Phase Two Environmental Site Assessment Update
6659 Franktown Road, Ottawa, Ontario

Client:
Air Rock Drilling Company Ltd.

Type of Document:
Final

Project Name:
Phase Two Environmental Site Assessment

Project Number:
OTT-00243705-B0

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Date Submitted:
2025-10-17

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Executive Summary

EXP Services Inc. (EXP) was retained by Air Rock Drilling Company Ltd. to conduct a Phase Two Environmental Site Assessment (ESA) at 6659 Franktown Road in Ottawa, Ontario (hereinafter referred to as the 'Phase Two Property'). At the time of the investigation the Phase Two property was occupied by one residential dwelling, one workshop/office building and a quonset hut associated with the on-Site well drilling company (Air Rock Drilling Company Ltd.).

The objective of the Phase Two ESA investigation was to assess the quality of the soil and groundwater conditions within the areas of potential environmental concern (APEC) identified in a Phase One ESA prepared by EXP. EXP notes that this report is being conducted in support of a zoning by-law amendment (ZBLA) and the subsequent Site Plan Application (SPA). There is no change in land use that would require the filing of a Record of Site Condition.

The Phase Two ESA activities consisted of collecting groundwater samples from the three on-site monitoring wells (2023 and 2024) followed by a surface soil sampling program (2024).

The Phase Two property is located on the north side of Franktown Road, at 6659 Franktown Road in Ottawa and has an area of approximately 1.22 hectares. The Phase Two property is legally described as CON 4 E PT LOT 19 RP;4R-14477 PART 2. The PIN for the Phase Two property is 044390239.

A Phase I and II ESA was conducted by EXP in 2017 for due diligence purposes. Based on the Phase I ESA, three potentially contaminating activities (PCA) (sump pit discharge and several above ground storage tanks) were identified. These PCAs resulted in the identification of three areas of potential environmental concern (APEC). As part of the Phase II ESA, nine test pits (TP1 to TP9) were excavated in the areas of the sump pit discharge and the above ground storage tanks and soil samples were collected for laboratory analysis of the contaminants of concern. In addition, three monitoring wells were installed and groundwater samples were collected for laboratory analysis of the contaminants of concern. Based on the laboratory analyses, the concentrations of petroleum hydrocarbons (PHC), benzene, toluene, ethylbenzene, xylenes (BTEX) and metals measured in the analysed soil and groundwater samples were less than the provincial Table 2 SCS, with the exception of a sample collected from TP5, which was found to have soil exceedances of the Table 2 SCS for PHC F1 and PHC F2. The impacts at TP5 were delineated in all four cardinal directions. No elevated PHC and/or BTEX concentrations were detected from any of the three water samples collected as the water results were less than the Table 2 SCS. Therefore, it was determined that the minor soil impact from TP5 had not impacted the groundwater at MW-3 (which was located immediately next to TP5).

In 2023, EXP updated the ESAs by completing a Phase One and Two ESA in support of the ZBLA and SPA. No additional PCAs were identified and the 2023 site investigative consisted of collecting groundwater samples from the three on-site monitoring wells. Based on the laboratory analyses, there were no exceedances of the MECP Table 2 SCS for any of the parameters analyzed in the groundwater samples from the monitoring wells (MW-1 to MW-3), with the exception of PHC F3 and F4 in the sample collected from MW3. It was suspected that the elevated PHC concentrations were due to sediment in the groundwater sample. A second groundwater sample was taken from MW3 ensuring no sediment was present in the sample. Based on the analytical results, PHC was not detected in the re-sample. The concentrations therefore did not exceed the Table 2 SCS.

Upon review of the 2023 Phase One and Two ESA, the City of Ottawa noted that it was not clear what potential impact the fuel storage tanks and the sump discharge had on the surface runoff, and consequently the adjacent properties, including a downstream Storm Water Management system (i.e., road right of way ditches to the south) and an Environmental Protection Zone {EPZ} to the north. Additional surface soil and groundwater sampling was completed in 2024 to address the City's comments. This report presents the results of the updated Phase Two ESA investigations.

As indicated in the 2023 Phase One ESA for the property, the following on-site PCA were identified. No off-site PCA were identified.

- PCA #10 – Commercial autobody shops
    - On-site repair garage – active repair garage

- PCA #28 – Gasoline and associated products storage in fixed tanks
    - 2 AST in east part of Phase One property
    - 4 AST in west part of Phase One property

Ontario Regulation 153/04 defines an APEC as an area on a property where one or more contaminants are potentially present. The following APEC were identified on the Phase Two property, as shown in Table EX-1:

Table EX-1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1	Workshop shop sump discharge (sump discharges to gravel just outside workshop building, south side)	PCA #10 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	Benzene, toluene, ethylbenzene, xylene (BTEX), and petroleum hydrocarbons (PHC), metals	Soil and groundwater
APEC #2 and 3	Above ground storage tanks for furnace oil and refueling	PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX and PHC	Soil and groundwater

In terms of evaluating laboratory analytical results to a particular property, the application of the provincial generic or background Site Condition Standards (SCS) is based on a consideration of site conditions related to soil pH, thickness and extent of overburden material, and proximity to an area of environmental sensitivity or of natural significance. For some chemical parameters, consideration is also given to soil textural classification with SCS having been derived for both coarse and medium-fine textured soil conditions.

For assessment purposes, EXP selected the 2011 Table 2 SCS in a non-potable groundwater condition for residential/parkland/institutional property use, coarse grained soil.

The selection of these categories was based on the following factors:

- Bedrock is greater than 2 metres below grade across the subject property;
- The Phase Two property is not located within 30 metres of a waterbody;
- The Phase Two property is not located within an area of natural significance, does not include nor is adjacent to an area of natural significance, and does not include land that is within 30 metres of an area of natural significance;
- Potable water for the Phase Two property is supplied from an on-Site water well;
- The Phase Two property is located in an area designated in a municipal official plan as a well-head protection area;
- The proposed building is planned for residential and commercial use; and
- It is the opinion of the Qualified Person who oversaw this work that the Phase Two property is not a sensitive site.

Based on the results of the 2023 and 2024 groundwater monitoring, no impact to the shallow groundwater regime was noted at the three on-site monitoring wells that were installed at the PCA/point sources. Therefore, the migration of impacted groundwater was not observed.

Based on the surface soil sampling program, there was evidence of point source surface soil impact at i) the sump discharge point as indicated by the PHC and cobalt results at S1 and ii) the refueling storage tanks as indicated by the PHC results at S5. The area beyond these point sources is either asphalt or hard-pack gravel.

With respect to potential impact to adjacent properties overland, as there are no surface water features on the Phase Two property, surface soil samples were collected at point sources (i.e., the sump discharge point and ASTs) and in the downgrade directions towards the east and west residential properties and the south drainage ditch. Based on the results from surficial soil samples along the eastern (S2 and S7) and western property boundaries (S6 and S8), no impact was observed to these adjacent receptors. With respect to the EPZ to the north, no potential impact from the operations at the Phase Two property is expected. A slight exceedance of hydrocarbon (PHC F3) was observed at S4 the northwest corner of the property, however no hydrocarbon exceedances were detected in delineation soil samples (S9, S10, S11 and S12) from this location. This indicates the impact is limited and has not contributed to an off-site receptor or the EPZ.

Based on lack of groundwater exceedances and given the location and nature of the contaminants (PHC F2 and F3 and cobalt) exceeding MECP Table 2 SCS in soil samples (S1, S4 and S5), the likely source of these impacts are from minor spills related to refueling practices associated with the refueling ASTs and/or sump and limited to the point sources. There is no evidence that contaminants are moving off site.

The Qualified Person can confirm that the Phase Two Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices. No further environmental investigations are deemed to be warranted.

This executive summary is a brief synopsis of the report and should not be read in lieu of reading the report in its entirety.

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1.0 Introduction

EXP Services Inc. (EXP) was retained by Air Rock Drilling to conduct a Phase Two Environmental Site Assessment (ESA) for the property located at 6659 Franktown Road in Ottawa, Ontario (hereinafter referred to as the 'Phase Two property'). At the time of the investigation, the Site was occupied by one residential dwelling, one workshop/office building and a quonset hut associated with the on-Site well drilling company (Air Rock Drilling Company Ltd.).

The objective of the Phase Two ESA investigation was to assess the quality of the soil and groundwater conditions within the areas of potential environmental concern (APEC) identified in a Phase One ESA prepared by EXP in 2017 and updated in 2023. EXP understands that this report is being conducted in support of a zoning by-law amendment (ZBLA) and the subsequent Site Plan Application. There is no change in land use that would require the filing of a Record of Site Condition.

This report has been prepared in accordance with the Phase Two ESA standard as defined by Ontario Regulation 153/04 (as amended), and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services, and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 8 of this report.

1.1 Background

A Phase I and II ESA was conducted by EXP in 2017 for due diligence purposes. Based on the results of the Phase I ESA, three potentially contaminating activities (PCA) (sump pit discharge and several above ground storage tanks) were identified on the property which resulted in three areas of potential environmental concern (APEC) which triggered the Phase II ESA. As part of the Phase II ESA, nine (9) test pits (TP1 to TP9) were excavated in the areas of the sump pit discharge and the above ground storage tanks. Soil samples were collected for laboratory analysis. In addition, three (3) monitoring wells were installed, and groundwater samples were collected for laboratory analysis of the contaminants of concern. Based on the laboratory analyses, the concentrations of petroleum hydrocarbons (PHC), benzene, toluene, ethylbenzene, xylenes (BTEX) and metals measured in the analysed soil and groundwater samples were less than the provincial Table 2 SCS, with the exception of a sample collected from TP5, which was found to have soil exceedances of the Table 2 SCS for PHC F1 and PHC F2. The impacts at TP5 were delineated in all four cardinal directions. No elevated PHC and/or BTEX concentrations were detected from any of the three water samples collected as the water results were less than the Table 2 SCS. Therefore, it was determined that the minor soil impact from TP5 had not impacted the groundwater at MW-3 (which was located immediately next to TP5).

In 2023, EXP subsequently updated the ESAs by completing a Phase One and Two ESA in support of the ZBLA and SPA. The 2023 site investigative consisted of collecting groundwater samples from the three on-site monitoring wells. Based on the laboratory analyses, there were no exceedances of the MECP Table 2 SCS for any of the parameters analyzed in the groundwater samples from the monitoring wells (MW-1 to MW-3), with the exception of PHC F3 and F4 in the sample collected from MW3. It was suspected that the elevated PHC concentrations were due to sediment in the groundwater sample. A second groundwater sample was taken from MW3 ensuring no sediment was present in the sample. Based on the analytical results, PHC was not detected in the re-sample. The concentrations therefore did not exceed the Table 2 SCS.

Upon review of the 2023 Phase One and Two ESA, the City of Ottawa noted that it was not clear what potential impact the fuel storage tanks and the sump discharge had on the surface runoff, and consequently the adjacent properties, including a downstream Storm Water Management system (i.e., road right of way ditches to the south) and an Environmental Protection Zone {EPZ} to the north. Additional surface soil and groundwater sampling was completed in 2024 to address the City's comments. This report presents the results of the updated Phase Two ESA investigations.

1.2 Site Description

The Phase Two property is located on the north side of Franktown Road, at 6659 Franktown Road in Ottawa, just west of the village of Richmond (Figure 1). The Phase Two property is rectangular in shape with an area of approximately 1.22 hectares and is currently occupied by one residential dwelling, one workshop/office building and a quonset hut associated with the on-site well drilling company (Air Rock Drilling Company Ltd.) (Figure 3).

It is noted that the Phase Two property (i.e. operations at 6659 Franktown Rd) is part of larger parcel of land owned by Air Rock Drilling Company (Figure 1 and 2). This larger portion includes the balance of lot 6659 Franktown Road as well as lots 6695 Franktown Road and 6707 Franktown Road (Figure 2). The Phase Two property is legally described as CON 4 E PT LOT 19 RP;4R-14477 PART 2. The PIN for the Phase Two property is 044390239. A survey plan of the Phase Two property was completed by H.A. Ken Shipman Surveying Ltd. in March 2022. A copy of the survey plan is provided in Appendix B.

Site identification information is presented in Table 1.1.

Table 1.1: Site Identification Details

Civic Address	6659 Franktown Road, Ottawa, Ontario
Current Land Use	Commercial-Residential
Proposed Future Land Use	Commercial-Residential
Property Identification Number	040460029, 04060037
UTM Coordinates	Zone 18, 432048 m E and 5003159 m N
Site Area	1.22 hectares
Property Owner	Air Rock Drilling

The workshop is improved with a floor trench that drains to a shallow sump (Photos 1 to 3). The sump effluent passes through a bag filter housing system, followed by a "ZURN Z1186" oil interceptor before discharging to the exterior gravel surface on the east side of the workshop (Photos 3 to 5) (APEC 1).

The Phase Two property utilizes the following above ground storage tanks (AST) which are supported by a Risk Management Plan which was signed in August 2023.

Table 1.2: Summary of Aboveground Storage Tanks

AST#	Location	Type	Volume	Contents	Year	
			Litres		Installed	Removed
AST-1	Rear of workshop – exterior (APEC 2)	Single wall steel	2295	Waste oil	2009	Present
AST-2	Rear of workshop – exterior (APEC 2)	Single wall steel	910	Furnace oil	2004	Present
AST-3	Fueling station – exterior (APEC 3)	Double wall steel	2270	Gasoline	2005	Present

AST-4	Fueling station – exterior (APEC 3)	Double wall steel	4540	Diesel (coloured)	2005	Present
AST-5	Fueling station – exterior (APEC 3)	Double wall steel	2270	Diesel	2001	Present
AST-6	Workshop – interior (APEC 1)	Single wall steel	No tag	New Oil	2005	Present
AST-7	Workshop – interior (APEC 1)	Single wall steel	No tag	New Oil	2005	Present

1.3 Property Ownership

The registered owner of the Phase One property is Air Rock Drilling. Authorization to proceed with this investigation was provided by Mr. Jeremy Hanna of Air Rock Drilling. Contact information for Mr. Hanna is 6659 Franktown Road, Ottawa, Ontario, K0A 2Z0.

1.4 Current and Proposed Future Use

Based on a review of historical aerial photographs, historical maps, and other records review, it appears that the Site was initially agricultural land dating back to the 1970's (1976) up to the early 2000's (2002) when the property was developed in its current configuration.

1.5 Applicable Site Condition Standards

Analytical results obtained for soil and groundwater samples were compared to Site Condition Standards (SCS) established under subsection 169.4(1) of the Environmental Protection Act, and presented in the document entitled *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, 2011. This document provides tabulated background SCS (Table 1) applicable to environmentally sensitive sites and effects-based generic SCS (Tables 2 to 9) applicable to non-environmentally sensitive sites. The effects-based SCS (Tables 2 to 9) are protective of human health and the environment for different groundwater conditions (potable and non-potable), land use scenarios (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil texture (coarse or medium/fine) and restoration depth (full or stratified).

Table 1 to 9 SCS are summarized as follows:

- Table 1 – applicable to sites where background concentrations must be met (full depth), such as sensitive sites where site-specific criteria have not been derived
- Table 2 – applicable to sites with potable groundwater and full depth restoration
- Table 3 – applicable to sites with non-potable groundwater and full depth restoration
- Table 4 – applicable to sites with potable groundwater and stratified restoration
- Table 5 – applicable to sites with non-potable groundwater and stratified restoration
- Table 6 – applicable to sites with potable groundwater and shallow soils (bedrock encountered at depths of 2 metres or less across one-third or more of the site)
- Table 7 – applicable to sites with non-potable groundwater and shallow soils (bedrock encountered at depths of 2 metres or less across one-third or more of the site)
- Table 8 – applicable to sites with potable groundwater and that are within 30 m of a water body

- Table 9 – applicable to sites with non-potable groundwater and that are within 30 m of a water body

Application of the generic or background SCS to a specific site is based on a consideration of site conditions related to soil pH, thickness and extent of overburden material, and proximity to an area of environmental sensitivity or of natural significance. For some chemical parameters, consideration is also given to soil textural classification with SCS having been derived for both coarse and medium-fine textured soil conditions.

For assessment purposes, EXP selected the 2011 Table 2 SCS in a non-potable groundwater condition for residential/parkland/institutional property use, coarse grained soil.

The selection of these categories was based on the following factors:

- Bedrock is greater than 2 metres below grade across the subject property;
- The Phase Two property is not located within 30 metres of a waterbody;
- The Phase Two property is not located within an area of natural significance, does not include nor is adjacent to an area of natural significance, and does not include land that is within 30 metres of an area of natural significance;
- Potable water for the Phase Two property is supplied from an on-Site water well;
- The Phase Two property is located in an area designated in a municipal official plan as a well-head protection area;
- The proposed building is planned for residential and commercial use; and
- It is the opinion of the Qualified Person who oversaw this work that the Phase Two property is not a sensitive site.

2.0 Background Information

2.1 Physical Setting

The Phase Two property is located on the north side of Franktown Road, at 6659 Franktown Road in Ottawa, just west of the village of Richmond. The Phase Two property is rectangular in shape with am area of approximately 1.22 hectares and is currently occupied by one residential dwelling, one workshop / office building and a quonset hut associated with the on-site well drilling company (Air Rock Drilling Company Ltd.). Asphalt and hard-pack gravel parking area and access-way is present along the east and west side of the Phase Two property. The north part of the Phase Two property is soil covered. The remainder of the Phase Two property around the residential dwelling is landscaped. The residential structure was constructed in 2002 and the quonset hut and workshop/office were constructed around 2005.

A site plan showing the Phase Two property is presented as Figure 2 in Appendix A.

