATE 26-Sep-23

CLIENT Brigil
FIELD SUPERVISOR L. Lopers
EXCAVATION CONTRACTOR Tomlinson
EQUIPMENT Rubber Tired Backhoe

Sample Location	Sample ID	Sample Depth	Soil Description	Soil Vapour Readings	Laboratory Analysis
TP18-23	TP18-23-G1	0.0-1.0 m BGS	GRANULAR FILL - Silty sand with some clay, and brick. Brown, compact, dry.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP19-23	TP19-23-G1	0.0-0.3 m BGS	GRANULAR FILL - Silty sand with some clay, and brick. Brown, compact, dry.	15 ppm	PAHs, Metals & Inorganics
TP20-23	TP20-23-G1	0.0-0.3 m BGS	GRANULAR FILL - Silty sand with some clay, and metal debris. Brown, compact, dry.	10 ppm	No Analysis
	TP20-23-G2	0.3-3.0 m BGS	CLAY - Silty Clay. Grey,firm to soft, moist to wet.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP21-23	TP21-23-G1	0.0-0.3 m BGS	GRANULAR FILL - Silty sand with some gravel. Brown, compact, dry.	10 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
	TP21-23-G2	0.3-2.7 m BGS	CLAY - Silty Clay. Grey,firm to soft, moist to wet.	10 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP22-23	TP22-23-G1	0.0-0.5 m BGS	GRANULAR FILL - Silty sand and gravel with some metal debris. Brown to Grey, compact, dry.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
	TP22-23-G2	0.5-3.0 m BGS	CLAY - Silty Clay. Grey,firm to soft, moist to wet.	5 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics, mSPLP
TP23-23	TP23-23-G1	0.0-0.5 m BGS	GRANULAR FILL - Silty sand and gravel. Brown, compact, dry to moist.	0 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
	TP23-23-G2	0.5-2.5 m BGS	CLAY - Silty Clay. Grey,firm to soft, moist to wet.	10 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP24-23	TP24-23-G1	0.0-0.3 m BGS	GRANULAR FILL - Silty sand and gravel with trace brick. Brown, compact, dry.	15 ppm	PHCs, BTEXs, PAHs, Metals & Inorganics
TP25-23	TP25-23-G1	0.0-0.3 m BGS	GRANULAR FILL - Silty sand and gravel. Brown to Grey, compact, dry.	15 ppm	PAHs, Metals & Inorganics
TP26-23	TP26-23-G1	0.0-0.3 m BGS	GRANULAR FILL - Silty sand and gravel. Brown to Grey, compact, dry.	5 ppm	PAHs, Metals & Inorganics

Appendix C

Historical Borehole Logs

LOG OF BOREHOLE BH13-6

PROJECT: Geotechnical & Environmental Soil Investigations
CLIENT: 3223701 Canada Inc. (Brigil Platinum)
PROJECT LOCATION: 2940-2948 Baseline Road, Ottawa, ON
DATUM: Geodetic
BH LOCATION: See Borehole Location Plan

DRILLING DATA
Method: Hollow Stem Augers
Diameter: 203mm
Date: May/02/2013

REF. NO.: 1599-710
ENCL NO.:

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
81.0							
0.0 / 80.7	**Sand and Gravel:** trace silt, brown, moist, loose (Fill)		1A	SS	8		
0.3	**Silty Clay:** grey, moist, stiff		1B	SS	8		
			2	SS	5		80
	- becoming wet		3	SS	4		79
78.7							
2.3	**Silty Clay:** grey, wet, firm to stiff		4	SS	2		78
			5	SS	WH		
				VANE			77
				VANE			
			A	TW			76
				VANE			
				VANE			
			6	SS	WH		75
				VANE			
				VANE			74
			7	SS	WH		73
	- becoming stiff			VANE			
				VANE			
71.9							
9.1	**Sandy Silt:** some clay, grey, wet, very loose		8	SS	WH		72
				VANE			

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE: 25 50 75 100 125
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%): 25 50 75
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (KN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)	GR	SA	SI	CL
	47	42		(11)

Continued Next Page

GROUNDWATER ELEVATIONS
Shallow/ Single Installation ▽ ▼ Deep/Dual Installation ▼ ▼

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

PROJECT: Geotechnical & Environmental Soil Investigations
CLIENT: 3223701 Canada Inc. (Brigil Platinum)
PROJECT LOCATION: 2940-2948 Baseline Road, Ottawa, ON
DATUM: Geodetic
BH LOCATION: See Borehole Location Plan

DRILLING DATA
Method: Hollow Stem Augers
Diameter: 203mm
Date: May/02/2013

REF. NO.: 1599-710
ENCL NO.:

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) / WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (KN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
70.2	**Sandy Silt:** some clay, grey, wet, very loose(Continued)			VANE							
10.8	**Silty Clay:** grey, wet, stiff		9	SS	WH		70				
				VANE							
				VANE							
							69				
			10	SS	WH						
	- very stiff below 12.8 m			VANE				Su>100kPa			
67.3				VANE			68	Su>100kPa			
13.7	**Sandy Silt:** some clay, grey, wet, very loose		11	SS	WH		67				
							66				
65.3			12A	SS	WH						3 78 (20)
15.7	**Silty Sand:** trace gravel, grey, wet, stiff (Till)		12B	SS	WH		65				
64.3	- Bedrock encountered at 16.7 m. Switched to rock coring										
16.7	Limestone with shale partings, fresh, grey, very strong TCR = 100% SCR = 98% RQD = 98%		RC1	CORE			64				UCS=145MPa
63.2									27.5		
17.8	Limestone with shale partings, fresh, grey, very strong TCR = 100% SCR = 100% RQD = 93%		RC2	CORE			63				
61.7							62				
19.3	Limestone with shale partings, fresh, grey, very strong TCR = 100%		RC3	CORE					27.1		UCS=164MPa
61.2											
19.8	SCR = 100%										

Continued Next Page

GROUNDWATER ELEVATIONS
Shallow/ Single Installation ▽ ▼ Deep/Dual Installation ▼ ▼

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

LOG OF BOREHOLE BH13-6

PROJECT: Geotechnical & Environmental Soil Investigations
CLIENT: 3223701 Canada Inc. (Brigil Platinum)
PROJECT LOCATION: 2940-2948 Baseline Road, Ottawa, ON
DATUM: Geodetic
BH LOCATION: See Borehole Location Plan

DRILLING DATA
Method: Hollow Stem Augers
Diameter: 203mm
Date: May/02/2013

REF. NO.: 1599-710
ENCL NO.:

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (KN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
	RQD = 91% **END OF BOREHOLE** Notes: 1) Auger refusal at 16.7 m. 2) End of borehole 19.8 m.											

SPL SOIL LOG-OTTAWA 1599-710 - MAY29-2013.GPJ SPL.GDT 29/5/13

GROUNDWATER ELEVATIONS
Shallow/ Single Installation ▽ ▼ Deep/Dual Installation ▼ ▼

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

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:* **E2H102** *Calibration Date:* **September 20, 2023**

SENSOR	CALIBRATION GAS STANDARD	CALIBRATION GAS CONCENTRATION	READING PRIOR TO ADJUSTMENT	INSTRUMENT SPAN SETTINGS	ALARM LEVEL SETTING
VOC	Isobutylene LOT# 23-9749	100 PPM	101 PPM	100 PPM	400 & 1000 PPM
Combustible	Methane LOT# 23-9790	50% LEL	<500 PPM	"ME" MODE	
Combustible	Hexane LOT# 23-9463	1650 PPM	1600 PPM	15% LEL FULL GAS RESPONSE MODE	10 & 50% LEL
Combustible	Hexane LOT# 23-9463	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

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Appendix E

Laboratory Certificates of Analysis

ALS Canada Ltd.

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2331029**	Page	: 1 of 28
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	: LOP23-012	Date Samples Received	: 26-Sep-2023 14:30
PO	: ----	Date Analysis Commenced	: 27-Sep-2023
C-O-C number	: ----	Issue Date	: 03-Oct-2023 16:03
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2023-2024		
No. of samples received	: 30		
No. of samples analysed	: 30		

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*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, 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
Niral Patel		Centralized Prep, Waterloo, Ontario
Rachel Cameron	Supervisor - Semi-Volatile Extractions	Organics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
TP11-23-G2	Soil/Solid	Vanadium		ON406	T2.1-S-AG	90.8 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	90.8 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	90.8 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	90.8 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	90.8 mg/kg	86 mg/kg
TP12-23-G1	Soil/Solid	Barium		ON406	T2.1-S-AG	1130 mg/kg	390 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-ICC	1130 mg/kg	670 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-RPI	1130 mg/kg	390 mg/kg
	Soil/Solid	Barium		ON406	T4.1-SS-ICC	1130 mg/kg	670 mg/kg
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	1130 mg/kg	390 mg/kg
TP12-23-G2	Soil/Solid	Vanadium		ON406	T2.1-S-AG	94.0 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	94.0 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	94.0 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	94.0 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	94.0 mg/kg	86 mg/kg
TP13-23-G2	Soil/Solid	Vanadium		ON406	T2.1-S-AG	96.3 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	96.3 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	96.3 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	96.3 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	96.3 mg/kg	86 mg/kg
TP15-23-G2	Soil/Solid	Vanadium		ON406	T2.1-S-AG	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	90.1 mg/kg	86 mg/kg
TP16-23-G1	Soil/Solid	Anthracene		ON406	T2.1-S-AG	0.074 mg/kg	0.058 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T2.1-S-AG	0.551 mg/kg	0.31 mg/kg
	Soil/Solid	Fluoranthene		ON406	T2.1-S-AG	0.952 mg/kg	0.69 mg/kg

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
	Soil/Solid	Indeno(1,2,3-c,d)pyrene		ON406	T2.1-S-AG	0.546 mg/kg	0.38 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T2.1-S-ICC	0.551 mg/kg	0.31 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T2.1-S-RPI	0.551 mg/kg	0.31 mg/kg
	Soil/Solid	Fluoranthene		ON406	T2.1-S-RPI	0.952 mg/kg	0.69 mg/kg
	Soil/Solid	Indeno(1,2,3-c,d)pyrene		ON406	T2.1-S-RPI	0.546 mg/kg	0.38 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T4.1-SSS-ICC	0.551 mg/kg	0.31 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T4.1-SS-ICC	0.551 mg/kg	0.31 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T4.1-SS-RPI	0.551 mg/kg	0.31 mg/kg
	Soil/Solid	Fluoranthene		ON406	T4.1-SS-RPI	0.952 mg/kg	0.69 mg/kg
	Soil/Solid	Indeno(1,2,3-c,d)pyrene		ON406	T4.1-SS-RPI	0.546 mg/kg	0.38 mg/kg
TP16-23-G2	Soil/Solid	Vanadium		ON406	T2.1-S-AG	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	90.1 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	90.1 mg/kg	86 mg/kg
TP17-23-G1	Soil/Solid	Barium		ON406	T2.1-S-AG	456 mg/kg	390 mg/kg
	Soil/Solid	Lead		ON406	T2.1-S-AG	50.4 mg/kg	45 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-AG	56 mg/kg	10 mg/kg
	Soil/Solid	Anthracene		ON406	T2.1-S-AG	0.061 mg/kg	0.058 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-ICC	56 mg/kg	26 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-RPI	456 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-RPI	56 mg/kg	10 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-ICC	56 mg/kg	26 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-RPI	56 mg/kg	10 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-ICC	56 mg/kg	26 mg/kg
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	456 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-RPI	56 mg/kg	10 mg/kg
TP17-23-G2	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-AG	419 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-AG	334 mg/kg	240 mg/kg
	Soil/Solid	Anthracene		ON406	T2.1-S-AG	<0.130	0.058 mg/kg

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-ICC	419 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-ICC	334 mg/kg	240 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-RPI	419 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-RPI	334 mg/kg	240 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-ICC	419 mg/kg	26 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-RPI	419 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SSS-RPI	334 mg/kg	240 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-ICC	419 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-ICC	334 mg/kg	240 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-RPI	419 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-RPI	334 mg/kg	240 mg/kg
TP18-23-G1	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	0.938 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	0.938 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	0.938 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	0.938 mS/cm	0.7 mS/cm
TP19-23-G1	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	0.936 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-AG	694 mg/kg	390 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-ICC	694 mg/kg	670 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	0.936 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-RPI	694 mg/kg	390 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	0.936 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-ICC	694 mg/kg	670 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	0.936 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	694 mg/kg	390 mg/kg
TP22-23-G1	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	1.27 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	1.27 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	1.27 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	1.27 mS/cm	0.7 mS/cm
TP22-23-G2	Soil/Solid	Barium		ON406	T2.1-S-AG	420 mg/kg	390 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-AG	116 mg/kg	86 mg/kg

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-AG	18 mg/kg	10 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	116 mg/kg	86 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-RPI	420 mg/kg	390 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	116 mg/kg	86 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-RPI	18 mg/kg	10 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-RPI	18 mg/kg	10 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	116 mg/kg	86 mg/kg
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	420 mg/kg	390 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	116 mg/kg	86 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-RPI	18 mg/kg	10 mg/kg
TP23-23-G1	Soil/Solid	Barium		ON406	T2.1-S-AG	475 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-AG	29 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-AG	24100 mg/kg	240 mg/kg
	Soil/Solid	F4 (C34-C50)		ON406	T2.1-S-AG	4220 mg/kg	2,800 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-ICC	29 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-ICC	24100 mg/kg	240 mg/kg
	Soil/Solid	F4 (C34-C50)		ON406	T2.1-S-ICC	4220 mg/kg	3,300 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-RPI	475 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-RPI	29 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-RPI	24100 mg/kg	240 mg/kg
	Soil/Solid	F4 (C34-C50)		ON406	T2.1-S-RPI	4220 mg/kg	2,800 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-ICC	29 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SSS-ICC	24100 mg/kg	5,800 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-RPI	29 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SSS-RPI	24100 mg/kg	240 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-ICC	29 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-ICC	24100 mg/kg	240 mg/kg
	Soil/Solid	F4 (C34-C50)		ON406	T4.1-SS-ICC	4220 mg/kg	3,300 mg/kg
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	475 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-RPI	29 mg/kg	10 mg/kg

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-RPI	24100 mg/kg	240 mg/kg
	Soil/Solid	F4 (C34-C50)		ON406	T4.1-SS-RPI	4220 mg/kg	2,800 mg/kg
TP23-23-G2	Soil/Solid	Barium		ON406	T2.1-S-AG	433 mg/kg	390 mg/kg
	Soil/Solid	Cobalt		ON406	T2.1-S-AG	22.2 mg/kg	22 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-AG	122 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	122 mg/kg	86 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-RPI	433 mg/kg	390 mg/kg
	Soil/Solid	Cobalt		ON406	T2.1-S-RPI	22.2 mg/kg	22 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	122 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	122 mg/kg	86 mg/kg
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	433 mg/kg	390 mg/kg
	Soil/Solid	Cobalt		ON406	T4.1-SS-RPI	22.2 mg/kg	22 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	122 mg/kg	86 mg/kg
TP24-23-G1	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	1.45 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-AG	466 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-AG	98 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-AG	826 mg/kg	240 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-ICC	1.45 mS/cm	1.4 mS/cm
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-ICC	98 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-ICC	826 mg/kg	240 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	1.45 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-RPI	466 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-RPI	98 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-RPI	826 mg/kg	240 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-ICC	1.45 mS/cm	1.4 mS/cm
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-ICC	98 mg/kg	26 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	1.45 mS/cm	0.7 mS/cm
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-RPI	98 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SSS-RPI	826 mg/kg	240 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-ICC	1.45 mS/cm	1.4 mS/cm

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-ICC	98 mg/kg	26 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-ICC	826 mg/kg	240 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	1.45 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	466 mg/kg	390 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-RPI	98 mg/kg	10 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-RPI	826 mg/kg	240 mg/kg
TP25-23-G1	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	1.31 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-AG	623 mg/kg	390 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	1.31 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-RPI	623 mg/kg	390 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	1.31 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	1.31 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	623 mg/kg	390 mg/kg
TP26-23-G1	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	1.88 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-AG	460 mg/kg	390 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-ICC	1.88 mS/cm	1.4 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	1.88 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-RPI	460 mg/kg	390 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-ICC	1.88 mS/cm	1.4 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	1.88 mS/cm	0.7 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-ICC	1.88 mS/cm	1.4 mS/cm
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	1.88 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	460 mg/kg	390 mg/kg
DUPA-09/26	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-AG	269 mg/kg	10 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-ICC	269 mg/kg	26 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T2.1-S-RPI	269 mg/kg	10 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-ICC	269 mg/kg	26 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SSS-RPI	269 mg/kg	10 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-ICC	269 mg/kg	26 mg/kg
	Soil/Solid	F2 (C10-C16)		ON406	T4.1-SS-RPI	269 mg/kg	10 mg/kg

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
DUPB-09/26	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-AG	0.795 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-AG	845 mg/kg	390 mg/kg
	Soil/Solid	Barium		ON406	T2.1-S-ICC	845 mg/kg	670 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T2.1-S-RPI	0.795 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T2.1-S-RPI	845 mg/kg	390 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SSS-RPI	0.795 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-ICC	845 mg/kg	670 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON406	T4.1-SS-RPI	0.795 mS/cm	0.7 mS/cm
	Soil/Solid	Barium		ON406	T4.1-SS-RPI	845 mg/kg	390 mg/kg
DUPC-09/26	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-AG	287 mg/kg	240 mg/kg
	Soil/Solid	Anthracene		ON406	T2.1-S-AG	0.066 mg/kg	0.058 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T2.1-S-AG	0.512 mg/kg	0.31 mg/kg
	Soil/Solid	Fluoranthene		ON406	T2.1-S-AG	0.898 mg/kg	0.69 mg/kg
	Soil/Solid	Indeno(1,2,3-c,d)pyrene		ON406	T2.1-S-AG	0.424 mg/kg	0.38 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-ICC	287 mg/kg	240 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T2.1-S-ICC	0.512 mg/kg	0.31 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T2.1-S-RPI	287 mg/kg	240 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T2.1-S-RPI	0.512 mg/kg	0.31 mg/kg
	Soil/Solid	Fluoranthene		ON406	T2.1-S-RPI	0.898 mg/kg	0.69 mg/kg
	Soil/Solid	Indeno(1,2,3-c,d)pyrene		ON406	T2.1-S-RPI	0.424 mg/kg	0.38 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T4.1-SSS-ICC	0.512 mg/kg	0.31 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SSS-RPI	287 mg/kg	240 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-ICC	287 mg/kg	240 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T4.1-SS-ICC	0.512 mg/kg	0.31 mg/kg
	Soil/Solid	F3 (C16-C34)		ON406	T4.1-SS-RPI	287 mg/kg	240 mg/kg
	Soil/Solid	Benzo(a)pyrene		ON406	T4.1-SS-RPI	0.512 mg/kg	0.31 mg/kg
	Soil/Solid	Fluoranthene		ON406	T4.1-SS-RPI	0.898 mg/kg	0.69 mg/kg
	Soil/Solid	Indeno(1,2,3-c,d)pyrene		ON406	T4.1-SS-RPI	0.424 mg/kg	0.38 mg/kg
DUPD-09/26	Soil/Solid	Vanadium		ON406	T2.1-S-AG	108 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T2.1-S-ICC	108 mg/kg	86 mg/kg

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
	Soil/Solid	Vanadium		ON406	T2.1-S-RPI	108 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-ICC	108 mg/kg	86 mg/kg
	Soil/Solid	Vanadium		ON406	T4.1-SS-RPI	108 mg/kg	86 mg/kg

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
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
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.

Qualifiers

Qualifier	Description
DLIS	Detection Limit Adjusted due to insufficient sample.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
FR4	As per applicable reference method(s), soil:water ratio for Fixed Ratio Leach was modified to 1:4 due to high soil organic content.
FR5	As per applicable reference method(s), soil:water ratio for Fixed Ratio Leach was modified to 1:5 due to high soil organic content

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP11-23-G1	TP11-23-G2	TP12-23-G1	TP12-23-G2	TP13-23-G1	TP13-23-G2	TP14-23-G1
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-001	WT2331029-002	WT2331029-003	WT2331029-004	WT2331029-005	WT2331029-006	WT2331029-007
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.157 FR5	0.253	0.662 FR5	0.364	0.246	0.233	0.680 FR5
Moisture	----	E144/WT	%		23.0	27.9	14.7	31.8	17.3	35.5	21.4
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.22	7.02	7.78	7.15	7.52	7.33	7.34
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		2.13 DLIS, FR5	4.38	18.7 DLIS, FR5	16.2	9.93	8.60	21.6 DLIS, FR5
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		1.58 DLIS, FR5	2.02	5.08 DLIS, FR5	6.37	3.91	3.43	6.15 DLIS, FR5
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		4.34 DLIS, FR5	28.4	11.8 DLIS, FR5	29.3	12.5	14.8	10.4 DLIS, FR5
Sodium adsorption ratio [SAR]	----	E484/WT	-		0.55 DLIS, FR5	2.82	0.62 DLIS, FR5	1.56	0.85	1.08	0.51 DLIS, FR5
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	<0.10	0.11	<0.10	<0.10	<0.10	0.15
Arsenic	7440-38-2	E440C/WT	mg/kg		3.91	3.81	2.94	2.83	2.49	3.28	2.68
Barium	7440-39-3	E440C/WT	mg/kg		317	331	1130	371	153	360	322
Beryllium	7440-41-7	E440C/WT	mg/kg		1.02	0.96	0.51	0.91	0.47	0.94	0.56
Boron	7440-42-8	E440C/WT	mg/kg		11.7	10.5	15.5	8.9	5.8	9.8	11.7
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		0.16	0.16	0.57	0.23	0.44	0.20	1.02 DLIS, FR4
Cadmium	7440-43-9	E440C/WT	mg/kg		0.083	0.084	0.080	0.081	0.047	0.090	0.142
Chromium	7440-47-3	E440C/WT	mg/kg		63.8	73.6	28.6	77.1	33.7	79.7	48.5
Cobalt	7440-48-4	E440C/WT	mg/kg		17.6	18.4	9.73	19.6	8.64	19.9	12.4
Copper	7440-50-8	E440C/WT	mg/kg		34.3	37.5	16.7	34.7	18.8	38.4	25.1
Lead	7439-92-1	E440C/WT	mg/kg		8.54	7.54	10.2	6.93	4.69	7.23	16.6
Mercury	7439-97-6	E510C/WT	mg/kg		0.0069	0.0063	0.0428	<0.0050	0.0059	<0.0050	0.0218
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.34	0.52	0.62	0.37	0.31	0.46	0.95
Nickel	7440-02-0	E440C/WT	mg/kg		37.1	40.2	19.4	42.7	19.1	43.7	29.5
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP11-23-G1	TP11-23-G2	TP12-23-G1	TP12-23-G2	TP13-23-G1	TP13-23-G2	TP14-23-G1
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-001	WT2331029-002	WT2331029-003	WT2331029-004	WT2331029-005	WT2331029-006	WT2331029-007
Metals											
Thallium	7440-28-0	E440C/WT	mg/kg		0.350	0.358	0.219	0.389	0.160	0.411	0.274
Uranium	7440-61-1	E440C/WT	mg/kg		0.704	0.636	0.858	0.642	0.502	0.637	0.612
Vanadium	7440-62-2	E440C/WT	mg/kg		84.8	90.8	37.0	94.0	45.9	96.3	49.9
Zinc	7440-66-6	E440C/WT	mg/kg		99.5	105	42.9	111	45.8	111	73.8
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		0.16	0.15	0.10	<0.10	0.24	0.20	<0.10
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WT	mg/kg		<0.0050	<0.0050	----	<0.0050	<0.0050	<0.0050	0.0102
Ethylbenzene	100-41-4	E611A/WT	mg/kg		<0.015	<0.015	----	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/WT	mg/kg		<0.050	<0.050	----	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg		<0.030	<0.030	----	<0.030	<0.030	<0.030	<0.030
Xylene, o-	95-47-6	E611A/WT	mg/kg		<0.030	<0.030	----	<0.030	<0.030	<0.030	<0.030
Xylenes, total	1330-20-7	E611A/WT	mg/kg		<0.050	<0.050	----	<0.050	<0.050	<0.050	<0.050
BTEX, total	----	E611A/WT	mg/kg		<0.10	<0.10	----	<0.10	<0.10	<0.10	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		<5.0	<5.0	----	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		<10	<10	----	<10	<10	<10	<10
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		<50	<50	----	<50	<50	<50	79
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		<50	<50	----	<50	<50	<50	90
F1-BTEX	----	EC580/WT	mg/kg		<5.0	<5.0	----	<5.0	<5.0	<5.0	<5.0
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		<80	<80	----	<80	<80	<80	169
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		YES	YES	----	YES	YES	YES	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		87.7	88.2	----	86.6	87.9	88.4	88.8
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		84.0	78.7	----	85.6	92.0	84.8	86.9
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%		77.5	74.3	----	72.3	84.3	77.9	81.5
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%		86.7	84.7	----	81.6	95.5	90.6	90.3

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP11-23-G1	TP11-23-G2	TP12-23-G1	TP12-23-G2	TP13-23-G1	TP13-23-G2	TP14-23-G1
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-001	WT2331029-002	WT2331029-003	WT2331029-004	WT2331029-005	WT2331029-006	WT2331029-007
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	<0.050	0.066	<0.050	<0.050	<0.050	<0.050
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	<0.050	0.055	<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		93.0	93.0	85.0	93.6	85.6	91.6	91.6
Chrysene-d12	1719-03-5	E641A/WT	%		108	112	99.6	112	103	114	105
Naphthalene-d8	1146-65-2	E641A/WT	%		102	102	94.8	104	96.3	104	102
Phenanthrene-d10	1517-22-2	E641A/WT	%		97.0	97.8	90.3	98.6	91.2	98.3	97.1

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 Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP14-23-G2	TP15-23-G1	TP15-23-G2	TP16-23-G1	TP16-23-G2	TP17-23-G1	TP17-23-G2
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-008	WT2331029-009	WT2331029-010	WT2331029-011	WT2331029-012	WT2331029-013	WT2331029-014
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.267	0.384	0.645	0.368	0.445	0.481	0.573
Moisture	----	E144/WT	%		34.4	10.1	35.4	12.7	37.0	20.0	34.1
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.45	7.54	7.47	7.45	7.51	7.48	7.38
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		10.3	18.0	30.5	23.3	14.3	30.4	30.0
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		3.78	3.13	15.7	5.67	6.89	8.47	12.3
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		19.7	32.5	58.3	24.0	47.0	36.4	48.4
Sodium adsorption ratio [SAR]	----	E484/WT	-		1.33	1.86	2.14	1.16	2.56	1.50	1.88
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	0.31	0.11	0.16	<0.10	0.19	0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		3.14	2.77	4.85	2.11	1.96	3.23	4.01
Barium	7440-39-3	E440C/WT	mg/kg		276	206	273	126	317	456	260
Beryllium	7440-41-7	E440C/WT	mg/kg		0.92	0.38	0.96	0.31	0.77	0.61	0.88
Boron	7440-42-8	E440C/WT	mg/kg		13.1	12.7	16.3	5.9	7.7	10.5	13.2
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		<0.10	0.80	0.46	0.36	0.29	0.55	0.37
Cadmium	7440-43-9	E440C/WT	mg/kg		0.082	0.206	0.074	0.292	0.083	0.435	0.076
Chromium	7440-47-3	E440C/WT	mg/kg		60.9	24.0	67.8	20.2	68.8	48.5	64.9
Cobalt	7440-48-4	E440C/WT	mg/kg		16.6	9.71	18.5	6.61	16.8	12.6	17.2
Copper	7440-50-8	E440C/WT	mg/kg		29.4	24.1	34.9	13.2	31.2	25.7	32.4
Lead	7439-92-1	E440C/WT	mg/kg		7.78	22.8	8.02	18.2	5.90	50.4	35.8
Mercury	7439-97-6	E510C/WT	mg/kg		<0.0050	0.0304	0.0052	0.0151	<0.0050	0.0196	0.0059
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.58	1.24	1.16	0.56	0.92	0.92	1.33
Nickel	7440-02-0	E440C/WT	mg/kg		34.6	19.3	39.0	12.7	37.1	26.0	36.9
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	0.10	<0.10	<0.10	<0.10	0.15	<0.10
Thallium	7440-28-0	E440C/WT	mg/kg		0.317	0.228	0.338	0.140	0.353	0.276	0.332

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP14-23-G2	TP15-23-G1	TP15-23-G2	TP16-23-G1	TP16-23-G2	TP17-23-G1	TP17-23-G2
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-008	WT2331029-009	WT2331029-010	WT2331029-011	WT2331029-012	WT2331029-013	WT2331029-014
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.688	0.611	0.999	0.527	0.974	0.709	0.970
Vanadium	7440-62-2	E440C/WT	mg/kg		82.8	28.0	90.1	31.9	90.1	60.1	83.6
Zinc	7440-66-6	E440C/WT	mg/kg		95.2	82.5	102	43.5	96.5	89.8	96.6
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	<0.10	<0.10	0.17	0.15	0.13	<0.10
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WT	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	----	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/WT	mg/kg		<0.015	<0.015	<0.015	<0.015	----	<0.015	<0.015
Toluene	108-88-3	E611A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	----	<0.030	<0.030
Xylene, o-	95-47-6	E611A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	----	<0.030	<0.030
Xylenes, total	1330-20-7	E611A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	<0.050	<0.050
BTEX, total	----	E611A/WT	mg/kg		<0.10	<0.10	<0.10	<0.10	----	<0.10	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		<5.0	<5.0	<5.0	<5.0	----	<5.0	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		<10	<10	<10	<10	----	56	419
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		<50	228	<50	215	----	233	334
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		<50	187	<50	258	----	138	<50
F4G-sg	----	E601.F4G-L/WT	mg/kg		----	920	----	1760	----	820	----
F1-BTEX	----	EC580/WT	mg/kg		<5.0	<5.0	<5.0	<5.0	----	<5.0	<5.0
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		<80	415	<80	473	----	427	753
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		YES	NO	YES	NO	----	NO	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		88.8	87.5	89.1	90.4	----	89.5	85.9
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		92.0	86.9	82.4	83.6	----	77.5	91.4
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%		77.9	89.7	74.4	82.8	----	78.2	82.5
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%		85.4	102	85.1	94.7	----	91.1	92.0