Topographically, the Phase Two property grades towards the southeast (Figure 3). A shallow earth berm had been constructed along the west property line separating the Phase Two property from the adjacent residential property to the west. In terms of surface drainage, there are no surface water features on the operations portion of Phase Two property or within 30 metres of the property, apart from a shallow east grading swale that constructed in the northwest corner of the Phase Two property. There are no drainage ditches along the east or west property lines. An east grading right of way drainage ditch exists along Franktown Rd to the south.

The Phase Two property, and all other properties located, in whole or in part, within 250 metres of the boundaries of the Phase Two property, are supplied by individual water wells. Thus, in accordance with Section 35 of Ontario Regulation 153/04, potable water standards apply to the Phase Two property.

In accordance with Section 41 of Ontario Regulation 153/04, the Phase Two property is not an environmentally sensitive area. In addition, the Phase Two property is not located within an area of natural significance, and it does not include land that is within 30 metres of an area of natural significance. There is however, a provincially significant wetland located 240 m northwest of the Phase Two property (Figure 1 and 2).

The bedrock geology underlying the subject Phase One property consists of Ottawa Formation, limestone, dolostone, and shale. The overburden at the Phase Two property, beneath any fill, material consists of clay and silty underlying erosional terraces.

2.2 Past Investigations

A Phase I and II ESA was conducted by EXP in 2017 for due diligence purposes. The property owner at the time of the investigation indicated that the site was first developed in the 2000s with a residence and workshop and office building, as well as a Quonset hut. Three PCAs resulting in three APECs were identified and an additional site investigation was recommended. Nine (9) test pits (TP1 to TP9) were excavated in the areas of the sump pit discharge (APEC 1) and the above ground storage tanks (APEC 2 ad 3) performed on the site and soil samples were collected for laboratory analysis of the contaminants of concern. In addition, three (3) monitoring wells were advanced at the APECs and groundwater samples were collected for laboratory analysis of the contaminants of concern. Based on the laboratory analyses, the concentrations of PHC, BTEX and metals measured in the analysed soil and groundwater samples were less than the provincial Table 2 SCS, with the exception of the sample collected from TP5 which was found to have soil exceedances of the Table 2 SCS for PHC F1 and PHC F2. The impacts at TP5 were delineated in all four cardinal directions. No elevated PHC and/or BTEX concentrations were detected from any of the three water samples collected and the water results were less than the Table 2 SCS. Therefore, the minor soil impact from TP5 had not impacted the groundwater at MW3 (which was located immediately next to TP5).

More recently, EXP prepared a report entitled *Phase One Environmental Site Assessment, 6659 Franktown Road, Ottawa, Ontario,* dated August 3, 2023. The Phase One study area included properties within 250 m of the Phase Two property. Based

on the results of the Phase One ESA, no new PCA or APEC were identified. The locations of the APEC are shown on Figure 3 in Appendix A. A summary of the Phase One ESA is provided in Table 2.1.

Table 2.1: Findings of Phase One ESA

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1	Workshop shop sump discharge (sump discharges to ground just outside workshop building, south side)	PCA #10 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	Benzene, toluene, ethylbenzene, xylene (BTEX), and petroleum hydrocarbons (PHC), metals	Soil and groundwater
APEC #2 and 3	Above ground storage tanks for furnace oil, waste oil, and fuel (diesel and gasoline)	PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX and PHC	Soil and groundwater

3.0 Scope of the Investigation

3.1 Overview of Site Investigation

The objective of the Phase Two ESA was to assess the quality of surface soil and groundwater on the Phase Two property.

The most recent use of the property was commercial and residential, and the land use will not be changing. Since the land use will not be changing, an RSC is not required, per Ontario Regulation 153/04.

3.2 Scope of Work

The scope of work for the Phase Two ESA was as follows:

- Monitoring groundwater levels in the wells to determine groundwater elevations;
- Collecting groundwater samples from the monitoring wells and submitting for analysis of BTEX and PHC;
- Collecting surface soil sampling plan in response to comments provided by the City of Ottawa and submitting for PHC, polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOC), metals and/or BTEX;
- Comparing the results of the soil and groundwater chemical analyses to applicable criteria, as set out by the Ontario Ministry of the Environment, Conservation and Parks (MECP);
- Preparing a report summarizing the results of the assessment activities.

This report has been prepared in accordance with the Phase Two ESA standard as defined by Ontario Regulation 153/04 (as amended), and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services, and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 8 of this report.

3.3 Media Investigated

The soil quality on the Phase One property was assessed in 2017. The current Phase Two ESA included the investigation of surface soil and groundwater on the Phase Two property. There are no waterbodies on the Phase Two property, therefore surface water or sediment sampling was not required.

The contaminants of potential concern (COPC) identified in the Phase One ESA were identified as target parameters for this Phase Two ESA. The APEC and COPC identified in the Phase One ESA are outlined in Section 2.2.

3.4 Phase One Conceptual Site Model

The Phase One conceptual site model (CSM) was developed by considering the following physical characteristics and pathways. The CSM showing the topography of the site, inferred groundwater flow, general site features, APEC, and PCA is shown in Figure 3 in Appendix A.

3.4.1 Buildings and Structures

The Phase Two property is rectangular in shape with am area of approximately 1.22 hectares and is currently occupied by residential structure, one workshop/office building and a quonset hut associated with the on-site well drilling company (Air Rock Drilling Company Ltd.). Ground surface is typically asphalting paved or hard-pack gravel around the structures. The north part of the Phase Two property is soil covered, whereas the area around the residential dwelling is landscaped.

3.4.2 Water Bodies and Groundwater Flow Direction

The local groundwater flow direction is unknown, although based on regional topography, groundwater flow is anticipated to be southeast toward the Jock River, approximately 2.3 km south.

3.4.3 Areas of Natural Significance

A Provincially Significant Wetland is located approximately 240 m to the north of the Phase Two property.

3.4.4 Water Wells

Fifteen well records were identified within the Phase One study area, including 6 records for monitoring wells on the Phase One property. Three of the remaining well records were for monitoring wells and/or monitoring well abandonment, and six were for domestic water supply wells. Well records indicate surficial soil consists of sand and sandy clay. Limestone bedrock was present approximately 1.0 to 9.0 metres below ground surface.

3.4.5 Potentially Contaminating Activity

The following on-site PCA were identified:

- PCA #10 – Commercial autobody shops
    - On-site repair garage – active repair garage
- PCA #28 – Gasoline and associated products storage in fixed tanks
    - 2 AST in east part of Phase One property
    - 4 AST in west part of Phase One property

3.4.6 Areas of Potential Environmental Concern

The APEC identified are summarized in Table 3.1.

Table 3.1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1	Workshop shop sump discharge (sump discharges to ground just outside workshop building, south side)	PCA #10 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	Benzene, toluene, ethylbenzene, xylene (BTEX), and petroleum hydrocarbons (PHC), metals	Soil and groundwater
APEC #2 and 3	Above ground storage tanks for furnace oil, waste oil, and fuel (diesel and gasoline)	PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX and PHC	Soil and groundwater

3.4.7 Underground Utilities

Utilities, including underground hydro, natural gas are present on the Phase Two property. There is a private water well and septic system at the Phase Two property.

3.4.8 Subsurface Stratigraphy

Bedrock in the general area of the Phase One property consists of limestone and shale of the Simcoe Group. Native surficial soil consists of sand and silt glacial till. Based on local mapping, beneath any fill, the surficial geology of The Phase One property is characterised by sand, gravel, silt and clay. The bedrock geology underlying the subject Site consists of Ottawa Formation, limestone, dolostone, and shale. The local MECP water well records and geotechnical boreholes indicate local geology is sand over limestone bedrock. Bedrock is anticipated approximately 1.0 to 9 metres below ground surface. The general topography of the Phase One property and study area slopes down to the southeast towards Jock River.

3.4.9 Uncertainty Analysis

The CSM is a simplification of reality, which aims to provide a description and assessment of any areas where potentially contaminating activity that occurred within the Phase Two study area may have adversely affected the Phase Two property. All information collected during this investigation, including records, interviews, and site reconnaissance, has contributed to the formulation of the CSM.

Information was assessed for consistency, however EXP has confirmed neither the completeness nor the accuracy of any of the records that were obtained or of any of the statements made by others. All reasonable inquiries to obtain accessible information were made, as required by Schedule D, Table 1, Mandatory Requirements for Phase Two Environmental Site Assessment Reports. The CSM reflects our best interpretation of the information that was available during this investigation.

3.5 Deviations from Sampling and Analysis Plan

The field investigative and sampling program was carried out following the requirements of the Phase Two property, as described in Section 4.

No significant deviations from the SAAP, as provided in Appendix C, were reported that affected the sampling and data quality objectives for the Phase Two property.

3.6 Impediments

No impediments were encountered during this investigation.

4.0 Investigation Method

4.1 General

The current investigation was performed following requirements given under Ontario Regulation 153/04 and in accordance with generally accepted professional practices.

4.2 Groundwater: Field Measurement and Water Quality Parameters

Field measurement of water quality parameters is described in Section 4.3.

All measurements of petroleum vapours in the monitor riser were made with an RKI Eagle 2 in methane elimination mode. Immediately after removing the well cap, the collection tube of the Eagle was inserted into the riser and the peak instrument reading was recorded. EXP used a Heron water level tape to measure the static water level in each monitoring well. The measuring tape was cleaned with phosphate-free soap and tap water, rinsed with distilled water after each measurement.

4.3 Groundwater: Sampling

All groundwater samples were collected via a low flow sampling technique using a Horiba U-52 multi probe water quality meter. The Horiba probe was calibrated using in-house reference standards. Prior to collecting the groundwater samples, water quality field parameters (turbidity, dissolved oxygen, conductivity, temperature, pH, and oxidation reduction potential) were monitored until stable readings were achieved to ensure that the samples collected were representative of actual groundwater conditions. These parameters are considered to be stable when three consecutive readings meet the following conditions:

- Turbidity: within 10% for values greater than 5 nephelometric turbidity units (NTU), or three values less than 5 NTU;
- Dissolved oxygen: within 10% for values greater than 0.5 mg/L, or three values less than 0.5 mg/L;
- Conductivity: within 3%;
- Temperature: ± 1°C;
- pH: ± 0.1 unit; and,
- Oxidation reduction potential: ±10 millivolts.

When stabilization occurs, equilibrium between groundwater within a monitor and the surrounding formation water is attained. As such, samples collected when stabilization occurs are considered to be representative of formation water.

The groundwater sampling during the completion of this Phase Two ESA was undertaken in general accordance with the SAAP presented in Appendix C. The groundwater samples were placed in clean coolers containing ice packs prior to and during transportation to the laboratory. The samples were transported to the laboratory within 24 hours of collection with a chain of custody.

On July 11, 2023, groundwater samples were collected from the three monitoring wells (MW-1, MW-2, and MW-3) using the low flow sampling method described above. Three groundwater samples, a field blank, a field duplicate, and a trip blank were submitted for chemical analysis of PHC, and BTEX parameters.

On July 14, 2023, a second groundwater sample was collected from MW-3 using the low flow sampling method described above and the sample was submitted for laboratory analysis of BTEX and PHC.

On July 9, 2024, a third round of groundwater samples were collected from the three monitoring wells (MW-1, MW-2, and MW-3) using the low flow sampling method described above.

The following table summarizes the groundwater sampling program.

Table 4.1: Groundwater Sampling Programs

Sample Location	Media	Parameters	Rationale
MW-1	Groundwater	PHC F1-F4, VOC	To assess potential impact on groundwater from sump discharge and heating oil tanks
MW-2	Groundwater	PHC F1-F4, VOC	To assess potential impact on groundwater from sump discharge and heating oil tanks
MW-3	Groundwater	PHC F1-F4, BTEX	To assess potential impact on groundwater from refueling AST location

4.4 Surface Soil: Sampling

In the absence of surface water features on the Phase Two property, a surface soil sampling program was completed to assess what potential impact the fuel storage tanks and the sump discharge had on the surface runoff, and consequently the adjacent properties, ta the right of way ditches to the south and the EPZ to the north. Surface samples were collected at the point sources and downgradient soil locations. The following table summarises the July and December 2024 surface soil sampling programs.

Table 4.2: Supplementary Surface Soil Sampling Program

Sample Location	Media	Parameters	Rationale
S-1 Discharge point of sump and adjacent to ASTs	Surface soil beneath gravel	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil from sump discharge
S-2 Downgradient from sump discharge towards east property line)	Surface soil	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil from sump discharge at downgrade location along eastern property line and towards ROW drainage
S-3 Northeast of workshop and quonset building	Surface soil	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil from sump discharge at upgrade location along eastern property line and towards EPZ
S-4 Northwest corner of Phase Two property in constructed swale	Surface soil	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil at northwest corner of Phase Two property
S-5 Within refueling AST location	Surface soil beneath gravel	PHC F1-F4, BTEX	To assess potential impact on surface soil from refueling ASTs
S-6 Downgradient from refueling AST location along west property line	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil from refueling ASTs at downgrade location along western property line and towards ROW drainage
S-7 Downgradient from sump discharge along east property line	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil from sump discharge at downgrade location along eastern property line.

S-8 Downgradient from refueling AST location along west property line, adjacent to constructed berm	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil from refueling ASTs at downgrade location
S-9 Northwest corner of Phase Two property in constructed swale	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4
S-10 Northwest corner of Phase Two property in constructed swale	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4
S-11 Northwest corner of Phase Two property in constructed berm	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4
S-12 Northwest corner of Phase Two property north adjacent of constructed swale	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4

During the July, 2024 investigation, six surficial soil samples (S1 to S6)were collected using a shovel at the discharge point of the workshop sump (S1), downgradient of the sump discharge (S2), adjacent to the two locations of above ground fuel storage tanks (S1, S5), downgradient of the fuel storage locations (S2, S6), as well as two samples upgradient from the APECs along the northern property boundary (S3, S4) (Figure 14).

During the December, 2024 investigation, an additional six surficial soil samples were collected using a backhoe for excavation. Surficial soil samples were collected downgradient from the workshop sump discharge point along the eastern property boundary (S7), downgradient from the refueling ASTs along the western property boundary (S8), and at the northwest corner of the property (S9, S10, S11 and S12).

All surficial soil samples were collected between 0.10 and 0.50 m depths. Soil samples were placed directly into pre-cleaned, laboratory-supplied glass sample jars/vials. Samples to be analysed for PHC fraction F1 and BTEX were collected using a soil core sampler and placed into vials containing methanol as a preservative. The jars and vials were sealed with Teflon-lined lids to minimize headspace and reduce the potential for induced volatilization during storage/transport prior to analysis. All soil samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Bureau Veritas Laboratories (BV) of Ottawa, Ontario. The samples were transported/submitted within 24 hours of collection to the laboratory following chain of custody protocols for chemical analysis. Soil samples were submitted for laboratory analysis of PAH and metals and/or BTEX and PHC, as per findings of previous investigations

4.5 Surface water or Sediment: Sampling

There are no waterbodies present on the Phase Two property; therefore surface water or sediment sampling was not required.

4.6 Analytical Testing

The contracted laboratory selected to perform chemical analysis on all ground water samples was Bureau Veritas Laboratories (BVL). BVL is an accredited laboratory under the Standards Council of Canada/Canadian Association for Laboratory Accreditation in accordance with ISO/IEC 17025:1999- General Requirements for the Competence of Testing and Calibration Laboratories.

4.7 Residue Management

The purged water from groundwater sampling were stored in on site drums until work was completed and were disposed of off site by a licenced contractor.

4.8 Elevation Surveying

An elevation survey was conducted by EXP. The top of casing and ground surface elevation of each monitoring well location was surveyed relative to a geodetic reference. The Universal Transverse Mercator (UTM) coordinates of each monitoring well were also recorded so that their locations could be plotted accurately.

4.9 Quality Assurance and Quality Control Measures

All groundwater samples were placed in coolers containing ice packs prior to and during transportation to the contract laboratory, BVL. BVL is accredited to the ISO/IEC 17025:2005 standard - *General Requirements for the Competence of Testing and Calibration Laboratories*.

A QA/QC program was also implemented to ensure that the analytical results received are accurate and dependable. A QA/QC program is a system of documented checks that validate the reliability of the data. Quality Assurance is a system that ensures that quality control procedures are correctly performed and documented. Quality Control refers to the established procedures observed both in the field and in the laboratory, designed to ensure that the resulting end data meet intended quality objectives. The QA/QC program implemented by EXP incorporated the following components:

- Collecting and analysing field duplicate samples to ensure analytical precision;
- Using dedicated and/or disposable sampling equipment;
- Following proper decontamination protocols to minimize cross-contamination;
- Maintaining field notes and completing field forms to document field activities; and
- Using only laboratory-supplied sample containers and following prescribed sample protocols, including using proper preservation techniques, meeting sample hold times, and documenting sample transmission on chains of custody, to ensure the integrity of the samples is maintained.

BVL's QA/QC program involved the systematic analysis of control standards for the purpose of optimizing the measuring system as well as establishing system precision and accuracy and included calibration standards, method blanks, reference standards, spiked samples, surrogates and duplicates.

5.0 Review and Evaluation

5.1 Geology

A 0.15-0.6 m thick layer of gravel was found at the ground surface at TP1, TP2, TP3, TP4, TP5, TP6 and TP9. A 0.15 m thick surface layer of topsoil was found at TP7 and TP8. Below the topsoil a layer of sand was observed. No indications of petroleum impact were identified in the fill. Below any topsoil or gravel was a brown sand in all test pits. This extended to a depth of 0.3-1.8 m. Below the sand was a layer of grey silty clay. There were no visual or olfactory indications of petroleum impact to the native soil except for TP5 which was observed to have a slight petroleum odour within the grey silty clay layer.

A plan view showing cross-sections is provided as Figure 5 in Appendix A, while the Phase Two property geology is depicted in cross-sections on Figure 6 in Appendix A.