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP14-23-G2	TP15-23-G1	TP15-23-G2	TP16-23-G1	TP16-23-G2	TP17-23-G1	TP17-23-G2
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-008	WT2331029-009	WT2331029-010	WT2331029-011	WT2331029-012	WT2331029-013	WT2331029-014
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.076
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.074	<0.050	0.061 EMPC	<0.130 DLM
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.440	<0.050	0.204	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.551	<0.050	0.211	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.856	<0.050	0.339	<0.050
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.589	<0.050	0.224	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.294	<0.050	0.121	<0.050
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.499	<0.050	0.230	<0.050
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.103	<0.050	<0.050	<0.050
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.952	<0.050	0.394	0.065
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.546	<0.050	0.212	<0.050
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	0.037	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	0.067	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	0.030	<0.030
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010	0.015 EMPC	0.014 EMPC
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.300	<0.050	0.217	<0.050
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.783	<0.050	0.328	0.071
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		90.5	92.8	89.7	94.7	87.4	94.6	97.0
Chrysene-d12	1719-03-5	E641A/WT	%		106	103	105	96.9	96.3	98.7	108
Naphthalene-d8	1146-65-2	E641A/WT	%		101	102	99.1	101	93.0	100	101
Phenanthrene-d10	1517-22-2	E641A/WT	%		95.2	96.8	95.2	98.6	90.8	98.2	98.1

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 Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP18-23-G1	TP19-23-G1	TP20-23-G2	TP21-23-G1	TP21-23-G2	TP22-23-G1	TP22-23-G2
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-015	WT2331029-016	WT2331029-017	WT2331029-018	WT2331029-019	WT2331029-020	WT2331029-021
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.938 FR5	0.936 FR5	0.475	0.303	0.499	1.27 FR5	0.444
Moisture	----	E144/WT	%		10.1	5.71	35.8	4.94	36.2	7.17	38.0
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		10.7	8.09	7.34	7.98	7.33	8.42	7.93
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		39.1 DLIS, FR5	38.5 DLIS, FR5	21.1	6.64	15.9	50.0 DLIS, FR5	14.5
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		0.79 DLIS, FR5	7.84 DLIS, FR5	8.26	2.55	6.45	7.97 DLIS, FR5	9.64
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		27.4 DLIS, FR5	20.7 DLIS, FR5	45.2	42.0	59.3	49.7 DLIS, FR5	31.3
Sodium adsorption ratio [SAR]	----	E484/WT	-		1.19 DLIS, FR5	0.79 DLIS, FR5	2.11	3.51	3.17	1.72 DLIS, FR5	1.56
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		0.16	0.11	<0.10	0.12	0.10	0.10	<0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		1.94	2.03	4.68	1.99	4.46	2.11	3.19
Barium	7440-39-3	E440C/WT	mg/kg		317	694	258	153	241	260	420
Beryllium	7440-41-7	E440C/WT	mg/kg		0.43	0.48	0.85	0.40	0.84	0.41	1.02
Boron	7440-42-8	E440C/WT	mg/kg		17.7	25.8	13.6	9.2	12.8	16.8	11.3
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		1.40 DLIS, FR4	1.10	0.33	0.41	0.34	1.00	0.65
Cadmium	7440-43-9	E440C/WT	mg/kg		0.091	0.056	0.078	0.096	0.074	0.063	0.106
Chromium	7440-47-3	E440C/WT	mg/kg		21.2	22.3	61.3	26.7	59.2	23.9	93.4
Cobalt	7440-48-4	E440C/WT	mg/kg		6.27	6.97	17.2	7.48	16.7	7.67	21.5
Copper	7440-50-8	E440C/WT	mg/kg		14.0	13.5	32.5	16.6	31.4	14.4	39.9
Lead	7439-92-1	E440C/WT	mg/kg		14.1	11.0	7.54	16.6	7.16	11.9	6.72
Mercury	7439-97-6	E510C/WT	mg/kg		0.0132	0.0126	0.0055	0.0118	0.0050	0.0174	<0.0050
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.93	0.91	0.78	0.62	1.19	0.79	1.29
Nickel	7440-02-0	E440C/WT	mg/kg		14.2	15.0	36.2	16.5	35.4	17.2	50.3
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	<0.20	<0.20	<0.20	0.20	<0.20	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Thallium	7440-28-0	E440C/WT	mg/kg		0.204	0.203	0.324	0.180	0.314	0.232	0.457

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP18-23-G1	TP19-23-G1	TP20-23-G2	TP21-23-G1	TP21-23-G2	TP22-23-G1	TP22-23-G2
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-015	WT2331029-016	WT2331029-017	WT2331029-018	WT2331029-019	WT2331029-020	WT2331029-021
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.464	0.487	0.758	0.450	0.970	0.487	1.28
Vanadium	7440-62-2	E440C/WT	mg/kg		25.1	25.3	85.1	30.5	80.1	27.7	116
Zinc	7440-66-6	E440C/WT	mg/kg		41.5	31.7	97.4	46.0	92.0	39.0	129
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	<0.10	<0.10	0.18	0.12	<0.10	<0.10
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WT	mg/kg		0.0053	----	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	100-41-4	E611A/WT	mg/kg		<0.015	----	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	108-88-3	E611A/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg		0.036	----	<0.030	<0.030	<0.030	0.037	<0.030
Xylene, o-	95-47-6	E611A/WT	mg/kg		<0.030	----	<0.030	<0.030	<0.030	<0.030	<0.030
Xylenes, total	1330-20-7	E611A/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	<0.050	<0.050
BTEX, total	----	E611A/WT	mg/kg		<0.10	----	<0.10	<0.10	<0.10	<0.10	<0.10
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		5.9	----	<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		<10	----	<10	<10	<10	<10	18
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		68	----	<50	85	<50	82	<50
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		61	----	<50	131	<50	<50	<50
F4G-sg	----	E601.F4G-L/WT	mg/kg		----	----	----	840	----	----	----
F1-BTEX	----	EC580/WT	mg/kg		5.9	----	<5.0	<5.0	<5.0	<5.0	<5.0
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		135	----	<80	216	<80	82	<80
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		YES	----	YES	NO	YES	YES	YES
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		88.8	----	89.1	89.3	86.7	89.8	88.4
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		92.8	----	90.5	101	89.2	85.4	90.8
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%		97.3	----	86.3	93.5	83.4	83.5	79.9
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%		103	----	93.2	104	92.7	92.9	88.8

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP18-23-G1	TP19-23-G1	TP20-23-G2	TP21-23-G1	TP21-23-G2	TP22-23-G1	TP22-23-G2
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-015	WT2331029-016	WT2331029-017	WT2331029-018	WT2331029-019	WT2331029-020	WT2331029-021
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		0.067	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		0.058	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		0.099	0.085	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		0.061	0.057	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	218-01-9	E641A/WT	mg/kg		0.079	0.071	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	206-44-0	E641A/WT	mg/kg		0.127	0.102	<0.050	<0.050	<0.050	<0.050	<0.050
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		0.054	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	0.055	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	129-00-0	E641A/WT	mg/kg		0.110	0.084	<0.050	<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		89.4	90.6	90.6	92.7	90.7	93.3	89.7
Chrysene-d12	1719-03-5	E641A/WT	%		98.5	100.0	105	99.5	105	104	98.8
Naphthalene-d8	1146-65-2	E641A/WT	%		96.8	98.2	100	100	102	101	96.5
Phenanthrene-d10	1517-22-2	E641A/WT	%		91.8	95.2	95.7	96.3	96.4	96.9	94.2

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 Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP23-23-G1	TP23-23-G2	TP24-23-G1	TP25-23-G1	TP26-23-G1	DUPA-09/26	DUPB-09/26
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-022	WT2331029-023	WT2331029-024	WT2331029-025	WT2331029-026	WT2331029-027	WT2331029-028
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.562 FR5	0.517	1.45	1.31	1.88	----	0.795
Moisture	----	E144/WT	%		7.58	38.2	11.9	2.50	1.16	37.1	5.13
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		9.73	7.59	11.9	8.54	9.24	----	8.67
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		20.5 FR5	22.8	155	65.6	110	----	82.6
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		1.43 FR5	11.4	<0.50	12.4	23.0	----	16.4
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		3.08 FR5	37.6	43.3	162	221	----	40.5
Sodium adsorption ratio [SAR]	----	E484/WT	-		0.18 FR5	1.60	0.96	4.81	5.00	----	1.06
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		0.25	<0.10	0.79	0.12	0.10	----	<0.10
Arsenic	7440-38-2	E440C/WT	mg/kg		2.28	2.57	2.96	2.62	1.87	----	1.97
Barium	7440-39-3	E440C/WT	mg/kg		475	433	466	623	460	----	845
Beryllium	7440-41-7	E440C/WT	mg/kg		0.53	1.05	0.89	0.53	0.42	----	0.48
Boron	7440-42-8	E440C/WT	mg/kg		30.4	11.0	30.6	23.5	23.8	----	27.8
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		1.40	0.45	0.54	1.16	1.13	----	1.28
Cadmium	7440-43-9	E440C/WT	mg/kg		0.063	0.115	0.135	0.069	0.051	----	0.058
Chromium	7440-47-3	E440C/WT	mg/kg		23.0	93.9	36.4	29.2	19.6	----	24.2
Cobalt	7440-48-4	E440C/WT	mg/kg		7.19	22.2	8.85	8.12	6.19	----	7.42
Copper	7440-50-8	E440C/WT	mg/kg		13.4	40.0	17.8	14.8	11.1	----	12.9
Lead	7439-92-1	E440C/WT	mg/kg		12.3	7.17	16.6	10.5	9.64	----	10.9
Mercury	7439-97-6	E510C/WT	mg/kg		0.0138 DLM	<0.0050	0.0108	0.0116	0.0112	----	0.0140
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.78	1.33	1.57	0.91	0.82	----	0.90
Nickel	7440-02-0	E440C/WT	mg/kg		16.9	50.9	23.2	17.5	13.5	----	16.0
Selenium	7782-49-2	E440C/WT	mg/kg		<0.30 DLM	<0.20	<0.20	<0.20	<0.20	----	<0.20
Silver	7440-22-4	E440C/WT	mg/kg		<0.15 DLM	<0.10	0.10	<0.10	<0.10	----	<0.10
Thallium	7440-28-0	E440C/WT	mg/kg		0.363	0.493	0.255	0.205	0.185	----	0.217

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP23-23-G1	TP23-23-G2	TP24-23-G1	TP25-23-G1	TP26-23-G1	DUPA-09/26	DUPB-09/26
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-022	WT2331029-023	WT2331029-024	WT2331029-025	WT2331029-026	WT2331029-027	WT2331029-028
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.565	1.34	1.15	0.632	0.555	----	0.530
Vanadium	7440-62-2	E440C/WT	mg/kg		21.2	122	47.6	35.3	21.0	----	28.2
Zinc	7440-66-6	E440C/WT	mg/kg		98.9	136	107	48.2	42.4	----	32.8
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	<0.10	0.45	<0.10	<0.10	----	<0.10
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WT	mg/kg		<0.0050	<0.0050	0.0050	----	----	<0.0050	----
Ethylbenzene	100-41-4	E611A/WT	mg/kg		<0.015	<0.015	<0.015	----	----	<0.015	----
Toluene	108-88-3	E611A/WT	mg/kg		<0.050	<0.050	<0.050	----	----	<0.050	----
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg		0.039	<0.030	0.035	----	----	<0.030	----
Xylene, o-	95-47-6	E611A/WT	mg/kg		<0.030	<0.030	<0.030	----	----	<0.030	----
Xylenes, total	1330-20-7	E611A/WT	mg/kg		<0.050	<0.050	<0.050	----	----	<0.050	----
BTEX, total	----	E611A/WT	mg/kg		<0.10	<0.10	<0.10	----	----	<0.10	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		<5.0	<5.0	<5.0	----	----	6.4	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		29	<10	98	----	----	269	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		24100	<50	826	----	----	221	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		4220	<50	<50	----	----	<50	----
F1-BTEX	----	EC580/WT	mg/kg		<5.0	<5.0	<5.0	----	----	6.4	----
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		28300	<80	924	----	----	496	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		YES	YES	YES	----	----	YES	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		87.7	89.8	88.1	----	----	94.7	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		75.8	88.3	91.4	----	----	89.5	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%		87.2	77.9	92.8	----	----	91.6	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%		98.0	82.4	102	----	----	95.3	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	TP23-23-G1	TP23-23-G2	TP24-23-G1	TP25-23-G1	TP26-23-G1	DUPA-09/26	DUPB-09/26
				Sampling date/time	09-Sep-2023 00:00	09-Sep-2023 00:00	09-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00
				Sub-Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
					WT2331029-022	WT2331029-023	WT2331029-024	WT2331029-025	WT2331029-026	WT2331029-027	WT2331029-028
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.069	<0.050	----	<0.050
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.098	<0.050	----	0.056
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.084	<0.050	----	0.053
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.090	<0.050	----	0.051
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	----	<0.030
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	----	<0.030
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010	----	<0.010
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	----	<0.050
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	0.082	<0.050	----	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		92.1	97.2	91.2	84.5	84.5	----	83.6
Chrysene-d12	1719-03-5	E641A/WT	%		89.6	94.2	90.3	121	115	----	109
Naphthalene-d8	1146-65-2	E641A/WT	%		95.3	94.2	88.4	104	99.6	----	98.9
Phenanthrene-d10	1517-22-2	E641A/WT	%		92.1	97.0	88.3	97.0	93.4	----	93.7

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 Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUPC-09/26	DUPD-09/26	----	----	----	----	----
				Sampling date/time	26-Sep-2023 00:00	26-Sep-2023 00:00	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2331029-029	WT2331029-030	--------	--------	--------	--------	--------
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		0.344	0.516	----	----	----	----	----
Moisture	----	E144/WT	%		10.6	37.0	----	----	----	----	----
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.63	7.75	----	----	----	----	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		18.1	22.5	----	----	----	----	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		4.41	11.1	----	----	----	----	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		21.6	39.1	----	----	----	----	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		1.18	1.68	----	----	----	----	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		<0.10	<0.10	----	----	----	----	----
Arsenic	7440-38-2	E440C/WT	mg/kg		2.13	2.24	----	----	----	----	----
Barium	7440-39-3	E440C/WT	mg/kg		120	388	----	----	----	----	----
Beryllium	7440-41-7	E440C/WT	mg/kg		0.29	0.86	----	----	----	----	----
Boron	7440-42-8	E440C/WT	mg/kg		6.0	9.3	----	----	----	----	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		0.30	0.46	----	----	----	----	----
Cadmium	7440-43-9	E440C/WT	mg/kg		0.159	0.101	----	----	----	----	----
Chromium	7440-47-3	E440C/WT	mg/kg		19.1	84.1	----	----	----	----	----
Cobalt	7440-48-4	E440C/WT	mg/kg		6.16	20.2	----	----	----	----	----
Copper	7440-50-8	E440C/WT	mg/kg		12.8	36.1	----	----	----	----	----
Lead	7439-92-1	E440C/WT	mg/kg		15.8	6.11	----	----	----	----	----
Mercury	7439-97-6	E510C/WT	mg/kg		0.0136	<0.0050	----	----	----	----	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.51	1.13	----	----	----	----	----
Nickel	7440-02-0	E440C/WT	mg/kg		11.4	46.3	----	----	----	----	----
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	<0.20	----	----	----	----	----
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	<0.10	----	----	----	----	----
Thallium	7440-28-0	E440C/WT	mg/kg		0.118	0.425	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUPC-09/26	DUPD-09/26	----	----	----	----	----
				Sampling date/time	26-Sep-2023 00:00	26-Sep-2023 00:00	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2331029-029	WT2331029-030	--------	--------	--------	--------	--------
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg		0.586	1.27	----	----	----	----	----
Vanadium	7440-62-2	E440C/WT	mg/kg		30.4	108	----	----	----	----	----
Zinc	7440-66-6	E440C/WT	mg/kg		37.7	120	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	<0.10	----	----	----	----	----
Volatile Organic Compounds											
Benzene	71-43-2	E611A/WT	mg/kg		<0.0050	<0.0050	----	----	----	----	----
Ethylbenzene	100-41-4	E611A/WT	mg/kg		<0.015	<0.015	----	----	----	----	----
Toluene	108-88-3	E611A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Xylene, o-	95-47-6	E611A/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Xylenes, total	1330-20-7	E611A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
BTEX, total	----	E611A/WT	mg/kg		<0.10	<0.10	----	----	----	----	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg		7.7	<5.0	----	----	----	----	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg		<10	<10	----	----	----	----	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg		287	<50	----	----	----	----	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg		229	<50	----	----	----	----	----
F4G-sg	----	E601.F4G-L/WT	mg/kg		1360	----	----	----	----	----	----
F1-BTEX	----	EC580/WT	mg/kg		7.7	<5.0	----	----	----	----	----
Hydrocarbons, total (C6-C50)	----	EC581/WT	mg/kg		524	<80	----	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-		NO	YES	----	----	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%		91.9	89.4	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%		91.9	99.5	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%		100	86.5	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%		106	94.5	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil/Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUPC-09/26	DUPD-09/26	----	----	----	----	----
				Sampling date/time	26-Sep-2023 00:00	26-Sep-2023 00:00	----	----	----	----	----
				Sub-Matrix	Soil/Solid	Soil/Solid	----	----	----	----	----
					WT2331029-029	WT2331029-030	--------	--------	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Anthracene	120-12-7	E641A/WT	mg/kg		0.066	<0.050	----	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		0.453	<0.050	----	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		0.512	<0.050	----	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		0.783	<0.050	----	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		0.400	<0.050	----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		0.301	<0.050	----	----	----	----	----
Chrysene	218-01-9	E641A/WT	mg/kg		0.497	<0.050	----	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		0.087	<0.050	----	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		0.898	<0.050	----	----	----	----	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		0.424	<0.050	----	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	----	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		0.249	<0.050	----	----	----	----	----
Pyrene	129-00-0	E641A/WT	mg/kg		0.735	<0.050	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		91.4	86.4	----	----	----	----	----
Chrysene-d12	1719-03-5	E641A/WT	%		95.3	102	----	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		100	93.4	----	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		96.7	93.2	----	----	----	----	----

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 T2.1-S-AG	ON406 T2.1-S-ICC	ON406 T2.1-S-RPI	ON406 T4.1-SSS-ICC	ON406 T4.1-SSS-RPI	ON406 T4.1-SS-ICC	ON406 T4.1-SS-RPI
Physical Tests									
Conductivity (1:2 leachate)	----	mS/cm	0.7 mS/cm	1.4 mS/cm	0.7 mS/cm	1.4 mS/cm	0.7 mS/cm	1.4 mS/cm	0.7 mS/cm
Moisture	----	%	--	--	<a--	--	--	--	--
pH (1:2 soil:CaCl2-aq)	----	pH units	--	--	<a--	--	--	--	--
Cyanides									
Cyanide, weak acid dissociable	----	mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg
Fixed-Ratio Extractables									
Calcium, soluble ion content	7440-70-2	mg/L	--	--	<a--	--	--	--	--
Magnesium, soluble ion content	7439-95-4	mg/L	--	--	<a--	--	--	--	--
Sodium adsorption ratio [SAR]	----	-	5 -	12 -	5 -	12 -	5 -	12 -	5 -
Sodium, soluble ion content	17341-25-2	mg/L	--	--	<a--	--	--	--	--
Metals									
Antimony	7440-36-0	mg/kg	7.5 mg/kg	40 mg/kg	7.5 mg/kg	63 mg/kg	63 mg/kg	40 mg/kg	7.5 mg/kg
Arsenic	7440-38-2	mg/kg	11 mg/kg	18 mg/kg	18 mg/kg	39 mg/kg	18 mg/kg	18 mg/kg	18 mg/kg
Barium	7440-39-3	mg/kg	390 mg/kg	670 mg/kg	390 mg/kg	7700 mg/kg	7700 mg/kg	670 mg/kg	390 mg/kg
Beryllium	7440-41-7	mg/kg	4 mg/kg	8 mg/kg	4 mg/kg	60 mg/kg	60 mg/kg	8 mg/kg	4 mg/kg
Boron, hot water soluble	7440-42-8	mg/kg	1.5 mg/kg	2 mg/kg	1.5 mg/kg	--	--	2 mg/kg	1.5 mg/kg
Boron	7440-42-8	mg/kg	120 mg/kg	120 mg/kg	120 mg/kg	5000 mg/kg	5000 mg/kg	5000 mg/kg	--
Cadmium	7440-43-9	mg/kg	1 mg/kg	1.9 mg/kg	1.2 mg/kg	7.9 mg/kg	7.9 mg/kg	1.9 mg/kg	1.2 mg/kg
Chromium	7440-47-3	mg/kg	160 mg/kg	160 mg/kg	160 mg/kg	11000 mg/kg	11000 mg/kg	160 mg/kg	160 mg/kg
Cobalt	7440-48-4	mg/kg	22 mg/kg	80 mg/kg	22 mg/kg	2500 mg/kg	250 mg/kg	80 mg/kg	22 mg/kg
Copper	7440-50-8	mg/kg	140 mg/kg	230 mg/kg	140 mg/kg	1900 mg/kg	1900 mg/kg	230 mg/kg	140 mg/kg
Lead	7439-92-1	mg/kg	45 mg/kg	120 mg/kg	120 mg/kg	1000 mg/kg	1000 mg/kg	120 mg/kg	120 mg/kg
Mercury	7439-97-6	mg/kg	0.24 mg/kg	0.27 mg/kg	0.27 mg/kg	1.9 mg/kg	0.27 mg/kg	0.27 mg/kg	0.27 mg/kg
Molybdenum	7439-98-7	mg/kg	6.9 mg/kg	40 mg/kg	6.9 mg/kg	1200 mg/kg	1200 mg/kg	40 mg/kg	6.9 mg/kg
Nickel	7440-02-0	mg/kg	100 mg/kg	270 mg/kg	100 mg/kg	510 mg/kg	510 mg/kg	270 mg/kg	100 mg/kg
Selenium	7782-49-2	mg/kg	2.4 mg/kg	5.5 mg/kg	2.4 mg/kg	1200 mg/kg	1200 mg/kg	5.5 mg/kg	2.4 mg/kg
Silver	7440-22-4	mg/kg	20 mg/kg	40 mg/kg	20 mg/kg	490 mg/kg	490 mg/kg	40 mg/kg	20 mg/kg
Thallium	7440-28-0	mg/kg	1 mg/kg	3.3 mg/kg	1 mg/kg	33 mg/kg	3.3 mg/kg	3.3 mg/kg	1 mg/kg
Uranium	7440-61-1	mg/kg	23 mg/kg	33 mg/kg	23 mg/kg	300 mg/kg	300 mg/kg	33 mg/kg	23 mg/kg
Vanadium	7440-62-2	mg/kg	86 mg/kg	86 mg/kg	86 mg/kg	160 mg/kg	160 mg/kg	86 mg/kg	86 mg/kg
Zinc	7440-66-6	mg/kg	340 mg/kg	340 mg/kg	340 mg/kg	15000 mg/kg	15000 mg/kg	340 mg/kg	340 mg/kg
Speciated Metals									
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	8 mg/kg	8 mg/kg	8 mg/kg	40 mg/kg	40 mg/kg	8 mg/kg	8 mg/kg
Volatile Organic Compounds									
Benzene	71-43-2	mg/kg	0.02 mg/kg	0.02 mg/kg	0.02 mg/kg	0.02 mg/kg	0.02 mg/kg	0.02 mg/kg	0.5 mg/kg
BTEX, total	----	mg/kg	--	--	<a--	--	--	--	--
Ethylbenzene	100-41-4	mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	1.9 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg

Analyte	CAS Number	Unit	ON406 T2.1-S-AG	ON406 T2.1-S-ICC	ON406 T2.1-S-RPI	ON406 T4.1-SSS-ICC	ON406 T4.1-SSS-RPI	ON406 T4.1-SS-ICC	ON406 T4.1-SS-RPI
Volatile Organic Compounds - Continued									
Toluene	108-88-3	mg/kg	0.2 mg/kg	0.2 mg/kg	0.2 mg/kg	7.8 mg/kg	0.2 mg/kg	0.2 mg/kg	0.2 mg/kg
Xylene, m+p-	179601-23-1	mg/kg	--	--	<a--	--	--	--	--
Xylene, o-	95-47-6	mg/kg	--	--	<a--	--	--	--	--
Xylenes, total	1330-20-7	mg/kg	0.091 mg/kg	0.091 mg/kg	0.091 mg/kg	3 mg/kg	0.091 mg/kg	0.091 mg/kg	0.091 mg/kg
Hydrocarbons									
Chromatogram to baseline at nC50	n/a	-	--	--	<a--	--	--	--	--
F1 (C6-C10)	----	mg/kg	17 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg
F1-BTEX	----	mg/kg	17 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg	25 mg/kg
F2 (C10-C16)	----	mg/kg	10 mg/kg	26 mg/kg	10 mg/kg	26 mg/kg	10 mg/kg	26 mg/kg	10 mg/kg
F3 (C16-C34)	----	mg/kg	240 mg/kg	240 mg/kg	240 mg/kg	5800 mg/kg	240 mg/kg	240 mg/kg	240 mg/kg
F4 (C34-C50)	----	mg/kg	2800 mg/kg	3300 mg/kg	2800 mg/kg	6900 mg/kg	6900 mg/kg	3300 mg/kg	2800 mg/kg
F4G-sg	----	mg/kg	2800 mg/kg	3300 mg/kg	2800 mg/kg	6900 mg/kg	6900 mg/kg	3300 mg/kg	2800 mg/kg
Hydrocarbons, total (C6-C50)	----	mg/kg	--	--	<a--	--	--	--	--
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%							
Dichlorotoluene, 3,4-	95-75-0	%							
Bromofluorobenzene, 4-	460-00-4	%							
Difluorobenzene, 1,4-	540-36-3	%							
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	mg/kg	2.5 mg/kg	2.5 mg/kg	2.5 mg/kg	2.5 mg/kg	14 mg/kg	2.5 mg/kg	2.5 mg/kg
Acenaphthylene	208-96-8	mg/kg	0.093 mg/kg	0.093 mg/kg	0.093 mg/kg	0.093 mg/kg	0.093 mg/kg	0.093 mg/kg	0.093 mg/kg
Anthracene	120-12-7	mg/kg	0.058 mg/kg	0.16 mg/kg	0.16 mg/kg	0.16 mg/kg	0.16 mg/kg	0.16 mg/kg	0.16 mg/kg
Benz(a)anthracene	56-55-3	mg/kg	0.5 mg/kg	0.92 mg/kg	0.5 mg/kg	0.92 mg/kg	7 mg/kg	0.92 mg/kg	0.5 mg/kg
Benzo(a)pyrene	50-32-8	mg/kg	0.31 mg/kg	0.31 mg/kg	0.31 mg/kg	0.31 mg/kg	0.7 mg/kg	0.31 mg/kg	0.31 mg/kg
Benzo(b+j)fluoranthene	n/a	mg/kg	3.2 mg/kg	3.2 mg/kg	3.2 mg/kg	3.2 mg/kg	7 mg/kg	3.2 mg/kg	3.2 mg/kg
Benzo(g,h,i)perylene	191-24-2	mg/kg	6.6 mg/kg	13 mg/kg	6.6 mg/kg	110 mg/kg	70 mg/kg	13 mg/kg	6.6 mg/kg
Benzo(k)fluoranthene	207-08-9	mg/kg	3.1 mg/kg	3.1 mg/kg	3.1 mg/kg	3.1 mg/kg	7 mg/kg	3.1 mg/kg	3.1 mg/kg
Chrysene	218-01-9	mg/kg	7 mg/kg	9.4 mg/kg	7 mg/kg	9.4 mg/kg	9.4 mg/kg	9.4 mg/kg	7 mg/kg
Dibenz(a,h)anthracene	53-70-3	mg/kg	0.57 mg/kg	0.7 mg/kg	0.57 mg/kg	1 mg/kg	0.7 mg/kg	0.7 mg/kg	0.57 mg/kg
Fluoranthene	206-44-0	mg/kg	0.69 mg/kg	2.8 mg/kg	0.69 mg/kg	1100 mg/kg	2.8 mg/kg	2.8 mg/kg	0.69 mg/kg
Fluorene	86-73-7	mg/kg	6.8 mg/kg	6.8 mg/kg	6.8 mg/kg	6.8 mg/kg	6.8 mg/kg	6.8 mg/kg	6.8 mg/kg
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	0.38 mg/kg	0.76 mg/kg	0.38 mg/kg	260 mg/kg	7 mg/kg	0.76 mg/kg	0.38 mg/kg
Methylnaphthalene, 1+2-	----	mg/kg	0.096 mg/kg	0.59 mg/kg	0.59 mg/kg	8.7 mg/kg	0.59 mg/kg	0.59 mg/kg	0.59 mg/kg
Methylnaphthalene, 1-	90-12-0	mg/kg	0.096 mg/kg	0.59 mg/kg	0.59 mg/kg	8.7 mg/kg	0.59 mg/kg	0.59 mg/kg	0.59 mg/kg
Methylnaphthalene, 2-	91-57-6	mg/kg	0.096 mg/kg	0.59 mg/kg	0.59 mg/kg	8.7 mg/kg	0.59 mg/kg	0.59 mg/kg	0.59 mg/kg
Naphthalene	91-20-3	mg/kg	0.2 mg/kg	0.2 mg/kg	0.2 mg/kg	23 mg/kg	0.2 mg/kg	0.2 mg/kg	0.2 mg/kg
Phenanthrene	85-01-8	mg/kg	6.2 mg/kg	12 mg/kg	6.2 mg/kg	23 mg/kg	23 mg/kg	12 mg/kg	6.2 mg/kg
Pyrene	129-00-0	mg/kg	28 mg/kg	28 mg/kg	28 mg/kg	70 mg/kg	28 mg/kg	28 mg/kg	28 mg/kg
Acridine-d9	34749-75-2	%							
Chrysene-d12	1719-03-5	%							

Analyte	CAS Number	Unit	ON406 T2.1-S-AG	ON406 T2.1-S-ICC	ON406 T2.1-S-RPI	ON406 T4.1-SSS-ICC	ON406 T4.1-SSS-RPI	ON406 T4.1-SS-ICC	ON406 T4.1-SS-RPI
Polycyclic Aromatic Hydrocarbons Surrogates - Continued									
Naphthalene-d8	1146-65-2	%							
Phenanthrene-d10	1517-22-2	%							

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

Key:

ON406	Ontario Regulation 406/19 - Excess Soils (Bulk) (12-April-2022)
T2.1-S-AG	406 T2.1 - Volume Independent Soil - Agricultural or Other Property Use
T2.1-S-ICC	406 T2.1 - Volume Independent Soil - Ind/Com/Commu Property Use
T2.1-S-RPI	406 T2.1 - Volume Independent Soil - Res/Park/Inst Property Use
T4.1-SS-ICC	406 T4.1 - Volume Independent Surface Soil - Ind/Comm/Commu Property Use
T4.1-SS-RPI	406 T4.1 - Volume Independent Surface Soil - Res/Park/Inst Property Use
T4.1-SSS-ICC	406 T4.1 - Volume Independent Subsurface Soil - Ind/Comm/Commu Propert Use
T4.1-SSS-RPI	406 T4.1 - Volume Independent Subsurface Soil - Res/Park/Inst Property Use

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2331029**	Page	: 1 of 50
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	: LOP23-012	Date Samples Received	: 26-Sep-2023 14:30
PO	: ----	Issue Date	: 03-Oct-2023 16:01
C-O-C number	: ----		
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2023-2024		
No. of samples received	: 30		
No. of samples analysed	: 30		

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.
- 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

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

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 / 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]										
TP11-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP14-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP18-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP20-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E336A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E336A	09-Sep-2023	28-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E336A	09-Sep-2023	28-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E336A	09-Sep-2023	28-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E336A	09-Sep-2023	28-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E336A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	14 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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	
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E336A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E336A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E336A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E336A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	14 days	1 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E484	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E484	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E484	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E484	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP11-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP12-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP12-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP13-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP13-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP14-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP14-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP18-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP20-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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	
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E484	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E484	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E484	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E484	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E484	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Fixed-Ratio Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E484	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
TP11-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
TP11-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
TP12-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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										
Glass soil methanol vial [ON MECP] TP13-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP13-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP14-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP14-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP15-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP15-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP16-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP17-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP17-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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										
Glass soil methanol vial [ON MECP] TP18-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP20-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP21-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP21-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP22-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP22-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP23-23-G1	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP23-23-G2	E581.F1	09-Sep-2023	27-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] TP24-23-G1	E581.F1	09-Sep-2023	28-Sep-2023	14 days	18 days	✗ EHTR	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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										
Glass soil methanol vial [ON MECP] DUPA-09/26	E581.F1	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] DUPC-09/26	E581.F1	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] DUPD-09/26	E581.F1	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F4G by Gravimetry (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G1	E601.F4G-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F4G by Gravimetry (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G1	E601.F4G-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F4G by Gravimetry (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G1	E601.F4G-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F4G by Gravimetry (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP21-23-G1	E601.F4G-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F4G by Gravimetry (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] DUPC-09/26	E601.F4G-L	26-Sep-2023	29-Sep-2023	14 days	4 days	✓	29-Sep-2023	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP11-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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] TP11-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP12-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP13-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP13-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP14-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP14-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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] TP17-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP18-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP20-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP21-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP21-23-G2	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP22-23-G1	E601.SG-L	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	29-Sep-2023	40 days	2 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP22-23-G2	E601.SG-L	09-Sep-2023	28-Sep-2023	14 days	19 days	× EHTR	29-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP23-23-G1	E601.SG-L	09-Sep-2023	28-Sep-2023	14 days	19 days	× EHTR	29-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP23-23-G2	E601.SG-L	09-Sep-2023	28-Sep-2023	14 days	19 days	✗ EHTR	29-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E601.SG-L	09-Sep-2023	28-Sep-2023	14 days	19 days	✗ EHTR	29-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPA-09/26	E601.SG-L	26-Sep-2023	28-Sep-2023	14 days	3 days	✓	29-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E601.SG-L	26-Sep-2023	28-Sep-2023	14 days	3 days	✓	29-Sep-2023	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E601.SG-L	26-Sep-2023	28-Sep-2023	14 days	3 days	✓	29-Sep-2023	40 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E487	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E487	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E487	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E487	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	0 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP11-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP15-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP18-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP20-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP21-23-G2	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E487	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	03-Oct-2023	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E487	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E487	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E487	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E487	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E487	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E510C	09-Sep-2023	29-Sep-2023	28 days	21 days	✓	02-Oct-2023	28 days	23 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E510C	09-Sep-2023	29-Sep-2023	28 days	21 days	✓	02-Oct-2023	28 days	23 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP23-23-G2	E510C	09-Sep-2023	29-Sep-2023	28 days	21 days	✓	02-Oct-2023	28 days	23 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E510C	09-Sep-2023	29-Sep-2023	28 days	21 days	✓	02-Oct-2023	28 days	23 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP14-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP18-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP20-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E510C	09-Sep-2023	02-Oct-2023	28 days	24 days	✓	03-Oct-2023	28 days	25 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E510C	26-Sep-2023	29-Sep-2023	28 days	4 days	✓	02-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E510C	26-Sep-2023	29-Sep-2023	28 days	4 days	✓	02-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E510C	26-Sep-2023	29-Sep-2023	28 days	4 days	✓	02-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E510C	26-Sep-2023	29-Sep-2023	28 days	4 days	✓	02-Oct-2023	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E510C	26-Sep-2023	29-Sep-2023	28 days	4 days	✓	02-Oct-2023	28 days	6 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP22-23-G2	E440C	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	21 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E440C	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	21 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E440C	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	21 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E440C	09-Sep-2023	29-Sep-2023	180 days	21 days	✓	29-Sep-2023	180 days	21 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP13-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP18-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP20-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E440C	09-Sep-2023	02-Oct-2023	180 days	24 days	✓	02-Oct-2023	180 days	24 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E440C	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	4 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E440C	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	4 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E440C	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	4 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP25-23-G1	E440C	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	4 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E440C	26-Sep-2023	29-Sep-2023	180 days	4 days	✓	29-Sep-2023	180 days	4 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E100-L	09-Sep-2023	29-Sep-2023	30 days	21 days	✓	30-Sep-2023	30 days	22 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E100-L	09-Sep-2023	29-Sep-2023	30 days	21 days	✓	30-Sep-2023	30 days	22 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E100-L	09-Sep-2023	29-Sep-2023	30 days	21 days	✓	30-Sep-2023	30 days	22 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E100-L	09-Sep-2023	29-Sep-2023	30 days	21 days	✓	30-Sep-2023	30 days	22 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP12-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP17-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP18-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP20-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E100-L	09-Sep-2023	02-Oct-2023	30 days	24 days	✓	03-Oct-2023	30 days	25 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E100-L	26-Sep-2023	29-Sep-2023	30 days	4 days	✓	30-Sep-2023	30 days	5 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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] DUPC-09/26	E100-L	26-Sep-2023	29-Sep-2023	30 days	4 days	✓	30-Sep-2023	30 days	5 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] DUPD-09/26	E100-L	26-Sep-2023	29-Sep-2023	30 days	4 days	✓	30-Sep-2023	30 days	5 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP25-23-G1	E100-L	26-Sep-2023	29-Sep-2023	30 days	4 days	✓	30-Sep-2023	30 days	5 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] TP26-23-G1	E100-L	26-Sep-2023	29-Sep-2023	30 days	4 days	✓	30-Sep-2023	30 days	5 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] TP11-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] TP11-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] TP12-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] TP12-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] TP13-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP13-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP15-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP16-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP17-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP18-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP20-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP24-23-G1	E144	09-Sep-2023	----	----	----		27-Sep-2023	----	19 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPA-09/26	E144	26-Sep-2023	----	----	----		27-Sep-2023	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E144	26-Sep-2023	----	----	----		27-Sep-2023	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E144	26-Sep-2023	----	----	----		27-Sep-2023	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E144	26-Sep-2023	----	----	----		27-Sep-2023	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E144	26-Sep-2023	----	----	----		27-Sep-2023	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E144	26-Sep-2023	----	----	----		27-Sep-2023	----	2 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	30 days	19 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	30 days	19 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP23-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	30 days	19 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	30 days	19 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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] TP14-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP18-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP19-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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] TP20-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP21-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP21-23-G2	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP22-23-G1	E108A	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	02-Oct-2023	30 days	24 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] DUPB-09/26	E108A	26-Sep-2023	27-Sep-2023	30 days	2 days	✓	28-Sep-2023	30 days	2 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] DUPC-09/26	E108A	26-Sep-2023	27-Sep-2023	30 days	2 days	✓	28-Sep-2023	30 days	2 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] DUPD-09/26	E108A	26-Sep-2023	27-Sep-2023	30 days	2 days	✓	28-Sep-2023	30 days	2 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP25-23-G1	E108A	26-Sep-2023	27-Sep-2023	30 days	2 days	✓	28-Sep-2023	30 days	2 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] TP26-23-G1	E108A	26-Sep-2023	27-Sep-2023	30 days	2 days	✓	28-Sep-2023	30 days	2 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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 Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E641A	09-Sep-2023	28-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E641A	09-Sep-2023	28-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E641A	09-Sep-2023	28-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E641A	09-Sep-2023	28-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP13-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP14-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP14-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP18-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP19-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP20-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E641A	09-Sep-2023	27-Sep-2023	60 days	19 days	✓	28-Sep-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E641A	26-Sep-2023	28-Sep-2023	60 days	3 days	✓	29-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPC-09/26	E641A	26-Sep-2023	28-Sep-2023	60 days	3 days	✓	29-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E641A	26-Sep-2023	28-Sep-2023	60 days	3 days	✓	29-Sep-2023	40 days	0 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E641A	26-Sep-2023	28-Sep-2023	60 days	3 days	✓	29-Sep-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E641A	26-Sep-2023	28-Sep-2023	60 days	3 days	✓	29-Sep-2023	40 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP11-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP12-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP13-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP14-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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] TP14-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP15-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP16-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP17-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP18-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] TP19-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
TP20-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP21-23-G2	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G1	E532	09-Sep-2023	27-Sep-2023	30 days	19 days	✓	28-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP22-23-G2	E532	09-Sep-2023	28-Sep-2023	30 days	19 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G1	E532	09-Sep-2023	28-Sep-2023	30 days	19 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP23-23-G2	E532	09-Sep-2023	28-Sep-2023	30 days	19 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP24-23-G1	E532	09-Sep-2023	28-Sep-2023	30 days	19 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPB-09/26	E532	26-Sep-2023	28-Sep-2023	30 days	2 days	✓	29-Sep-2023	7 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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]										
DUPC-09/26	E532	26-Sep-2023	28-Sep-2023	30 days	2 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
DUPD-09/26	E532	26-Sep-2023	28-Sep-2023	30 days	2 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP25-23-G1	E532	26-Sep-2023	28-Sep-2023	30 days	2 days	✓	29-Sep-2023	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
TP26-23-G1	E532	26-Sep-2023	28-Sep-2023	30 days	2 days	✓	29-Sep-2023	7 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
TP11-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
TP11-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
TP12-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
TP13-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
TP13-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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 : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP14-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP14-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP15-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP15-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP16-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP17-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP17-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP18-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP20-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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 : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP21-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP21-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP22-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP22-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP23-23-G1	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP23-23-G2	E611A	09-Sep-2023	27-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] TP24-23-G1	E611A	09-Sep-2023	28-Sep-2023	14 days	18 days	× EHTR	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] DUPA-09/26	E611A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] DUPC-09/26	E611A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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 : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
DUPD-09/26	E611A	26-Sep-2023	28-Sep-2023	14 days	2 days	✓	28-Sep-2023	40 days	1 days	✓

Legend & Qualifier Definitions

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

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	1156453	2	30	6.6	5.0	✓
BTEX by Headspace GC-MS	E611A	1156736	2	40	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1156737	2	40	5.0	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	1161616	0	8	0.0	5.0	×
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1156619	4	72	5.5	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1156452	2	35	5.7	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1156495	2	40	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1156454	2	30	6.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1156455	2	31	6.4	5.0	✓
Moisture Content by Gravimetry	E144	1156447	3	53	5.6	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1156618	3	53	5.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1156496	2	40	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1156451	2	30	6.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1156617	2	40	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1156453	4	30	13.3	10.0	✓
BTEX by Headspace GC-MS	E611A	1156736	2	40	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1156737	2	40	5.0	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	1161616	2	8	25.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1156619	4	72	5.5	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1156452	4	35	11.4	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1156495	4	40	10.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1156454	4	30	13.3	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1156455	4	31	12.9	10.0	✓
Moisture Content by Gravimetry	E144	1156447	3	53	5.6	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1156618	3	53	5.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1156496	2	40	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1156451	4	30	13.3	10.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1156617	2	40	5.0	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1156453	2	30	6.6	5.0	✓
BTEX by Headspace GC-MS	E611A	1156736	2	40	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1156737	2	40	5.0	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	1161616	2	8	25.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1156619	4	72	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							
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1156452	2	35	5.7	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1156495	2	40	5.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1156454	2	30	6.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1156455	2	31	6.4	5.0	✓
Moisture Content by Gravimetry	E144	1156447	3	53	5.6	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1156618	3	53	5.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1156451	2	30	6.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1156617	2	40	5.0	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1156736	2	40	5.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	1156737	2	40	5.0	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	1161616	0	8	0.0	5.0	×
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	1156619	4	72	5.5	5.0	✓
PAHs by Hex:Ace GC-MS	E641A	1156618	3	53	5.6	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1156617	2	40	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 E3137A	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.
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 - F4G by Gravimetry (Low Level)	E601.F4G-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	A portion of the silica gel treated sample extract is filtered and dried at 105°C and the mass of the residual gravimetric heavy hydrocarbons (F4G) is determined gravimetrically. Where both F4 and F4G are reported, the greater of both results must be used for comparison to CWS PHC F4 guidelines.
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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.

QUALITY CONTROL REPORT

Work Order	: **WT2331029**	Page	: 1 of 23
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	: LOP23-012	Date Samples Received	: 26-Sep-2023 14:30
PO	: ----	Date Analysis Commenced	: 27-Sep-2023
C-O-C number	: ----	Issue Date	: 03-Oct-2023 16:01
Sampler	: CLIENT 613 327 9073		
Site	:		
Quote number	: SOA 2023-2024		
No. of samples received	: 30		
No. of samples analysed	: 30		

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
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
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Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Rachel Cameron	Supervisor - Semi-Volatile Extractions	Waterloo Organics, 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: **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: 1156447)											
EO2308595-001	Anonymous	Moisture	----	E144	0.25	%	19.0	18.6	2.22%	20%	----
Physical Tests (QC Lot: 1156452)											
WT2331029-001	TP11-23-G1	Conductivity (1:2 leachate)	----	E100-L	10.0	µS/cm	0.157 mS/cm	182	14.8%	20%	----
Physical Tests (QC Lot: 1156456)											
WT2331029-004	TP12-23-G2	Moisture	----	E144	0.25	%	31.8	33.0	3.43%	20%	----
Physical Tests (QC Lot: 1156496)											
WT2331029-001	TP11-23-G1	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.22	7.08	1.96%	5%	----
Physical Tests (QC Lot: 1156508)											
EO2308690-001	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	8.04	8.09	0.620%	5%	----
Physical Tests (QC Lot: 1156606)											
WT2331029-021	TP22-23-G2	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	0.444 mS/cm	469	5.48%	20%	----
Physical Tests (QC Lot: 1157767)											
EO2308690-001	Anonymous	Moisture	----	E144	0.25	%	22.8	21.1	7.53%	20%	----
Cyanides (QC Lot: 1156617)											
WT2331029-002	TP11-23-G2	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1157740)											
WT2331029-021	TP22-23-G2	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1156451)											
WT2331029-001	TP11-23-G1	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	2.13	2.35	0.22	Diff <2x LOR	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	1.58	1.54	0.04	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	4.34	4.57	5.16%	30%	----
Metals (QC Lot: 1156453)											
WT2331029-001	TP11-23-G1	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.16	0.15	0.005	Diff <2x LOR	----
Metals (QC Lot: 1156454)											
WT2331029-001	TP11-23-G1	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0069	0.0074	0.0005	Diff <2x LOR	----
Metals (QC Lot: 1156455)											
WT2331029-001	TP11-23-G1	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	3.91	3.35	15.3%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	317	289	9.18%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	1.02	0.89	13.3%	30%	----

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: 1156455) - continued											
WT2331029-001	TP11-23-G1	Boron	7440-42-8	E440C	5.0	mg/kg	11.7	10.4	1.2	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.083	0.072	0.011	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	63.8	55.4	14.0%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	17.6	15.4	13.7%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	34.3	29.8	14.1%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	8.54	7.76	9.59%	40%	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.34	0.30	0.04	Diff <2x LOR	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	37.1	31.8	15.6%	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	0.350	0.314	0.035	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.704	0.643	9.13%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	84.8	73.6	14.1%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	99.5	87.3	13.1%	30%	----
Metals (QC Lot: 1156607)											
WT2331029-021	TP22-23-G2	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	14.5	16.0	9.84%	30%	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	9.64	10.7	10.4%	30%	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	31.3	32.4	3.45%	30%	----
Metals (QC Lot: 1156610)											
WT2331029-021	TP22-23-G2	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	3.19	2.91	9.36%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	420	391	7.08%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	1.02	0.87	16.2%	30%	----
		Boron	7440-42-8	E440C	5.0	mg/kg	11.3	9.7	1.6	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.106	0.100	0.006	Diff <2x LOR	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	93.4	87.3	6.78%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	21.5	20.4	5.20%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	39.9	37.5	6.24%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	6.72	6.42	4.43%	40%	----
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	1.29	1.29	0.0204%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	50.3	46.6	7.59%	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	0.457	0.446	2.40%	30%	----

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: 1156610) - continued											
WT2331029-021	TP22-23-G2	Uranium	7440-61-1	E440C	0.050	mg/kg	1.28	1.25	2.40%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	116	110	5.78%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	129	122	5.76%	30%	----
Metals (QC Lot: 1156611)											
WT2331029-021	TP22-23-G2	Mercury	7439-97-6	E510C	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
Metals (QC Lot: 1156612)											
WT2331029-021	TP22-23-G2	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.65	0.63	3.05%	40%	----
Speciated Metals (QC Lot: 1156495)											
WT2331029-001	TP11-23-G1	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	0.16	0.26	0.09	Diff <2x LOR	----
Speciated Metals (QC Lot: 1157741)											
WT2331029-021	TP22-23-G2	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1156736)											
WT2331029-001	TP11-23-G1	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	----
Volatile Organic Compounds (QC Lot: 1157773)											
WT2331029-024	TP24-23-G1	Benzene	71-43-2	E611A	0.0050	mg/kg	0.0050	<0.0050	0.00002	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	0.035	0.031	0.004	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1156619)											
WT2331029-001	TP11-23-G1	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	----
Hydrocarbons (QC Lot: 1156737)											
WT2331029-001	TP11-23-G1	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1157007)											
WT2330994-021	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	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50 µg/g	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1157644)											

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: 1157644) - continued											
WT2331113-001	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	----
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50 µg/g	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1157774)											
WT2331029-024	TP24-23-G1	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1158938)											
WT2330639-002	Anonymous	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: 1156618)											
WT2331029-001	TP11-23-G1	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	----
		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	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1157008)											
WT2330994-021	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050 µg/g	<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: 1157008) - continued											
WT2330994-021	Anonymous	Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030 µg/g	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030 µg/g	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010 µg/g	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050 µg/g	<0.050	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1158939)											
WT2330639-002	Anonymous	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	----
		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	----

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: 1156447)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1156452)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1156456)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1156606)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1157767)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1156617)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 1157740)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1156451)						
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: 1156453)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1156454)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1156455)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1156455) - continued						
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: 1156607)						
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: 1156610)						
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: 1156611)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1156612)						

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1156612) - continued						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Speciated Metals (QCLot: 1156495)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Speciated Metals (QCLot: 1157741)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1156736)						
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	----
Volatile Organic Compounds (QCLot: 1157773)						
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: 1156619)						
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: 1156737)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1157007)						
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: 1157644)						
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: 1157774)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1158938)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 1158938) - continued						
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1161616)						
F4G-sg	----	E601.F4G-L	250	mg/kg	<250	----
Hydrocarbons (QCLot: 1162082)						
F4G-sg	----	E601.F4G-L	250	mg/kg	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1156618)						
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	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1157008)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1157008) - continued						
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	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1158939)						
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	----
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: 1156447)									
Moisture	----	E144	0.25	%	50 %	98.3	90.0	110	----
Physical Tests (QCLot: 1156452)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1156456)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 1156496)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	99.7	98.0	102	----
Physical Tests (QCLot: 1156508)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1156606)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	99.1	90.0	110	----
Physical Tests (QCLot: 1157767)									
Moisture	----	E144	0.25	%	50 %	99.6	90.0	110	----
Cyanides (QCLot: 1156617)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	93.8	80.0	120	----
Cyanides (QCLot: 1157740)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	96.6	80.0	120	----
Metals (QCLot: 1156451)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	101	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	106	80.0	120	----
Metals (QCLot: 1156453)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	103	70.0	130	----
Metals (QCLot: 1156454)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	109	80.0	120	----
Metals (QCLot: 1156455)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	96.2	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	99.7	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	91.0	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	95.0	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: 1156455) - continued									
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	95.9	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	91.1	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	91.0	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	89.6	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	89.1	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	95.3	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	92.4	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	90.0	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	91.0	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	85.9	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	97.4	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	84.5	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	95.0	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	88.9	80.0	120	----
Metals (QCLot: 1156607)									
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	101	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	102	80.0	120	----
Metals (QCLot: 1156610)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	100	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	102	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	98.5	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	93.8	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	96.2	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	95.4	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	94.0	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	92.5	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	97.2	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	103	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	94.5	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	96.4	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	93.1	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	97.3	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	99.3	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: 1156610) - continued									
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	94.0	80.0	120	----
Metals (QCLot: 1156611)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	105	80.0	120	----
Metals (QCLot: 1156612)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	102	70.0	130	----
Speciated Metals (QCLot: 1156495)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	88.2	80.0	120	----
Speciated Metals (QCLot: 1157741)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	93.4	80.0	120	----
Volatile Organic Compounds (QCLot: 1156736)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	90.7	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	94.3	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	91.6	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	97.3	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	96.4	70.0	130	----
Volatile Organic Compounds (QCLot: 1157773)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	89.3	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	91.2	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	88.7	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	93.6	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	95.2	70.0	130	----
Hydrocarbons (QCLot: 1156619)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	111	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	110	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	94.8	70.0	130	----
Hydrocarbons (QCLot: 1156737)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	96.9	80.0	120	----
Hydrocarbons (QCLot: 1157007)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	103	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	101	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	95.3	70.0	130	----
Hydrocarbons (QCLot: 1157644)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	99.2	70.0	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
Hydrocarbons (QCLot: 1157644) - continued									
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	96.8	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	92.5	70.0	130	----
Hydrocarbons (QCLot: 1157774)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.1875 mg/kg	89.5	80.0	120	----
Hydrocarbons (QCLot: 1158938)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	656.4125 mg/kg	98.0	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1332.613 mg/kg	96.7	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	761.4625 mg/kg	97.7	70.0	130	----
Hydrocarbons (QCLot: 1161616)									
F4G-sg	----	E601.F4G-L	250	mg/kg	1298.6 mg/kg	90.8	70.0	130	----
Hydrocarbons (QCLot: 1162082)									
F4G-sg	----	E601.F4G-L	250	mg/kg	1298.6 mg/kg	81.8	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1156618)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	87.9	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	88.7	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	86.3	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	99.0	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	80.0	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	96.6	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	104	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	88.1	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	80.2	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	77.3	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	88.1	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	89.2	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	99.0	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	82.3	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	90.7	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	85.1	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	84.9	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	86.4	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1157008)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	88.9	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	93.5	60.0	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
Polycyclic Aromatic Hydrocarbons (QCLot: 1157008) - continued									
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	93.7	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	90.4	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	95.0	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	101	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	97.9	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	106	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	99.6	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	97.9	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	95.9	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	102	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	73.4	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	77.4	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	70.2	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	92.5	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	94.5	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1158939)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	84.1	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	83.3	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	80.0	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	93.4	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	77.6	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	93.5	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	78.9	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	88.3	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	79.4	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	72.7	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	83.5	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	83.9	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	83.6	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	75.5	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	83.2	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	72.8	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	81.3	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	81.4	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: 1156617)										
WT2331029-002	TP11-23-G2	Cyanide, weak acid dissociable	----	E336A	1.23 mg/kg	1.25 mg/kg	98.7	70.0	130	----
Cyanides (QCLot: 1157740)										
WT2331029-021	TP22-23-G2	Cyanide, weak acid dissociable	----	E336A	1.14 mg/kg	1.25 mg/kg	92.7	70.0	130	----
Volatile Organic Compounds (QCLot: 1156736)										
WT2331029-001	TP11-23-G1	Benzene	71-43-2	E611A	1.86 mg/kg	3.125 mg/kg	93.1	60.0	140	----
		Ethylbenzene	100-41-4	E611A	1.88 mg/kg	3.125 mg/kg	94.0	60.0	140	----
		Toluene	108-88-3	E611A	1.82 mg/kg	3.125 mg/kg	91.3	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	3.82 mg/kg	6.25 mg/kg	95.9	60.0	140	----
		Xylene, o-	95-47-6	E611A	1.91 mg/kg	3.125 mg/kg	95.9	60.0	140	----
Volatile Organic Compounds (QCLot: 1157773)										
WT2331029-024	TP24-23-G1	Benzene	71-43-2	E611A	2.46 mg/kg	3.125 mg/kg	88.0	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.60 mg/kg	3.125 mg/kg	93.2	60.0	140	----
		Toluene	108-88-3	E611A	2.51 mg/kg	3.125 mg/kg	89.8	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	5.15 mg/kg	6.25 mg/kg	92.1	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.65 mg/kg	3.125 mg/kg	94.8	60.0	140	----
Hydrocarbons (QCLot: 1156619)										
WT2331029-001	TP11-23-G1	F2 (C10-C16)	----	E601.SG-L	587 mg/kg	656.4125 mg/kg	113	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1190 mg/kg	1332.613 mg/kg	113	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	612 mg/kg	761.4625 mg/kg	101	60.0	140	----
Hydrocarbons (QCLot: 1156737)										
WT2331029-001	TP11-23-G1	F1 (C6-C10)	----	E581.F1	38.5 mg/kg	62.5 mg/kg	96.5	60.0	140	----
Hydrocarbons (QCLot: 1157007)										
WT2330994-021	Anonymous	F2 (C10-C16)	----	E601.SG-L	546 mg/kg	656.4125 mg/kg	104	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1090 mg/kg	1332.613 mg/kg	102	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	589 mg/kg	761.4625 mg/kg	96.8	60.0	140	----
Hydrocarbons (QCLot: 1157644)										
WT2331113-001	Anonymous	F2 (C10-C16)	----	E601.SG-L	528 mg/kg	656.4125 mg/kg	100	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1050 mg/kg	1332.613 mg/kg	98.0	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	578 mg/kg	761.4625 mg/kg	94.6	60.0	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
Hydrocarbons (QCLot: 1157774)										
WT2331029-024	TP24-23-G1	F1 (C6-C10)	----	E581.F1	48.3 mg/kg	62.5 mg/kg	86.4	60.0	140	----
Hydrocarbons (QCLot: 1158938)										
WT2330639-002	Anonymous	F2 (C10-C16)	----	E601.SG-L	543 mg/kg	656.4125 mg/kg	104	60.0	140	----
		F3 (C16-C34)	----	E601.SG-L	1100 mg/kg	1332.613 mg/kg	104	60.0	140	----
		F4 (C34-C50)	----	E601.SG-L	626 mg/kg	761.4625 mg/kg	103	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1156618)										
WT2331029-001	TP11-23-G1	Acenaphthene	83-32-9	E641A	0.381 mg/kg	0.5 mg/kg	96.2	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.385 mg/kg	0.5 mg/kg	97.2	50.0	140	----
		Anthracene	120-12-7	E641A	0.377 mg/kg	0.5 mg/kg	95.2	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.434 mg/kg	0.5 mg/kg	110	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.334 mg/kg	0.5 mg/kg	84.3	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.416 mg/kg	0.5 mg/kg	105	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.450 mg/kg	0.5 mg/kg	114	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.382 mg/kg	0.5 mg/kg	96.4	50.0	140	----
		Chrysene	218-01-9	E641A	0.355 mg/kg	0.5 mg/kg	89.6	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.327 mg/kg	0.5 mg/kg	82.6	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.382 mg/kg	0.5 mg/kg	96.4	50.0	140	----
		Fluorene	86-73-7	E641A	0.389 mg/kg	0.5 mg/kg	98.2	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.422 mg/kg	0.5 mg/kg	106	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.367 mg/kg	0.5 mg/kg	92.6	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.409 mg/kg	0.5 mg/kg	103	50.0	140	----
		Naphthalene	91-20-3	E641A	0.385 mg/kg	0.5 mg/kg	97.2	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.369 mg/kg	0.5 mg/kg	93.2	50.0	140	----
		Pyrene	129-00-0	E641A	0.375 mg/kg	0.5 mg/kg	94.7	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1157008)										
WT2330994-021	Anonymous	Acenaphthene	83-32-9	E641A	0.367 mg/kg	0.5 mg/kg	91.8	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.374 mg/kg	0.5 mg/kg	93.5	50.0	140	----
		Anthracene	120-12-7	E641A	0.364 mg/kg	0.5 mg/kg	91.1	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.355 mg/kg	0.5 mg/kg	88.8	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.350 mg/kg	0.5 mg/kg	87.6	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.350 mg/kg	0.5 mg/kg	87.5	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.385 mg/kg	0.5 mg/kg	96.4	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.383 mg/kg	0.5 mg/kg	95.8	50.0	140	----
		Chrysene	218-01-9	E641A	0.392 mg/kg	0.5 mg/kg	98.0	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: 1157008) - continued										
WT2330994-021	Anonymous	Dibenz(a,h)anthracene	53-70-3	E641A	0.379 mg/kg	0.5 mg/kg	94.9	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.377 mg/kg	0.5 mg/kg	94.4	50.0	140	----
		Fluorene	86-73-7	E641A	0.379 mg/kg	0.5 mg/kg	94.7	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.386 mg/kg	0.5 mg/kg	96.6	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.337 mg/kg	0.5 mg/kg	84.4	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.366 mg/kg	0.5 mg/kg	91.6	50.0	140	----
		Naphthalene	91-20-3	E641A	0.335 mg/kg	0.5 mg/kg	83.9	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.360 mg/kg	0.5 mg/kg	90.0	50.0	140	----
		Pyrene	129-00-0	E641A	0.365 mg/kg	0.5 mg/kg	91.3	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1158939)										
WT2330639-002	Anonymous	Acenaphthene	83-32-9	E641A	0.353 mg/kg	0.5 mg/kg	88.4	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.344 mg/kg	0.5 mg/kg	86.1	50.0	140	----
		Anthracene	120-12-7	E641A	0.328 mg/kg	0.5 mg/kg	82.0	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.422 mg/kg	0.5 mg/kg	106	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.312 mg/kg	0.5 mg/kg	78.0	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.400 mg/kg	0.5 mg/kg	100	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.331 mg/kg	0.5 mg/kg	82.9	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.375 mg/kg	0.5 mg/kg	93.9	50.0	140	----
		Chrysene	218-01-9	E641A	0.362 mg/kg	0.5 mg/kg	90.5	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.295 mg/kg	0.5 mg/kg	74.0	50.0	140	----
		Fluoranthene	206-44-0	E641A	0.346 mg/kg	0.5 mg/kg	86.7	50.0	140	----
		Fluorene	86-73-7	E641A	0.347 mg/kg	0.5 mg/kg	86.8	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.339 mg/kg	0.5 mg/kg	84.9	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.330 mg/kg	0.5 mg/kg	82.7	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.365 mg/kg	0.5 mg/kg	91.4	50.0	140	----
		Naphthalene	91-20-3	E641A	0.325 mg/kg	0.5 mg/kg	81.4	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.334 mg/kg	0.5 mg/kg	83.6	50.0	140	----
		Pyrene	129-00-0	E641A	0.338 mg/kg	0.5 mg/kg	84.5	50.0	140	----