5.2 Groundwater: Elevations and Flow Direction

During groundwater monitoring events, the monitoring wells (MW-1, MW-2, and MW-3) were inspected for general physical condition, groundwater depth, the presence of light non-aqueous phase liquid (LNAPL). Overburden groundwater monitoring and elevation data for 2023 and 2024 are provided below.

Table 5.1: Monitoring and Elevation Data – July 11, 2023

Monitoring Well ID	Screen Location	Grade Elevation (masl)	Top of Casing Elevation (masl)	Screen Depth (mbgs)	Depth to LNAPL (mbgs)	Depth to Groundwater (mbTOC)	Groundwater Elevation (masl)
MW-1	Overburden	99.46	99.43	1.5 to 4.5	N/A	1.63	97.80
MW-2	Overburden	99.49	99.45	1.5 to 4.5	N/A	1.67	97.78
MW-3	Overburden	99.48	99.42	1.5 to 4.50	N/A	1.20	98.22

Notes: Elevations were measured to a geodetic datum
mbgs – metres below ground surface
masl – metres above sea level
mbTOC – metres below top of monitor casing
N/A – not applicable

Table 5.2: Monitoring and Elevation Data – July 9, 2024

Monitoring Well ID	Screen Location	Grade Elevation (masl)	Top of Casing Elevation (masl)	Screen Depth (mbgs)	Depth to LNAPL (mbgs)	Depth to Groundwater (mbTOC)	Groundwater Elevation (masl)
MW-1	Overburden	99.46	99.43	1.5 to 4.5	N/A	1.02	98.41
MW-2	Overburden	99.49	99.45	1.5 to 4.5	N/A	0.99	98.46
MW-3	Overburden	99.48	99.42	1.5 to 4.5	N/A	0.28	99.14

Notes: Elevations were measured to a geodetic datum
mbgs – metres below ground surface
masl – metres above sea level
mbTOC – metres below top of monitor casing
N/A – not applicable

Previous investigations on the Phase Two property and the greater property at 6659 Franktown Road, indicate that the groundwater flow direction was determined to be to the northeast (Figure 4 in Appendix A). Groundwater levels can also be influenced by seasonal changes, the presence of subsurface structures, or fill material.

5.3 Groundwater: Hydraulic Gradients

Horizontal hydraulic gradients were estimated for the groundwater flow components identified in the overburden aquifer based on the July 2023 groundwater elevations.

The horizontal hydraulic gradient is calculated across the using the following equation:

$$i = \Delta h / \Delta s$$

Where,
i = horizontal hydraulic gradient;
Δh (m) = groundwater elevation difference; and,
Δs (m) = separation distance.

The horizontal hydraulic gradient was calculated to be 0.007 m/m.

On August 2, 2023, a rising head test was conducted in one monitoring well (MW1). The rising head test requires that the static water level be measured in each monitoring well prior to the removal of groundwater. Groundwater is removed from the monitoring well using a pump. After the water level has been sufficiently lowered, an interface probe is lowered into the monitor as quickly as possible to measure the new water level. The time at which the new water level is measured is noted as time equal zero. Water level readings are subsequently taken at frequent intervals. Both the water levels and the time they were taken are recorded.

The frequency of the time measurement is determined by the rate the water level recovers to the static water level. Measurements are taken until at least 70% recovery has been achieved or, in cases where recovery is extremely slow, until it is deemed that a sufficient amount of time has elapsed. Using the Hvorslev model, the hydraulic conductivity for the monitoring well was calculated.

The hydraulic conductivity calculated in MW1 was 1.4×10^{-4} cm/s. The data and the calculations for the hydraulic conductivity testing are provided in Appendix H.

Table 5.3: Rising Head Tests – July 2023

Monitoring Well ID/ Installation ID	Horizon	Screen Depth (mbgs)	Initial Static Water Level (mbToC)	Water Level after Purging (mbToC)	Recovery to Static after Elapsed time (s)	Hydraulic Conductivity (cm/s)
MW1	Overburden	3.0 to 4.5	1.27	4.05	780	1.4×10^{-4}

Notes: mbTOC – metres below top of monitor casing

5.4 Soil: Field Screening

The methodology for the collection of soil vapour concentration measurements is described in Section 4.4.

Petroleum vapours ranged from non-detectable to 40 ppm in samples collected from the boreholes. Field screening data is presented in the borehole logs in Appendix D.

5.5 Soil: Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes and from the north wall of the utility trench excavation. The selection of representative "worst case" soil samples from each borehole was based on field visual or olfactory evidence of impacts and/or presence of potential water bearing zones.

2017 Soil - Testpits

In 2017, the concentrations of PHC and BTEX measured in the analysed soil samples were less than the MECP 2011 Table 2 SCS, except for PHC (F1 and F2) in the sample collected from TP5 (68 and 412 ug/g, respectively) at a depth of 1.8 m which exceeded the provincial Table 2 SCS of 65 and 150 ug/g respectively. The concentrations of metals measured in the analysed soil samples were less than the MECP 2011 Table 2 SCS.

Based on the field observations and analytical results obtained, a zone of PHC impacted soil was found in the central western part of the Phase Two property directly to the south of the fuel tanks. The lateral extent of the petroleum impacted soil has been delineated. Given the nature of the contaminant (PHC F1 and F2) and its location on the Phase Two property, the most likely source of this impact is from minor spills related to refueling practices associated with the gas and diesel ASTs.

The soil results are provided in Tables 1 and 2 in Appendix E. They are shown in plan view on Figures 7 and 8 and on cross-sections on Figures 9 and 10 in Appendix A.

Copies of the laboratory Certificates of Analysis are provided in Appendix G.

2024 Soil - Surface Soil

In July 2024, additional surface soil sampling (S1 to S6) was completed at the discharge point of the sump pit and in the vicinity of the ASTs and at subsequent downgradient locations of these PCAs. Based on these results, second round of surface soil sampling (S7 to S12) completed in December 2024 with the objective of defining the extent of impact and/or off-site impact (Figure 14).

A summary of the surface soil analytical results is presented in Tables 1, 2, and 3 in Appendix F. The laboratory certificates of analysis are presented in Appendix G.

Based on the laboratory analytical results, there were no exceedances of the MECP Table 2 SCS for any of the parameters analyzed in the soil samples collected in July 2024 with the exceptions of PHC F2-F3 at S1 (collected at the discharge point of the workshop sump near the (east) fuel storage tanks), and PHC F3 at S4 and S5 (collected at the northwest corner of the property and adjacent to the (west) fuel storage tanks) respectively. In terms of metals, an exceedance of cobalt was noted at S1 (sump discharge point).

During the subsequent sampling program in December 2024, there were no exceedances of MECP Table 2 SCS for any of the parameters analyzed in the soil samples.

5.6 Groundwater: Quality

All groundwater samples were collected via a low flow sampling technique. EXP monitored several water quality parameters (such as water level, temperature, dissolved oxygen, conductivity, salinity, pH, oxygen reduction potential and turbidity) in order to ensure that the samples collected were representative of actual groundwater conditions.

During the 2023 groundwater sampling program, there were no exceedances of the MECP Table 2 SCS for any of the parameters analyzed in the groundwater samples from the monitoring wells (MW-1 to MW-3), with the exception of PHC F3 and F4 in the sample collected from MW3. It was suspected that the measured PHC concentrations were due to sediment in the groundwater sample. A second groundwater sample taken from MW3 on July 14, 2023. During this round PHC was not detected in the re-sample and the concentrations therefore did not exceed the Table 2 SCS.

During the 2024 groundwater sampling round, no exceedances of the Table 2 SCS were detected in the groundwater samples.

The 2023 analytical results are included in Table 3 in Appendix E and are shown in plan view on Figure 11 and on the cross-section on Figure 12 in Appendix A. The 2024 analytical results are included in Table 4 in Appendix F. Copies of the laboratory Certificates of Analysis are provided in Appendix G.

5.6.1 Chemical Transformation and Contaminant Sources

A variety of physical, chemical and biochemical mechanisms affect the fate and transport of the potential COC in soil and groundwater, the contribution of which is dependent on the soil and groundwater conditions at the Phase Two property, as well as the chemical/physical properties of the COC. Relevant fate and transport mechanisms are natural attenuation mechanisms, including advection mixing, mechanical dispersion/molecular diffusion, phase partitions (i.e. sorption and volatilization), and possibly abiotic or biotic chemical reactions, which effectively reduce COC concentrations.

No groundwater exceedances were identified on the Phase Two property.

Cross-sections that depict the geological, hydrogeological, and groundwater chemical data for the Phase Two property are provided as Figures 9, 10 and 12 in Appendix A.

5.6.2 Evidence of Non-Aqueous Phase Liquid

Inspection of the groundwater monitoring wells did not indicate the presence of non-aqueous phase liquid (NAPL).

5.6.3 Maximum Concentrations

Contaminants that exceeded the applicable Table 2 residential standards included:

Soil: Petroleum hydrocarbons, cobalt

Groundwater: None.

Maximum groundwater concentrations are provided in Tables 5 and 6 in Appendix E.

5.7 Surface Water and Sediment: Quality

There are no surface water bodies on the Phase Two property, therefore surface water and sediment sampling was not completed.

5.8 Quality Assurance and Quality Control Results

Quality assurance and quality control measures were taken during the field activities to meet the objectives of the sampling and quality assurance plan to collect unbiased and representative samples to characterize existing conditions in the fill materials and groundwater at the site. QA/QC measures, included:

- Collection and analysis of blind duplicate soil and groundwater samples to ensure sample collection precision;
- Analysis of a groundwater field blank for all parameters that were analysed to assess potential impact during sampling;
- Using dedicated and/or disposable sampling equipment;
- Following proper decontamination protocols to minimize cross-contamination;
- Maintaining field notes and completing field forms to document on-site activities; and

- Using only laboratory supplied sample containers and following prescribed sample protocols, including proper preservation, meeting sample hold times, proper chain of custody documentation, to ensure integrity of the samples.

Bureau Veritas' QA/QC program consisted of the preparation and analysis of laboratory duplicate samples to assess precision and sample homogeneity, method blanks to assess analytical bias, spiked blanks and QC standards to evaluate analyte recovery, matrix spikes to evaluate matrix interferences and surrogate compound recoveries to evaluate extraction efficiency. The laboratory QA/QC results are presented in the Quality Assurance Report provided in the Certificates of Analysis prepared by Caduceon. The QA/QC results are reported as percent recoveries for matrix spikes, spiked blanks and QC standards, relative percent difference for laboratory duplicates and analyte concentrations for method blanks.

Review of the laboratory QA/QC results reported indicated that they were within acceptable control limits or below applicable alert criteria for the sampled media and analytical test groups.

For QA/QC purposes, the analytical sample results are quantitatively evaluated by calculating the relative percent difference (RPD) between the samples and their duplicates. To accurately calculate a statistically valid RPD, the concentration of the analytes found in both the original and duplicate sample must be greater than five times the reporting detection limit (RDL).

The results of the RPD calculations are provided in Appendix E in Table4. All of the RPD for groundwater were either not calculable or within the applicable alert limits.

Field blanks and trip blanks were prepared and submitted for laboratory analysis of BTEX and PHC. The results of the trip blank and field blank analyses are provided in Table 3 in Appendix E. The trip blank and field blank were below the detection limits for all parameters analysed.

5.9 Discussion

The 2024 site investigative activities consisted of collecting groundwater samples from the three on-site monitoring wells, and surficial soil samples at the discharge point of the workshop sump, downgradient from the workshop sump discharge, adjacent to the fuel tank storage, downgradient from the fuel tank storage, and in the northwest corner of the Phase Two property. The objective was to assess what impact these point sources/PCAs had on the site and to assess the potential impact to adjacent residential properties, the ROW drainage ditch to the south and the EPZ to the north.

Based on the results of the groundwater monitoring, no impact to the shallow groundwater regime was noted at the three on-site monitoring wells that were installed at the point sources. Therefore, the migration of impacted groundwater was note observed.

Based on the surface soil sampling program, there was evidence of surface soil impact at i) the sump discharge point as indicated by the PHC and cobalt results at S1 and ii) the refueling storage tanks as indicated by the PHC results at S5 (Figure 14).

With respect to potential impact to adjacent properties overland, as there are no surface water features on the Phase Two property, surface soil samples were collected at point sources (i.e., the sump discharge point and ASTs) and in the downgrade directions towards the east and west residential properties and the south drainage ditch. Based on the results from surficial soil samples along the eastern (S2 and S7) and western property boundaries (S6 and S8), impact to these adjacent receptors has not been observed (Figure 14). With respect to the EPZ to the north, no impact from the operations at the Phase Two property are expected based on the intervening distance and results from S3. Although there was a slight exceedance of hydrocarbon (PHC F3) at S4, based on no hydrocarbon exceedances detected in supplementary soil samples from the northwest corner of the property (S9, S10, S11 and S12), this has not contributed to an impact of the EPZ.

Based on lack of groundwater exceedances identified in the monitoring wells on the Phase Two property, and given the location and nature of the contaminants (PHC F2 and F3 and cobalt) exceeding MECP Table 2 SCS in soil samples (S1, S4 and S5), the likely source of these impact is from minor spills related to refueling practices associated with the gas and diesel ASTs

and/or sump, there is no evidence that contaminants are moving off site. No further environmental investigations are deemed to be warranted.

6.0 Phase Two Conceptual Site Model

A Conceptual Site Model (CSM) provides a narrative, graphical and tabulated description integrating information related to the Phase Two property's geologic and hydrogeological conditions, areas of potential environmental concern/potential contaminating activities, the presence and distribution of contaminants of concern, contaminant fate and transport, and potential exposure pathways.

6.1.1 Introduction

EXP Services Inc. (EXP) was retained by Air-Rock Drilling Ltd. to conduct a Phase Two Environmental Site Assessment (ESA) at 6659 Franktown Road in Ottawa, Ontario (hereinafter referred to as the 'Phase Two property'). At the time of the investigation, the Phase Two property was occupied one residential dwelling, one workshop / office building and a quonset hut associated with the on-Site well drilling company (Air Rock Drilling Company Ltd.).

The objective of the Phase Two ESA investigation was to assess the quality of the groundwater conditions within the areas of potential environmental concern (APEC) identified in a Phase One ESA prepared by EXP. EXP understands that this report is being conducted in support of a zoning amendment and site plan application.

6.1.2 Physical Site Description

The Phase Two property is located on the north side of Franktown Road, as shown on Figure 1 in Appendix A. The Phase Two property is rectangular in shape and has an area of approximately 1.22 hectares. The approximate centroid coordinates are NAD83 18T 432048 m E and 5003159 m N.

The municipal address of the Phase Two property is 6659 Franktown Road, Ottawa, Ontario. The Phase Two property is legally described as CON 4 E PT LOT 19 RP; 4R-14477 PART 2. The property identification number (PIN) is 044390239. Based on topography, the groundwater flow is anticipated to be to the southeast towards the Jock River, approximately 2.3 km south.

Refer to Table 5.4 for the Site identification information.

Table 5.4: Site Identification Details

Civic Address	6659 Franktown Road, Ottawa, Ontario
Current Land Use	Residential - Commercial
Proposed Future Land Use	Residential - Commercial
Property Identification Number	044390239
UTM Coordinates	Zone 18, 432048 m E and 5003159 m N
Site Area	1.22 hectares
Property Owner	Air-Rock Drilling

The Phase One Conceptual Site Model is provided as Figure 3.

The Phase Two property and all other properties located, in whole or in part, within 250 metres of the boundaries of the Phase Two property, are supplied by domestic water wells. Further, the Phase Two property is located in an area designated in the municipal official plan as a well-head protection area. Thus, in accordance with Section 35 of Ontario Regulation 153/04, potable water standards apply to the Phase Two property.

In accordance with Section 41 of Ontario Regulation 153/04, the Phase Two property is not an environmentally sensitive area. In addition, the Phase Two property is not located within an area of natural significance, and it does not include land that is within 30 metres of an area of natural significance. A provincial significant wetland is located 240 n of the Phase Two property.

The Phase Two property is not a shallow soil property as defined in Section 43.1 of the regulation. It does not include all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body.

6.1.3 Geological and Hydrogeological

Bedrock in the general area of the Phase Two property consists of limestone of the Ottawa Formation. The bedrock elevation is approximately 96 metres above sea level (masl). The overburden at the Phase Two property, beneath any fill, material consists of clay and silty underlying erosional terraces.

The groundwater flow direction is anticipated to be southeast, towards the Jock River. Based on groundwater levels measured on July 11, 2023, the groundwater flow direction was to the northeast, however MW1 and MW2 are relatively close together so the groundwater flow direction is definitely to the east but could be more towards the south. Groundwater levels can also be influenced by seasonal changes, the presence of subsurface structures, or fill, however based on the based on the depth of the water table, it is unlikely that any of these factors will affect the groundwater flow direction at the Phase Two property.

The hydraulic conductivity in monitoring well MW1 was 1.4 x 10^{-4} cm/s.

A plan view showing cross-sections is provided as Figure 6, while the Phase Two property geology is depicted in cross-sections on Figure 7.

A summary of factors that apply to the Phase Two property is provided in Table 5.5.

Table 5.5: Site Characteristics

Characteristic	Description
Minimum Depth to Bedrock	Not encountered during drilling
Minimum Depth to Groundwater	1.20 masl (July 11, 2023) 0.28 masl (July 9, 2024)
Shallow Soil Property	No, bedrock is deeper than 2.0 mbgs
Proximity to water body or ANSI	Approximately 2.3 km south – Jock River
Soil Texture	Coarse
Current Property Use	Residential - Commercial
Future Property Use	Residential - Commercial
Proposed Future Building	Same

6.1.4 Utilities and Impediments

Utilities, including underground hydro, and natural gas are present on the Phase Two property.