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: 1156452)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1725.6 µS/cm	116	70.0	130	----
Physical Tests (QCLot: 1156606)									
	RM	Conductivity (1:2 leachate)	----	E100-L	1725.6 µS/cm	115	70.0	130	----
Metals (QCLot: 1156451)									
	RM	Calcium, soluble ion content	7440-70-2	E484	79.7 mg/L	102	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	24.8 mg/L	100	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	89.79 mg/L	101	70.0	130	----
Metals (QCLot: 1156453)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.6542 mg/kg	123	60.0	140	----
Metals (QCLot: 1156454)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	116	70.0	130	----
Metals (QCLot: 1156455)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	92.7	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	104	70.0	130	----
	RM	Barium	7440-39-3	E440C	105 mg/kg	102	70.0	130	----
	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	109	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	113	70.0	130	----
	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	101	70.0	130	----
	RM	Chromium	7440-47-3	E440C	101 mg/kg	101	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	96.8	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	113	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	94.0	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	98.1	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	85.1	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	96.5	70.0	130	----
	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	88.4	70.0	130	----
	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	102	70.0	130	----

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: 1156455) - continued									
	RM	Zinc	7440-66-6	E440C	297 mg/kg	95.0	70.0	130	----
Metals (QCLot: 1156607)									
	RM	Calcium, soluble ion content	7440-70-2	E484	78.94 mg/L	97.9	70.0	130	----
	RM	Magnesium, soluble ion content	7439-95-4	E484	24.16 mg/L	98.5	70.0	130	----
	RM	Sodium, soluble ion content	17341-25-2	E484	72.46 mg/L	121	70.0	130	----
Metals (QCLot: 1156610)									
	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	103	70.0	130	----
	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	112	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	113	70.0	130	----
	RM	Boron	7440-42-8	E440C	8.5 mg/kg	120	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	108	70.0	130	----
	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	104	70.0	130	----
	RM	Copper	7440-50-8	E440C	123 mg/kg	108	70.0	130	----
	RM	Lead	7439-92-1	E440C	267 mg/kg	104	70.0	130	----
	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	108	70.0	130	----
	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	106	70.0	130	----
	RM	Silver	7440-22-4	E440C	4.06 mg/kg	104	70.0	130	----
	RM	Thallium	7440-28-0	E440C	0.0786 mg/kg	106	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	110	70.0	130	----
	RM	Zinc	7440-66-6	E440C	297 mg/kg	104	70.0	130	----
Metals (QCLot: 1156611)									
	RM	Mercury	7439-97-6	E510C	0.0585 mg/kg	101	70.0	130	----
Metals (QCLot: 1156612)									
	RM	Boron, hot water soluble	7440-42-8	E487	1.6542 mg/kg	122	60.0	140	----
Speciated Metals (QCLot: 1156495)									
	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	172 mg/kg	91.1	70.0	130	----
Speciated Metals (QCLot: 1157741)									
	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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Environmental Division Waterloo

Work Order Reference WT2331029

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 n

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

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

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

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

Additional fees may apply to rush requests on week

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 #: LOP23-012

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

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	BTEX/PHC F1-F4	Metals and Inorganics	PAH	mSPLP Metals	mSPLP VOC	mSPLP SVOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TP11-23-G1	09-Sep-23		SOIL	5	X	X	X						
	TP11-23-G2			SOIL	5	X	X	X						
	TP12-23-G1			SOIL	2		X	X						
	TP12-23-G2			SOIL	5	X	X	X						
	TP13-23-G1			SOIL	5	X	X	X						
	TP13-23-G2			SOIL	5	X	X	X						
	TP14-23-G1			SOIL	5	X	X	X						
	TP14-23-G2			SOIL	5	X	X	X						
	TP15-23-G1			SOIL	5	X	X	X						
	TP15-23-G2			SOIL	5	X	X	X						
	TP16-23-G1			SOIL	5	X	X	X						
	TP16-23-G2			SOIL	2		X	X						

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

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

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

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

OReg 406 Table 2.1 & 4.1

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
29.6	7.3

SHIPMENT RELEASE (client use)

Released by: Date: Sep 26/23 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: E-C Dobbin Date: 26/09/23 Time: 2:30

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 9/27/23 Time: 700

FEB 2022 FRONT

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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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.**

VS-233 EC SOL-861 SOL-859 SOL-860 SOL-862

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page of

Canada Toll Free: 1 800 668 9878

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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 #: LOP23-012

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	BTEX/PHC F1-F4	Metals and Inorganics	PAH	msPLP Metals	msPLP VOC	msPLP SVOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TP17-23-G1	09-Sep-23		SOIL	5	X	X	X						
	TP17-23-G2			SOIL	5	X	X	X						
	TP18-23-G1			SOIL	5	X	X	X						
	TP19-23-G1			SOIL	2		X	X						
	TP20-23-G2			SOIL	5	X	X	X						
	TP21-23-G1			SOIL	5	X	X	X						
	TP21-23-G2			SOIL	5	X	X	X						
	TP22-23-G1			SOIL	5	X	X	X						
	TP22-23-G2			SOIL	5	X	X	X						
	TP23-23-G1			SOIL	5	X	X	X						
	TP23-23-G2			SOIL	5	X	X	X						
	TP24-23-G1			SOIL	5	X	X	X						

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

Are samples taken from a Regulated DW System?

☐ YES ☐ NO

Are samples for human consumption/ use?

☐ YES ☐ NO

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

O. Reg 406 Table 2.1 & 4.1

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			
22.5,				7.3			

SHIPMENT RELEASE (client use)

Released by: Date: Sep 26/23 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Eric Dobbins Date: 26/09/23 Time: 2:30

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 9/27/23 Time: 900

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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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 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 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 #:	LOP23-012
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	BTEX/PHC F1-F4	Metals and Inorganics	PAH	mSPLP Metals	msPLP VOC	mSPLP SVOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TP25-23-G1	26-Sep-23		SOIL	2		X	X						
	TP26-23-G1			SOIL	2		X	X						
	DUP A-09/26			SOIL	3	X								
	DUP B-09/26			SOIL	2		X	X						
	DUP C-09/26			SOIL	5	X	X	X						
	DUP D-09/26			SOIL	5	X	X	X						
				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)

Table 2.1 & 4.1 O. Reg. 406

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
21.5	7.3

SHIPMENT RELEASE (client use)

Released by: Date: Sept 26/23 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Eric D. Hobbs Date: 26/09/23 Time: 2:30

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 9/27/23 Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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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	: **WT2331179**	Page	: 1 of 5
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	: LOP23-012	Date Samples Received	: 26-Sep-2023 16:14
PO	: ----	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: ----	Issue Date	: 03-Oct-2023 15:18
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2023-2024		
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*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Robert Braun	Soils Team Supervisor	Inorganics, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, 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
µg/L	micrograms per litre
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*
WT2331179-002	TP15-23-G1	RRQC/RRR:Recoveries for 4-Chloroaniline, 2,4-Dinitrotoluene and 2,6-Dinitrotoluene are outside ALS DQO in the matrix spike. Associated sample results have not been affected.
WT2331179-004	TP17-23-G2	RRR: Detection limits raised due to suspected bias high results at or near the detection limit.

Qualifiers

Qualifier	*Description*
RRR	*Refer to report comments for issues regarding this analysis.*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TP11-23-G2	TP15-23-G1	TP16-23-G1	TP17-23-G2	TP22-23-G2
					Client sampling date / time	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00
						WT2331179-001	WT2331179-002	WT2331179-003	WT2331179-004	WT2331179-005
						Result	Result	Result	Result	Result
ON mSPLP Extractables (target pH= 5)										
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Chloroaniline, 4-, mSPLP	106-47-8	E657B/WT	0.40	µg/L		<0.40	<0.40 RRR	<0.40	<0.40	<0.40
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Diethyl phthalate, mSPLP	84-66-2	E657B/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.22 RRR	<0.20
Dimethyl phthalate, mSPLP	131-11-3	E657B/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dinitrotoluene, 2,4 + 2,6-, mSPLP	n/a	E657B/WT	0.57	µg/L		<0.57	<0.57	<0.57	<0.57	<0.57
Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B/WT	0.40	µg/L		<0.40	<0.40 RRR	<0.40	<0.40	<0.40
Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B/WT	0.40	µg/L		<0.40	<0.40 RRR	<0.40	<0.40	<0.40
Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
ON mSPLP Extractables Surrogates (target pH= 5)										
Fluorobiphenyl, 2-, mSPLP	321-60-8	E657B/WT	1.0	%		88.0	88.7	94.8	91.7	91.0
Nitrobenzene-d5, mSPLP	4165-60-0	E657B/WT	1.0	%		89.6	108	96.0	91.1	92.6
Terphenyl-d14, p-, mSPLP	1718-51-0	E657B/WT	1.0	%		110	94.8	105	107	108
Tribromophenol, 2,4,6-, mSPLP	118-79-6	E657B/WT	1.0	%		106	109	115	122	115
ON mSPLP Metal (target pH= 5)										
Antimony, mSPLP	7440-36-0	E443/WT	0.50	µg/L		<0.50	0.53	<0.50	0.74	<0.50
Arsenic, mSPLP	7440-38-2	E443/WT	1.0	µg/L		3.7	<1.0	<1.0	2.2	2.4
Barium, mSPLP	7440-39-3	E443/WT	2	µg/L		244	43	30	5	10
Beryllium, mSPLP	7440-41-7	E443/WT	0.50	µg/L		0.65	<0.50	<0.50	<0.50	<0.50
Boron, mSPLP	7440-42-8	E443/WT	10	µg/L		<10	16	<10	<10	13
Cadmium, mSPLP	7440-43-9	E443/WT	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Chromium, mSPLP	7440-47-3	E443/WT	5.0	µg/L		44.1	<5.0	<5.0	<5.0	<5.0
Cobalt, mSPLP	7440-48-4	E443/WT	1.0	µg/L		8.9	<1.0	<1.0	<1.0	<1.0
Copper, mSPLP	7440-50-8	E443/WT	5.0	µg/L		42.8	<5.0	<5.0	10.0	12.2
Lead, mSPLP	7439-92-1	E443/WT	1.0	µg/L		5.5	<1.0	<1.0	<1.0	<1.0
Molybdenum, mSPLP	7439-98-7	E443/WT	0.50	µg/L		<0.50	3.19	2.74	5.32	1.41
Nickel, mSPLP	7440-02-0	E443/WT	1.0	µg/L		30.6	<1.0	<1.0	<1.0	1.6

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TP11-23-G2	TP15-23-G1	TP16-23-G1	TP17-23-G2	TP22-23-G2
					Client sampling date / time	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00
						WT2331179-001	WT2331179-002	WT2331179-003	WT2331179-004	WT2331179-005
						Result	Result	Result	Result	Result
ON mSPLP Metal (target pH= 5)										
pH, mSPLP final	n/a	EPP443/WT	0.010	pH units		8.28	9.32	9.25	8.94	9.31
pH, mSPLP initial	n/a	EPP443/WT	0.010	pH units		7.66	9.14	9.08	8.80	9.26
Selenium, mSPLP	7782-49-2	E443/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Silver, mSPLP	7440-22-4	E443/WT	0.25	µg/L		<0.25	<0.25	<0.25	<0.25	<0.25
Thallium, mSPLP	7440-28-0	E443/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium, mSPLP	7440-61-1	E443/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Vanadium, mSPLP	7440-62-2	E443/WT	0.50	µg/L		48.0	3.75	7.23	10.9	27.6
Zinc, mSPLP	7440-66-6	E443/WT	5.0	µg/L		69.0	<5.0	<5.0	<5.0	<5.0
mSPLP VOCs Surrogates										
Bromofluorobenzene, 4-, mSPLP	460-00-4	E619D/WT	1.0	%		100	101	101	102	101
Difluorobenzene, 1,4-, mSPLP	540-36-3	E619D/WT	1.0	%		99.2	98.7	98.3	98.9	98.8
ON mSPLP VOC (reagent water)										
Bromomethane, mSPLP	74-83-9	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride, mSPLP	56-23-5	E619D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform, mSPLP	67-66-3	E619D/WT	1.00	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00
Dibromoethane, 1,2-, mSPLP	106-93-4	E619D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-, mSPLP	75-34-3	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-, mSPLP	107-06-2	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-, mSPLP	78-87-5	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-, mSPLP	542-75-6	E619D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dioxane, 1,4-, mSPLP	123-91-1	E619D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Extraction fluid	----	EPP584/WT	-	-		fluid #3	fluid #3	fluid #3	fluid #3	fluid #3
Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	TP11-23-G2	TP15-23-G1	TP16-23-G1	TP17-23-G2	TP22-23-G2
					Client sampling date / time	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00	26-Sep-2023 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2331179-001	WT2331179-002	WT2331179-003	WT2331179-004	WT2331179-005
						Result	Result	Result	Result	Result
ON mSPLP VOC (reagent water)										
Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene, mSPLP	127-18-4	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene, mSPLP	79-01-6	E619D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

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	: **WT2331179**	Page	: 1 of 9
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	: LOP23-012	Date Samples Received	: 26-Sep-2023 16:14
PO	: ----	Issue Date	: 03-Oct-2023 15:17
C-O-C number	: ----		
Sampler	: CLIENT		
Site	:		
Quote number	: SOA 2023-2024		
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.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- 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
Laboratory Control Sample (LCS) Recoveries								
ON mSPLP Extractables (target pH= 5)	QC-1164261-002	----	Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	143 % LCS-H	50.0-140%	Recovery greater than upper control limit
ON mSPLP Extractables (target pH= 5)	QC-1165037-002	----	Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	142 % LCS-H	50.0-140%	Recovery greater than upper control limit
ON mSPLP Extractables (target pH= 5)	QC-1165037-002	----	Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	144 % LCS-H	50.0-140%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	Description
LCS-H	*Lab Control Sample recovery was above ALS DQO. 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	49.2 % RRQC	50.0-140%	Recovery less than lower data quality objective
ON mSPLP Extractables (target pH= 5)	WT2331179-002	TP15-23-G1	Chloroaniline, 4-, mSPLP	106-47-8	E657B	11.8 % RRQC	50.0-140%	Recovery less than lower data quality objective
ON mSPLP Extractables (target pH= 5)	WT2331179-002	TP15-23-G1	Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	148 % RRQC	50.0-140%	Recovery greater than upper data quality objective
ON mSPLP Extractables (target pH= 5)	WT2331179-002	TP15-23-G1	Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	142 % 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.*

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 / 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
ON mSPLP Extractables (target pH= 5) : BNA by GC-MS (mSPLP)										
Amber glass/Teflon lined cap [ON MECP] TP11-23-G2	E657B	29-Sep-2023	02-Oct-2023	10 days	7 days	✓	03-Oct-2023	40 days	1 days	✓
ON mSPLP Extractables (target pH= 5) : BNA by GC-MS (mSPLP)										
Amber glass/Teflon lined cap [ON MECP] TP15-23-G1	E657B	29-Sep-2023	02-Oct-2023	10 days	7 days	✓	03-Oct-2023	40 days	1 days	✓
ON mSPLP Extractables (target pH= 5) : BNA by GC-MS (mSPLP)										
Amber glass/Teflon lined cap [ON MECP] TP16-23-G1	E657B	29-Sep-2023	02-Oct-2023	10 days	7 days	✓	03-Oct-2023	40 days	1 days	✓
ON mSPLP Extractables (target pH= 5) : BNA by GC-MS (mSPLP)										
Amber glass/Teflon lined cap [ON MECP] TP17-23-G2	E657B	29-Sep-2023	02-Oct-2023	10 days	7 days	✓	03-Oct-2023	40 days	1 days	✓
ON mSPLP Extractables (target pH= 5) : BNA by GC-MS (mSPLP)										
Amber glass/Teflon lined cap [ON MECP] TP22-23-G2	E657B	29-Sep-2023	02-Oct-2023	10 days	7 days	✓	03-Oct-2023	40 days	1 days	✓
ON mSPLP Metal (target pH= 5) : Metals by CRC ICPMS (mSPLP)										
HDPE - total (lab preserved) TP11-23-G2	E443	29-Sep-2023	01-Oct-2023	183 days	6 days	✓	02-Oct-2023	183 days	6 days	✓
ON mSPLP Metal (target pH= 5) : Metals by CRC ICPMS (mSPLP)										
HDPE - total (lab preserved) TP15-23-G1	E443	29-Sep-2023	01-Oct-2023	183 days	6 days	✓	02-Oct-2023	183 days	6 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
ON mSPLP Metal (target pH= 5) : Metals by CRC ICPMS (mSPLP)										
HDPE - total (lab preserved) TP16-23-G1	E443	29-Sep-2023	01-Oct-2023	183 days	6 days	✓	02-Oct-2023	183 days	6 days	✓
ON mSPLP Metal (target pH= 5) : Metals by CRC ICPMS (mSPLP)										
HDPE - total (lab preserved) TP17-23-G2	E443	29-Sep-2023	01-Oct-2023	183 days	6 days	✓	02-Oct-2023	183 days	6 days	✓
ON mSPLP Metal (target pH= 5) : Metals by CRC ICPMS (mSPLP)										
HDPE - total (lab preserved) TP22-23-G2	E443	29-Sep-2023	01-Oct-2023	183 days	6 days	✓	02-Oct-2023	183 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) TP11-23-G2	EPP443	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 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) TP15-23-G1	EPP443	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 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) TP16-23-G1	EPP443	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 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) TP17-23-G2	EPP443	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 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) TP22-23-G2	EPP443	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 days	✓
ON mSPLP VOC (reagent water) : mSPLP Leachate Preparation (VOCs and Cyanide)										
Lab Split - ZHE Leach 14 day HT(eg. CN BTEX) TP11-23-G2	EPP584	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 days	✓

Matrix: **Soil/Solid**

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

Analyte Group / 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
ON mSPLP VOC (reagent water) : mSPLP Leachate Preparation (VOCs and Cyanide)										
Lab Split - ZHE Leach 14 day HT(eg. CN BTEX) TP15-23-G1	EPP584	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 days	✓
ON mSPLP VOC (reagent water) : mSPLP Leachate Preparation (VOCs and Cyanide)										
Lab Split - ZHE Leach 14 day HT(eg. CN BTEX) TP16-23-G1	EPP584	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 days	✓
ON mSPLP VOC (reagent water) : mSPLP Leachate Preparation (VOCs and Cyanide)										
Lab Split - ZHE Leach 14 day HT(eg. CN BTEX) TP17-23-G2	EPP584	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 days	✓
ON mSPLP VOC (reagent water) : mSPLP Leachate Preparation (VOCs and Cyanide)										
Lab Split - ZHE Leach 14 day HT(eg. CN BTEX) TP22-23-G2	EPP584	26-Sep-2023	29-Sep-2023	----	----		----	14 days	3 days	✓
ON mSPLP VOC (reagent water) : VOCs by Headspace GC-MS (ON mSPLP)										
Glass vial (sodium bisulfate) TP11-23-G2	E619D	29-Sep-2023	30-Sep-2023	17 days	5 days	✓	30-Sep-2023	17 days	5 days	✓
ON mSPLP VOC (reagent water) : VOCs by Headspace GC-MS (ON mSPLP)										
Glass vial (sodium bisulfate) TP15-23-G1	E619D	29-Sep-2023	30-Sep-2023	17 days	5 days	✓	30-Sep-2023	17 days	5 days	✓
ON mSPLP VOC (reagent water) : VOCs by Headspace GC-MS (ON mSPLP)										
Glass vial (sodium bisulfate) TP16-23-G1	E619D	29-Sep-2023	30-Sep-2023	17 days	5 days	✓	30-Sep-2023	17 days	5 days	✓
ON mSPLP VOC (reagent water) : VOCs by Headspace GC-MS (ON mSPLP)										
Glass vial (sodium bisulfate) TP17-23-G2	E619D	29-Sep-2023	30-Sep-2023	17 days	5 days	✓	30-Sep-2023	17 days	5 days	✓
ON mSPLP VOC (reagent water) : VOCs by Headspace GC-MS (ON mSPLP)										
Glass vial (sodium bisulfate) TP22-23-G2	E619D	29-Sep-2023	30-Sep-2023	17 days	5 days	✓	30-Sep-2023	17 days	5 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	1164261	2	19	10.5	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1163624	1	18	5.5	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1162542	1	8	12.5	5.0	✓
Laboratory Control Samples (LCS)							
BNA by GC-MS (mSPLP)	E657B	1164261	2	19	10.5	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1163624	1	18	5.5	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1162542	1	8	12.5	5.0	✓
Method Blanks (MB)							
BNA by GC-MS (mSPLP)	E657B	1164261	2	19	10.5	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1163624	1	18	5.5	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1162542	1	8	12.5	5.0	✓
Matrix Spikes (MS)							
BNA by GC-MS (mSPLP)	E657B	1164261	2	19	10.5	5.0	✓
Metals by CRC ICPMS (mSPLP)	E443	1163624	1	18	5.5	5.0	✓
VOCs by Headspace GC-MS (ON mSPLP)	E619D	1162542	1	8	12.5	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
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.
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.
BNA by GC-MS (mSPLP)	E657B ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	BNA are analyzed by GC-MS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
BNA Extraction (mSPLP)	EP657B ALS Environmental - Waterloo	Soil/Solid	EPA 3510C (mod)	SVOCs are extracted from aqueous sample using DCM 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.
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	: **WT2331179**	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	:	Telephone	: 613 225 8279
Project	: LOP23-012	Date Samples Received	: 26-Sep-2023 16:14
PO	: ----	Date Analysis Commenced	: 29-Sep-2023
C-O-C number	: ----	Issue Date	: 03-Oct-2023 15:17
Sampler	: CLIENT 613 327 9073		
Site	:		
Quote number	: SOA 2023-2024		
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
- 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.

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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
ON mSPLP Extractables (target pH= 5) (QC Lot: 1164261)											
WT2330996-001	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 Extractables (target pH= 5) (QC Lot: 1165037)											
WT2331179-002	TP15-23-G1	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: 1163624)											
TY2309755-001	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	4.3 µg/L	0.0040	0.0003	Diff <2x LOR	----
		Barium, mSPLP	7440-39-3	E443	0.002	mg/L	184 µg/L	0.183	0.558%	25%	----
		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	41.2 µg/L	0.0417	1.04%	25%	----

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: 1163624) - continued											
TY2309755-001	Anonymous	Cobalt, mSPLP	7440-48-4	E443	0.0010	mg/L	4.3 µg/L	0.0043	0.00004	Diff <2x LOR	----
		Copper, mSPLP	7440-50-8	E443	0.0050	mg/L	40.5 µg/L	0.0399	1.45%	25%	----
		Lead, mSPLP	7439-92-1	E443	0.0010	mg/L	3.1 µg/L	0.0031	0.00002	Diff <2x LOR	----
		Molybdenum, mSPLP	7439-98-7	E443	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Nickel, mSPLP	7440-02-0	E443	0.0010	mg/L	26.8 µg/L	0.0265	1.01%	25%	----
		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	39.2 µg/L	0.0385	1.82%	25%	----
		Zinc, mSPLP	7440-66-6	E443	0.0050	mg/L	23.3 µg/L	0.0230	0.0003	Diff <2x LOR	----
mSPLP VOCs (QC Lot: 1162542)											
WT2331136-004	Anonymous	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
ON mSPLP Extractables (target pH= 5) (QCLot: 1164261)						
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	----
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 Extractables (target pH= 5) (QCLot: 1165037)						
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	----
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: 1163624)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
ON mSPLP Metal (target pH= 5) (QCLot: 1163624) - continued						
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	----
mSPLP VOCs (QCLot: 1162542)						
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	----
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
ON mSPLP Extractables (target pH= 5) (QCLot: 1164261)									
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	0.4	µg/L	1.6 µg/L	87.5	50.0	140	----
bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	0.4	µg/L	1.6 µg/L	86.6	50.0	140	----
Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.4	µg/L	1.6 µg/L	53.0	50.0	140	----
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	0.4	µg/L	1.6 µg/L	100.0	50.0	140	----
Diethyl phthalate, mSPLP	84-66-2	E657B	0.2	µg/L	6.4 µg/L	88.9	50.0	140	----
Dimethyl phthalate, mSPLP	131-11-3	E657B	0.2	µg/L	6.4 µg/L	99.8	50.0	140	----
Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	1	µg/L	4.8 µg/L	# 143	50.0	140	LCS-H
Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	0.4	µg/L	1.6 µg/L	137	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	107	50.0	140	----
ON mSPLP Extractables (target pH= 5) (QCLot: 1165037)									
bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	0.4	µg/L	1.6 µg/L	97.9	50.0	140	----
bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	0.4	µg/L	1.6 µg/L	115	50.0	140	----
Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.4	µg/L	1.6 µg/L	56.1	50.0	140	----
Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	0.4	µg/L	1.6 µg/L	117	50.0	140	----
Diethyl phthalate, mSPLP	84-66-2	E657B	0.2	µg/L	6.4 µg/L	102	50.0	140	----
Dimethyl phthalate, mSPLP	131-11-3	E657B	0.2	µg/L	6.4 µg/L	106	50.0	140	----
Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	1	µg/L	4.8 µg/L	136	50.0	140	----
Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	0.4	µg/L	1.6 µg/L	# 142	50.0	140	LCS-H
Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	0.4	µg/L	1.6 µg/L	# 144	50.0	140	LCS-H
Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	0.5	µg/L	4.8 µg/L	106	50.0	140	----
ON mSPLP Metal (target pH= 5) (QCLot: 1163624)									
Antimony, mSPLP	7440-36-0	E443	0.0005	mg/L	0.05 mg/L	102	70.0	130	----
Arsenic, mSPLP	7440-38-2	E443	0.001	mg/L	0.05 mg/L	102	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	96.5	70.0	130	----
Boron, mSPLP	7440-42-8	E443	0.01	mg/L	0.05 mg/L	97.2	70.0	130	----
Cadmium, mSPLP	7440-43-9	E443	0.0001	mg/L	0.005 mg/L	98.6	70.0	130	----
Chromium, mSPLP	7440-47-3	E443	0.005	mg/L	0.0125 mg/L	99.9	70.0	130	----
Cobalt, mSPLP	7440-48-4	E443	0.001	mg/L	0.0125 mg/L	99.1	70.0	130	----
Copper, mSPLP	7440-50-8	E443	0.005	mg/L	0.0125 mg/L	98.1	70.0	130	----
Lead, mSPLP	7439-92-1	E443	0.001	mg/L	0.025 mg/L	101	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
ON mSPLP Metal (target pH= 5) (QCLot: 1163624) - continued									
Molybdenum, mSPLP	7439-98-7	E443	0.0005	mg/L	0.0125 mg/L	99.4	70.0	130	----
Nickel, mSPLP	7440-02-0	E443	0.001	mg/L	0.025 mg/L	98.8	70.0	130	----
Selenium, mSPLP	7782-49-2	E443	0.001	mg/L	0.05 mg/L	101	70.0	130	----
Silver, mSPLP	7440-22-4	E443	0.00025	mg/L	0.005 mg/L	94.6	70.0	130	----
Thallium, mSPLP	7440-28-0	E443	0.0005	mg/L	0.05 mg/L	101	70.0	130	----
Uranium, mSPLP	7440-61-1	E443	0.002	mg/L	0.00025 mg/L	102	70.0	130	----
Vanadium, mSPLP	7440-62-2	E443	0.0005	mg/L	0.025 mg/L	101	70.0	130	----
Zinc, mSPLP	7440-66-6	E443	0.005	mg/L	0.025 mg/L	99.3	70.0	130	----
mSPLP VOCs (QCLot: 1162542)									
Bromomethane, mSPLP	74-83-9	E619D	0.5	µg/L	100 µg/L	113	70.0	130	----
Carbon tetrachloride, mSPLP	56-23-5	E619D	0.2	µg/L	100 µg/L	106	70.0	130	----
Chloroform, mSPLP	67-66-3	E619D	1	µg/L	100 µg/L	104	70.0	130	----
Dibromoethane, 1,2-, mSPLP	106-93-4	E619D	0.2	µg/L	100 µg/L	103	70.0	130	----
Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D	0.5	µg/L	100 µg/L	96.8	70.0	130	----
Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D	0.5	µg/L	100 µg/L	94.4	70.0	130	----
Dichloroethane, 1,1-, mSPLP	75-34-3	E619D	0.5	µg/L	100 µg/L	99.5	70.0	130	----
Dichloroethane, 1,2-, mSPLP	107-06-2	E619D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D	0.5	µg/L	100 µg/L	98.2	70.0	130	----
Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D	0.5	µg/L	100 µg/L	101	70.0	130	----
Dichloropropane, 1,2-, mSPLP	78-87-5	E619D	0.5	µg/L	100 µg/L	97.2	70.0	130	----
Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D	0.2	µg/L	100 µg/L	91.8	70.0	130	----
Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D	0.2	µg/L	100 µg/L	89.0	70.0	130	----
Dioxane, 1,4-, mSPLP	123-91-1	E619D	2	µg/L	100 µg/L	90.9	60.0	140	----
Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D	0.5	µg/L	100 µg/L	103	70.0	130	----
Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D	0.5	µg/L	100 µg/L	102	70.0	130	----
Tetrachloroethylene, mSPLP	127-18-4	E619D	0.5	µg/L	100 µg/L	99.1	70.0	130	----
Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D	0.5	µg/L	100 µg/L	102	70.0	130	----
Trichloroethylene, mSPLP	79-01-6	E619D	0.5	µg/L	100 µg/L	103	70.0	130	----

Qualifiers

Qualifier	Description
LCS-H	*Lab Control Sample recovery was above ALS DQO. 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
ON mSPLP Extractables (target pH= 5) (QCLot: 1164261)										
WT2330996-001	Anonymous	bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	1.57 µg/L	1.6 µg/L	88.2	50.0	140	----
		bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	1.55 µg/L	1.6 µg/L	87.3	50.0	140	----
		Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.88 µg/L	1.6 µg/L	49.2	50.0	140	RRQC
		Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	1.71 µg/L	1.6 µg/L	96.1	50.0	140	----
		Diethyl phthalate, mSPLP	84-66-2	E657B	6.21 µg/L	6.4 µg/L	87.3	50.0	140	----
		Dimethyl phthalate, mSPLP	131-11-3	E657B	7.08 µg/L	6.4 µg/L	99.5	50.0	140	----
		Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	7.2 µg/L	4.8 µg/L	134	50.0	140	----
		Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	2.39 µg/L	1.6 µg/L	134	50.0	140	----
		Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	2.34 µg/L	1.6 µg/L	132	50.0	140	----
		Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	5.66 µg/L	4.8 µg/L	106	50.0	140	----
ON mSPLP Extractables (target pH= 5) (QCLot: 1165037)										
WT2331179-002	TP15-23-G1	bis(2-Chloro-1-methylethyl) ether mSPLP	108-60-1	E657B	1.66 µg/L	1.6 µg/L	93.5	50.0	140	----
		bis(2-Chloroethyl) ether, mSPLP	111-44-4	E657B	1.79 µg/L	1.6 µg/L	101	50.0	140	----
		Chloroaniline, 4-, mSPLP	106-47-8	E657B	0.21 µg/L	1.6 µg/L	11.8	50.0	140	RRQC
		Dichlorobenzidine, 3,3'-, mSPLP	91-94-1	E657B	1.00 µg/L	1.6 µg/L	56.5	50.0	140	----
		Diethyl phthalate, mSPLP	84-66-2	E657B	6.90 µg/L	6.4 µg/L	97.0	50.0	140	----
		Dimethyl phthalate, mSPLP	131-11-3	E657B	7.42 µg/L	6.4 µg/L	104	50.0	140	----
		Dinitrophenol, 2,4-, mSPLP	51-28-5	E657B	7.9 µg/L	4.8 µg/L	148	50.0	140	RRQC
		Dinitrotoluene, 2,4-, mSPLP	121-14-2	E657B	2.43 µg/L	1.6 µg/L	136	50.0	140	----
		Dinitrotoluene, 2,6-, mSPLP	606-20-2	E657B	2.52 µg/L	1.6 µg/L	142	50.0	140	RRQC
		Trichlorophenol, 2,4,6-, mSPLP	88-06-2	E657B	5.58 µg/L	4.8 µg/L	105	50.0	140	----
ON mSPLP Metal (target pH= 5) (QCLot: 1163624)										
TY2309755-001	Anonymous	Antimony, mSPLP	7440-36-0	E443	4.21 mg/L	5 mg/L	84.3	50.0	140	----
		Arsenic, mSPLP	7440-38-2	E443	2.94 mg/L	5 mg/L	58.9	50.0	140	----
		Barium, mSPLP	7440-39-3	E443	11.0 mg/L	12.5 mg/L	87.7	50.0	140	----
		Beryllium, mSPLP	7440-41-7	E443	0.232 mg/L	0.25 mg/L	92.7	50.0	140	----
		Boron, mSPLP	7440-42-8	E443	8.91 mg/L	10 mg/L	89.1	50.0	140	----
		Cadmium, mSPLP	7440-43-9	E443	0.225 mg/L	0.25 mg/L	89.9	50.0	140	----
		Chromium, mSPLP	7440-47-3	E443	1.10 mg/L	1.25 mg/L	88.4	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 Metal (target pH= 5) (QCLot: 1163624) - continued										
TY2309755-001	Anonymous	Cobalt, mSPLP	7440-48-4	E443	0.221 mg/L	0.25 mg/L	88.4	50.0	140	----
		Copper, mSPLP	7440-50-8	E443	2.18 mg/L	2.5 mg/L	87.3	50.0	140	----
		Lead, mSPLP	7439-92-1	E443	9.19 mg/L	10 mg/L	91.9	50.0	140	----
		Molybdenum, mSPLP	7439-98-7	E443	1.06 mg/L	1.25 mg/L	84.4	50.0	140	----
		Nickel, mSPLP	7440-02-0	E443	2.21 mg/L	2.5 mg/L	88.5	50.0	140	----
		Selenium, mSPLP	7782-49-2	E443	4.19 mg/L	5 mg/L	83.9	50.0	140	----
		Silver, mSPLP	7440-22-4	E443	0.0790 mg/L	0.1 mg/L	79.0	50.0	140	----
		Thallium, mSPLP	7440-28-0	E443	4.62 mg/L	5 mg/L	92.5	50.0	140	----
		Uranium, mSPLP	7440-61-1	E443	4.76 mg/L	5 mg/L	95.1	70.0	130	----
		Vanadium, mSPLP	7440-62-2	E443	0.659 mg/L	0.75 mg/L	87.9	50.0	140	----
		Zinc, mSPLP	7440-66-6	E443	9.03 mg/L	10 mg/L	90.3	50.0	140	----
mSPLP VOCs (QCLot: 1162542)										
WT2331136-004	Anonymous	Bromomethane, mSPLP	74-83-9	E619D	106 µg/L	100 µg/L	106	50.0	140	----
		Carbon tetrachloride, mSPLP	56-23-5	E619D	103 µg/L	100 µg/L	103	50.0	140	----
		Chloroform, mSPLP	67-66-3	E619D	101 µg/L	100 µg/L	101	50.0	140	----
		Dibromoethane, 1,2-, mSPLP	106-93-4	E619D	99.3 µg/L	100 µg/L	99.3	50.0	140	----
		Dichlorobenzene, 1,2-, mSPLP	95-50-1	E619D	94.0 µg/L	100 µg/L	94.0	50.0	140	----
		Dichlorobenzene, 1,4-, mSPLP	106-46-7	E619D	92.0 µg/L	100 µg/L	92.0	50.0	140	----
		Dichloroethane, 1,1-, mSPLP	75-34-3	E619D	96.4 µg/L	100 µg/L	96.4	50.0	140	----
		Dichloroethane, 1,2-, mSPLP	107-06-2	E619D	101 µg/L	100 µg/L	101	50.0	140	----
		Dichloroethylene, 1,1-, mSPLP	75-35-4	E619D	97.8 µg/L	100 µg/L	97.8	50.0	140	----
		Dichloroethylene, cis-1,2-, mSPLP	156-59-2	E619D	95.5 µg/L	100 µg/L	95.5	50.0	140	----
		Dichloroethylene, trans-1,2-, mSPLP	156-60-5	E619D	98.0 µg/L	100 µg/L	98.0	50.0	140	----
		Dichloropropane, 1,2-, mSPLP	78-87-5	E619D	94.6 µg/L	100 µg/L	94.6	50.0	140	----
		Dichloropropylene, cis-1,3-, mSPLP	10061-01-5	E619D	89.0 µg/L	100 µg/L	89.0	50.0	140	----
		Dichloropropylene, trans-1,3-, mSPLP	10061-02-6	E619D	85.7 µg/L	100 µg/L	85.7	50.0	140	----
		Dioxane, 1,4-, mSPLP	123-91-1	E619D	82.2 µg/L	100 µg/L	82.2	50.0	140	----
		Tetrachloroethane, 1,1,1,2-, mSPLP	630-20-6	E619D	100 µg/L	100 µg/L	100	50.0	140	----
		Tetrachloroethane, 1,1,2,2-, mSPLP	630-20-6	E619D	97.5 µg/L	100 µg/L	97.5	50.0	140	----
		Tetrachloroethylene, mSPLP	127-18-4	E619D	96.0 µg/L	100 µg/L	96.0	50.0	140	----
		Trichloroethane, 1,1,2-, mSPLP	79-00-5	E619D	98.7 µg/L	100 µg/L	98.7	50.0	140	----
		Trichloroethylene, mSPLP	79-01-6	E619D	100 µg/L	100 µg/L	100	50.0	140	----

Qualifiers

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

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

WT2331179

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 [x] YES [ ] NO
	Copy of Invoice with Report [x] YES [ ] NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: [x] PDF [x] 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: [x] EMAIL MAIL [ ] FAX

Email 1 or Fax Luke@Lopers.ca

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: [x] EMAIL MAIL [ ] FAX

Email 1 or Fax Luke@Lopers.ca

Email 2

Turnaround Time (TAT) Requested

[x] Routine [R] if received by 3pm M-F - no surcharges apply

[ ] 4 day [P4] if received by 3pm M-F - 20% rush surcharge m

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

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

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

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

Additional fees may apply to rush requests on wee

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 #:	LOP23-012
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	BTEX/PHC F1-F4	Metals and Inorganics	PAH	mSPLP Metals	msPLP VOC	mSPLP SVOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TP 11-23-G2	26-Sep-23		SOIL	3				X	X	X			
	TP 15-23-G1			SOIL	2				X	X	X			
	TP 16-23-G1			SOIL	2				X	X	X			
	TP 17-23-G2			SOIL	2				X	X	X			
	TP22-23-G2			SOIL	2				X	X	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 [x] 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			
26.6				13.3, 13.4, 2.7			

SHIPMENT RELEASE (client use)

Released by: Date: Sep 26/23 Time: 4:15PM

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Brian Fook Date: 9/26/2023 Time: 16:14

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: SF Date: Sep 28 Time: 9:15

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.**

T-778 MT 3 coolers

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Certificate of Analysis

Paterson Group Consulting Engineers
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Report Date: 25-Jul-2023
Order Date: 19-Jul-2023

Client PO: 57945
Project: PE6204
Custody: 140761

Order #: 2329221

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

Paracel ID	Client ID
2329221-01	TP1-23-G1
2329221-02	TP1-23-G3
2329221-03	TP2-23-G3
2329221-04	TP2-23-G5
2329221-05	TP3-23-G1
2329221-06	TP3-23-G5
2329221-07	TP4-23-G2
2329221-08	TP4-23-G4
2329221-09	DUP01

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	21-Jul-23	22-Jul-23
Conductivity	MOE E3138 - probe @25 °C, water ext	24-Jul-23	24-Jul-23
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	21-Jul-23	21-Jul-23
PHC F1	CWS Tier 1 - P&T GC-FID	21-Jul-23	22-Jul-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	19-Jul-23	23-Jul-23
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	24-Jul-23	24-Jul-23
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	19-Jul-23	23-Jul-23
SAR	Calculated	24-Jul-23	25-Jul-23
Solids, %	CWS Tier 1 - Gravimetric	20-Jul-23	20-Jul-23

Certificate of Analysis

Report Date: 25-Jul-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 19-Jul-2023

Client PO: **57945**

Project Description: PE6204

	Client ID:	TP1-23-G1	TP1-23-G3	TP2-23-G3	TP2-23-G5	-	-
	Sample Date:	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00		
	Sample ID:	2329221-01	2329221-02	2329221-03	2329221-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	94.4	69.2	78.3	58.2	-	-
General Inorganics							
SAR	0.01 N/A	0.61	1.20	1.24	1.19	-	-
Conductivity	5 uS/cm	363	554	241	389	-	-
pH	0.05 pH Units	7.92	-	-	-	-	-
Metals							
Antimony	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1 ug/g	3.3	8.0	3.5	4.4	-	-
Barium	1 ug/g	281	237	205	329	-	-
Beryllium	0.5 ug/g	<0.5	1.0	0.7	0.8	-	-
Boron	5 ug/g	9.6	13.7	9.2	9.2	-	-
Cadmium	0.5 ug/g	0.6	<0.5	<0.5	<0.5	-	-
Chromium	5 ug/g	29.0	74.6	55.8	97.8	-	-
Cobalt	1 ug/g	9.4	21.0	14.9	22.9	-	-
Copper	5 ug/g	21.7	40.3	27.5	42.5	-	-
Lead	1 ug/g	43.1	9.2	6.9	6.8	-	-
Molybdenum	1 ug/g	2.6	1.2	<1.0	1.2	-	-
Nickel	5 ug/g	19.3	45.5	31.0	53.3	-	-
Selenium	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1 ug/g	<1.0	1.2	<1.0	1.3	-	-
Vanadium	10 ug/g	38.4	97.1	75.6	113	-	-
Zinc	20 ug/g	69.1	121	91.8	134	-	-
Volatiles							

Certificate of Analysis

Report Date: 25-Jul-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 19-Jul-2023

Client PO: **57945**

Project Description: PE6204

	Client ID:	TP1-23-G1	TP1-23-G3	TP2-23-G3	TP2-23-G5	-	-
	Sample Date:	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00		
	Sample ID:	2329221-01	2329221-02	2329221-03	2329221-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene-d8	Surrogate	108%	123%	120%	126%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	212	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g	122	129	<8	<8	-	-
F4 PHCs (C34-C50)	6 ug/g	68	<6	<6	<6	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Anthracene	0.02 ug/g	0.07	<0.02	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	0.42	<0.02	<0.02	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g	0.43	<0.02	<0.02	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.52	<0.02	<0.02	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g	0.41	<0.02	<0.02	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	0.23	<0.02	<0.02	<0.02	-	-
Chrysene	0.02 ug/g	0.37	<0.02	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	0.08	<0.02	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g	0.92	<0.02	<0.02	<0.02	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

	Client ID:	TP1-23-G1	TP1-23-G3	TP2-23-G3	TP2-23-G5	-	-
	Sample Date:	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00		
	Sample ID:	2329221-01	2329221-02	2329221-03	2329221-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Indeno [1,2,3-cd] pyrene	0.02 ug/g	0.35	<0.02	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g	0.40	<0.02	<0.02	<0.02	-	-
Pyrene	0.02 ug/g	0.64	<0.02	<0.02	<0.02	-	-
2-Fluorobiphenyl	Surrogate	65.2%	65.7%	54.2%	56.4%	-	-
Terphenyl-d14	Surrogate	75.4%	64.2%	53.0%	54.6%	-	-

	Client ID:	TP3-23-G1	TP3-23-G5	TP4-23-G2	TP4-23-G4	-	-
	Sample Date:	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00		
	Sample ID:	2329221-05	2329221-06	2329221-07	2329221-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	90.3	61.8	77.0	61.1	-	-
General Inorganics							
SAR	0.01 N/A	0.36	1.30	1.60	1.04	-	-
Conductivity	5 uS/cm	466	473	873	455	-	-
pH	0.05 pH Units	-	7.66	-	-	-	-
Metals							
Antimony	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1 ug/g	3.8	3.4	7.9	3.6	-	-
Barium	1 ug/g	230	317	222	278	-	-
Beryllium	0.5 ug/g	<0.5	0.8	0.9	0.7	-	-
Boron	5 ug/g	11.3	6.3	11.4	6.5	-	-
Cadmium	0.5 ug/g	1.9	<0.5	<0.5	<0.5	-	-
Chromium	5 ug/g	17.6	83.4	64.8	81.8	-	-
Cobalt	1 ug/g	7.5	20.5	19.1	19.2	-	-
Copper	5 ug/g	16.2	38.9	37.1	36.3	-	-
Lead	1 ug/g	95.2	6.8	7.8	5.8	-	-
Molybdenum	1 ug/g	<1.0	<1.0	1.6	1.1	-	-
Nickel	5 ug/g	11.9	47.5	38.6	44.9	-	-
Selenium	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1 ug/g	<1.0	1.1	1.1	1.1	-	-
Vanadium	10 ug/g	21.2	100	88.6	94.6	-	-
Zinc	20 ug/g	83.1	126	110	111	-	-
Volatiles							

Certificate of Analysis

Report Date: 25-Jul-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 19-Jul-2023

Client PO: **57945**

Project Description: PE6204

	Client ID:	TP3-23-G1	TP3-23-G5	TP4-23-G2	TP4-23-G4	-	-
	Sample Date:	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00		
	Sample ID:	2329221-05	2329221-06	2329221-07	2329221-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene-d8	Surrogate	110%	125%	119%	126%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	21	-	-
F3 PHCs (C16-C34)	8 ug/g	178	<8	<8	88	-	-
F4 PHCs (C34-C50)	6 ug/g	72	<6	<6	<6	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Anthracene	0.02 ug/g	0.03	<0.02	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	0.12	<0.02	<0.02	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g	0.16	<0.02	<0.02	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.17	<0.02	<0.02	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g	0.14	<0.02	<0.02	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	0.07	<0.02	<0.02	<0.02	-	-
Chrysene	0.02 ug/g	0.12	<0.02	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	0.03	<0.02	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g	0.29	<0.02	<0.02	<0.02	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

	Client ID:	TP3-23-G1	TP3-23-G5	TP4-23-G2	TP4-23-G4	-	-
	Sample Date:	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00	10-Jul-23 09:00		
	Sample ID:	2329221-05	2329221-06	2329221-07	2329221-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Indeno [1,2,3-cd] pyrene	0.02 ug/g	0.12	<0.02	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g	0.12	<0.02	<0.02	<0.02	-	-
Pyrene	0.02 ug/g	0.23	<0.02	<0.02	<0.02	-	-
2-Fluorobiphenyl	Surrogate	75.6%	56.8%	63.8%	57.2%	-	-
Terphenyl-d14	Surrogate	53.8%	58.0%	53.5%	54.2%	-	-

Certificate of Analysis

Report Date: 25-Jul-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 19-Jul-2023

Client PO: **57945**

Project Description: PE6204

	Client ID:	DUP01				-	-
	Sample Date:	10-Jul-23 09:00					
	Sample ID:	2329221-09					
	Matrix:	Soil					
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	77.4	-	-	-	-	-
General Inorganics							
SAR	0.01 N/A	1.36	-	-	-	-	-
Conductivity	5 uS/cm	275	-	-	-	-	-
Metals							
Antimony	1 ug/g	<1.0	-	-	-	-	-
Arsenic	1 ug/g	4.7	-	-	-	-	-
Barium	1 ug/g	192	-	-	-	-	-
Beryllium	0.5 ug/g	0.7	-	-	-	-	-
Boron	5 ug/g	9.1	-	-	-	-	-
Cadmium	0.5 ug/g	<0.5	-	-	-	-	-
Chromium	5 ug/g	53.4	-	-	-	-	-
Cobalt	1 ug/g	15.6	-	-	-	-	-
Copper	5 ug/g	28.7	-	-	-	-	-
Lead	1 ug/g	6.6	-	-	-	-	-
Molybdenum	1 ug/g	1.7	-	-	-	-	-
Nickel	5 ug/g	32.3	-	-	-	-	-
Selenium	1 ug/g	<1.0	-	-	-	-	-
Silver	0.3 ug/g	<0.3	-	-	-	-	-
Thallium	1 ug/g	<1.0	-	-	-	-	-
Uranium	1 ug/g	<1.0	-	-	-	-	-
Vanadium	10 ug/g	73.9	-	-	-	-	-
Zinc	20 ug/g	88.2	-	-	-	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	-	-	-	-	-

	Client ID:	DUP01				-	-
	Sample Date:	10-Jul-23 09:00					
	Sample ID:	2329221-09					
	Matrix:	Soil					
	MDL/Units						
Volatiles							
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	-	-
Toluene	0.05 ug/g	<0.05	-	-	-	-	-
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	-	-
Toluene-d8	Surrogate	121%	-	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	-	-	-	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	-	-	-	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	-	-	-	-	-
Acenaphthylene	0.02 ug/g	<0.02	-	-	-	-	-
Anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Chrysene	0.02 ug/g	<0.02	-	-	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Fluorene	0.02 ug/g	<0.02	-	-	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	-	-	-	-	-

	Client ID:	DUP01				-	-
	Sample Date:	10-Jul-23 09:00					
	Sample ID:	2329221-09					
	Matrix:	Soil					
	MDL/Units						
Semi-Volatiles							
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	-	-	-	-	-
Naphthalene	0.01 ug/g	<0.01	-	-	-	-	-
Phenanthrene	0.02 ug/g	<0.02	-	-	-	-	-
Pyrene	0.02 ug/g	<0.02	-	-	-	-	-
2-Fluorobiphenyl	Surrogate	63.8%	-	-	-	-	-
Terphenyl-d14	Surrogate	60.8%	-	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics								
Conductivity	ND	5	uS/cm					
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
Semi-Volatiles								
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					
Benzo [a] pyrene	ND	0.02	ug/g					
Benzo [b] fluoranthene	ND	0.02	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [g,h,i] perylene	ND	0.02	ug/g					
Benzo [k] fluoranthene	ND	0.02	ug/g					
Chrysene	ND	0.02	ug/g					
Dibenzo [a,h] anthracene	ND	0.02	ug/g					
Fluoranthene	ND	0.02	ug/g					
Fluorene	ND	0.02	ug/g					
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g					
1-Methylnaphthalene	ND	0.02	ug/g					
2-Methylnaphthalene	ND	0.02	ug/g					
Methylnaphthalene (1&2)	ND	0.04	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					
Surrogate: 2-Fluorobiphenyl	*0.706*		*%*	*52.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.16*		*%*	*87.1*	*50-140*			
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	*8.36*		*%*	*104*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.60	0.01	N/A	0.61			1.7	30	
Conductivity	366	5	uS/cm	363			0.8	5	
pH	7.96	0.05	pH Units	8.01			0.6	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	1.0			NC	30	
Arsenic	9.2	1.0	ug/g	9.6			3.7	30	
Barium	60.9	1.0	ug/g	59.4			2.5	30	
Beryllium	0.7	0.5	ug/g	0.7			9.1	30	
Boron	13.1	5.0	ug/g	10.0			26.2	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	23.7	5.0	ug/g	23.1			2.7	30	
Cobalt	10.1	1.0	ug/g	10.3			1.7	30	
Copper	18.7	5.0	ug/g	18.7			0.3	30	
Lead	9.4	1.0	ug/g	9.3			1.4	30	
Molybdenum	2.2	1.0	ug/g	2.5			13.6	30	
Nickel	27.1	5.0	ug/g	27.2			0.4	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	35.4	10.0	ug/g	33.3			6.3	30	
Zinc	54.2	20.0	ug/g	52.7			2.9	30	
Physical Characteristics									
% Solids	89.1	0.1	% by Wt.	89.5			0.4	25	
Semi-Volatiles									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	0.057	0.02	ug/g	0.060			6.2	40	
Anthracene	0.222	0.02	ug/g	0.068			NC	40	
Benzo [a] anthracene	0.225	0.02	ug/g	0.212			5.9	40	
Benzo [a] pyrene	0.269	0.02	ug/g	0.253			6.2	40	
Benzo [b] fluoranthene	0.335	0.02	ug/g	0.279			18.3	40	
Benzo [g,h,i] perylene	0.272	0.02	ug/g	0.284			4.4	40	
Benzo [k] fluoranthene	0.138	0.02	ug/g	0.119			14.8	40	
Chrysene	0.205	0.02	ug/g	0.181			12.4	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	0.051			NC	40	
Fluoranthene	0.336	0.02	ug/g	0.376			11.3	40	
Fluorene	ND	0.02	ug/g	0.020			NC	40	
Indeno [1,2,3-cd] pyrene	0.201	0.02	ug/g	0.202			0.4	40	
1-Methylnaphthalene	0.025	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	0.030	0.02	ug/g	0.029			4.0	40	
Naphthalene	0.022	0.01	ug/g	0.021			4.7	40	
Phenanthrene	0.240	0.02	ug/g	0.248			3.0	40	
Pyrene	0.300	0.02	ug/g	0.382			24.2	40	
Surrogate: 2-Fluorobiphenyl	*0.777*		*%*		*50.1*	*50-140*			
Surrogate: Terphenyl-d14	*0.780*		*%*		*50.3*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	*10.7*		*%*		*113*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	170	7	ug/g	ND	84.9	80-120			
F2 PHCs (C10-C16)	113	4	ug/g	ND	107	60-140			
F3 PHCs (C16-C34)	265	8	ug/g	ND	103	60-140			
F4 PHCs (C34-C50)	164	6	ug/g	ND	100	60-140			
Metals									
Arsenic	63.5	1.0	ug/g	3.8	119	70-130			
Barium	79.2	1.0	ug/g	23.8	111	70-130			
Beryllium	56.2	0.5	ug/g	ND	112	70-130			
Boron	57.2	5.0	ug/g	ND	106	70-130			
Cadmium	56.0	0.5	ug/g	ND	112	70-130			
Chromium	71.6	5.0	ug/g	9.2	125	70-130			
Cobalt	63.2	1.0	ug/g	4.1	118	70-130			
Copper	64.0	5.0	ug/g	7.5	113	70-130			
Lead	60.0	1.0	ug/g	3.7	113	70-130			
Molybdenum	57.0	1.0	ug/g	1.0	112	70-130			
Nickel	69.9	5.0	ug/g	10.9	118	70-130			
Selenium	53.4	1.0	ug/g	ND	106	70-130			
Silver	50.0	0.3	ug/g	ND	100	70-130			
Thallium	52.8	1.0	ug/g	ND	105	70-130			
Uranium	58.1	1.0	ug/g	ND	116	70-130			
Vanadium	76.4	10.0	ug/g	13.3	126	70-130			
Zinc	76.8	20.0	ug/g	21.1	112	70-130			
Semi-Volatiles									
Acenaphthene	0.151	0.02	ug/g	ND	77.7	50-140			
Acenaphthylene	0.304	0.02	ug/g	0.060	126	50-140			
Anthracene	0.202	0.02	ug/g	0.068	69.4	50-140			
Benzo [a] anthracene	0.353	0.02	ug/g	0.212	72.4	50-140			
Benzo [a] pyrene	0.155	0.02	ug/g	ND	93.1	50-140			
Benzo [b] fluoranthene	0.197	0.02	ug/g	ND	118	50-140			
Benzo [g,h,i] perylene	0.186	0.02	ug/g	ND	112	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [k] fluoranthene	0.395	0.02	ug/g	0.119	142	50-140			QS-04
Chrysene	0.394	0.02	ug/g	0.181	110	50-140			
Dibenzo [a,h] anthracene	0.292	0.02	ug/g	0.051	124	50-140			
Fluoranthene	0.461	0.02	ug/g	0.376	43.8	50-140			QS-04
Fluorene	0.147	0.02	ug/g	0.020	65.5	50-140			
Indeno [1,2,3-cd] pyrene	0.197	0.02	ug/g	ND	118	50-140			
1-Methylnaphthalene	0.181	0.02	ug/g	ND	93.4	50-140			
2-Methylnaphthalene	0.190	0.02	ug/g	0.029	82.8	50-140			
Naphthalene	0.142	0.01	ug/g	0.021	62.4	50-140			
Phenanthrene	0.299	0.02	ug/g	0.248	26.7	50-140			QS-04
Pyrene	0.483	0.02	ug/g	0.382	52.2	50-140			
Surrogate: 2-Fluorobiphenyl	*1.09*		*%*		*70.6*	*50-140*			
Surrogate: Terphenyl-d14	*0.659*		*%*		*42.5*	*50-140*			*ORG05*
Volatiles									
Benzene	3.54	0.02	ug/g	ND	88.4	60-130			
Ethylbenzene	4.03	0.05	ug/g	ND	101	60-130			
Toluene	4.14	0.05	ug/g	ND	103	60-130			
m,p-Xylenes	8.10	0.05	ug/g	ND	101	60-130			
o-Xylene	4.08	0.05	ug/g	ND	102	60-130			
Surrogate: Toluene-d8	*7.87*		*%*		*98.4*	*50-140*			

Qualifier Notes:

QC Qualifiers:

ORG05	PAH surrogate recovery lower than normal - possible matrix interference - surrogate recoveries for in-run QC and other samples were acceptable.
QS-04	Spike recoveries not within normal acceptance limits due to non-homogeneous matrix. Results accepted based on other QC within the batch.