6.1.5 Potentially Contaminating Activities

The following on-site PCA were identified:

- PCA #10 – Commercial autobody shops

- On-site repair garage – active repair garage

- PCA #28 – Gasoline and associated products storage in fixed tanks
  - 2 AST in east part of Phase One property
  - 4 AST in west part of Phase One property

No off-site PCA were identified.

6.1.6 Areas of Potential Environmental Concern/Potential Contaminates of Concern

Ontario Regulation 153/04 defines an APEC as an area on a property where one or more contaminants are potentially present. The following APEC were identified on the Phase Two property, as shown on Figure 2 and Table 5.6 below:

Table 6.1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1	Workshop shop sump discharge (sump discharges to ground just outside workshop building, south side)	PCA #10 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	Benzene, toluene, ethylbenzene, xylene (BTEX), and petroleum hydrocarbons (PHC), metals	Soil and groundwater
APEC #2 and 3	Above ground storage tanks for furnace oil and fuel	PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX and PHC	Soil and groundwater

6.1.7 Investigation

In 2017, the site investigative activities consisted of excavating test pits and installing monitoring wells to facilitate the collection of groundwater samples. On July 11, 2023, EXP collected groundwater samples from the three monitoring wells. In 2024, the groundwater was re-sampled from the monitoring wells and a surface soil program was completed.

6.1.8 Groundwater Sampling

During the 2023 groundwater sampling program, there were no exceedances of the MECP Table 2 SCS for any of the parameters analyzed in the groundwater samples from the monitoring wells (MW-1 to MW-3), with the exception of PHC F3 and F4 in the sample collected from MW3. It was suspected that the measured PHC concentrations were due to sediment in the groundwater sample. A second groundwater sample taken from MW3 on July 14, 2023. During this round PHC was not detected in the re-sample and the concentrations therefore did not exceed Table 2 SCS.

During the 2024 groundwater sampling round, no exceedances of the Table 2 SCS were detected in the groundwater samples.

6.1.9 Surface Soil Sampling

In July 2024, additional surface soil sampling (S1 to S6) was completed at the discharge point of the sump pit and in the vicinity of the ASTs and at subsequent downgradient locations of these PCAs. Based on these results, second round of surface soil

sampling (S7 to S12) completed in December 2024 with the objective of defining the extent of impact and/or off-site impact (Figure 14).

Based on the laboratory analytical results, there were no exceedances of the MECP Table 2 SCS for any of the parameters analyzed in the soil samples collected in July 2024 with the exceptions of PHC F2-F3 at S1 (collected at the discharge point of the workshop sump near the (east) fuel storage tanks), and PHC F3 at S4 and S5 (collected at the northwest corner of the property and adjacent to the (west) fuel storage tanks) respectively. In terms of metals, an exceedance of cobalt was noted at S1 (sump discharge point).

During the subsequent sampling program in December 2024, there were no exceedances of MECP Table 2 SCS for any of the parameters analyzed in the soil samples

6.1.10 Contaminants of Concern

Contaminants that exceeded the Table 2 SCS included:

Soil: petroleum hydrocarbons, cobalt

Groundwater: none

6.1.11 Contaminant Fate and Transport

A variety of physical, chemical and biochemical mechanisms affect the fate and transport of the potential COC in soil and groundwater, the contribution of which is dependent on the soil and groundwater conditions at the Phase Two property, as well as the chemical/physical properties of the COC. Relevant fate and transport mechanisms are natural attenuation mechanisms, including advection mixing, mechanical dispersion/molecular diffusion, phase partitions (i.e. sorption and volatilization), and possibly abiotic or biotic chemical reactions, which effectively reduce COC concentrations.

Based on the results of the groundwater monitoring, no impact to the shallow groundwater regime was noted at the three on-site monitoring wells that were installed at the point sources. Therefore, the migration of impacted groundwater was note observed.

Based on the surface soil sampling program, there was evidence of surface soil impact at i) the sump discharge point as indicated by the PHC and cobalt results at S1 and ii) the refueling storage tanks as indicated by the PHC results at S5.

With respect to potential impact to adjacent properties overland, as there are no surface water features on the Phase Two property, surface soil samples were collected at point sources (i.e., the sump discharge point and ASTs) and in the downgrade directions towards the east and west residential properties and the south drainage ditch. Based on the results from surficial soil samples along the eastern (S2 and S7) and western property boundaries (S6 and S8), impact to these adjacent receptors has not been observed. With respect to the EPZ to the north, no impact from the operations at the Phase Two property are expected based on the intervening distance and results from S3. Although there was a slight exceedance of hydrocarbon (PHC F3) at S4, based on no hydrocarbon exceedances detected in supplementary soil samples from the northwest corner of the property (S9, S10, S11 and S12), this has not contributed to an impact of the EPZ.

Based on lack of groundwater exceedances identified in the monitoring wells on the Phase Two property, and given the location and nature of the contaminants (PHC F2 and F3 and cobalt) exceeding MECP Table 2 SCS in soil samples (S1, S4 and S5), the likely source of these impact is from minor spills related to refueling practices associated with the gas and diesel ASTs and/or sump and limited to the point sources. There is no evidence that contaminants are moving off site.

7.0 Conclusion

The site investigative activities consisted of collecting groundwater samples from the three on-site monitoring wells (2023 and 2024) followed by a surface soil sampling program (2024).

Based on the results of the groundwater monitoring, no impact on the shallow groundwater regime was noted at the three on-site monitoring wells that were installed at the point sources. Therefore, the migration of impacted groundwater was not observed.

Based on the surface soil sampling program, there was evidence of point source surface soil impact at i) the sump discharge point as indicated by the PHC and cobalt results at S1 and ii) the refueling storage tanks as indicated by the PHC results at S5. The area beyond these point sources is either asphalt or hard-pack gravel.

With respect to potential impact to adjacent properties overland, as there are no surface water features on the Phase Two property, surface soil samples were collected at point sources (i.e., the sump discharge point and ASTs) and in the downgrade directions towards the east and west residential properties and the south drainage ditch. Based on the results from surficial soil samples along the eastern (S2 and S7) and western property boundaries (S6 and S8), no impact was observed to these adjacent receptors. With respect to the EPZ to the north, no potential impact from the operations at the Phase Two property is expected. A slight exceedance of hydrocarbon (PHC F3) was observed at S4 the northwest corner of the property, however no hydrocarbon exceedances were detected in delineation soil samples (S9, S10, S11 and S12) from this location. This indicates the impact is limited and has not contributed to an off-site receptor or the EPZ.

Based on lack of groundwater exceedances and given the location and nature of the contaminants (PHC F2 and F3 and cobalt) exceeding MECP Table 2 SCS in soil samples (S1, S4 and S5), the likely source of these impacts are from minor spills related to refueling practices associated with the refueling ASTs and/or sump and limited to the point sources. There is no evidence that contaminants are moving off site.

The Qualified Person can confirm that the Phase Two Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices. No further environmental investigations are deemed to be warranted.

PROFESSIONAL GEOSCIENTIST
Christopher Thomas Kimmerly
PRACTISING MEMBER
0703
ONTARIO

Oct. 17/25

Chris Kimmerly, P.Geo.,
Manager - Senior Geoscientist
Earth and Environment

Mackenzie Russell, M.Sc.
Environmental Scientist
Earth and Environment

8.0 References

This study was conducted in accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives. Specific reference is made to the following documents.

- EXP Services Inc., *Phase I and II Environmental Site Assessment, 6659 Franktown Road, Ottawa, Ontario,* Novermber 28, 2017
- EXP Services Inc., *Phase One Environmental Site Assessment, 6659 Franktown Road, Ottawa, Ontario,* August 9, 2023
- EXP Services Inc., *Phase Two Environmental Site Assessment, 6659 Franktown Road, Ottawa, Ontario,* August 11, 2023.
- Freeze and Cherry, *Groundwater*, Prentice Hall, 1979.
- Ontario Ministry of the Environment, Conservation and Parks, *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*, December 1996.
- Ontario Ministry of the Environment, Conservation and Parks, *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, April 15, 2011.
- Ontario Ministry of the Environment, Conservation and Parks, *Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04,* June 2011.
- Ontario Ministry of the Environment, Conservation and Parks, *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act,* July 1, 2011.
- Ontario Ministry of the Environment, Conservation and Parks, *Management of Excess Soil – A Guide for Best Management Practices,* January 2014.
- Ontario Regulation 153/04, made under the *Environmental Protection Act*, as amended.
- Ontario R.R.O. 1990, Regulation 347, made under the *Environmental Protection Act*, as amended.
- Ontario R.R.O. 1990, Regulation 903, made under the *Water Resources Act*, as amended.

9.0 General Limitations

Basis of Report

This report ("Report") is based on site conditions known or inferred by the investigation undertaken as of the date of the Report. Should changes occur which potentially impact the condition of the site the recommendations of EXP may require re-evaluation. Where special concerns exist, or Air Rock Drilling Company Ltd. ("the Client") has special considerations or requirements, these should be disclosed to EXP to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

Reliance on Information Provided

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to EXP by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. EXP has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to exp. If new information about the environmental conditions at the Site is found, the information should be provided to EXP so that it can be reviewed and revisions to the conclusions and/or recommendations can be made, if warranted.

Standard of Care

The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

Complete Report

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment form part of the Report. This material includes, but is not limited to, the terms of reference given to EXP by the Client, communications between EXP and the Client, other reports, proposals or documents prepared by EXP for the Client in connection with the site described in the Report. In order to properly understand the suggestions, recommendations and opinions expressed in the Report, reference must be made to the Report in its entirety. EXP is not responsible for use by any party of portions of the Report.

Use of Report

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. No other party may use or rely upon the Report in whole or in part without the written consent of EXP. Any use of the Report, or any portion of the Report, by a third party are the sole responsibility of such third party. EXP is not responsible for damages suffered by any third party resulting from unauthorised use of the Report.

Report Format

Where EXP has submitted both electronic file and a hard copy of the Report, or any document forming part of the Report, only the signed and sealed hard copy shall be the original documents for record and working purposes. In the event of a dispute or discrepancy, the hard copy shall govern. Electronic files transmitted by EXP utilize specific software and hardware systems. EXP makes no representation about the compatibility of these files with the Client's current or future software and hardware systems. Regardless of format, the documents described herein are EXP's instruments of professional service and shall not be altered without the written consent of EXP.

Appendix A: Figures

0 150m 300m 600m

HORIZONTAL 1:15,000

EXP Services Inc. www.exp.com
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no. OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale 1:15,000
DRAWN BY: AS	TITLE: SITE LOCATION PLAN	FIG 1

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_Oct
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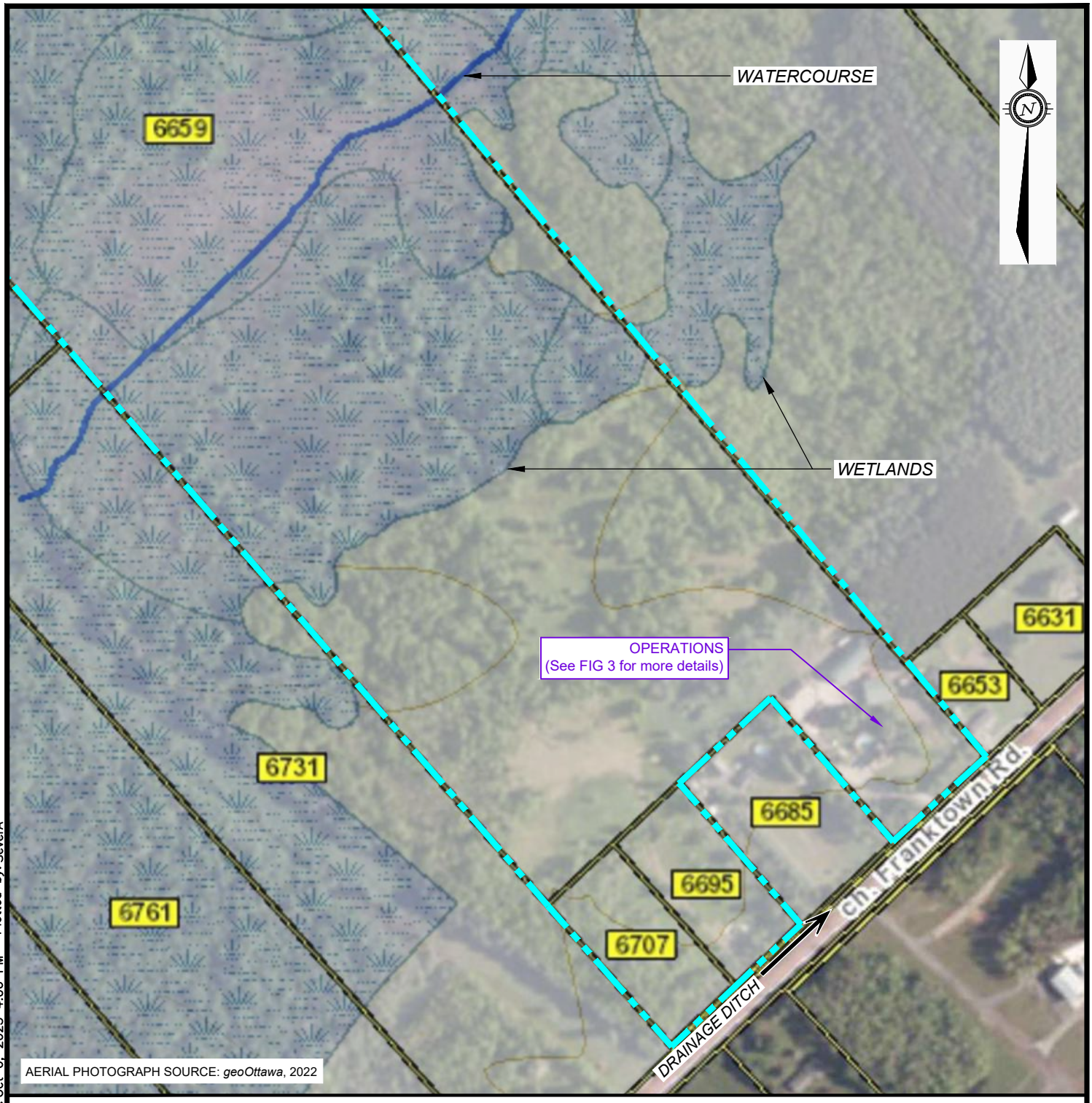

LEGEND

PROPERTY BOUNDARY

0 40m 80m 160m

HORIZONTAL 1:4,000

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Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no. OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale 1:4,000
DRAWN BY: AS	TITLE: 6659 FRANKTOWN ROAD - ENTIRE PROPERTY BOUNDARY	FIG 2

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
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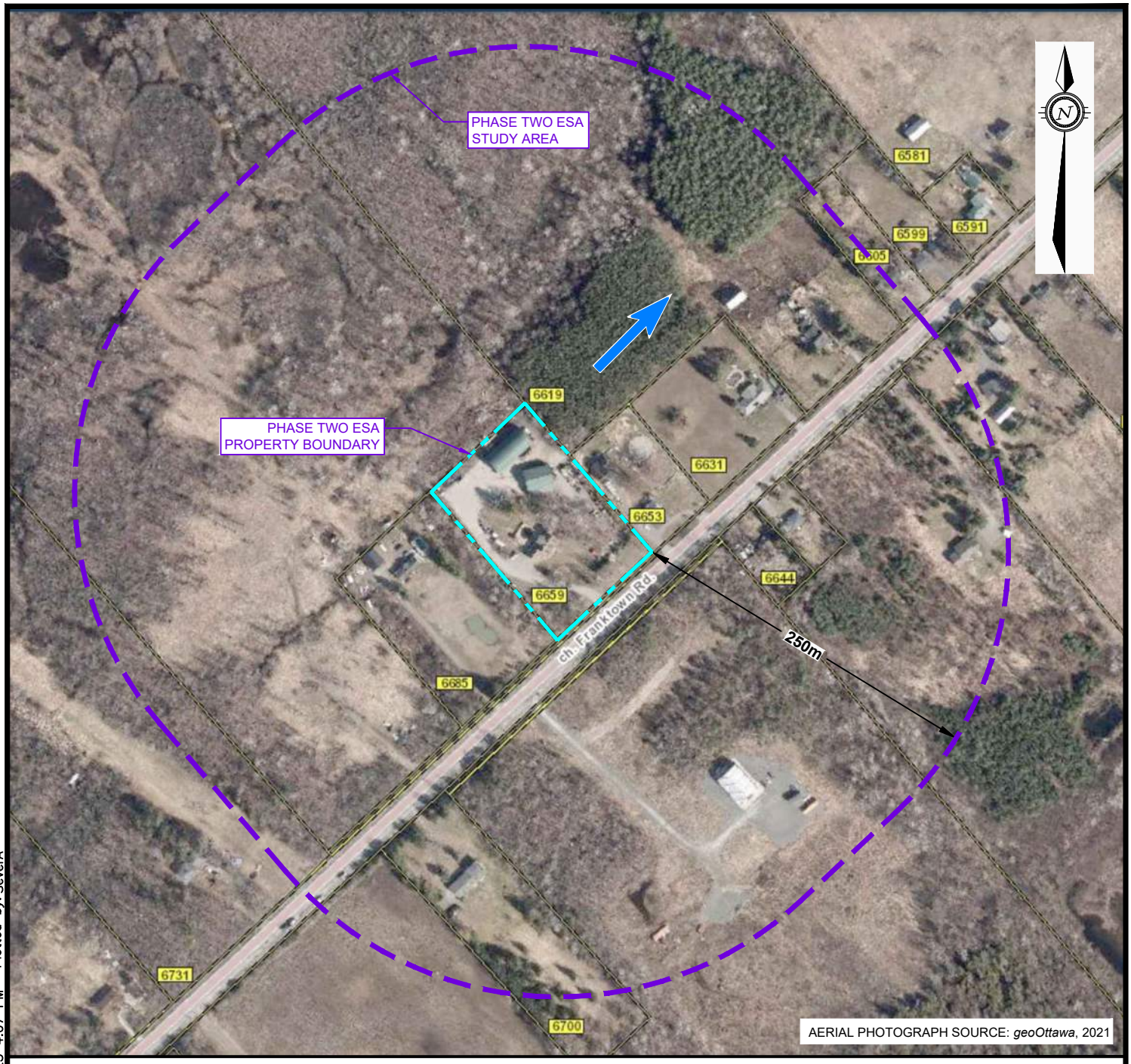

LEGEND

- PROPERTY BOUNDARY
- PHASE TWO ESA STUDY AREA (250 m)
- INFERRED GROUNDWATER FLOW DIRECTION
- 1 POTENTIALLY CONTAMINATING ACTIVITY (PCA) RESULTING IN APECS
- 2 POTENTIALLY CONTAMINATING ACTIVITY (PCA) NOT RESULTING IN APECS

0 40m 80m 160m

HORIZONTAL 1:4,000

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Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no.: OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale: 1:4,000
DRAWN BY: AS	TITLE: PHASE ONE STUDY AREA	FIG 3

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
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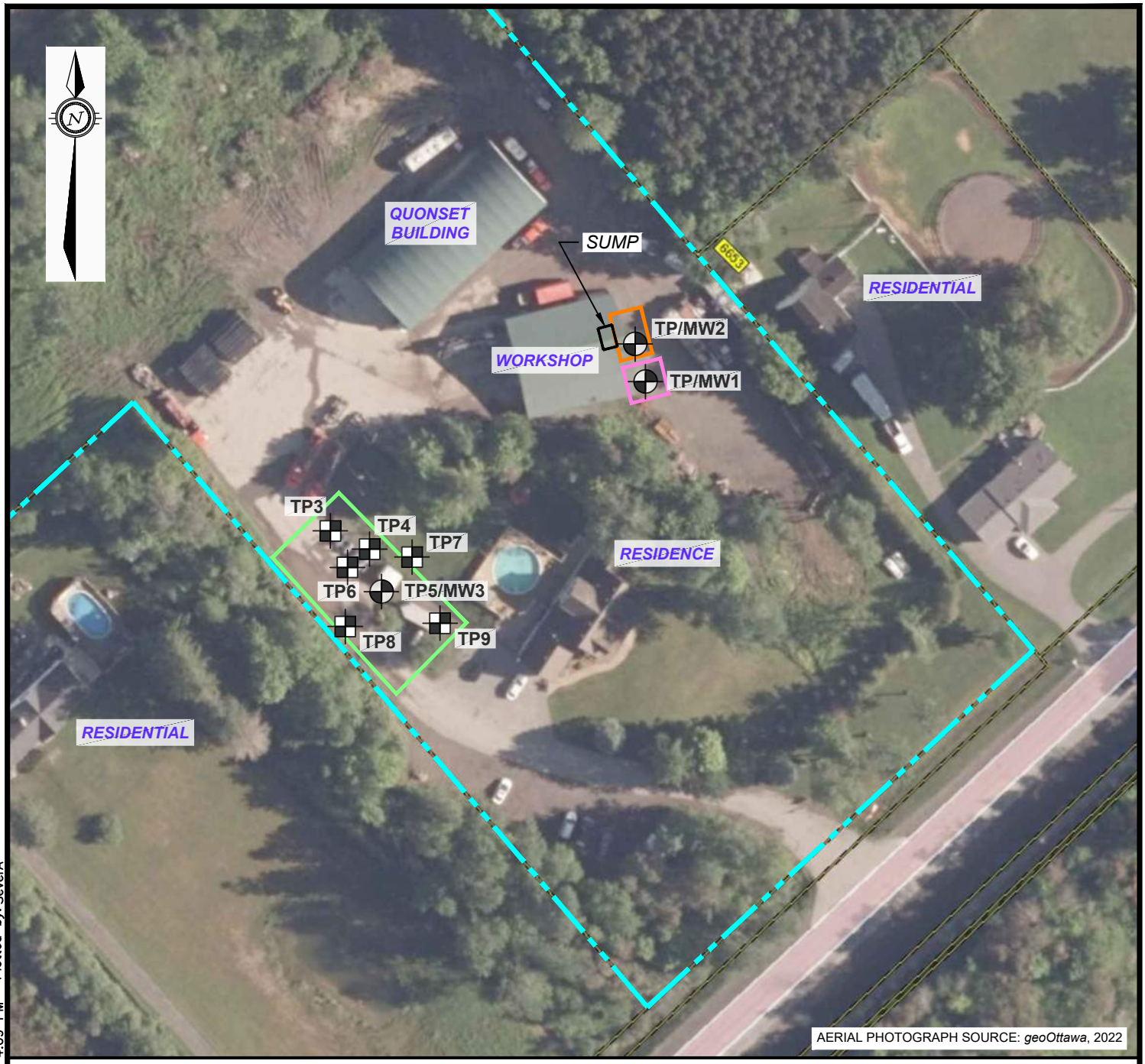

LEGEND

- PROPERTY BOUNDARY
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN 1 (APEC-1) - SUMP PIT DISCHARGE
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN 2 (APEC-2) - TWO (2) ASTs*
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN 3 (APEC-3) - FOUR (4) ASTs

TP3 — TEST PIT NO. AND LOCATION (*EXP*, 2017)

TP/MW1 — TEST PIT & MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

***AST** = ABOVEGROUND STORAGE TANK

0 10m 20m 40m

HORIZONTAL 1:1000

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DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no.: OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale: 1:1,000
DRAWN BY: AS	TITLE: TEST HOLE LOCATION PLAN	FIG 4

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
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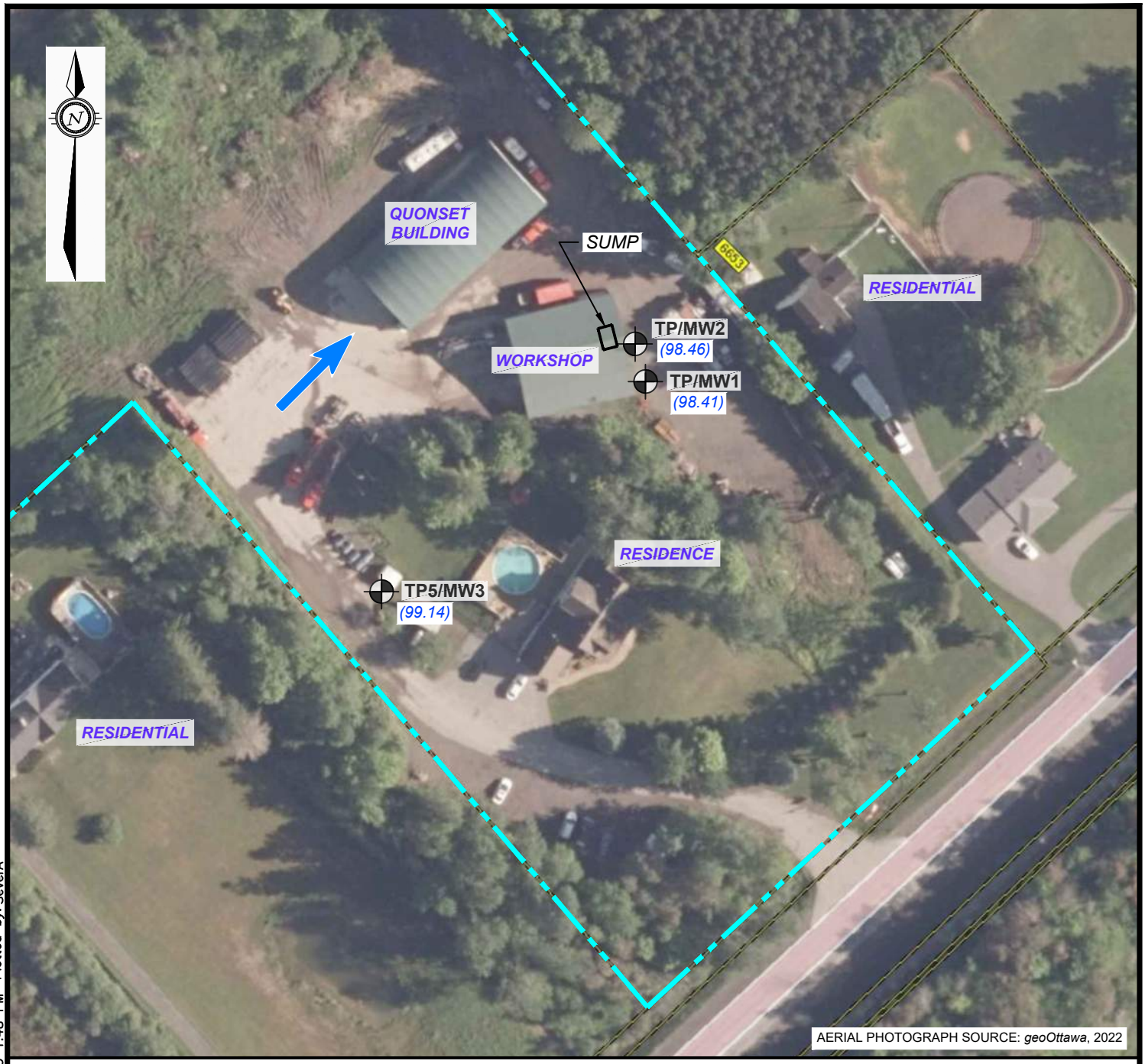

LEGEND

PROPERTY BOUNDARY

INFERRED GROUNDWATER FLOW DIRECTION

(98.41) GROUNDWATER LEVEL ELEVATION (JULY 9, 2024)

TP/MW1 TEST PIT & MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

0 10m 20m 40m

HORIZONTAL 1:1000

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DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no.: OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale: 1:1,000
DRAWN BY: AS	TITLE: GROUNDWATER CONTOUR PLAN - OVERBURDEN JULY 2024	FIG 5

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
Last Saved: Oct 8, 2025 11:21 AM Last Plotted: Oct 16, 2025 1:48 PM Plotted by: SeverA

LEGEND

PROPERTY BOUNDARY

A — CROSS SECTION MARK

TP3 — TEST PIT NO. AND LOCATION (*EXP*, 2017)

TP/MW1 — TEST PIT & MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

0 10m 20m 40m

HORIZONTAL 1:1000

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Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no.: OTT-00243705-B0
DESIGN: CK / MM / PO — CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale: 1:1,000
DRAWN BY: AS	TITLE: CROSS SECTION PLAN	FIG 6

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
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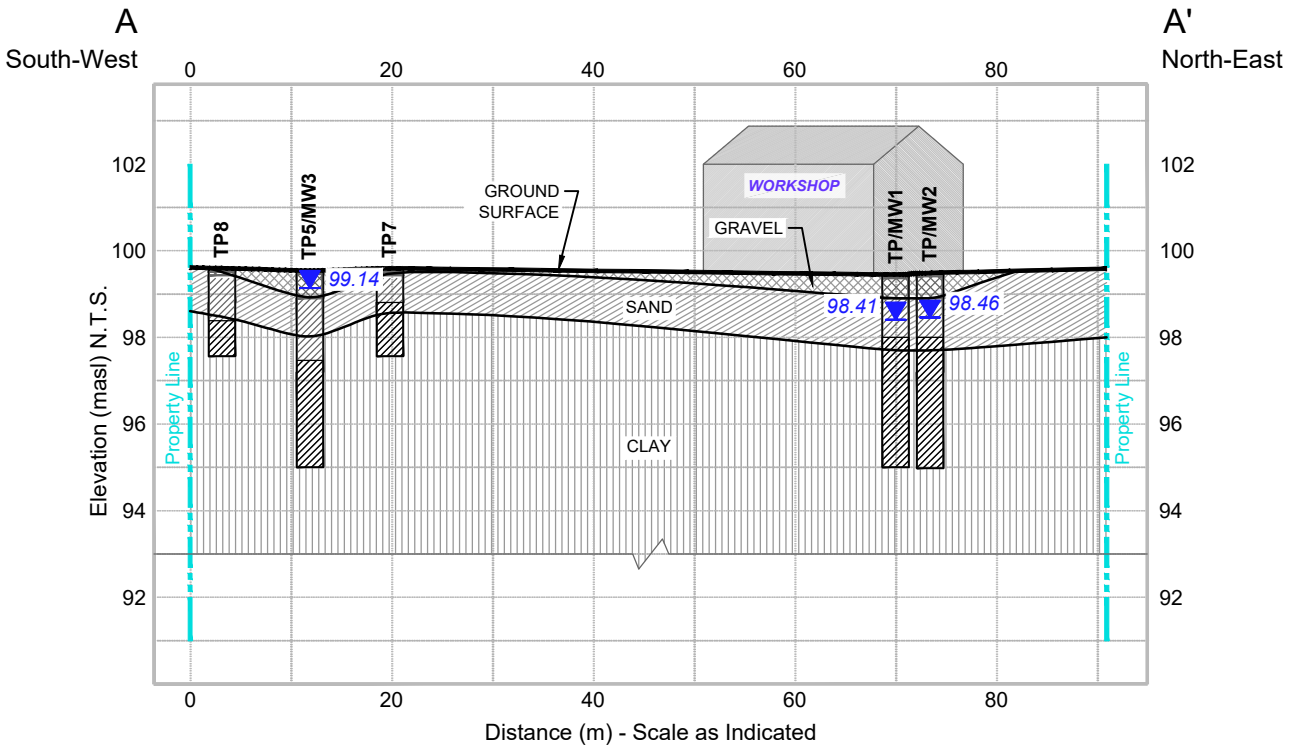

CROSS SECTION A-A'

LEGEND

- FILL - GRAVEL
- SAND (DRY TO MOIST)
- CLAY (BROWN)
- 98.41 WATER LEVEL DATE: JULY 9, 2024

0 5m 10m 30m

HORIZONTAL 1:750

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2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no. OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale 1:750
DRAWN BY: AS	TITLE: CROSS SECTION A-A'	FIG 7

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
Last Saved: Oct 8, 2025 11:21 AM Last Plotted: Oct 16, 2025 1:49 PM Plotted by: SeverA

TP1A	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	0.9	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP2B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2.1	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP3A	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	0.9	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP3B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	1.8	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP5B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	1.8	<0.02	<0.02	<0.02	<0.05	68	412	202	<6

TP6A	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	0.9	<0.02	<0.02	<0.02	<0.04	<7	<4	<8	<6

TP7B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP8B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2.1	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP9B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2.3	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Benzene	B	0.21
Toluene	T	2.3
Ethylbenzene	E	1.1
Total Xylenes	X	3.1
F1	F1 (C6-C10)	55
F2	F2 (C10-C16)	98
F3	F3 (C16-C34)	300
F4	F4 (C34-C50)	2800

AERIAL PHOTOGRAPH SOURCE: *geoOttawa*, 2022

LEGEND

PROPERTY BOUNDARY

CONCENTRATION EXCEEDS MECP TABLE 2 SCS

CONCENTRATION IS LESS THAN MECP TABLE 2 SCS

TP3 TEST PIT NO. AND LOCATION (*EXP*, 2017) (*NO TEST*)

TP/MW1 TEST PIT & MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

0 10m 20m 40m

HORIZONTAL 1:1000

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Ottawa, ON K2B 8H6, Canada

DATE	PROJECT:	project no.
OCTOBER 2025	PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale: 1:1,000
DRAWN BY: AS	TITLE: SOIL ANALYTICAL RESULTS – PHC & BTEX	FIG 8

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
Last Saved: Oct 6, 2025 3:55 PM Last Plotted: Oct 6, 2025 4:33 PM Plotted by: SeverA

TP1A	Depth (mbgs)	22-Jul-22																	
		Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Pb	Mo	Ni	Se	Ag	Tl	U	V	Zn
	0.9	<1.0	<1.0	23.0	<1.0	1.9	<0.5	6.2	1.9	2.2	3.8	<1.0	3.3	<1.0	<0.5	<1.0	1.6	14.7	9.3

TP2B	Depth (mbgs)	22-Jul-22																	
		Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Pb	Mo	Ni	Se	Ag	Tl	U	V	Zn
	2.1	<1.0	<1.0	30.2	<1.0	2.0	<0.5	10.8	4.0	10.3	3.1	<1.0	6.1	<1.0	<0.5	<1.0	<1.0	24.9	17.1

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Antimony	Sb	7.5
Arsenic	As	18
Barium	Ba	390
Beryllium	Be	4
Boron	B	120
Cadmium	Cd	1.2
Chromium	Cr	160
Cobalt	Co	22
Copper	Cu	140
Lead	Pb	120
Molybdenum	Mo	6.9
Nickel	Ni	100
Selenium	Se	2.4
Silver	Ag	20
Thallium	Tl	1
Uranium	U	23
Vanadium	V	86
Zinc	Zn	340

LEGEND

PROPERTY BOUNDARY

CONCENTRATION EXCEEDS MECP TABLE 2 SCS

CONCENTRATION IS LESS THAN MECP TABLE 2 SCS

TP3 — TEST PIT NO. AND LOCATION (*EXP*, 2017) (*NO TEST*)