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unlesss otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

- F1 range corrected for BTEX.

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

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

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

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2329221

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2329221	№ 140761

Client Name: Paterson
Contact Name: Mike Beaudoin
Address: 9 Auriga
Telephone: 613 226 7381

Project Ref: PE6204
Quote #:
PO #: 57945
E-mail: MBeaudoin@patersongroup.ca
GPaterson@Patersongroup.ca

Page 1 of 1

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

☐ REG 153/04 ☒ REG 406/19

Table 1 ☐ Res/Park ☐ Med/Fine
Table 2 ☐ Ind/Comm ☐ Coarse
Table 3 ☐ Agri/Other
Table
For RSC: ☐ Yes ☐ No

Other Regulation
☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC/SAR	pH				
1	TP1-23-G1	S		2	JULY 10		X		X	X				X	X				
2	TP1-23-G3						X		X	X				X					
3	TP2-23-G3						X		X	X				X					
4	TP2-23-G5						X		X	X				X					
5	TP3-23-G1a						X		X	X				X					
6	TP3-23-G5						X		X	X				X	X				
7	TP4-23-G2						X		X	X				X					
8	TP4-23-G4						X		X	X				X					
9	DUP01						X		X	X				X					
10																			

Comments:

Method of Delivery: Walk-in

Relinquished By (Sign): Trudy Blair	Received By Driver/Depot:	Received at Lab:	Verified By: SO
Relinquished By (Print): Trudy Blair	Date/Time: 07/19/23 12:24pm	Date/Time: 2023/19/14/16	Date/Time: July 14, 2023 2:46pm
Date/Time: July 19 2023 12:23pm	Temperature: 8.2 °C	Temperature: 3.2 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Report Date: 8-Aug-2023
Order Date: 31-Jul-2023

Client PO: 58029
Project: PE6204
Custody: 141930

Revised Report

Order #: 2331085

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

Paracel ID	Client ID
2331085-01	TP5-23-G2
2331085-02	TP6-23-G2
2331085-03	TP7-23-G2
2331085-04	TP7-23-G5
2331085-05	TP8-23-G1

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	4-Aug-23	4-Aug-23
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	1-Aug-23	3-Aug-23
Conductivity	MOE E3138 - probe @25 °C, water ext	2-Aug-23	2-Aug-23
Mercury by CVAA	EPA 7471B - CVAA, digestion	2-Aug-23	2-Aug-23
PHC F1	CWS Tier 1 - P&T GC-FID	4-Aug-23	4-Aug-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	1-Aug-23	3-Aug-23
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	2-Aug-23	2-Aug-23
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	1-Aug-23	2-Aug-23
SAR	Calculated	2-Aug-23	3-Aug-23
Solids, %	CWS Tier 1 - Gravimetric	1-Aug-23	2-Aug-23

	Client ID:	TP5-23-G2	TP6-23-G2	TP7-23-G2	TP7-23-G5	-	-
	Sample Date:	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00		
	Sample ID:	2331085-01	2331085-02	2331085-03	2331085-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	72.0	62.8	85.1	62.9	-	-
General Inorganics							
SAR	0.01 N/A	1.17	1.58	0.46	0.73	-	-
Conductivity	5 uS/cm	466	362	298	238	-	-
Metals							
Antimony	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1 ug/g	5.6	3.6	4.0	2.6	-	-
Barium	1 ug/g	218	319	212	248	-	-
Beryllium	0.5 ug/g	0.8	0.8	0.7	0.6	-	-
Boron	5 ug/g	11.2	7.3	8.6	6.5	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium (VI)	0.2 ug/g	<0.2	<0.2	<0.2	<0.2	-	-
Chromium	5 ug/g	58.0	89.2	51.5	61.7	-	-
Cobalt	1 ug/g	16.9	20.2	13.6	14.9	-	-
Copper	5 ug/g	31.5	41.3	31.0	31.4	-	-
Lead	1 ug/g	7.0	5.9	9.2	4.4	-	-
Mercury	0.1 ug/g	<0.1	<0.1	<0.1	<0.1	-	-
Molybdenum	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Nickel	5 ug/g	35.3	48.5	30.1	34.5	-	-
Selenium	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1 ug/g	<1.0	<1.0	<1.0	1.1	-	-
Vanadium	10 ug/g	77.9	99.5	64.5	75.0	-	-
Zinc	20 ug/g	97.5	119	82.7	87.6	-	-

	Client ID:	TP5-23-G2	TP6-23-G2	TP7-23-G2	TP7-23-G5	-	-
	Sample Date:	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00		
	Sample ID:	2331085-01	2331085-02	2331085-03	2331085-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene-d8	Surrogate	121%	139%	137%	127%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	<8	51	<8	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	<6	22	<6	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Chrysene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

	Client ID:	TP5-23-G2	TP6-23-G2	TP7-23-G2	TP7-23-G5	-	-
	Sample Date:	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00		
	Sample ID:	2331085-01	2331085-02	2331085-03	2331085-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Pyrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
2-Fluorobiphenyl	Surrogate	101%	93.7%	62.4%	83.3%	-	-
Terphenyl-d14	Surrogate	66.1%	64.2%	56.1%	58.2%	-	-

	Client ID:	TP8-23-G1				-	-
	Sample Date:	31-Jul-23 09:00					
	Sample ID:	2331085-05					
	Matrix:	Soil					
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	92.8	-	-	-	-	-
General Inorganics							
SAR	0.01 N/A	0.59	-	-	-	-	-
Conductivity	5 uS/cm	379	-	-	-	-	-
Metals							
Antimony	1 ug/g	<1.0	-	-	-	-	-
Arsenic	1 ug/g	3.0	-	-	-	-	-
Barium	1 ug/g	199	-	-	-	-	-
Beryllium	0.5 ug/g	<0.5	-	-	-	-	-
Boron	5 ug/g	7.8	-	-	-	-	-
Cadmium	0.5 ug/g	<0.5	-	-	-	-	-
Chromium (VI)	0.2 ug/g	<0.2	-	-	-	-	-
Chromium	5 ug/g	30.1	-	-	-	-	-
Cobalt	1 ug/g	8.4	-	-	-	-	-
Copper	5 ug/g	21.2	-	-	-	-	-
Lead	1 ug/g	37.9	-	-	-	-	-
Mercury	0.1 ug/g	<0.1	-	-	-	-	-
Molybdenum	1 ug/g	<1.0	-	-	-	-	-
Nickel	5 ug/g	17.5	-	-	-	-	-
Selenium	1 ug/g	<1.0	-	-	-	-	-
Silver	0.3 ug/g	<0.3	-	-	-	-	-
Thallium	1 ug/g	<1.0	-	-	-	-	-
Uranium	1 ug/g	<1.0	-	-	-	-	-
Vanadium	10 ug/g	34.7	-	-	-	-	-
Zinc	20 ug/g	62.0	-	-	-	-	-

	Client ID:	TP8-23-G1				-	-
	Sample Date:	31-Jul-23 09:00					
	Sample ID:	2331085-05					
	Matrix:	Soil					
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	-	-	-	-	-
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	-	-
Toluene	0.05 ug/g	<0.05	-	-	-	-	-
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	-	-
Toluene-d8	Surrogate	110%	-	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	-	-
F3 PHCs (C16-C34)	8 ug/g	283	-	-	-	-	-
F4 PHCs (C34-C50)	6 ug/g	91	-	-	-	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	0.02	-	-	-	-	-
Acenaphthylene	0.02 ug/g	<0.02	-	-	-	-	-
Anthracene	0.02 ug/g	0.05	-	-	-	-	-
Benzo [a] anthracene	0.02 ug/g	0.20	-	-	-	-	-
Benzo [a] pyrene	0.02 ug/g	0.18	-	-	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.21	-	-	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	0.14	-	-	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	0.13	-	-	-	-	-
Chrysene	0.02 ug/g	0.19	-	-	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	0.03	-	-	-	-	-
Fluoranthene	0.02 ug/g	0.49	-	-	-	-	-
Fluorene	0.02 ug/g	0.03	-	-	-	-	-

	Client ID:	TP8-23-G1				-	-
	Sample Date:	31-Jul-23 09:00					
	Sample ID:	2331085-05					
	Matrix:	Soil					
	MDL/Units						
Semi-Volatiles							
Indeno [1,2,3-cd] pyrene	0.02 ug/g	0.13	-	-	-	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	-	-	-	-	-
Naphthalene	0.01 ug/g	0.01	-	-	-	-	-
Phenanthrene	0.02 ug/g	0.21	-	-	-	-	-
Pyrene	0.02 ug/g	0.32	-	-	-	-	-
2-Fluorobiphenyl	Surrogate	107%	-	-	-	-	-
Terphenyl-d14	Surrogate	59.7%	-	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics								
Conductivity	ND	5	uS/cm					
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium (VI)	ND	0.2	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Mercury	ND	0.1	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
Semi-Volatiles								
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [a] pyrene	ND	0.02	ug/g					
Benzo [b] fluoranthene	ND	0.02	ug/g					
Benzo [g,h,i] perylene	ND	0.02	ug/g					
Benzo [k] fluoranthene	ND	0.02	ug/g					
Chrysene	ND	0.02	ug/g					
Dibenzo [a,h] anthracene	ND	0.02	ug/g					
Fluoranthene	ND	0.02	ug/g					
Fluorene	ND	0.02	ug/g					
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g					
1-Methylnaphthalene	ND	0.02	ug/g					
2-Methylnaphthalene	ND	0.02	ug/g					
Methylnaphthalene (1&2)	ND	0.04	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					
Surrogate: 2-Fluorobiphenyl	*1.46*		*%*	*109*	*50-140*			
Surrogate: Terphenyl-d14	*0.983*		*%*	*73.8*	*50-140*			
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	*9.96*		*%*	*125*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	2.12	0.01	N/A	2.14			0.9	30	
Conductivity	166	5	uS/cm	164			1.2	5	
Hydrocarbons									
F1 PHCs (C6-C10)	71	7	ug/g	77			8.3	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	11			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	8			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	1.8	1.0	ug/g	2.3			26.2	30	
Barium	23.4	1.0	ug/g	30.0			24.6	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	7.2	5.0	ug/g	9.5			28.5	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	8.2	5.0	ug/g	10.9			27.5	30	
Cobalt	4.5	1.0	ug/g	5.2			13.9	30	
Copper	6.6	5.0	ug/g	8.0			20.1	30	
Lead	4.4	1.0	ug/g	5.6			24.0	30	
Mercury	ND	0.1	ug/g	ND			NC	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	5.8	5.0	ug/g	7.1			20.7	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	21.3	10.0	ug/g	28.0			27.2	30	
Zinc	ND	20.0	ug/g	ND			NC	30	
Physical Characteristics									
% Solids	93.2	0.1	% by Wt.	92.8			0.4	25	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.40*		*%*		*96.1*	*50-140*			
Surrogate: Terphenyl-d14	*0.890*		*%*		*61.0*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	*14.1*		*%*		*134*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	194	7	ug/g	ND	97.0	85-115			
F2 PHCs (C10-C16)	114	4	ug/g	ND	131	60-140			
F3 PHCs (C16-C34)	242	8	ug/g	11	107	60-140			
F4 PHCs (C34-C50)	167	6	ug/g	8	117	60-140			
Metals									
Antimony	37.2	1.0	ug/g	ND	74.1	70-130			
Arsenic	52.6	1.0	ug/g	ND	103	70-130			
Barium	59.2	1.0	ug/g	12.0	94.4	70-130			
Beryllium	50.9	0.5	ug/g	ND	102	70-130			
Boron	48.8	5.0	ug/g	ND	90.0	70-130			
Cadmium	50.1	0.5	ug/g	ND	100	70-130			
Chromium (VI)	0.2	0.2	ug/g	ND	88.5	70-130			
Chromium	57.7	5.0	ug/g	ND	107	70-130			
Cobalt	53.6	1.0	ug/g	2.1	103	70-130			
Copper	53.3	5.0	ug/g	ND	100	70-130			
Lead	53.2	1.0	ug/g	2.2	102	70-130			
Mercury	1.48	0.1	ug/g	ND	98.8	70-130			
Molybdenum	52.1	1.0	ug/g	ND	104	70-130			
Nickel	54.5	5.0	ug/g	ND	103	70-130			
Selenium	49.1	1.0	ug/g	ND	98.0	70-130			
Silver	46.3	0.3	ug/g	ND	92.5	70-130			
Thallium	50.5	1.0	ug/g	ND	101	70-130			
Uranium	53.7	1.0	ug/g	ND	107	70-130			
Vanadium	63.6	10.0	ug/g	11.2	105	70-130			
Zinc	54.7	20.0	ug/g	ND	96.1	70-130			
Semi-Volatiles									
Acenaphthene	0.157	0.02	ug/g	ND	86.3	50-140			
Acenaphthylene	0.154	0.02	ug/g	ND	84.6	50-140			
Anthracene	0.174	0.02	ug/g	ND	95.8	50-140			
Benzo [a] anthracene	0.197	0.02	ug/g	ND	108	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [a] pyrene	0.172	0.02	ug/g	ND	94.5	50-140			
Benzo [b] fluoranthene	0.205	0.02	ug/g	ND	112	50-140			
Benzo [g,h,i] perylene	0.209	0.02	ug/g	ND	115	50-140			
Benzo [k] fluoranthene	0.169	0.02	ug/g	ND	92.6	50-140			
Chrysene	0.189	0.02	ug/g	ND	104	50-140			
Dibenzo [a,h] anthracene	0.197	0.02	ug/g	ND	108	50-140			
Fluoranthene	0.189	0.02	ug/g	ND	104	50-140			
Fluorene	0.179	0.02	ug/g	ND	98.0	50-140			
Indeno [1,2,3-cd] pyrene	0.212	0.02	ug/g	ND	116	50-140			
1-Methylnaphthalene	0.195	0.02	ug/g	ND	107	50-140			
2-Methylnaphthalene	0.193	0.02	ug/g	ND	106	50-140			
Naphthalene	0.160	0.01	ug/g	ND	87.7	50-140			
Phenanthrene	0.181	0.02	ug/g	ND	99.5	50-140			
Pyrene	0.187	0.02	ug/g	ND	103	50-140			
Surrogate: 2-Fluorobiphenyl	*1.64*		*%*		*112*	*50-140*			
Surrogate: Terphenyl-d14	*1.02*		*%*		*70.1*	*50-140*			
Volatiles									
Benzene	2.84	0.02	ug/g	ND	71.0	60-130			
Ethylbenzene	3.87	0.05	ug/g	ND	96.7	60-130			
Toluene	3.81	0.05	ug/g	ND	95.2	60-130			
m,p-Xylenes	7.94	0.05	ug/g	ND	99.3	60-130			
o-Xylene	4.09	0.05	ug/g	ND	102	60-130			
Surrogate: Toluene-d8	*8.04*		*%*		*101*	*50-140*			

Qualifier Notes:

Sample Data Revisions:

None

Work Order Revisions / Comments:

Revision 1 - Replacement Methanol vials for VOC/F1 analysis were provided for samples TP5-23-G2, TP7-23-G5 and TP8-23-G1

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unlesss otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

- F1 range corrected for BTEX.

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

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

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

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2331085

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2331085	№ 141930

Client Name: Paterson Group	Project Ref: PE6204
Contact Name: Mike Beaudoin	Quote #:
Address: 9 Auriga Dr.	PO #: 58029
Telephone: 613-226-7381	E-mail: mbeaudoin@patersongroup.ca, Kmunch@patersongroup.ca

Page 1 of 1

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular

Date Required:

☐ REG 153/04 ☐ REG 406/19

Table 1 ☐ Res/Park ☐ Med/Fine
Table 2 ☐ Ind/Comm ☐ Coarse
Table 3 ☐ Agri/Other
Table ☐
For RSC: ☐ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC/SAR
1	TP5-23-G2	S		2	July 31/23	am	X		X	X	X	X		X
2	TP6-23-G2	↓		↓	↓	↓	X		X	X	X	X		X
3	TP7-23-G2						X		X	X	X	X		X
4	TP7-23-G5						X		X	X	X	X		X
5	TP8-23-G1						X		X	X	X	X		X
6														
7														
8														
9														
10														

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): DClatt	Received By Driver/Depot:	Received at Lab: SD	Verified By:
Relinquished By (Print): Derek Laffin	Date/Time:	Date/Time: July 31, 2023, 4:05 pm	Date/Time: July 31/23 1657
Date/Time: July 31 2023	Temperature: °C	Temperature: 22.4 °C	pH Verified: ☐ By:

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Paracel ID: 2331085

Chain Of Custody
(Lab Use Only)
№ 141880

Client Name: Patterson Group	Project Ref: ~~Pinkerton~~ PE6204	Page __ of __
Contact Name: Derek Lattin	Quote #:	Turnaround Time
Address: 49 Auriga Drive	PO #: 58029	☐ 1 day ☐ 3 day
	E-mail: dlattin@pattersongroup.ca	☐ 2 day * ☒ Regular
Telephone: 613-226-7381		Date Required: End of day Aug 8, 2023

☒ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO		
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA		
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm		
☐ Table ___	Mun:		
For RSC: ☐ Yes ☐ No	☐ Other:		

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	TP5-23-G2	S		2	July 31/23		X	X										
2	TP7-23-G5	↓		↓	↓		X	X										
3	TP8-23-G1	↓		↓	↓		X	X										
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments: * + DAY TAT

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Joshua Dempsey	Date/Time:	Date/Time: Aug 2/23 1613	Date/Time: Aug 2 2023 1619
Date/Time: Aug 2/2023	Temperature: °C	Temperature: 20.8 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mike Beaudoin

Client PO: 58030
Project: PE6204
Custody: 141929

Report Date: 4-Aug-2023
Order Date: 31-Jul-2023

Order #: 2331084

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

Paracel ID	Client ID
2331084-01	TCLP1
2331084-02	TCLP2
2331084-03	TCLP3

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Flashpoint	ASTM D93 - Pensky-Martens Closed Cup	3-Aug-23	3-Aug-23
Metals, ICP-MS	TCLP EPA 6020 - Digestion - ICP-MS	3-Aug-23	3-Aug-23
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	1-Aug-23	2-Aug-23
REG 558 - Benzene	TCLP ZHE EPA 624 - P&T GC-MS	2-Aug-23	3-Aug-23
REG 558 - Cyanide	TCLP MOE E3015- Auto Colour	2-Aug-23	2-Aug-23
REG 558 - Fluoride	TCLP EPA 340.2 - ISE	2-Aug-23	2-Aug-23
REG 558 - Mercury by CVAA	TCLP EPA 7470A, CVAA	3-Aug-23	4-Aug-23
REG 558 - NO3/NO2	TCLP EPA 300.1 - IC	2-Aug-23	2-Aug-23
REG 558 - PAHs	TCLP EPA 625 - GC-MS	3-Aug-23	3-Aug-23
Solids, %	CWS Tier 1 - Gravimetric	3-Aug-23	4-Aug-23

Summary of Criteria Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances.

Sample	Analyte	MDL / Units	Result	Reg 558 Schedule 4	-

	Client ID:	TCLP1	TCLP2	TCLP3	-	Criteria:	
	Sample Date:	31-Jul-23 09:00	31-Jul-23 09:00	31-Jul-23 09:00	-	Reg 558 Schedule 4	-
	Sample ID:	2331084-01	2331084-02	2331084-03	-		
	Matrix:	Soil	Soil	Soil	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	87.0	62.1	70.3	-	-	-
Flashpoint	°C	>70	>70	>70	-	-	-
EPA 1311 - TCLP Leachate Inorganics							
Fluoride	0.05 mg/L	0.24	0.19	0.26	-	150 mg/L	-
Nitrate as N	1 mg/L	<1	<1	<1	-	1000 mg/L	-
Nitrite as N	1 mg/L	<1	<1	<1	-	1000 mg/L	-
Cyanide, free	0.02 mg/L	<0.02	<0.02	<0.02	-	20 mg/L	-
EPA 1311 - TCLP Leachate Metals							
Arsenic	0.05 mg/L	<0.05	<0.05	<0.05	-	2.5 mg/L	-
Barium	0.05 mg/L	0.58	0.24	0.26	-	100 mg/L	-
Boron	0.1 mg/L	<0.10	<0.10	0.11	-	500 mg/L	-
Cadmium	0.01 mg/L	<0.01	<0.01	<0.01	-	0.5 mg/L	-
Chromium	0.05 mg/L	<0.05	<0.05	<0.05	-	5 mg/L	-
Lead	0.05 mg/L	<0.05	<0.05	<0.05	-	5 mg/L	-
Mercury	0.005 mg/L	<0.005	<0.005	<0.005	-	0.1 mg/L	-
Selenium	0.05 mg/L	<0.05	<0.05	<0.05	-	1 mg/L	-
Silver	0.05 mg/L	<0.05	<0.05	<0.05	-	5 mg/L	-
Uranium	0.05 mg/L	<0.05	<0.05	<0.05	-	10 mg/L	-
EPA 1311 - TCLP Leachate Volatiles							
Benzene	0.005 mg/L	<0.005	<0.005	<0.005	-	0.5 mg/L	-
Toluene-d8	Surrogate	114%	113%	112%	-	-	-
EPA 1311 - TCLP Leachate Organics							
Benzo [a] pyrene	0.0001 mg/L	<0.0001	<0.0001	<0.0001	-	0.001 mg/L	-
Terphenyl-d14	Surrogate	77.5%	78.5%	70.5%	-	-	-
General Inorganics							
pH	0.05 pH Units	7.84	7.70	7.89	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics								
Fluoride	ND	0.05	mg/L					
Nitrate as N	ND	1	mg/L					
Nitrite as N	ND	1	mg/L					
Cyanide, free	ND	0.02	mg/L					
EPA 1311 - TCLP Leachate Metals								
Arsenic	ND	0.05	mg/L					
Barium	ND	0.05	mg/L					
Boron	ND	0.10	mg/L					
Cadmium	ND	0.01	mg/L					
Chromium	ND	0.05	mg/L					
Lead	ND	0.05	mg/L					
Mercury	ND	0.005	mg/L					
Selenium	ND	0.05	mg/L					
Silver	ND	0.05	mg/L					
Uranium	ND	0.05	mg/L					
EPA 1311 - TCLP Leachate Organics								
Benzo [a] pyrene	ND	0.0001	mg/L					
Surrogate: Terphenyl-d14	*0.16*		*%*	*78.7*	*37-156*			
EPA 1311 - TCLP Leachate Volatiles								
Benzene	ND	0.005	mg/L					
Surrogate: Toluene-d8	*0.0933*		*%*	*117*	*76-118*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.09	0.05	mg/L	0.09			0.4	20	
Nitrate as N	ND	1	mg/L	ND			NC	20	
Nitrite as N	ND	1	mg/L	ND			NC	20	
Cyanide, free	ND	0.02	mg/L	ND			NC	20	
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L	ND			NC	29	
Barium	0.576	0.05	mg/L	0.569			1.2	34	
Boron	ND	0.10	mg/L	ND			NC	33	
Cadmium	ND	0.01	mg/L	ND			NC	33	
Chromium	ND	0.05	mg/L	ND			NC	32	
Lead	ND	0.05	mg/L	ND			NC	32	
Mercury	ND	0.005	mg/L	ND			NC	30	
Selenium	ND	0.05	mg/L	ND			NC	28	
Silver	ND	0.05	mg/L	ND			NC	28	
Uranium	ND	0.05	mg/L	ND			NC	27	
General Inorganics									
pH	7.72	0.05	pH Units	7.73			0.1	2.3	
Physical Characteristics									
% Solids	87.2	0.1	% by Wt.	86.2			1.2	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.68	0.05	mg/L	0.09	116	70-130			
Nitrate as N	10	1	mg/L	ND	101	81-112			
Nitrite as N	10	1	mg/L	ND	96.1	76-107			
Cyanide, free	0.035	0.02	mg/L	ND	70.9	52-148			
EPA 1311 - TCLP Leachate Metals									
Arsenic	54.8	0.05	mg/L	0.124	109	83-119			
Barium	106	0.05	mg/L	56.9	98.2	80-120			
Boron	52.0	0.10	mg/L	6.87	90.2	71-128			
Cadmium	50.5	0.01	mg/L	0.022	101	78-119			
Chromium	60.4	0.05	mg/L	0.173	120	80-124			
Lead	47.8	0.05	mg/L	ND	95.5	77-126			
Mercury	0.0298	0.005	mg/L	ND	99.2	70-130			
Selenium	43.3	0.05	mg/L	0.323	85.9	75-125			
Silver	53.1	0.05	mg/L	ND	106	70-128			
Uranium	52.5	0.05	mg/L	0.134	105	70-131			
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	0.0538	0.0001	mg/L	ND	108	39-123			
Surrogate: Terphenyl-d14	*0.15*		*%*		*73.9*	*37-156*			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	0.030	0.005	mg/L	ND	73.8	55-141			
Surrogate: Toluene-d8	*0.0736*		*%*		*92.1*	*76-118*			

Certificate of Analysis

Report Date: 04-Aug-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 31-Jul-2023

Client PO: **58030**

Project Description: PE6204

Qualifier Notes:

Sample Qualifiers :

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unlesss otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

PARACEL LABORATORIES LTD.

Paracel ID: 2331084

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
	№ 141929

Client Name: Paterson Group	Project Ref: PE6204	Page 1 of 1
Contact Name: Mike Beaudoin	Quote #:	Turnaround Time
Address: 9 Auriga Dr.	PO #: 58030	☐ 1 day ☐ 3 day
	E-mail: mbeaudoin@patersongroup.ca	☐ 2 day ☒ Regular
Telephone: 613-226-7381	Kmunch@patersongroup.ca	Date Required:

☐ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	metals + inorganics on leach	PAHs on leach	Benzene on leach	Flashpoint	pH
1	TCLP1	S		1	July 31/23	am			✓					X	X	X	X	X
2	TCLP2	↓		↓	↓	↓								X	X	X	X	X
3	TCLP3	↓		↓	↓	↓								X	X	X	X	X
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: ~~Paracel~~ Paracel Courier

Relinquished By (Sign): DMatte	Received By Driver/Depot:	Received at Lab: SO	Verified By:
Relinquished By (Print): Derek Lathin	Date/Time:	Date/Time: July 31/2023 4:05pm	Date/Time: July 31/23 1651
Date/Time: July 31 2023	Temperature: °C	Temperature: 22.4 °C	pH Verified: ☐ By:

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Certificate of Analysis

Lopers & Associates

30 Lansfield Way
Ottawa, ON K2G 3V8
Attn: Luke Lopers

Client PO:
Project: LOP21-012
Custody: 62889

Report Date: 16-Nov-2021
Order Date: 9-Nov-2021

Order #: 2146312

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

Paracel ID	Client ID
2146312-01	EX-T2-S3
2146312-02	EX-T2-S4
2146312-03	EX-T2-S5

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Client: Lopers & Associates

Client PO:

Report Date: 16-Nov-2021

Order Date: 9-Nov-2021

Project Description: LOP21-012

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	15-Nov-21	15-Nov-21
PHC F1	CWS Tier 1 - P&T GC-FID	15-Nov-21	15-Nov-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	10-Nov-21	11-Nov-21
Solids, %	Gravimetric, calculation	11-Nov-21	11-Nov-21

Certificate of Analysis

Report Date: 16-Nov-2021

Client: Lopers & Associates

Order Date: 9-Nov-2021

Client PO:

Project Description: LOP21-012

	Client ID:	EX-T2-S3	EX-T2-S4	EX-T2-S5	-
	Sample Date:	09-Nov-21 09:00	09-Nov-21 09:00	09-Nov-21 09:00	-
	Sample ID:	2146312-01	2146312-02	2146312-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	69.4	65.0	68.2	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene-d8	Surrogate	134%	137%	136%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	109	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	117	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*10.3*		*ug/g*		*129*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	51	8	ug/g dry	41			23.1	30	
F4 PHCs (C34-C50)	30	6	ug/g dry	29			5.7	30	
Physical Characteristics									
% Solids	95.3	0.1	% by Wt.	95.6			0.3	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*10.6*		*ug/g dry*		*120*	*50-140*			

Certificate of Analysis

Report Date: 16-Nov-2021

Client: Lopers & Associates

Order Date: 9-Nov-2021

Client PO:

Project Description: LOP21-012

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	161	7	ug/g	ND	80.5	80-120			
F2 PHCs (C10-C16)	89	4	ug/g	ND	92.7	60-140			
F3 PHCs (C16-C34)	252	8	ug/g	41	90.0	60-140			
F4 PHCs (C34-C50)	158	6	ug/g	29	86.9	60-140			
Volatiles									
Benzene	3.20	0.02	ug/g	ND	80.1	60-130			
Ethylbenzene	3.35	0.05	ug/g	ND	83.9	60-130			
Toluene	3.17	0.05	ug/g	ND	79.3	60-130			
m,p-Xylenes	6.42	0.05	ug/g	ND	80.3	60-130			
o-Xylene	2.99	0.05	ug/g	ND	74.8	60-130			
Surrogate: Toluene-d8	*7.83*		*ug/g*		*97.9*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - ID on jar reads "EX-T2-S3" and coc reads "EX-T2-S5"

Applies to samples: EX-T2-S5

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACE LABORATORIES

Paracel ID: 2146312

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n

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2146312	№ 62889

Client Name: LOPERS & ASSOCIATES
Project Ref: L0921-012
Page 1 of 1

Contact Name: Luke Lopers
Quote #:

Address: 30 Lansfield Way, Ottawa, ON
PO #:

E-mail: Luke@Lopers.ca

Telephone: 613-327-9073

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required: _____

☒ REG 153/04 ☐ REG 406/19

Other Regulation	
☐ REG 558	☐ PWQO
☐ CCME	☐ MISA
☐ SU - Sani	☐ SU - Storm
Mun:	
☐ Other:	

☐ Table 1 ☒ Res/Park ☒ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☒ Table 3 ☐ Agri/Other
☐ Table ___
For RSC: ☒ Yes ☐ No

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: PAHs/BTEXS
1	EX-T2-S3	S		32	Nov 9/21		X
2	EX-T2-S4	S		2	Nov 9/21		X
3	EX-T2-S5	S		12	Nov 9/21		X
4							
5							
6							
7							
8							
9							
10							

Comments:

Method of Delivery: Walk in

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Soheepam Ohmai	Verified By:
Relinquished By (Print): Luke Lopers	Date/Time: 11/09/21 4:46pm	Date/Time: Nov 10, 2021 11.32	Date/Time: NOV 10, 2021 13:21
Date/Time: November 9, 2021 4:29PM	Temperature: 16.1 °C	Temperature: 7.7 °C	pH Verified: ☐ By:

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Certificate of Analysis

Lopers & Associates

30 Lansfield Way
Ottawa, ON K2G 3V8
Attn: Luke Lopers

Client PO:
Project: LOP21-012
Custody: 41271

Report Date: 3-Dec-2021
Order Date: 29-Nov-2021

Order #: 2149106

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

Paracel ID	Client ID
2149106-01	EX-T2-S6
2149106-02	EX-T2-W1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 03-Dec-2021

Client: Lopers & Associates

Order Date: 29-Nov-2021

Client PO:

Project Description: LOP21-012

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	1-Dec-21	1-Dec-21
PHC F1	CWS Tier 1 - P&T GC-FID	1-Dec-21	1-Dec-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	30-Nov-21	3-Dec-21
Solids, %	Gravimetric, calculation	1-Dec-21	2-Dec-21

Certificate of Analysis

Client: Lopers & Associates

Client PO:

Report Date: 03-Dec-2021

Order Date: 29-Nov-2021

Project Description: LOP21-012

	Client ID:	EX-T2-S6	EX-T2-W1	-	-
	Sample Date:	29-Nov-21 09:00	29-Nov-21 09:00	-	-
	Sample ID:	2149106-01	2149106-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	66.1	68.5	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene-d8	Surrogate	145%	144%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-

Certificate of Analysis

Report Date: 03-Dec-2021

Client: Lopers & Associates

Order Date: 29-Nov-2021

Client PO:

Project Description: LOP21-012

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*9.87*		*ug/g*		*123*	*50-140*			

Certificate of Analysis

Report Date: 03-Dec-2021

Client: Lopers & Associates

Order Date: 29-Nov-2021

Client PO:

Project Description: LOP21-012

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	83	4	ug/g dry	154			60.2	30	QR-04
F3 PHCs (C16-C34)	166	8	ug/g dry	185			11.1	30	
F4 PHCs (C34-C50)	31	6	ug/g dry	39			22.7	30	
Physical Characteristics									
% Solids	91.2	0.1	% by Wt.	87.2			4.5	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*11.0*		*ug/g dry*		*126*	*50-140*			

Certificate of Analysis

Report Date: 03-Dec-2021

Client: Lopers & Associates

Order Date: 29-Nov-2021

Client PO:

Project Description: LOP21-012

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	179	7	ug/g	ND	89.6	80-120			
F2 PHCs (C10-C16)	65	4	ug/g	ND	80.8	80-120			
F3 PHCs (C16-C34)	383	8	ug/g	185	91.0	60-140			
F4 PHCs (C34-C50)	185	6	ug/g	39	105	60-140			
Volatiles									
Benzene	3.19	0.02	ug/g	ND	79.7	60-130			
Ethylbenzene	3.59	0.05	ug/g	ND	89.7	60-130			
Toluene	3.40	0.05	ug/g	ND	84.9	60-130			
m,p-Xylenes	6.88	0.05	ug/g	ND	86.0	60-130			
o-Xylene	3.23	0.05	ug/g	ND	80.7	60-130			
Surrogate: Toluene-d8	*8.24*		*ug/g*		*103*	*50-140*			

Qualifier Notes:

QC Qualifiers :

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

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2149106

ice
St. Laurent Blvd.
Ontario K1G 4J8
749-1947
@paracellabs.com

Chain of Custody
(Lab Use Only)
№ 41271

Page 1 of 1

Client Name: Lopers & Associates	Project Reference: LOP21-012
Contact Name: Luke Lopers	Quote #
Address: 30 Lanstfield Way. Ottawa, ON	PO #
Telephone: 613-327-8073	Email Address: Luke@Lopers.ca

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required:

Criteria: ☒ O. Reg. 153/04 (As Amended) Table 3 ☒ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 2149106

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PAHs/BTEX
1	EX-T2-S6	S		2	Nov 29/21		X
2	EX-T2-E1	S		2	Nov 29/21		X
3							
4							
5							
6							
7							
8							
9							
10							

Comments:

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: Jurneyan Bhumai	Verified By:
Relinquished By (Print): Luke Lopers	Date/Time: 11/29/21 3:00pm	Date/Time: Nov 30, 2021 12.00	Date/Time: Nov 30, 2021 12:25
Date/Time: November 29, 2021 / 3:00PM	Temperature: 10.9 °C	Temperature: 5.8 °C	pH Verified [ ] By:

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	#4
L1298752-4 BH13-5 SS1									
Sampled By: B. Ritchie/K. Linton on 06-MAY-13									
Matrix: soil									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.050		0.050	ug/g	15-MAY-13	21	29	7.9	29
Acenaphthylene	<0.050		0.050	ug/g	15-MAY-13	0.15	0.17	0.15	0.17
Anthracene	<0.050		0.050	ug/g	15-MAY-13	0.67	0.74	0.67	0.74
Benzo(a)anthracene	<0.050		0.050	ug/g	15-MAY-13	0.96	0.96	0.5	0.63
Benzo(a)pyrene	<0.050		0.050	ug/g	15-MAY-13	0.3	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-MAY-13	0.96	0.96	0.78	0.78
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-MAY-13	9.6	9.6	6.6	7.8
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-MAY-13	0.96	0.96	0.78	0.78
Chrysene	<0.050		0.050	ug/g	15-MAY-13	9.6	9.6	7	7.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-MAY-13	0.1	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	15-MAY-13	9.6	9.6	0.69	0.69
Fluorene	<0.050		0.050	ug/g	15-MAY-13	62	69	62	69
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-MAY-13	0.76	0.95	0.38	0.48
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	15-MAY-13	30	42	0.99	3.4
1-Methylnaphthalene	<0.030		0.030	ug/g	15-MAY-13	30	42	0.99	3.4
2-Methylnaphthalene	<0.030		0.030	ug/g	15-MAY-13	30	42	0.99	3.4
Naphthalene	<0.050		0.050	ug/g	15-MAY-13	9.6	28	0.6	0.75
Phenanthrene	<0.050		0.050	ug/g	15-MAY-13	12	16	6.2	7.8
Pyrene	<0.050		0.050	ug/g	15-MAY-13	96	96	78	78
Surrogate: 2-Fluorobiphenyl	100.8		50-140	%	15-MAY-13				
Surrogate: p-Terphenyl d14	108.2		50-140	%	15-MAY-13				
L1298752-5 BH13-6 SS1A									
Sampled By: B. Ritchie/K. Linton on 02-MAY-13									
Matrix: soil						#1	#2	#3	#4
Physical Tests									
Conductivity	0.133		0.0040	mS/cm	10-MAY-13	1.4	1.4	0.7	0.7
% Moisture	6.16		0.10	%	09-MAY-13				
pH	7.77		0.10	pH units	10-MAY-13				
Cyanides									
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	13-MAY-13	0.051	0.051	0.051	0.051
Saturated Paste Extractables									
SAR	<0.10		0.10	SAR	10-MAY-13	12	12	5	5
Calcium (Ca)	35.7		1.0	mg/L	10-MAY-13				
Magnesium (Mg)	1.9		1.0	mg/L	10-MAY-13				
Sodium (Na)	1.4		1.0	mg/L	10-MAY-13				
Metals									
Antimony (Sb)	<1.0		1.0	ug/g	10-MAY-13	40	50	7.5	7.5
Arsenic (As)	<1.0		1.0	ug/g	10-MAY-13	18	18	18	18
Barium (Ba)	83.3		1.0	ug/g	10-MAY-13	670	670	390	390
Beryllium (Be)	<0.50		0.50	ug/g	10-MAY-13	8	10	4	5
Boron (B)	6.4		5.0	ug/g	10-MAY-13	120	120	120	120
Boron (B), Hot Water Ext.	0.16		0.10	ug/g	10-MAY-13	2	2	1.5	1.5

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T2-RPI-ICC-C/F-SOIL

#1: T2-Soil-Ind/Com/Commu Property Use (Coarse)

#2: T2-Soil-Ind/Com/Commu Property Use (Fine)

#3: T2-Soil-Res/Park/Inst. Property Use (Coarse)

#4: T2-Soil-Res/Park/Inst. Property Use (Fine)

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	#4
L1298752-5 BH13-6 SS1A									
Sampled By: B. Ritchie/K. Linton on 02-MAY-13									
Matrix: soil									
Metals									
Cadmium (Cd)	<0.50		0.50	ug/g	10-MAY-13	1.9	1.9	1.2	1.2
Chromium (Cr)	9.4		1.0	ug/g	10-MAY-13	160	160	160	160
Cobalt (Co)	3.8		1.0	ug/g	10-MAY-13	80	100	22	22
Copper (Cu)	9.3		1.0	ug/g	10-MAY-13	230	300	140	180
Lead (Pb)	7.7		1.0	ug/g	10-MAY-13	120	120	120	120
Mercury (Hg)	<0.010		0.010	ug/g	10-MAY-13	3.9	20	0.27	1.8
Molybdenum (Mo)	<1.0		1.0	ug/g	10-MAY-13	40	40	6.9	6.9
Nickel (Ni)	6.6		1.0	ug/g	10-MAY-13	270	340	100	130
Selenium (Se)	<1.0		1.0	ug/g	10-MAY-13	5.5	5.5	2.4	2.4
Silver (Ag)	<0.20		0.20	ug/g	10-MAY-13	40	50	20	25
Thallium (Tl)	<0.50		0.50	ug/g	10-MAY-13	3.3	3.3	1	1
Uranium (U)	<1.0		1.0	ug/g	10-MAY-13	33	33	23	23
Vanadium (V)	19.9		1.0	ug/g	10-MAY-13	86	86	86	86
Zinc (Zn)	22.5		5.0	ug/g	10-MAY-13	340	340	340	340
Speciated Metals									
Chromium, Hexavalent	0.31		0.20	ug/g	10-MAY-13	8	10	8	10
Volatile Organic Compounds									
Benzene	<0.020		0.020	ug/g	13-MAY-13	0.32	0.4	0.21	0.17
Ethyl Benzene	<0.050		0.050	ug/g	13-MAY-13	1.1	1.6	1.1	1.6
Toluene	<0.20		0.20	ug/g	13-MAY-13	6.4	9	2.3	6
o-Xylene	<0.020		0.020	ug/g	13-MAY-13				
m+p-Xylenes	<0.030		0.030	ug/g	13-MAY-13				
Xylenes (Total)	<0.050		0.050	ug/g	14-MAY-13	26	30	3.1	25
Surrogate: 4-Bromofluorobenzene	94.9		70-130	%	13-MAY-13				
Surrogate: 1,4-Difluorobenzene	100.3		70-130	%	13-MAY-13				
Hydrocarbons									
F1 (C6-C10)	<5.0		5.0	ug/g	13-MAY-13	55	65	55	65
F1-BTEX	<5.0		5.0	ug/g	14-MAY-13	55	65	55	65
F2 (C10-C16)	<10		10	ug/g	14-MAY-13	230	250	98	150
F2-Naphth	<10		10	ug/g	14-MAY-13				
F3 (C16-C34)	<50		50	ug/g	14-MAY-13	1700	2500	300	1300
F3-PAH	<50		50	ug/g	14-MAY-13				
F4 (C34-C50)	<50		50	ug/g	14-MAY-13	3300	6600	2800	5600
Total Hydrocarbons (C6-C50)	<50		50	ug/g	14-MAY-13				
Chrom. to baseline at nC50	YES			No Unit	14-MAY-13				
Surrogate: 2-Bromobenzotrifluoride	98.2		60-140	%	14-MAY-13				
Surrogate: 3,4-Dichlorotoluene	98.9		60-140	%	13-MAY-13				
Surrogate: Octacosane	110.1		60-140	%	14-MAY-13				
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	<0.050		0.050	ug/g	13-MAY-13	21	29	7.9	29
Acenaphthylene	<0.050		0.050	ug/g	13-MAY-13	0.15	0.17	0.15	0.17
Anthracene	<0.050		0.050	ug/g	13-MAY-13	0.67	0.74	0.67	0.74
Benzo(a)anthracene	<0.050		0.050	ug/g	13-MAY-13	0.96	0.96	0.5	0.63

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T2-RPI-ICC-C/F-SOIL

#1: T2-Soil-Ind/Com/Commu Property Use (Coarse)

#2: T2-Soil-Ind/Com/Commu Property Use (Fine)

#3: T2-Soil-Res/Park/Inst. Property Use (Coarse)

#4: T2-Soil-Res/Park/Inst. Property Use (Fine)

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits #1	#2	#3	#4
L1298752-5 BH13-6 SS1A									
Sampled By: B. Ritchie/K. Linton on 02-MAY-13									
Matrix: soil									
Polycyclic Aromatic Hydrocarbons									
Benzo(a)pyrene	<0.050		0.050	ug/g	13-MAY-13	0.3	0.3	0.3	0.3
Benzo(b)fluoranthene	<0.050		0.050	ug/g	13-MAY-13	0.96	0.96	0.78	0.78
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	13-MAY-13	9.6	9.6	6.6	7.8
Benzo(k)fluoranthene	<0.050		0.050	ug/g	13-MAY-13	0.96	0.96	0.78	0.78
Chrysene	<0.050		0.050	ug/g	13-MAY-13	9.6	9.6	7	7.8
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	13-MAY-13	0.1	0.1	0.1	0.1
Fluoranthene	<0.050		0.050	ug/g	13-MAY-13	9.6	9.6	0.69	0.69
Fluorene	<0.050		0.050	ug/g	13-MAY-13	62	69	62	69
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	13-MAY-13	0.76	0.95	0.38	0.48
1+2-Methylnaphthalenes	<0.042		0.042	ug/g	13-MAY-13	30	42	0.99	3.4
1-Methylnaphthalene	<0.030		0.030	ug/g	13-MAY-13	30	42	0.99	3.4
2-Methylnaphthalene	<0.030		0.030	ug/g	13-MAY-13	30	42	0.99	3.4
Naphthalene	<0.050		0.050	ug/g	13-MAY-13	9.6	28	0.6	0.75
Phenanthrene	<0.050		0.050	ug/g	13-MAY-13	12	16	6.2	7.8
Pyrene	<0.050		0.050	ug/g	13-MAY-13	96	96	78	78
Surrogate: 2-Fluorobiphenyl	103.1		50-140	%	13-MAY-13				
Surrogate: p-Terphenyl d14	105.9		50-140	%	13-MAY-13				
L1298752-6 BH13-8 SS1									
Sampled By: B. Ritchie/K. Linton on 02-MAY-13									
Matrix: soil						#1	#2	#3	#4
Physical Tests									
Conductivity	0.180		0.0040	mS/cm	10-MAY-13	1.4	1.4	0.7	0.7
% Moisture	8.66		0.10	%	09-MAY-13				
pH	7.60		0.10	pH units	10-MAY-13				
Cyanides									
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	13-MAY-13	0.051	0.051	0.051	0.051
Saturated Paste Extractables									
SAR	0.11		0.10	SAR	10-MAY-13	12	12	5	5
Calcium (Ca)	39.1		1.0	mg/L	10-MAY-13				
Magnesium (Mg)	1.8		1.0	mg/L	10-MAY-13				
Sodium (Na)	2.6		1.0	mg/L	10-MAY-13				
Metals									
Antimony (Sb)	<1.0		1.0	ug/g	10-MAY-13	40	50	7.5	7.5
Arsenic (As)	2.7		1.0	ug/g	10-MAY-13	18	18	18	18
Barium (Ba)	142		1.0	ug/g	10-MAY-13	670	670	390	390
Beryllium (Be)	<0.50		0.50	ug/g	10-MAY-13	8	10	4	5
Boron (B)	12.6		5.0	ug/g	10-MAY-13	120	120	120	120
Boron (B), Hot Water Ext.	0.19		0.10	ug/g	10-MAY-13	2	2	1.5	1.5
Cadmium (Cd)	<0.50		0.50	ug/g	10-MAY-13	1.9	1.9	1.2	1.2
Chromium (Cr)	16.8		1.0	ug/g	10-MAY-13	160	160	160	160
Cobalt (Co)	5.6		1.0	ug/g	10-MAY-13	80	100	22	22
Copper (Cu)	24.2		1.0	ug/g	10-MAY-13	230	300	140	180

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON-511-T2-RPI-ICC-C/F-SOIL

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#2: T2-Soil-Ind/Com/Commu Property Use (Fine)

#3: T2-Soil-Res/Park/Inst. Property Use (Coarse)

#4: T2-Soil-Res/Park/Inst. Property Use (Fine)

Quality Control Report

Workorder: L1298752 Report Date: 15-MAY-13

Client: SPL CONSULTANTS LIMITED (Ottawa)
146 Colonnade Road S Units 17 & 18
Nepean ON K2E 7Y1
Contact: Daniel Charette

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

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

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

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

128939

C of C # 00000

60 NORTHLAND ROAD, UNIT 1
WATERLOO, ON N2V 2B8
Phone: (519) 886-6910
Fax: (519) 886-9047
Toll Free: 1-800-668-9878

ALS Environmental

CHAIN OF CUSTODY / ANALYTICAL SERVICES REQUEST FORM

Page 1 of 1

Note: all TAT Quoted material is in business days which exclude statutory holidays and weekends. TAT samples received past 3:00 pm or Saturday/Sunday begin the next day.

Specify date required

Service requested:
- 5 day (regular) X
- 3-4 day (25%)
- 2 day TAT (50%)
- Next day TAT (100%)
- Same day TAT (200%)

COMPANY NAME	SPL CONSULTANTS LTD.
OFFICE	17-1146 COLONNADE Rd. S. OTTAWA, ON, K2E 7Y1
PROJECT MANAGER	DANIEL CHARETTE
PROJECT #	1599-710
PHONE	613-228-0065
FAX	613-228-0045
ACCOUNT #	22763
QUOTATION #	2013 MSA
PO #	N/A

CRITERIA — Criteria on report YES ✓ NO ___

Reg 153/04 ☐ Reg 511/09 ☑

Table 1 (2) (3) 4 5 6 7 8 9

TCLP ___ MISA ___ PWQO ___

ODWS ___ OTHER ___ RESIDENTIAL

REPORT FORMAT/DISTRIBUTION

EMAIL ✓ FAX ___ BOTH ___

SELECT: PDF ✓ DIGITAL Excel BOTH ✓

EMAIL 1 dcharette@splconsultants.ca

EMAIL 2 ___

ANALYSIS REQUEST

F

SAMPLING INFORMATION

Sample Date/Time: Date (dd-mm-yy)	Time (24hr) (hh:mm)	TYPE: COMP	TYPE: GRAB	MATRIX: WATER	MATRIX: SOIL	MATRIX: OTHER	SAMPLE DESCRIPTION TO APPEAR ON REPORT	NUMBER OF CONTAINERS	PHCs (F1-F4) + BTEX	PAHs	Metals + Inorganics	metals (short list)	COMMENTS	LAB ID
03-05-2013	—				X		BH13-2 SS7	4	X	X	X		ON Hold at Lab	-1
01-05-2013	—				X		BH13-3 SS1	4	X	X	X		ON " "	-2
06-05-2013	—				X		BH13-4 SS1	4	X	X	X			-3
06-05-2013	—				X		BH13-5 SS1	4	X	X	X			-4
02-05-2013	—				X		BH13-6 SS1A	4	X	X	X		ON HOLD AT LAB	-5
02-05-2013	—				X		BH13-8 SS1	4	X	X	X		ON	-6
02-05-2013	—				X		QAQC1	1				X	ON ↓	-7

L1298752-COFC

PLEASE INDICATE FILTERED, PRESERVED OR BOTH <----- (F, P, F/P)

SUBMISSION #: L1298752.

ENTERED BY: BMARK

DATE/TIME ENTERED: May 8/13 1:20pm

BIN #: B575

SPECIAL INSTRUCTIONS/COMMENTS

THE QUESTIONS BELOW MUST BE ANSWERED FORWATER SAMPLES (CHECK Yes OR No)

Are any samples taken from a regulated DW System? Yes ☐ No ☑

If yes, an authorized drinking water COC MUST be used for this submission.

Is the water sampled intended to be potable for human consumption? Yes ☐ No ☑

SAMPLE CONDITION

FROZEN ☐ COLD ☐ COOLING INITIATED ☑ AMBIENT ☐

MEAN TEMP 15°C

OBSERVATIONS Yes ☐ No ☐ If yes add SIF

INIT

SAMPLED BY: B. Ritchie / K. Linton	DATE & TIME	RECEIVED BY: BMARK	DATE & TIME May 8/13 12:40
RELINQUISHED BY:	DATE & TIME 08/05/2013 12h00	RECEIVED AT LAB BY:	DATE & TIME

Notes

1. Quote number must be provided to ensure proper pricing
2. TAT may vary dependent on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs.
3. Any known or suspected hazards relating to a sample must be noted on the chain of custody in comments section.

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OTTAWA ◉ NIAGARA FALLS ◉ MISSISSAUGA ◉ SARNIA

Certificate of Analysis

Paterson Group Consulting Engineers
28 Concourse Gate, Unit 1
Nepean, ON K2E 7T7
Attn: Mark D'Arcy

Phone: (613) 226-7381
Fax: (613) 226-6344

Client PO: 8293
Project: PE1865
Custody: 60535

Report Date: 8-Dec-2009
Order Date: 2-Dec-2009
Order #: 0949080

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

Paracel ID	Client ID
0949080-01	B129
0949080-02	TP3
0949080-03	TP4
0949080-04	TP5
0949080-05	EF1

Approved By: Mark Foto

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

PARACEL LABORATORIES LTD.

Order #: 0949080

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date:2-Dec-2009

Client: **Paterson Group Consulting Engineers**
Client PO: 8293 Project Description: PE1865

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX	EPA 8260 - P&T GC-MS	2-Dec-09	5-Dec-09
CCME PHC F1	CWS Tier 1 - P&T GC-FID	2-Dec-09	5-Dec-09
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	3-Dec-09	4-Dec-09
Solids, %	Gravimetric, calculation	3-Dec-09	3-Dec-09
VOCs	EPA 8260 - P&T GC-MS	2-Dec-09	6-Dec-09

PARACEL LABORATORIES LTD.

Order #: 0949080

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date: 2-Dec-2009

Client: **Paterson Group Consulting Engineers**
Client PO: 8293
Project Description: PE1865

	Client ID:	B129	TP3	TP4	TP5
	Sample Date:	30-Nov-09	30-Nov-09	30-Nov-09	30-Nov-09
	Sample ID:	0949080-01	0949080-02	0949080-03	0949080-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	78.0	66.1	72.8	82.0
Volatiles					
Benzene	0.002 ug/g dry	<0.002	-	-	-
Bromodichloromethane	0.002 ug/g dry	<0.002	-	-	-
Bromoform	0.002 ug/g dry	<0.002	-	-	-
Bromomethane	0.003 ug/g dry	<0.003	-	-	-
Carbon Tetrachloride	0.002 ug/g dry	<0.002	-	-	-
Chlorobenzene	0.002 ug/g dry	<0.002	-	-	-
Chloroethane	0.005 ug/g dry	<0.005	-	-	-
Chloroform	0.003 ug/g dry	<0.003	-	-	-
Chloromethane	0.020 ug/g dry	<0.020	-	-	-
Dibromochloromethane	0.002 ug/g dry	<0.002	-	-	-
1,2-Dibromoethane	0.002 ug/g dry	<0.002	-	-	-
1,2-Dichlorobenzene	0.002 ug/g dry	<0.002	-	-	-
1,3-Dichlorobenzene	0.002 ug/g dry	<0.002	-	-	-
1,4-Dichlorobenzene	0.002 ug/g dry	<0.002	-	-	-
1,1-Dichloroethane	0.002 ug/g dry	<0.002	-	-	-
1,2-Dichloroethane	0.002 ug/g dry	<0.002	-	-	-
1,1-Dichloroethylene	0.002 ug/g dry	<0.002	-	-	-
cis-1,2-Dichloroethylene	0.002 ug/g dry	<0.002	-	-	-
trans-1,2-Dichloroethylene	0.003 ug/g dry	<0.003	-	-	-
1,2-Dichloropropane	0.002 ug/g dry	<0.002	-	-	-
cis-1,3-Dichloropropylene	0.002 ug/g dry	<0.002	-	-	-
trans-1,3-Dichloropropylene	0.002 ug/g dry	<0.002	-	-	-
Ethylbenzene	0.002 ug/g dry	<0.002	-	-	-
Methylene Chloride	0.003 ug/g dry	<0.003	-	-	-
Styrene	0.002 ug/g dry	<0.002	-	-	-
1,1,1,2-Tetrachloroethane	0.003 ug/g dry	<0.003	-	-	-
1,1,2,2-Tetrachloroethane	0.003 ug/g dry	<0.003	-	-	-
Tetrachloroethylene	0.002 ug/g dry	<0.002	-	-	-
Toluene	0.002 ug/g dry	<0.002	-	-	-

PARACEL LABORATORIES LTD.

Order #: 0949080

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date: 2-Dec-2009

Client: **Paterson Group Consulting Engineers**
Client PO: 8293
Project Description: PE1865

	Client ID:	B129	TP3	TP4	TP5
	Sample Date:	30-Nov-09	30-Nov-09	30-Nov-09	30-Nov-09
	Sample ID:	0949080-01	0949080-02	0949080-03	0949080-04
	MDL/Units	Soil	Soil	Soil	Soil
1,1,1-Trichloroethane	0.002 ug/g dry	<0.002	-	-	-
1,1,2-Trichloroethane	0.002 ug/g dry	<0.002	-	-	-
Trichloroethylene	0.003 ug/g dry	<0.003	-	-	-
Trichlorofluoromethane	0.005 ug/g dry	<0.005	-	-	-
1,3,5-Trimethylbenzene	0.003 ug/g dry	<0.003	-	-	-
Vinyl chloride	0.002 ug/g dry	<0.002	-	-	-
m,p-Xylenes	0.002 ug/g dry	<0.002	-	-	-
o-Xylene	0.002 ug/g dry	<0.002	-	-	-
4-Bromofluorobenzene	Surrogate	117%	-	-	-
Dibromofluoromethane	Surrogate	102%	-	-	-
Toluene-d8	Surrogate	104%	-	-	-
Benzene	0.03 ug/g dry	-	<0.03	<0.03	<0.03
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	-	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	-	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	-	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	-	103%	105%	103%
Hydrocarbons					
F1 PHCs (C6-C10)	10 ug/g dry	<10	<10	<10	<10
F2 PHCs (C10-C16)	10 ug/g dry	<10	<10	<10	<10
F3 PHCs (C16-C34)	10 ug/g dry	<10	<10	<10	<10
F4 PHCs (C34-C50)	10 ug/g dry	<10	<10	<10	<10

PARACEL LABORATORIES LTD.