TP/MW1 — TEST PIT & MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

0 10m 20m 40m

HORIZONTAL 1:1000

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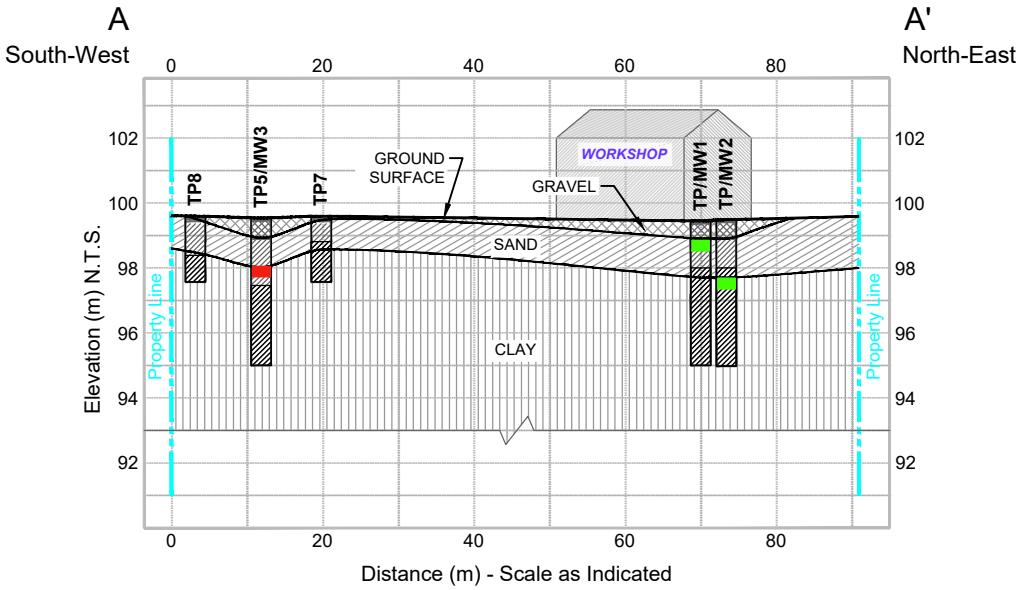
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025
DESIGN: CK / MM / PO
CHECKED: CK
DRAWN BY: AS

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)
ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO
TITLE: SOIL ANALYTICAL RESULTS – INORGANICS

project no. OTT-00243705-B0
scale 1:1,000
FIG 9

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
Last Saved: Oct 6, 2025 3:55 PM Last Plotted: Oct 6, 2025 4:35 PM Plotted by: SeverA



CROSS SECTION A-A'

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Benzene	B	0.21
Toluene	T	2.3
Ethylbenzene	E	1.1
Total Xylenes	X	3.1
F1	F1 (C6-C10)	55
F2	F2 (C10-C16)	98
F3	F3 (C16-C34)	300
F4	F4 (C34-C50)	2800

LEGEND

- FILL - GRAVEL
- SAND (DRY TO MOIST)
- CLAY (BROWN)
- CONCENTRATION EXCEEDS MECP TABLE 2 SCS
- CONCENTRATION IS LESS THAN MECP TABLE 2 SCS

TP1A	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	0.9	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP2B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2.1	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP3A	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	0.9	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP3B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	1.8	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP5B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	1.8	<0.02	<0.02	<0.02	<0.05	68	412	202	<6

TP6A	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	0.9	<0.02	<0.02	<0.02	<0.04	<7	<4	<8	<6

TP7B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP8B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2.1	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

TP9B	Depth (mbgs)	14-Nov-17							
		B	T	E	X	F1	F2	F3	F4
	2.3	<0.02	<0.02	<0.02	<0.05	<7	<4	<8	<6

0 10m 20m 40m

HORIZONTAL 1:1000

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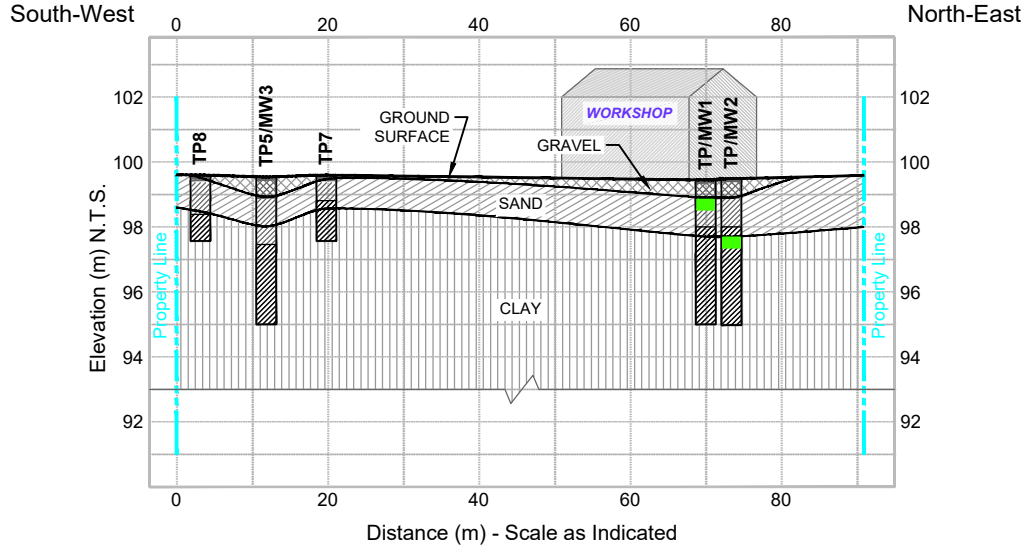
DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no. OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale 1:1000
DRAWN BY: AS	TITLE: SOIL CROSS SECTION A-A' – PHC & BTEX	FIG 10



CROSS SECTION A-A'

LEGEND

- FILL - GRAVEL
- SAND (DRY TO MOIST)
- CLAY (BROWN)
- CONCENTRATION EXCEEDS MECP TABLE 2 SCS
- CONCENTRATION IS LESS THAN MECP TABLE 2 SCS

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Antimony	Sb	7.5
Arsenic	As	18
Barium	Ba	390
Beryllium	Be	4
Boron	B	120
Cadmium	Cd	1.2
Chromium	Cr	160
Cobalt	Co	22
Copper	Cu	140
Lead	Pb	120
Molybdenum	Mo	6.9
Nickel	Ni	100
Selenium	Se	2.4
Silver	Ag	20
Thallium	Tl	1
Uranium	U	23
Vanadium	V	86
Zinc	Zn	340

TP1A	Depth (mbgs)	22-Jul-22																	
		Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Pb	Mo	Ni	Se	Ag	Tl	U	V	Zn
	0.9	<1.0	<1.0	23.0	<1.0	1.9	<0.5	6.2	1.9	2.2	3.8	<1.0	3.3	<1.0	<0.5	<1.0	1.6	14.7	9.3

TP2B	Depth (mbgs)	22-Jul-22																	
		Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	Pb	Mo	Ni	Se	Ag	Tl	U	V	Zn
	2.1	<1.0	<1.0	30.2	<1.0	2.0	<0.5	10.8	4.0	10.3	3.1	<1.0	6.1	<1.0	<0.5	<1.0	<1.0	24.9	17.1

0 10m 20m 40m

HORIZONTAL 1:1000

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DATE: OCTOBER 2025
DESIGN: CK / MM / PO
CHECKED: CK
DRAWN BY: AS

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)
ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO
TITLE: SOIL CROSS SECTION A-A' – INORGANICS

project no. OTT-00243705-B0
scale 1:1000
FIG 11

MW1	Screen Interval 3.0 to 4.5 mbgs							
DATE	B	T	E	X	F1	F2	F3	F4
15-Nov-17	< 0.5	< 0.5	< 0.5	< 0.5	< 25	< 100	< 200	< 200
11-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200
9-Jul-24	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200

MW2	Screen Interval 3.0 to 4.5 mbgs							
DATE	B	T	E	X	F1	F2	F3	F4
15-Nov-17	< 0.5	< 0.5	< 0.5	< 0.5	< 25	< 100	< 200	< 200
11-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200
9-Jul-24	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200

MW3	Screen Interval 3.0 to 4.5 mbgs							
DATE	B	T	E	X	F1	F2	F3	F4
15-Nov-17	< 0.5	< 0.5	< 0.5	< 0.5	< 25	< 100	172	< 200
11-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	850	970
Duplicate	<0.2	<0.2	<0.2	<0.4	< 25	< 100	550	620
14-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200
9-Jul-24	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Benzene	B	0.5
Toluene	T	24
Ethylbenzene	E	2.4
Total Xylenes	X	300
F1	F1 (C6-C10)	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500

LEGEND

PROPERTY BOUNDARY

INFERRED GROUNDWATER FLOW DIRECTION

(98.41) GROUNDWATER LEVEL ELEVATION (JULY 9, 2024)

TP/MW1 TEST PIT & MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

CONCENTRATION EXCEEDS MECP TABLE 2 SCS

CONCENTRATION IS LESS THAN MECP TABLE 2 SCS

0 10m 20m 40m

HORIZONTAL 1:1000

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DATE: OCTOBER 2025
DESIGN: CK / MM / PO
CHECKED: CK
DRAWN BY: AS

PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)
ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO
TITLE: GROUNDWATER ANALYTICAL RESULTS – PHC & BTEX

project no. OTT-00243705-B0
scale 1:1,000
FIG 12

Filename: P:\Projects\Environmental\240000s\243000\243705-B0 PhOne&TwoESA 6659 Franktown Rd\2025 Phase Two ESA update\Drawings\OTT-00243705-B0_Ph-2_October-2025.dwg
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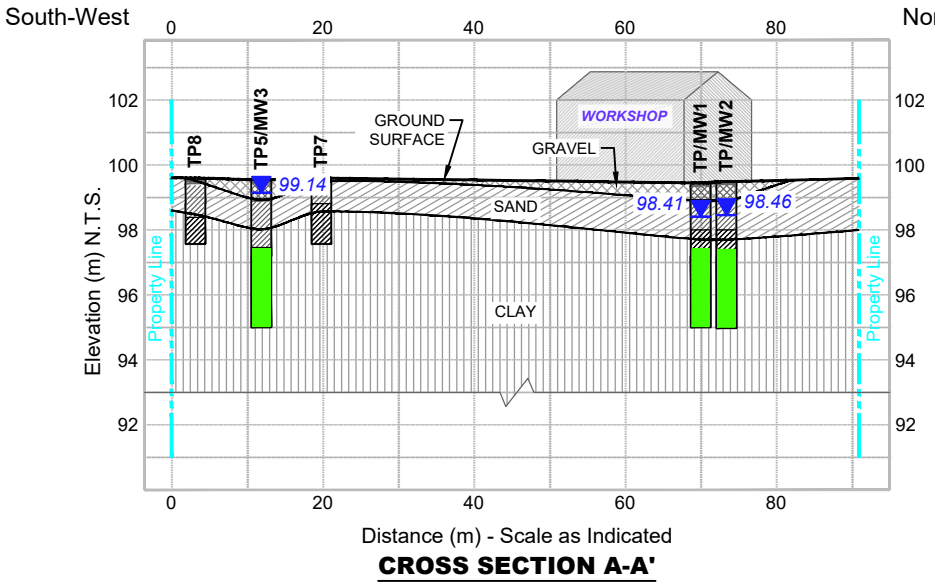


CROSS SECTION A-A'

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Benzene	B	0.5
Toluene	T	24
Ethylbenzene	E	2.4
Total Xylenes	X	300
F1	F1 (C6-C10)	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500

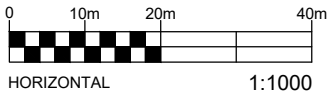
LEGEND

- FILL - GRAVEL
- SAND (DRY TO MOIST)
- CLAY (BROWN)
- CONCENTRATION EXCEEDS MECP TABLE 2 SCS
- CONCENTRATION IS LESS THAN MECP TABLE 2 SCS
- 98.41 ▼ WATER LEVEL DATE: JULY 9, 2024

MW1	Screen Interval 3.0 to 4.5 mbgs							
DATE	B	T	E	X	F1	F2	F3	F4
15-Nov-17	< 0.5	< 0.5	< 0.5	< 0.5	< 25	< 100	< 200	< 200
11-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200
9-Jul-24	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200

MW2	Screen Interval 3.0 to 4.5 mbgs							
DATE	B	T	E	X	F1	F2	F3	F4
15-Nov-17	< 0.5	< 0.5	< 0.5	< 0.5	< 25	< 100	< 200	< 200
11-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200
9-Jul-24	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200

MW3	Screen Interval 3.0 to 4.5 mbgs							
DATE	B	T	E	X	F1	F2	F3	F4
15-Nov-17	< 0.5	< 0.5	< 0.5	< 0.5	< 25	< 100	172	< 200
11-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	850	970
Duplicate	<0.2	<0.2	<0.2	<0.4	< 25	< 100	550	620
14-Jul-23	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200
9-Jul-24	<0.2	<0.2	<0.2	<0.4	< 25	< 100	< 200	< 200



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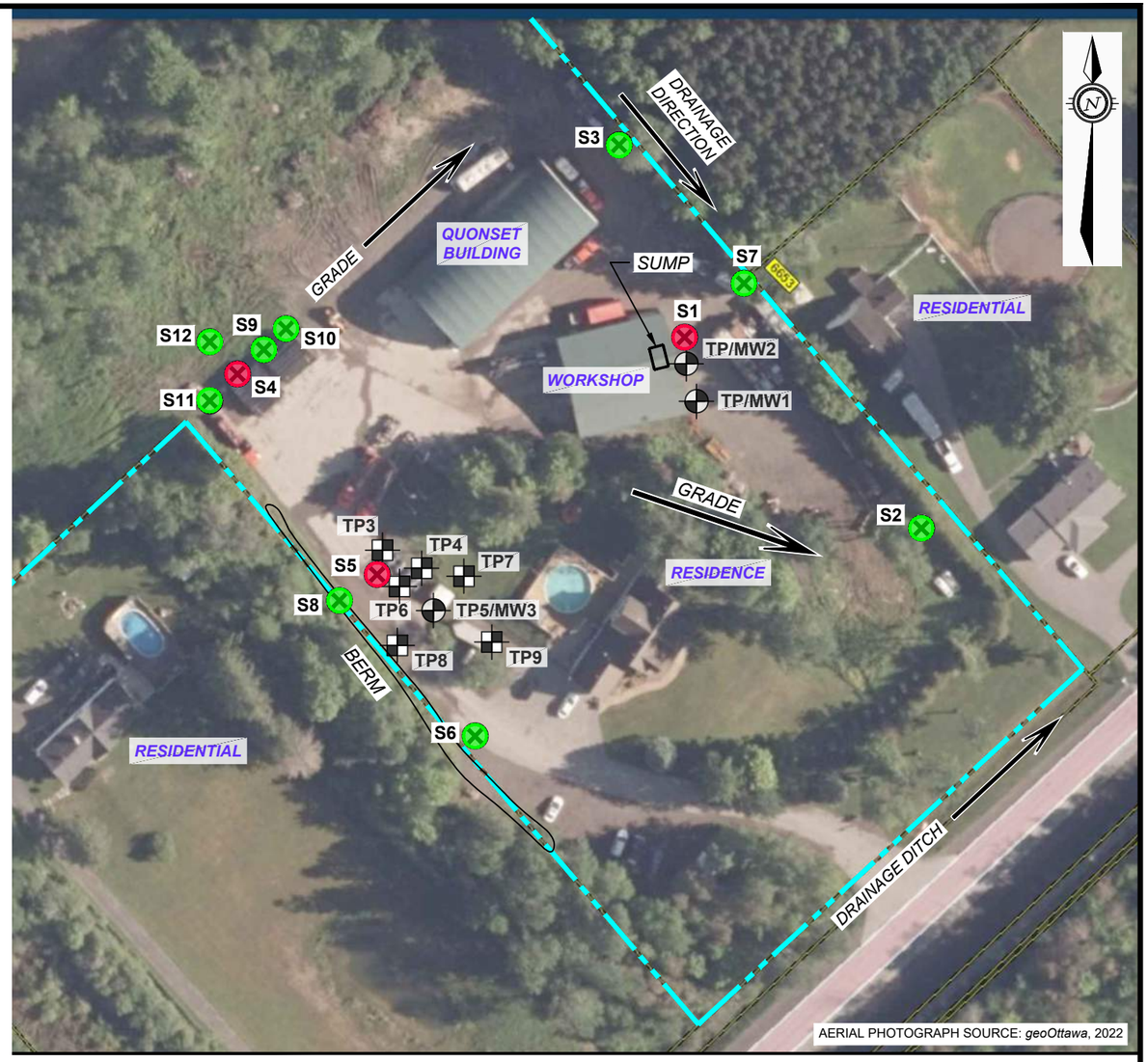
DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no. OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale 1:1000
DRAWN BY: AS	TITLE: GROUNDWATER CROSS SECTION A-A' – PHC & BTEX	FIG 13



S1	Depth (mbgs)									
		B	T	E	X	F1	F2	F3	F4	Co
	0.4	<0.02	<0.02	<0.02	<0.05	40	140	2700	430	75

S4	Depth (mbgs)								
		B	T	E	X	F1	F2	F3	F4
	0.2	<0.02	<0.02	<0.02	<0.05	40	40	590	130

S5	Depth (mbgs)								
		B	T	E	X	F1	F2	F3	F4
	0.1	<0.02	<0.02	<0.02	<0.05	40	40	960	250

PHC & BTEX →

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Benzene	B	0.21
Toluene	T	2.3
Ethylbenzene	E	1.1
Total Xylenes	X	3.1
F1	F1 (C6-C10)	55
F2	F2 (C10-C16)	98
F3	F3 (C16-C34)	300
F4	F4 (C34-C50)	2800

METALS →

PARAMETERS	ABBREVIATION	REG 153/04 TABLE 2 STANDARDS
Cobalt	Co	22

LEGEND

PROPERTY BOUNDARY

SOIL MEETS TABLE 2 SCS

SOIL EXCEEDS TABLE 2 SCS

TP3 TEST PIT NO. AND LOCATION (*EXP*, 2017)

MW1 MONITORING WELL NO. AND LOCATION (*EXP*, 2017)

S1 SURFACE SOIL SAMPLING POINT (*EXP*, 2024)

***AST** = ABOVEGROUND STORAGE TANK

0 10m 20m 40m

HORIZONTAL 1:1000

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Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2025	PROJECT: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (ESA)	project no. OTT-00243705-B0
DESIGN: CK / MM / PO; CHECKED: CK	ADDRESS: 6659 FRANKTOWN ROAD, OTTAWA, ONTARIO	scale 1:1,000
DRAWN BY: AS	TITLE: SURFACE SOIL SAMPLING PLAN	FIG 14

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Last Saved: Oct 16, 2025 1:54 PM Last Plotted: Oct 16, 2025 3:24 PM Plotted by: SeverA

Appendix B: Survey Plan

NOTES

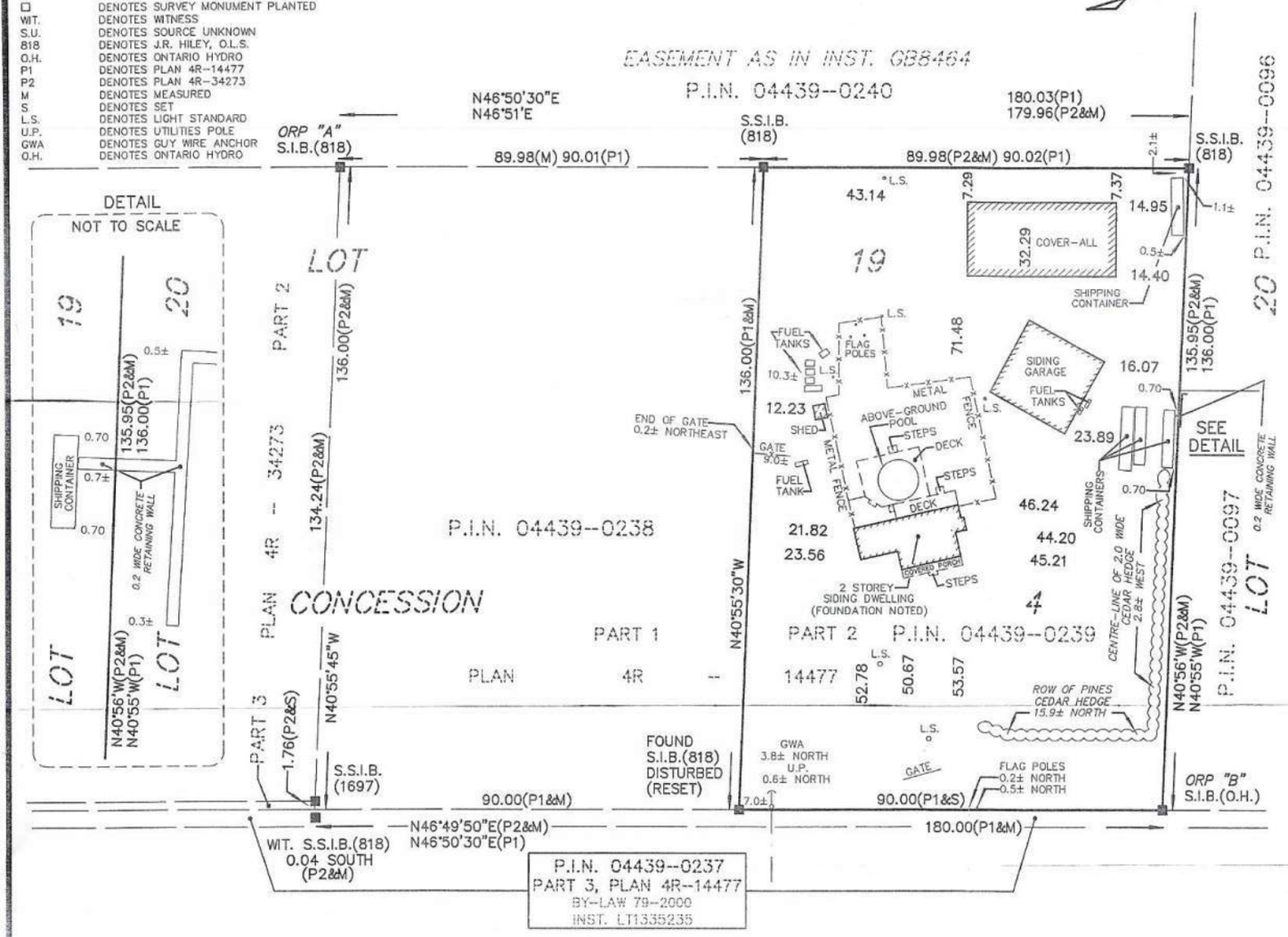
BEARINGS SHOWN ON THIS PLAN ARE GRID BEARINGS, AND ARE DERIVED FROM LEICA SMART-NET REAL TIME NETWORK GPS OBSERVATIONS ON REFERENCE POINTS 'A' AND 'B' SHOWN HEREON, AND ARE REFERENCED TO SPECIFIED CONTROL POINTS 01919791338 AND 01919871649, MTM ZONE 9, (76°30' WEST LONGITUDE), NAD 83 (ORIGINAL).

DISTANCES SHOWN ON THIS PLAN ARE HORIZONTAL GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999915

S.I.B.	DENOTES 0.025 SQ., 1.2 LONG, STANDARD IRON BAR
S.S.I.B.	DENOTES 0.025 SQ., 0.6 LONG, SHORT STANDARD IRON BAR
I.B.	DENOTES 0.016 SQ., 0.6 LONG, IRON BAR
R.I.B.	DENOTES ROUND IRON BAR
■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
WIT.	DENOTES WITNESS
S.U.	DENOTES SOURCE UNKNOWN
818	DENOTES J.R. HILEY, O.L.S.
O.H.	DENOTES ONTARIO HYDRO
P1	DENOTES PLAN 4R-14477
P2	DENOTES PLAN 4R-34273
M	DENOTES MEASURED
S	DENOTES SET
L.S.	DENOTES LIGHT STANDARD
U.P.	DENOTES UTILITIES POLE
GWA	DENOTES GUY WIRE ANCHOR
O.H.	DENOTES ONTARIO HYDRO

OBSERVED REFERENCE POINTS (ORP): MTM ZONE 9, NAD 83 (ORIGINAL)		
POINT IDENTIFICATION	NORTHING	EASTING
ORP A	5004456.49	354579.40
ORP B	5004476.85	354799.74

COORDINATES SHOWN TO RURAL ACCURACY IN ACCORDANCE WITH O.REG 216/10, SECTIONS 14, AND 31 TO 35 (BOTH INCLUSIVE).
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN



SURVEYOR'S REAL PROPERTY REPORT
PART 1) PLAN OF
PART OF LOT 19
CONCESSION 4
GEOGRAPHIC TOWNSHIP OF GOULBOURN
CITY OF OTTAWA

SCALE 1:1000

0 10 20 30 40 50 75 100
METRES

METRIC

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

SURVEYOR'S REAL PROPERTY REPORT
PART 2) REPORT SUMMARY

DESCRIPTION OF LAND

LOT 19, CONCESSION 4, GEOGRAPHIC TOWNSHIP OF GOULBOURN, CITY OF OTTAWA. P.I.N. 04439-0239, PART 2 ON PLAN 4R-14477

REGISTERED EASEMENTS AND/OR RIGHT OF WAYS

NONE

FEATURES

NOTE CEDAR HEDGE, LIGHT STANDARDS, PROPANE TANK, GAS TANKS, OIL TANKS, FLAG POLES, POOL, METAL FENCE & SHIPPING CONTAINERS, UTILITIES POLE, GUY WIRE ANCHOR, GATES & CONCRETE RETAINING WALL ALONG EASTERLY LIMIT.

COMPLIANCE WITH MUNICIPAL ZONING BY-LAWS

NOT CERTIFIED BY THIS REPORT.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 17th DAY OF FEBRUARY, 2022.

MARCH 8, 2022
DATE

J.P. SHIPMAN
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-22127

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
In accordance with Regulation 1026, Section 29(3)

NOTE: THIS REPORT WAS PREPARED FOR JEFFERY HANNA AND THE UNDERSIGNED ACCEPTS NO RESPONSIBILITY FOR USE BY OTHER PARTIES.

H.A.KEN SHIPMAN SURVEYING LTD.
P.O. BOX 53, NORTH GOWER, ONT. K0A 2T0 TEL: 489-3910

REF. No.: GLB.-560 | FILE No.: 22-12872

Appendix C: Sampling and Analysis Plan

OTT-00243705-C0
Supplemental Sampling Program – 6659 Franktown Road, Ottawa, Ontario
Sampling and Analysis Plan

Objectives

- The objectives are to collect soil and groundwater data that will address comments raised by the City of Ottawa following review of the Phase One and Two Environmental Site Assessments (ESAs) that were prepared for Air Rock Drilling company Ltd. for the property at 6659 Franktown Road in Ottawa, Ontario in support of a the proposed zoning by-law amendment.

Scope of Work

- Surface soil sampling downgradient of drainage from sump discharge, at the eastern property boundary
- Surface soil sampling downgradient of re-fuelling tank storage area at the western property boundary
- Surface soil sampling in the northwest corner of the property in constructed swale

Areas of Potential Environmental Concern

The APECs identified in previous investigations are summarized below in Table 1.

Table 1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC #1	Workshop shop sump discharge (sump discharges to ground just outside workshop building, south side)	PCA #10 – Commercial Autobody Shop	On-site	Benzene, toluene, ethylbenzene, xylene (BTEX), and petroleum hydrocarbons (PHC), metals	Soil and groundwater
APEC #2-#3	Above ground storage tanks for furnace oil and fuel	PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX and PHC	Soil and groundwater

The environmental work will be undertaken in accordance with Ontario Regulation 153/04.

Soil Sampling

Soil samples should be collected as follows:

Table 2: Soil Sampling Plan

Sample Location	Media	Parameters	Rationale
S-1 Discharge point of sump and adjacent to ASTs	Surface soil beneath gravel	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil from sump discharge
S-2 Downgradient from sump discharge towards east property line)	Surface soil	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil from sump discharge at downgrade location along eastern property line and towards ROW drainage
S-3 Northeast of workshop and quonset building	Surface soil	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil from sump discharge at upgrade location along eastern property line and towards EPZ
S-4 Northwest corner of Phase Two property in constructed swale	Surface soil	PHC F1-F4, VOC, PAH, metals	To assess potential impact on surface soil at northwest corner of Phase Two property
S-5 Within refueling AST location	Surface soil beneath gravel	PHC F1-F4, BTEX	To assess potential impact on surface soil from refueling ASTs
S-6 Downgradient from refueling AST location along west property line	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil from refueling ASTs at downgrade location along western property line and towards ROW drainage
S-7 Downgradient from sump discharge along east property line	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil from sump discharge at downgrade location along eastern property line.
S-8 Downgradient from refueling AST location along west property line, adjacent to constructed berm	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil from refueling ASTs at downgrade location
S-9 Northwest corner of Phase Two property in constructed swale	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4
S-10 Northwest corner of Phase Two property in constructed swale	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4
S-11 Northwest corner of Phase Two property in constructed berm	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4
S-12 Northwest corner of Phase Two property north adjacent of constructed swale	Surface soil	PHC F1-F4, BTEX	To assess potential impact on surface soil at northwest corner of Phase Two property and delineate S4

Soil samples should be submitted to Bureau Veritas for analysis as described in Table 2. On the chains of custodies, use EXP project number OTT-00243705-B0.

Test locations will be backfilled following completion of environmental sampling.

Appendix D: Borehole Logs

Explanation of Terms Used on Borehole Records

SOIL DESCRIPTION

Terminology describing common soil genesis:

Topsoil: mixture of soil and humus capable of supporting good vegetative growth.

Peat: fibrous fragments of visible and invisible decayed organic matter.

Fill: where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc.; none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.

Till: the term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

Terminology describing soil structure:

Desiccated: having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.

Stratified: alternating layers of varying material or color with the layers greater than 6 mm thick.

Laminated: alternating layers of varying material or color with the layers less than 6 mm thick.

Fissured: material breaks along plane of fracture.

Varved: composed of regular alternating layers of silt and clay.

Slickensided: fracture planes appear polished or glossy, sometimes striated.

Blocky: cohesive soil that can be broken down into small angular lumps which resist further breakdown.

Lensed: inclusion of small pockets of different soil, such as small lenses of sand scattered through a mass of clay; not thickness.

Seam: a thin, confined layer of soil having different particle size, texture, or color from materials above and below.

Homogeneous: same color and appearance throughout.

Well Graded: having wide range in grain sized and substantial amounts of all predominantly on grain size.

Uniformly Graded: predominantly on grain size.

All soil sample descriptions included in this report follow the ASTM D2487-11 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System). The system divides soils into three major categories: (1) coarse grained, (2) fine-grained, and (3) highly organic. The soil is then subdivided based on either gradation or plasticity characteristics. The system provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification. The classification excludes particles larger than 76 mm. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually in accordance with ASTM D2488-09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems. Others may use different classification systems; one such system is the ISSMFE Soil Classification.

ISSMFE SOIL CLASSIFICATION

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE		

0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60	200

EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

CLAY (PLASTIC) TO	FINE	MEDIUM	CRS.	FINE	COARSE
SILT (NONPLASTIC)	SAND			GRAVEL	

UNIFIED SOIL CLASSIFICATION

Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present and as described below in accordance with Note 16 in ASTM D2488-09a:

Table a: Percent or Proportion of Soil, Pp

	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5≤Pp≤10%
Little	15≤Pp≤25%
Some	30≤Pp≤45%
Mostly	50≤Pp≤100%

The standard terminology to describe cohesionless soils includes the compactness as determined by the Standard Penetration Test 'N' value:

Table b: Apparent Density of Cohesionless Soil

	'N' Value (blows/0.3 m)
Very Loose	N<5
Loose	5≤N<10
Compact	10≤N<30
Dense	30≤N<50
Very Dense	50≤N

The standard terminology to describe cohesive soils includes consistency, which is based on undrained shear strength as measured by insitu vane tests, penetrometer tests, unconfined compression tests or similar field and laboratory analysis, Standard Penetration Test 'N' values can also be used to provide an approximate indication of the consistency and shear strength of fine grained, cohesive soils:

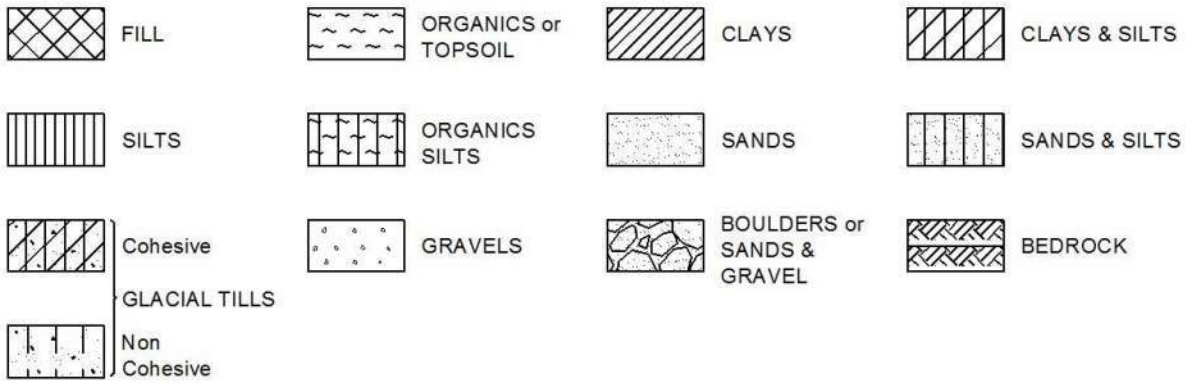
Table c: Consistency of Cohesive Soil

Consistency	Vane Shear Measurement (kPa)	'N' Value
Very Soft	<12.5	<2
Soft	12.5-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

Note: 'N' Value - The Standard Penetration Test records the number of blows of a 140 pound (64kg) hammer falling 30 inches (760mm), required to drive a 2 inch (50.8mm) O.D. split spoon sampler 1 foot (305mm). For split spoon samples where full penetration is not achieved, the number of blows is reported over the sampler penetration in meters (e.g. 50/0.15).

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols:



WATER LEVEL MEASUREMENT

Log of Borehole MW1

Project No: OTT-00243705-B0

Project: Phase Two ESA

Location: 6659 Franktown Road, Ottawa, Ontario

Date Drilled: 'November 14, 2017

Drill Type: Well rig

Datum: Geodetic

Logged by: M.L. Checked by: C.K.

Figure No. _____

Page. 1 of 1

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		FILL Crushed stone, grey	99.46	0
			98.9	
		SAND Brown, dry to moist, no staining or odours		1
▽			97.8	
			97.7	
		CLAY Brown, damp		2
				3
				4
			95.0	
		Borehole Terminated at 4.5 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

10
15

SAMPLES

Natural Unit Wt. kN/m³

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 37 mm diameter monitoring well was installed upon completion.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-00243705-B0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
July 11, 2023	1.7	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00243705-A0 FRANKTOWN WELLS.GPJ TROW OTTAWA.GDT 8/4/23

Log of Borehole MW2

Project No: OTT-00243705-B0

Project: Phase Two ESA

Location: 6659 Franktown Road, Ottawa, Ontario

Date Drilled: 'November 14, 2017

Drill Type: Well rig

Datum: Geodetic

Logged by: M.L. Checked by: C.K.