Order #: 0949080

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date: 2-Dec-2009

Client: Paterson Group Consulting Engineers
Client PO: 8293
Project Description: PE1865

	Client ID:	EF1	-	-	-
	Sample Date:	30-Nov-09	-	-	-
	Sample ID:	0949080-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	73.8	-	-	-
Volatiles					
Benzene	0.002 ug/g dry	<0.002	-	-	-
Bromodichloromethane	0.002 ug/g dry	<0.002	-	-	-
Bromoform	0.002 ug/g dry	<0.002	-	-	-
Bromomethane	0.003 ug/g dry	<0.003	-	-	-
Carbon Tetrachloride	0.002 ug/g dry	<0.002	-	-	-
Chlorobenzene	0.002 ug/g dry	<0.002	-	-	-
Chloroethane	0.005 ug/g dry	<0.005	-	-	-
Chloroform	0.003 ug/g dry	<0.003	-	-	-
Chloromethane	0.020 ug/g dry	<0.020	-	-	-
Dibromochloromethane	0.002 ug/g dry	<0.002	-	-	-
1,2-Dibromoethane	0.002 ug/g dry	<0.002	-	-	-
1,2-Dichlorobenzene	0.002 ug/g dry	<0.002	-	-	-
1,3-Dichlorobenzene	0.002 ug/g dry	<0.002	-	-	-
1,4-Dichlorobenzene	0.002 ug/g dry	<0.002	-	-	-
1,1-Dichloroethane	0.002 ug/g dry	<0.002	-	-	-
1,2-Dichloroethane	0.002 ug/g dry	<0.002	-	-	-
1,1-Dichloroethylene	0.002 ug/g dry	<0.002	-	-	-
cis-1,2-Dichloroethylene	0.002 ug/g dry	<0.002	-	-	-
trans-1,2-Dichloroethylene	0.003 ug/g dry	<0.003	-	-	-
1,2-Dichloropropane	0.002 ug/g dry	<0.002	-	-	-
cis-1,3-Dichloropropylene	0.002 ug/g dry	<0.002	-	-	-
trans-1,3-Dichloropropylene	0.002 ug/g dry	<0.002	-	-	-
Ethylbenzene	0.002 ug/g dry	<0.002	-	-	-
Methylene Chloride	0.003 ug/g dry	<0.003	-	-	-
Styrene	0.002 ug/g dry	<0.002	-	-	-
1,1,1,2-Tetrachloroethane	0.003 ug/g dry	<0.003	-	-	-
1,1,2,2-Tetrachloroethane	0.003 ug/g dry	<0.003	-	-	-
Tetrachloroethylene	0.002 ug/g dry	<0.002	-	-	-
Toluene	0.002 ug/g dry	<0.002	-	-	-

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date:2-Dec-2009

Client: **Paterson Group Consulting Engineers**
Client PO: 8293

Project Description: PE1865

	Client ID:	EF1	-	-	-
	Sample Date:	30-Nov-09	-	-	-
	Sample ID:	0949080-05	-	-	-
	MDL/Units	Soil	-	-	-
1,1,1-Trichloroethane	0.002 ug/g dry	<0.002	-	-	-
1,1,2-Trichloroethane	0.002 ug/g dry	<0.002	-	-	-
Trichloroethylene	0.003 ug/g dry	<0.003	-	-	-
Trichlorofluoromethane	0.005 ug/g dry	<0.005	-	-	-
1,3,5-Trimethylbenzene	0.003 ug/g dry	<0.003	-	-	-
Vinyl chloride	0.002 ug/g dry	<0.002	-	-	-
m,p-Xylenes	0.002 ug/g dry	<0.002	-	-	-
o-Xylene	0.002 ug/g dry	<0.002	-	-	-
4-Bromofluorobenzene	Surrogate	112%	-	-	-
Dibromofluoromethane	Surrogate	103%	-	-	-
Toluene-d8	Surrogate	105%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	10 ug/g dry	<10	-	-	-
F2 PHCs (C10-C16)	10 ug/g dry	<10	-	-	-
F3 PHCs (C16-C34)	10 ug/g dry	<10	-	-	-
F4 PHCs (C34-C50)	10 ug/g dry	<10	-	-	-

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date:2-Dec-2009

Client: **Paterson Group Consulting Engineers**
Client PO: 8293 Project Description: PE1865

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	10	ug/g						
F2 PHCs (C10-C16)	ND	10	ug/g						
F3 PHCs (C16-C34)	ND	10	ug/g						
F4 PHCs (C34-C50)	ND	10	ug/g						
Volatiles									
Benzene	ND	0.002	ug/g						
Bromodichloromethane	ND	0.002	ug/g						
Bromoform	ND	0.002	ug/g						
Bromomethane	ND	0.003	ug/g						
Carbon Tetrachloride	ND	0.002	ug/g						
Chlorobenzene	ND	0.002	ug/g						
Chloroethane	ND	0.005	ug/g						
Chloroform	ND	0.003	ug/g						
Chloromethane	ND	0.020	ug/g						
Dibromochloromethane	ND	0.002	ug/g						
1,2-Dibromoethane	ND	0.002	ug/g						
1,2-Dichlorobenzene	ND	0.002	ug/g						
1,3-Dichlorobenzene	ND	0.002	ug/g						
1,4-Dichlorobenzene	ND	0.002	ug/g						
1,1-Dichloroethane	ND	0.002	ug/g						
1,2-Dichloroethane	ND	0.002	ug/g						
1,1-Dichloroethylene	ND	0.002	ug/g						
cis-1,2-Dichloroethylene	ND	0.002	ug/g						
trans-1,2-Dichloroethylene	ND	0.003	ug/g						
1,2-Dichloropropane	ND	0.002	ug/g						
cis-1,3-Dichloropropylene	ND	0.002	ug/g						
trans-1,3-Dichloropropylene	ND	0.002	ug/g						
Ethylbenzene	ND	0.002	ug/g						
Methylene Chloride	ND	0.003	ug/g						
Styrene	ND	0.002	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.003	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.003	ug/g						
Tetrachloroethylene	ND	0.002	ug/g						
Toluene	ND	0.002	ug/g						
1,1,1-Trichloroethane	ND	0.002	ug/g						
1,1,2-Trichloroethane	ND	0.002	ug/g						
Trichloroethylene	ND	0.003	ug/g						
Trichlorofluoromethane	ND	0.005	ug/g						
1,3,5-Trimethylbenzene	ND	0.003	ug/g						
Vinyl chloride	ND	0.002	ug/g						
m,p-Xylenes	ND	0.002	ug/g						
o-Xylene	ND	0.002	ug/g						
Surrogate: 4-Bromofluorobenzene	*0.170*		*ug/g*		*125*	*83-134*			
Surrogate: Dibromofluoromethane	*0.147*		*ug/g*		*108*	*78-124*			
Surrogate: Toluene-d8	*0.139*		*ug/g*		*102*	*76-118*			
Benzene	ND	0.03	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Surrogate: Toluene-d8	*8.20*		*ug/g*		*102*	*76-118*			

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date: 2-Dec-2009

Client: **Paterson Group Consulting Engineers**
Client PO: 8293 Project Description: PE1865

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	10	ug/g dry	ND				32	
F2 PHCs (C10-C16)	11	10	ug/g dry	13			13.8	50	
F3 PHCs (C16-C34)	22	10	ug/g dry	25			14.1	50	
F4 PHCs (C34-C50)	ND	10	ug/g dry	ND				50	
Physical Characteristics									
% Solids	75.8	0.1	% by Wt.	81.2			6.9	25	
Volatiles									
Benzene	ND	0.002	ug/g dry	ND				50	
Bromodichloromethane	ND	0.002	ug/g dry	ND				50	
Bromoform	ND	0.002	ug/g dry	ND				50	
Bromomethane	ND	0.003	ug/g dry	ND				50	
Carbon Tetrachloride	ND	0.002	ug/g dry	ND				50	
Chlorobenzene	ND	0.002	ug/g dry	ND				50	
Chloroethane	ND	0.005	ug/g dry	ND				50	
Chloroform	ND	0.003	ug/g dry	ND				32	
Chloromethane	ND	0.020	ug/g dry	ND				50	
Dibromochloromethane	ND	0.002	ug/g dry	ND				50	
1,2-Dibromoethane	ND	0.002	ug/g dry	ND				50	
1,2-Dichlorobenzene	ND	0.002	ug/g dry	ND				50	
1,3-Dichlorobenzene	ND	0.002	ug/g dry	ND				50	
1,4-Dichlorobenzene	ND	0.002	ug/g dry	ND				50	
1,1-Dichloroethane	ND	0.002	ug/g dry	ND				27	
1,2-Dichloroethane	ND	0.002	ug/g dry	ND				50	
1,1-Dichloroethylene	ND	0.002	ug/g dry	ND				50	
cis-1,2-Dichloroethylene	ND	0.002	ug/g dry	ND				33	
trans-1,2-Dichloroethylene	ND	0.003	ug/g dry	ND				50	
1,2-Dichloropropane	ND	0.002	ug/g dry	ND				50	
cis-1,3-Dichloropropylene	ND	0.002	ug/g dry	ND				50	
trans-1,3-Dichloropropylene	ND	0.002	ug/g dry	ND				50	
Ethylbenzene	ND	0.002	ug/g dry	ND				34	
Methylene Chloride	ND	0.003	ug/g dry	ND				50	
Styrene	ND	0.002	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.003	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.003	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.002	ug/g dry	ND				32	
Toluene	ND	0.002	ug/g dry	ND				32	
1,1,1-Trichloroethane	ND	0.002	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.002	ug/g dry	ND				50	
Trichloroethylene	ND	0.003	ug/g dry	ND				31	
Trichlorofluoromethane	ND	0.005	ug/g dry	ND				50	
1,3,5-Trimethylbenzene	ND	0.003	ug/g dry	ND				43	
Vinyl chloride	ND	0.002	ug/g dry	ND				50	
m,p-Xylenes	ND	0.002	ug/g dry	ND				35	
o-Xylene	ND	0.002	ug/g dry	ND				50	
Surrogate: 4-Bromofluorobenzene	*0.210*		*ug/g dry*	*ND*	*121*	*83-134*			
Surrogate: Dibromofluoromethane	*0.178*		*ug/g dry*	*ND*	*103*	*78-124*			
Surrogate: Toluene-d8	*0.161*		*ug/g dry*	*ND*	*105*	*76-118*			
Benzene	ND	0.03	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				34	
Toluene	ND	0.05	ug/g dry	ND				32	
m,p-Xylenes	ND	0.05	ug/g dry	ND				35	
o-Xylene	ND	0.05	ug/g dry	ND				50	

Certificate of Analysis

Report Date: 08-Dec-2009
Order Date: 2-Dec-2009

Client: Paterson Group Consulting Engineers
Client PO: 8293 Project Description: PE1865

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*8.74*		*ug/g dry*	*ND*	*104*	*76-118*			

PARACEL LABORATORIES LTD.

Order #: 0949080

Certificate of Analysis

Report Date: 08-Dec-2009

Order Date: 2-Dec-2009

Client: **Paterson Group Consulting Engineers**

Client PO: 8293 Project Description: PE1865

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	99	10	ug/g	ND	99.1	80-120			
F2 PHCs (C10-C16)	49	10	ug/g	ND	61.0	61-129			
F3 PHCs (C16-C34)	167	10	ug/g	ND	83.6	61-129			
F4 PHCs (C34-C50)	86	10	ug/g	ND	71.6	61-129			
Volatiles									
Benzene	0.0668	0.002	ug/g	ND	98.3	55-141			
Bromodichloromethane	0.0605	0.002	ug/g	ND	89.0	52-139			
Bromoform	0.0564	0.002	ug/g	ND	82.9	52-170			
Bromomethane	0.0490	0.003	ug/g	ND	72.1	32-138			
Carbon Tetrachloride	0.0619	0.002	ug/g	ND	91.1	49-149			
Chlorobenzene	0.0660	0.002	ug/g	ND	97.0	64-137			
Chloroethane	0.0536	0.005	ug/g	ND	78.8	39-152			
Chloroform	0.0649	0.003	ug/g	ND	95.5	58-138			
Chloromethane	0.0503	0.020	ug/g	ND	74.0	24-163			
Dibromochloromethane	0.0628	0.002	ug/g	ND	92.4	61-153			
1,2-Dibromoethane	0.0637	0.002	ug/g	ND	93.7	61-145			
1,2-Dichlorobenzene	0.0555	0.002	ug/g	ND	81.7	60-150			
1,3-Dichlorobenzene	0.0634	0.002	ug/g	ND	93.2	62-149			
1,4-Dichlorobenzene	0.0639	0.002	ug/g	ND	94.0	63-132			
1,1-Dichloroethane	0.0623	0.002	ug/g	ND	91.6	51-156			
1,2-Dichloroethane	0.0626	0.002	ug/g	ND	92.1	50-140			
1,1-Dichloroethylene	0.0512	0.002	ug/g	ND	75.3	43-153			
cis-1,2-Dichloroethylene	0.0666	0.002	ug/g	ND	97.9	58-145			
trans-1,2-Dichloroethylene	0.0604	0.003	ug/g	ND	88.8	51-145			
1,2-Dichloropropane	0.0624	0.002	ug/g	ND	91.7	56-136			
cis-1,3-Dichloropropylene	0.0639	0.002	ug/g	ND	94.0	54-141			
trans-1,3-Dichloropropylene	0.0561	0.002	ug/g	ND	82.5	61-140			
Ethylbenzene	0.0709	0.002	ug/g	ND	104	61-139			
Methylene Chloride	0.0511	0.003	ug/g	ND	75.2	58-149			
Styrene	0.0725	0.002	ug/g	ND	107	63-143			
1,1,1,2-Tetrachloroethane	0.0631	0.003	ug/g	ND	92.8	61-148			
1,1,2,2-Tetrachloroethane	0.0611	0.003	ug/g	ND	89.9	50-157			
Tetrachloroethylene	0.0653	0.002	ug/g	ND	96.1	51-145			
Toluene	0.0571	0.002	ug/g	ND	84.0	54-136			
1,1,1-Trichloroethane	0.0683	0.002	ug/g	ND	100	55-140			
1,1,2-Trichloroethane	0.0619	0.002	ug/g	ND	91.0	63-144			
Trichloroethylene	0.0680	0.003	ug/g	ND	100	52-135			
Trichlorofluoromethane	0.0347	0.005	ug/g	ND	51.0	37-155			
1,3,5-Trimethylbenzene	0.0719	0.003	ug/g	ND	106	61-151			
Vinyl chloride	0.0777	0.002	ug/g	ND	114	31-159			
m,p-Xylenes	0.152	0.002	ug/g	ND	112	61-139			
o-Xylene	0.0757	0.002	ug/g	ND	111	60-142			
Surrogate: 4-Bromofluorobenzene	*0.133*		*ug/g*		*97.8*	*83-134*			
Surrogate: Dibromofluoromethane	*0.138*		*ug/g*		*102*	*78-124*			
Surrogate: Toluene-d8	*0.118*		*ug/g*		*87.1*	*76-118*			
Benzene	0.694	0.03	ug/g	ND	74.4	55-141			
Ethylbenzene	1.91	0.05	ug/g	ND	86.2	61-139			
Toluene	8.13	0.05	ug/g	ND	75.3	54-136			
m,p-Xylenes	6.61	0.05	ug/g	ND	98.3	61-139			
o-Xylene	2.63	0.05	ug/g	ND	97.4	60-142			
Surrogate: Toluene-d8	*8.05*		*ug/g*		*101*	*76-118*			

Certificate of Analysis

Report Date: 08-Dec-2009

Order Date:2-Dec-2009

Client: **Paterson Group Consulting Engineers**

Client PO: 8293

Project Description: PE1865

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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www.paracellabs.com

Chain of Custody Record
No. 80535

Page [illegible] of [illegible]

Company Name: [illegible]
Contact Name: [illegible]
Address: [illegible]
Tel: [illegible] Cell:
Email: [illegible]

Project Ref: [illegible]
PO# [illegible]
Quote # ______ ☒ Not Quoted
Preservative to be added by Paracel? ☐ Yes ☒ No

Date Required: ______
Turn Around Time: [ ] 1-Day [ ] 2-Day [ ] Regular
Regulatory Guideline Requirements: [illegible] Table 3

Matrix Types: S-Soil/Sed GW-Ground Water SW-Surface Water SS-Storm/Sanitary Sewer A-Air O-Other RDW-Regulated Drinking Water

Sample Information / **Analysis Required**

Paracel Order #: 0949C30

#	Sample Identification	Matrix	Air Volume	# Containers	Date Sampled (dd-mm-yy)	PHCs (F1-F4)	VOCs	BTEX
1	B124	S		1	[illegible]	X	X	
2	TP3	S		1	[illegible]	X		X
3	TP4	S		1	[illegible]	X		X
4	TP5	S		1	[illegible]	X		X
5	[illegible]	S		1	[illegible]	X	X	
6								
7								
8								
9								
10								

Comments:

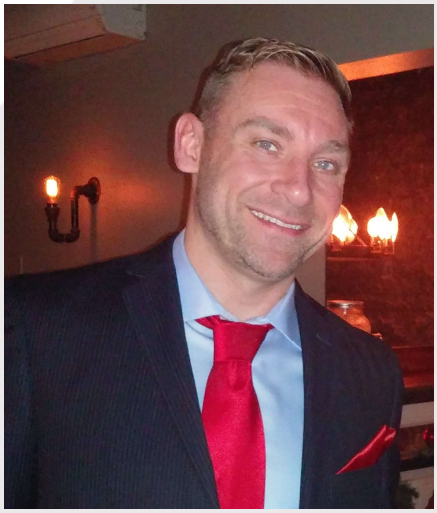
Relinquished By: [illegible] Date: Time:
Received at Depot: Date: DEC. 2/09 Time: [illegible]
Received at Lab: [illegible] Date: [illegible] Time: 10:30
Verified By: [illegible] Date: [illegible] Time: [illegible]

Please refer to the backpage for Locations and Sample Preservation, Container and Hold Time Requirements

WHITE - Lab Copy, PINK - Client Copy

Appendix F

Qualifications of Assessors



PROFILE

Mr. Lopers is an environmental engineer with over 12 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.

Natasha Corrin

M.A.Sc., P.Eng., QP_{RA}
Senior Risk Assessor

CORRIN
ENVIRONMENTAL CONSULTING

Areas of Specialty

Areas of expertise include Human Health Risk Assessment, Ecological Risk Assessment and Risk Management for contaminated sites and environmental impact assessments.

Professional Memberships and Affiliations

Professional Engineer #100079432, Professional Engineers Ontario, 2005-present
Qualified Person for Risk Assessment, Ontario, 2011 - present

Education

M.A.Sc. Chemical Engineering, University of Waterloo, 1999
B.Eng. Chemical Engineering, McGill University, 1997
Graduate Course Engineering Risk Assessment, University of Idaho, 2010

Experience

Ms. Corrin is a professional engineer and senior risk assessor with over 20 years of experience in environmental consulting. She reviews and carries out projects related to human health and ecological risk assessment and risk management for contaminated sites. In this role, her responsibilities include planning and designing site specific human health and ecological risk assessments, particularly complex risk assessments that involve consumption of country foods and/or emerging contaminants. She provides senior technical advice and oversight to project teams and acts as the senior technical lead for risk assessment on complex multi-disciplinary projects. She has been responsible for developing standard operating procedures including those for the collection and brewing of Labrador tea according to traditional methods as well as the collection of various types of vegetation for human and animal consumption. Additionally, she has conducted peer reviews on behalf of Public Works and Government Services Canada and the Department of National Defence. Ms. Corrin is designated as a Qualified Person for Risk Assessment (QP_{RA}) in Ontario and has worked on numerous risk assessments under Ontario Regulation 153/04, successfully receiving approval under the regulatory process. Ms. Corrin believes in a holistic approach to managing contaminated sites and collaborates closely with clients and other stakeholders on projects so that objectives are achieved efficiently.

Risk Assessments

Soil Vapour and Indoor Air Quality Assessment, Residential Development, Etobicoke Ontario. Senior Risk Assessor, 2022
Corrin Environmental Consulting evaluated sub-slab vapour data and indoor air quality data related to a historical fuel spill below a residential building. Work included providing technical input into the sampling programs, comparing data to Ontario Health Based Indoor Air Criteria and providing recommendations for additional work.

Modified Generic Risk Assessment, Site in Brantford, Ontario. Qualified Person for Risk Assessment, 2021-2022
Completed a Tier 2 Risk Assessment for a client where land use was changing from commercial to residential. Liaised with MECP District Engineer and Standards Development Branch. The main source of contamination was material used to infill the Grand River in the 1880s. MGRA received approval from the MECP and the client was able to obtain their RSC for the site.

Tier 3 Risk Assessment under O.Reg. 153/04, Site in Ottawa, Ontario. Qualified Person for Risk Assessment, 2022
Completed a Pre-Submission Form and Tier 3 Risk Assessment for a client where land use was changing from commercial to residential. Liaised with MECP District Engineer and Standards Development Branch. The main contaminants were chlorinated solvents in groundwater in a complex hydrogeological

environment. The contamination was from an upgradient, off-site source, and the site is part of a larger area designated by the City of Ottawa as an Environmental Risk Management Area due to the contaminated groundwater. Groundwater migration is complicated by dewatering associated with the presence of the Light Rail Train adjacent to the site. Non-standard delineation was applied at the site.

Human Health Risk Assessment for the Iqaluit Main Power Plant. Iqaluit, Nunavut. Qulliq Energy Corporation. Senior Risk Assessor, 2022.
Evaluated if human health risks could be present at the site due to historical fuel spills. Quantitatively evaluated risks associated with the inhalation pathway inside the plant and provided recommendations for additional work to reduce uncertainties.

Due Diligence Risk Assessment, Development Site in Ottawa, Ontario. Senior Risk Assessor, 2021
Completed a due diligence risk assessment for a development in Ottawa where a residence was being demolished and the site was being developed into a multi-unit property. Evaluated potential risks at the site and recommended risk management measures. Assessment was used to satisfy lender requirements related to financing the project.

Human Health and Ecological Risk Assessment, Ottawa, Ontario. Senior Risk Assessor, QP_{RA}, 2011-2018
Conducted human health and ecological risk assessment for numerous sites under O.Reg. 153/04. Tasks included preparation and submission of Pre-Submission Form and completion of Risk Assessment including hazard assessment, problem formulation, toxicity assessment and risk characterization. Developed Risk Management Plans. Contaminants of concern at the sites have included VOCs, PAHs, PHCs, metals, and methane. Some of the sites have been considered sensitive due to high or low pH and presence of species at risk.

Various Due Diligence Risk Assessments for Real Estate Clients, Ontario – GWLRA. Risk Assessor, 2011-2015
Ms. Corrin has conducted numerous due diligence risk assessments for real estate clients for the purpose of financing or re-financing their sites as well as for satisfying requirements of the insurers.

Residential Development, Ottawa, Ontario – Claridge. Senior Risk Assessor, 2015
QP_{RA} for a risk assessment at a residential high-rise development in downtown Ottawa. The site had been impacted by upgradient chlorinated solvents. Ms. Corrin is the technical director and reviewer for the risk assessment. Ms. Corrin used a pro-active approach engaging local district engineers resolving issues related to risk management and off-site migration of contaminants early in the RSC process.

National Research Council's National Fire Laboratory (NFL), Mississippi Mills, Ontario. Senior Risk Assessor, 2015-2018
NRC's NFL property is approximately 78 hectares in size and includes one large main structure (Building U-96) located approximately in the centre of the property. The NFL facility has historically been used to conduct a wide range of full-scale scenarios to test fire detection, fire suppression and smoke movement and to test the performance of building materials and systems. Fire testing associated with aqueous film forming foam (AFFF) was conducted at the site, with process waters containing PFAS reportedly discharged to ground surface. Since PFAS was discovered in soil, groundwater, and surface water at the site, work has involved in a multi-disciplinary PFAS investigation program that has included on-site groundwater, soil, surface water, and sediment sampling, off-site residential drinking water sampling, targeted soil removal, ecological assessment programs, and air deposition studies. Ms. Corrin was the Senior Lead for the Human Health Risk Assessment for risks associated with exposure to soil, water, vegetation, big game and small game at the Site.

Tundra Mine Detailed HHERA for INAC, Tundra Mine, NWT. Project Manager and Senior Risk Assessor, 2016-2017
INAC requested that the HHERA be completed to assess residual risks associated with the remediated mine site in order to facilitate project closure. Ms. Corrin was the project manager and senior risk assessor involved in designing and managing a DQRA for the Tundra Mine, 240 km northeast of Yellowknife. For the human health risk assessment, the critical receptor was a First Nation Hunter. Exposure pathways evaluated included direct contact with soil, ingestion of surface water and consumption of: berries, small game, large game, fish and Labrador tea. Terrestrial ecological receptors were evaluated as well as aquatic receptors in lakes downstream of the Tailings Containment Area. Lines of evidence used to assess risks to

aquatic receptors included: surface water and sediment chemistry, benthic community survey, Hyalella critical body residue analysis, fish internal and external health examinations and biological habitat assessment. A comprehensive sampling program was planned and executed and included collection of soil, surface water, fish tissue, benthic invertebrates, Hyalella, berries and Labrador tea from both impacted and reference areas. A risk management plan was developed. Ms. Corrin managed a multi-disciplinary team, worked with multiple stakeholders including INAC, Expert Support, and First Nations Communities. As the senior risk assessor, Ms. Corrin planned the technical direction of the risk assessment, developed the risk management plan and reviewed all deliverables.

PEER REVIEW PROJECTS

Peer Reviews of Numerous Small Craft Harbour Waterlot Assessments, Maritime and Gulf Region – PSPC/DFO. Senior Risk Assessor 2021, 2022

Responsible for the review and provision of construction comments related to the review of reports for 8 sites in the 2021/22 Fiscal Year and 6 sites in the 2022/23 Fiscal Year. Work conducted included sediment sampling, benthic community assessment and tissue analysis. Reports included descriptions of field work, dive work, historical reviews and human health and ecological risk assessments.

Vendor of Record (VOR) Risk Assessment Peer Reviews on behalf of the Ontario Ministry of Environment, Conservation and Parks. Senior Reviewer, 2014 – 2018

Natasha has been part of MECP teams that were Vendors of Record (VORs) reviewing risk assessments conducted under Ontario Regulation 153/04 on behalf of the Ministry. As part of the VOR team, Natasha has an in depth understanding of the regulation and the required steps to get a risk assessment through the review and approvals process.

3rd Party Peer Review, Risk Assessment Camp Ipperwash, Lambton Shores, Ontario – DND. Project Manager/Senior Risk Assessor, 2016

A 3rd party peer review was performed for an aquatic site assessment and risk assessment conducted in surface water bodies at the Former Camp Ipperwash in Lambton Shores, Ontario. The Site was appropriated from the Stony Point Indian Reserve in 1942 and used for infantry training. The site assessment work investigated impacts associated with sediment and surface water including metals, polycyclic aromatic hydrocarbons (PAHs) and DDT. The risk assessment considered potential risks to aquatic life including benthic invertebrates, fish and turtles, particularly associated with biomagnifying contaminants. Risks to human health were also considered associated with the consumption of fish.

AQUATIC TOXICOLOGY / DEVELOPMENT OF DISCHARGE CRITERIA

Development of Discharge Limits for the Abercrombie Ash Management Site - Nova Scotia Power Incorporated. Senior Risk Assessor, 2019-2020

Natasha worked on a multi-disciplinary team to develop effluent discharge criteria for aluminum, chromium (VI) and molybdenum at the site. The work involved process engineers, biologists, site assessors and risk assessors. The process engineers worked on reducing concentrations of chromium (VI) and molybdenum in the discharge by evaluating numerous treatment options. The preferred option was piloted and implemented and included the use of a combined granular activated carbon and resin recirculation system. Acute discharge criteria were developed based on multiple lines of evidence including a literature review of available information combined with surface water and sediment chemistry as well as an aquatic habitat assessment and benthic community analysis. The numeric limits were selected based on the 5th percentile of the species sensitivity distributions of acute effects data.

CLIMATE CHANGE

Climate Change Impacts and Indices for the National Capital Region - NCC and City of Ottawa. Facilitator, Senior Reviewer, 2019

Conducted stakeholder engagement sessions and facilitated workshops to get feedback from multiple stakeholder groups from the NCC and City of Ottawa regarding how climate change impacts their sector (e.g., contaminated sites, recreation, transportation, public health, water/wastewater) and what climate change parameters and indices would be most valuable tothem for future vulnerability assessments and resilience planning. Natasha provided senior technical advice, reviewed deliverables and was a facilitator at the workshop and stakeholder engagement sessions.

Natasha Corrin – Senior Risk Assessor

Stakeholder Engagement

Completion of Two Stakeholder Engagement Sessions to support the Clyde River Small Craft Harbour Development, Nunavut - PSPC/DFO. Senior Risk Assessor and Assistant Project Manager, July 2020 – March 2021

Planned and led biological studies and stakeholder engagement sessions to support the design of the Clyde River Small Craft Harbour. Coordinated meetings with the Hamlet Council and the Hunters and Trappers Organization. Held IQ sessions with elders and used participatory maps to gather insights into historical and current use of the area. Also engaged with ECCC, DFO, NIRB, NPC, Arctic Fisheries Alliance, sealift operators, CIRNAC, GN Petroleum Products Division and fuel provider.

Soil Reuse

Screening Level Risk Assessments for Soil Reuse at City of Ottawa Infrastructure Projects – Various locations, City of Ottawa, Ontario. Senior Risk Assessor, 2022 -2023.

Evaluated available data including soil, groundwater and leachate data (if available) to determine if there were potential risks to human and ecological receptors associated with reusing material at integrated roadway and sewer projects in consideration of O.Reg. 406/19 and O.Reg. 153/04. Made recommendations for soil reuse on and off-site.

Soil Reuse Program at a Development Site in Hawkesbury, Ontario - United Counties of Prescott-Russell. Project Manager/Senior Risk Assessor, 2020 and 2022 for Project Close-out.

Selenium exceedances in soil were identified at a redevelopment site in Hawkesbury, Ontario. Completed a risk assessment that identified that the exceedances would not pose a risk to human health or the environment if the soil were to be reused at the site and avoided costly site assessment and soil removal fees. Provided advice in the context of Ontario Regulation 406/19 (the excess soil management regulation), provided specification for a tender document related to excess soil management, advice for excess soil management and cost saving strategies, tender support and construction support. Provided follow-up work post-construction to close out the project. Hired MP as a subconsultant for both phases of the project to collaborate on creative solutions for soil management and money-saving options for the client.

Soil Reuse Program at the Cliff Central Heating and Cooling Plant, Ottawa, Ontario - PCL Constructors Canada Inc. Senior Environmental Engineer, November 2020

Reviewed historical reports and evaluated options for soil reuse at the site in consideration of potential risks to human health, the environment and planned risk management measures. Determined that soil could be reused at the site, saving disposal fees for contaminated soil.

Courses and Presentations Given

- Science, Approaches and Challenges in Human Health Risk Assessment When Considering PFAS. RPIC Federal Contaminated Sites Regional Workshop. Halifax, NS. June 2019.
- Lessons learned in the FCSAP Program: Custodian and ESD Perspective. Natasha Corrin. Oral Presentation. RPIC, 2018.
- Understanding the Impacts of Confounding Uncertainties with PFAS – from Assessment to Communication with Stakeholders. Half-Day Professional Development Session. Natasha Corrin – presented HHRA and ERA. RPIC, 2018.
- FCSAP Project Managers Toolkit. Half-Day Professional Development Session. Natasha Corrin – presented Site Closure Tool and TRAV. RPIC, 2016.
- Site Closure Tool/Tool for Risk Assessment Validation. Half-Day Professional Development Session. Natasha Corrin, Golder; Andrew Henderson, Franz. RPIC, 2014.

Selected Recent Professional Development

- The Path: Your Journey Through Indigenous Canada. nVision. March 2021
- The Health Effects of Climate Change. HarvardX (edX online course). May 2019.
- Introduction to Climate Change and Health. Yale University (Coursera online course). April 2020.
- Cultural awareness and sensitivity training – Kettle and Stony Point First Nation. March 2018.