Figure No. _____

Page. 1 of 1

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊣○⊢
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		FILL Crushed stone, grey	99.49	0
			98.9	
		PEAT Brown, damp, no staining or odours	98.7	
		SAND Brown, dry to moist, no staining or odours	97.78	1
			97.7	
		CLAY Brown, damp		2
				3
				4
			95.0	
		Borehole Terminated at 4.5 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60
SAMPLES
Natural Unit Wt. kN/m³

15
10

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. A 37 mm diameter monitoring well was installed upon completion.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-00243705-B0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
July 11, 2023	1.7	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00243705-A0 FRANKTOWN WELLS.GPJ TROW OTTAWA.GDT 8/4/23

Log of Borehole MW3

Project No: OTT-00243705-B0

Project: Phase Two ESA

Location: 6659 Franktown Road, Ottawa, Ontario

Date Drilled: 'November 14, 2017

Drill Type: Well rig

Datum: Geodetic

Logged by: M.L. Checked by: C.K.

Figure No. _____

Page. 1 of 1

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		FILL Crushed stone, grey	99.48	0
			98.9	
		SAND Brown, dry to moist, no staining or odours		1
			98.22	
			98.0	
		CLAY Brown, damp		2
				3
				4
			95.0	
		Borehole Terminated at 4.5 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

15
40

SAMPLES

Natural Unit Wt. kN/m³

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 37 mm diameter monitoring well was installed upon completion.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report No. OTT-00243705-B0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
July 11, 2023	1.3	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00243705-A0 FRANKTOWN WELLS.GPJ TROW OTTAWA.GDT 8/4/23

exp Services Inc.
2650 Queensview Drive, Suite 100
Ottawa, Ontario K2B 8H6

FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 14, 2017
Test Pit ID: TP1

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.6	Gravel, grey. No staining or odours.	N/A	N/A	N/A
0.6	1.8	Sand, brown. Dry to damp, No staining or odours.	TP1A	0.9	15
1.8	2.1	Silty Clay, grey brown. Damp, No staining or odours.	TP1B	2.0	10
		Notes:			
	1	TP investigation via excavator using bucket.			
	2	No odours.			
	3	Test pit terminated at 2.1m and backfilled.			
	4	Samples warmed in office at site and screened at exp office.			
	5	See Test Pit Location Plan.			
	6	Sample TP1A submitted for analysis of PHC(f1-f4) and BTEX and metals			
	7	A monitoring well (MW1) constructed of 37 mm diameter, 1.5 m long Schedule 40 PVC screen and appropriate length riser pipe was installed at this location. Space around the screen was backfilled with silica to approximately 0.3m above the screen. Monitoring well installed to a depth of 4.5 m.			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 14, 2017
Test Pit ID: TP2

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (ft)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.6	Gravel, grey. No staining or odours.	N/A	N/A	N/A
0.6	0.8	Humus Layer, black., Damp, No staining or odours.	TP2A	0.8	10
0.8	1.8	Sand, brown. Dry to damp, No staining or odours.			
1.8	2.1	Silty Clay, grey brown. Damp, No staining or odours.	TP2B	2.1	15
		Notes:			
	1	TP investigation via excavator using bucket.			
	2	No odours.			
	3	Test pit terminated at 2.1m and backfilled.			
	4	Samples warmed in office at site and screened at exp office.			
	5	See Test Pit Location Plan.			
	6	Sample TP2B submitted for analysis of PHC(f1-f4) and BTEX			
	7	A monitoring well (MW2) constructed of 37 mm diameter, 1.5 m long Schedule 40 PVC screen and appropriate length riser pipe was installed at this location. Space around the screen was backfilled with silica to approximately 0.3m above the screen. Monitoring well installed to a depth of 4.8 m.			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 14, 2017
Test Pit ID: TP3

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.6	Gravel, grey. No staining or odours.	N/A	N/A	N/A
0.6	1.5	Sand, brown. Water saturated, No staining or odours.	TP3A	0.9	20
1.5	1.8	Silty Clay, grey brown. Water saturated, No staining or odours.	TP3B	1.8	15
		Notes:			
	1	TP investigation via excavator using bucket.			
	2	No odours.			
	3	Test pit terminated at 1.8m and backfilled.			
	4	Water infiltration occurred as test pitting was being performed, water entering test pit at approximately 0.6 m			
	5	Water in pit was not observed to have sheen			
	6	Samples warmed in office at site and screened at exp office.			
	7	See Test Pit Location Plan.			
	8	Sample TP3A submitted for analysis of PHC(f1-f4) and BTEX			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 14, 2017
Test Pit ID: TP4

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.6	Gravel, grey. No staining or odours.	N/A	N/A	N/A
0.6	0.9	Sand, brown. Water saturated, No staining or odours.	TP4A	0.9	15
		Notes:			
	1	TP investigation via hand shovel due to proximity to utilities and ASTs.			
	3	Test pit terminated at 0.9m and backfilled.			
	4	Water infiltration occurred as test pitting was being performed, water entering test pit at approximately 0 .6m			
	5	Water in pit was not observed to have sheen			
	6	Samples warmed in office at site and screened at exp office.			
	7	See Test Pit Location Plan.			
	8	Samples were not submitted from this TP			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 14, 2017
Test Pit ID: TP5
Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.6	Gravel, grey. No staining or odours.	N/A	N/A	N/A
0.6	1.5	Sand, brown. Water saturated, No staining or odours.	TP5A	0.9	15
1.5	1.8	Silty Clay, grey brown. Slight odour.	TP5B	1.8	40
		Notes:			
	1	TP investigation via excavator using bucket.			
	2	Test pit terminated at 1.8m and backfilled.			
	3	Water infiltration occurred as test pitting was being performed, water entering test pit at approximately 0.6m			
	4	Water in pit was not observed to have sheen			
	5	Samples warmed in office at site and screened at exp office.			
	6	See Test Pit Location Plan.			
	7	Sample TP5B submitted for analysis of PHC(f1-f4) and BTEX			
	8	A monitoring well (MW3) constructed of 37 mm diameter, 1.5 m long Schedule 40 PVC screen and appropriate length riser pipe was installed at this location. Space around the screen was backfilled with silica to approximately 0.3m above the screen. Monitoring well installed to a depth of 4.5 m.			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 14, 2017
Test Pit ID: TP6

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.6	Gravel, grey. No staining or odours.	N/A	N/A	N/A
0.6	0.9	Sand, brown. Water saturated, No staining or odours.	TP6A	0.9	10
		Notes:			
	1	TP investigation via hand shovel due to proximity to utilities and ASTs.			
	3	Test pit terminated at 0.9m and backfilled.			
	4	Water infiltration occurred as test pitting was being performed, water entering test pit at approximately 0.6m			
	5	Water in pit was not observed to have sheen			
	6	Samples warmed in office at site and screened at exp office.			
	7	See Test Pit Location Plan.			
	8	Sample TP6A submitted for analysis of PHC(f1-f4) and BTEX			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 20, 2017
Test Pit ID: TP7

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.15	Topsoil. Dry to Damp, No staining or odours.			0
0.15	1.2	Sand, brown. Damp, No staining or odours.	TP7A	1.1	10
1.2	1.98	Clay, hard, grey. Damp, No staining of odours	TP7B	1.98	12
		Notes:			
	1	TP investigation via excavator using bucket.			
	3	Test pit terminated at 1.98m and backfilled.			
	4	Samples warmed in office at site and screened at exp office.			
	5	See Test Pit Location Plan.			
	6	Sample TP7B submitted for analysis of PHC(f1-f4) and BTEX to delineate previous findings.			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 20, 2017
Test Pit ID: TP8

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.3	Topsoil. Dry to Damp, No staining or odours.			0
0.3	1.5	Sand, brown. Damp, No staining or odours.	TP8A	1.2	10
1.5	2.1	Clay, hard, grey. Damp, No staining of odours	TP8B	2.1	10
		Notes:			
	1	TP investigation via excavator using bucket.			
	3	Test pit terminated at 2.1m and backfilled.			
	4	Samples warmed in office at site and screened at exp office.			
	5	See Test Pit Location Plan.			
	6	Sample TP8B submitted for analysis of PHC(f1-f4) and BTEX to delineate previous findings.			

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FIELD TEST PIT LOG

Project Name: Phase II ESA
Date: November 20, 2017
Test Pit ID: TP9

Project Number: OTT-00243705-A0
Project Location: 6659 Franktown Road
Field Supervisor: Matt Laneville

Depth (m)		Description	Sample ID	Sample Depth (m)	GasTech/PID (ppm)
From	To				
0	0.15	Gravel, grey. Dry to damp, No staining or odours.			0
0.15	0.3	Humus, dark brown. Dry to damp, No staining or odours			0
0.3	1.5	Sand, brown. Damp, No staining or odours.	TP9A	1.5	10
1.5	2.3	Clay, mix of hard and soft, grey. Damp, No staining of odours	TP9B	2.3	11
		Notes:			
	1	TP investigation via excavator using bucket.			
	3	Test pit terminated at 2.3m and backfilled.			
	4	Samples warmed in office at site and screened at exp office.			
	5	See Test Pit Location Plan.			
	6	Sample TP9B submitted for analysis of PHC(f1-f4) and BTEX to delineate previous findings.			

Appendix E: Analytical Summary Tables - 2023

TABLE 1 SOIL ANALYTICAL RESULTS *(µg/g)*
PETROLEUM HYDROCARBONS
6659 Franktown Road, Ottawa, Ontario

Parameter	**MECP Table 2[1]**	TP1A	TP2B	TP3A	TP3B	TP5B	TP6A	TP7B	TP8B	TP9B
Sample Date (d/m/y)	**Residential**	14/11/17	14/11/17	14/11/17	14/11/17	14/11/17	14/11/17	20/11/2017	20/11/2017	20/11/2017
Sample Depth (mbsg)		0.9	2.1	0.9	1.8	1.8	0.9	1.98	2.1	2.3
Benzene	0.21	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	1.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	2.3	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Xylenes, Total	3.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.04	<0.05	<0.05	<0.05
PHC F_1 (>C_6-C_{10})	55	<7	<7	<7	<7	**68**	<7	<7	<7	<7
PHC F_2 (>C_{10}-C_{16})	98	<4	<4	<4	<4	**412**	<4	<4	<4	<4
PHC F_3 (>C_{16}-C_{34})	300	<8	<8	<8	<8	202	<8	<8	<8	<8
PHC F_4 (>C_{34}-C_{50})	2800	<6	<6	<6	<6	<6	<6	<6	<6	<6

NOTES:

1 MECP *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 2 potable residential standards, with coarse textured soil.*

Shaded Concentration exceeds MECP Table 2 site condition standard.

TABLE 2 SOIL ANALYTICAL RESULTS *(µg/g)*
METALS
6659 Franktown Road, Ottawa, Ontario

Parameter	**MECP Table 2[1]**	TP1A	TP2B
Sample Date (d/m/y)	**Residential**	14/11/17	14/11/17
Sample Depth (mbsg)		0.9	2.1
Antimony	7.5	<1.0	<1.0
Arsenic	18	<1.0	<1.0
Barium	390	23.0	30.2
Beryllium	4	<1.0	<1.0
Boron	120	1.9	2.0
Cadmium	1.2	<0.5	<0.5
Chromium	160	6.2	10.8
Cobalt	22	1.9	4.0
Copper	140	2.2	10.3
Lead	120	3.8	3.1
Molybdenum	7	<1.0	<1.0
Nickel	100	3.3	6.1
Selenium	2.4	<1.0	<1.0
Silver	20	<0.5	<0.5
Thallium	1	<1.0	<1.0
Uranium	23	1.6	<1.0
Vanadium	86	14.7	24.9
Zinc	340	9.3	17.1

NOTES:

1 MECP *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 2 potable residential standards, with coarse textured soil.*

Shaded Concentration exceeds MECP Table 2 site condition standard.

TABLE 3 GROUNDWATER ANALYTICAL RESULTS *(µg/L)*
PHC and BTEX
6659 Franktown Road, Ottawa, Ontario

Parameter	MECP Table 2[1]	MW1	MW1	MW2	MW2	MW3	MW3	DUP	MW3	Trip Blank	Field Blank
Sample Date (d/m/y)		15/11/17	11/7/23	15/11/17	11/7/23	15/11/17	11/7/23	Duplicate of MW3	11/11/23	11/7/23	11/7/23
Benzene	5	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	2.4	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	24	<0.5	<0.2	<0.5	<0.2	<0.5	0.24	0.22	<0.2	<0.2	<0.2
Xylenes, total	300	<0.5	<0.4	<0.5	<0.4	<0.5	<0.4	<0.4	<0.4	<0.4	<0.4
PHC F_1 (C_6-C_{10})	750	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
PHC F_2 (>C_{10}-C_{16})	150	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
PHC F_3 (>C_{16}-C_{34})	500	<200	<200	<200	<200	172	850	550	<200	<200	<200
PHC F_4 (>C_{34}-C_{50})	500	<200	<200	<200	<200	<200	970	620	<200	<200	<200

NOTES:

1 MECP *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 2 potable residential standards, with coarse textured soil.*

Shaded Concentration exceeds MECP Table 2 groundwater quality standard.

Table 4 - Relative Percent Differences - PHC and BTEX in Groundwater
6659 Franktown Road, Ottawa, Ontario

Parameter	Units	RDL	MW3	DUP	RPD (%)	Alert Limit (%)
			11/7/23	11/7/23		
Petroleum Hydrocarbons						
F1 PHC (C6 - C10) - BTEX	ug/L	25	<25	<25	nc	60
F2 PHC (C10-C16)	ug/L	100	<100	<100	nc	60
F3 PHC (C16-C34)	ug/L	100	850	550	43	60
F4 PHC (C34-C50)	ug/L	100	970	620	44	60
Volatiles						
Benzene	ug/L	0.5	<0.2	<0.2	nc	60
Ethylbenzene	ug/L	0.5	<0.2	<0.2	nc	60
Toluene	ug/L	0.5	*0.24*	0.22	nc	60
Xylenes, total	ug/L	0.5	<0.40	<0.40	nc	60

NOTES:

Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.
- means "not analysed"
nc means "not calculable" - one (or both) of the results are <5x RDL
Exceedances of alert limits are shown in **bold**

Table 5 - Maximum Concentrations in Soil
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-B0

Parameter	Sample Location	Sample Depth (m bgs)	Sampling Date	Maximum Concentration	MECP Table 2 Residential
Petroleum Hydrocarbons					
Benzene	All sample locations	0.9	14-Nov-17	<0.02	0.21
Ethylbenzene	All sample locations	0.9	14-Nov-17	<0.02	1.1
Toluene	All sample locations	0.9	14-Nov-17	<0.02	2.3
Xylenes	All sample locations	0.9	14-Nov-17	<0.05	3.1
F1 PHC (C6-C10)	TP5B	1.5 - 1.8	14-Nov-17	68	55
F2 PHC (C10-C16)	TP5B	1.5 - 1.8	14-Nov-17	412	98
F3 PHC (C16-C34)	TP5B	1.5 - 1.8	14-Nov-17	202	300
F4 PHC (C34-C50)	All sample locations	0.9	14-Nov-17	<6	2800
Metals					
Antimony	All sample locations	0.9	14-Nov-17	<1	7.5
Arsenic	All sample locations	0.9	14-Nov-17	<1	18
Barium	TP2B	1.8 - 2.1	14-Nov-17	30.2	390
Beryllium	All sample locations	0.9	14-Nov-17	<1.0	4
Boron (Total)	TP2B	1.8 - 2.1	14-Nov-17	2.0	120
Cadmium	All sample locations	0.9	14-Nov-17	<0.5	1.2
Chromium (Total)	TP2B	1.8 - 2.1	14-Nov-17	10.8	160
Cobalt	TP2B	1.8 - 2.1	14-Nov-17	4.0	22
Copper	TP2B	1.8 - 2.1	14-Nov-17	10.3	140
Lead	TP1A	0.6 - 0.9	14-Nov-17	3.8	120
Molybdenum	All sample locations	0.9	14-Nov-17	<1.0	6.9
Nickel	TP2B	1.8 - 2.1	14-Nov-17	6.1	100
Selenium	All sample locations	0.9	14-Nov-17	<1.0	2.4
Silver	All sample locations	0.9	14-Nov-17	<0.5	20
Thallium	All sample locations	0.9	14-Nov-17	<1.0	1
Uranium	TP1A	0.6 - 0.9	14-Nov-17	1.6	23
Vanadium	TP2B	1.8 - 2.1	14-Nov-17	24.9	86
Zinc	TP2B	1.8 - 2.1	14-Nov-17	17.1	340

NOTES:

1 Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for Residential/Institutional/Parkland Property Use (fine textured soils)

NV No Value

- Parameter not analyzed

m bgs Metres below ground surface

Table 6 - Maximum Concentrations in Groundwater
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-B0

Parameter	Sample Location	Screen Depth (m bgs)	Sampling Date	Maximum Concentration	MECP Table 2
Petroleum Hydrocarbons					
Benzene	All sample locations	3.0 - 4.5	11-Jul-23	<0.2	5
Ethylbenzene	All sample locations	3.0 - 4.5	11-Jul-23	<0.2	2.4
Toluene	All sample locations	3.0 - 4.5	11-Jul-23	<0.2	24
Xylenes	All sample locations	3.0 - 4.5	11-Jul-23	<0.4	300
F1 PHC (C6-C10)	All sample locations	3.0 - 4.5	11-Jul-23	<25	750
F2 PHC (C10-C16)	All sample locations	3.0 - 4.5	11-Jul-23	<100	150
F3 PHC (C16-C34)	All sample locations	3.0 - 4.5	11-Jul-23	<200	500
F4 PHC (C34-C50)	All sample locations	3.0 - 4.5	11-Jul-23	<200	500

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for Residential/Parkland/Institutional Property Use (fine textured soils)
NV	No Value
-	Parameter not analyzed
m bgs	Metres below ground surface

Appendix F: Analytical Summary Tables – 2024

Table 1 - Analytical Results in Soil - PHC and VOC - 2024
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Sample ID	UNITS	Provincial MECP Table 2 Residential [1]	Samples											
			S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Sampling Date			9-Jul-24	9-Jul-24	9-Jul-24	9-Jul-24	9-Jul-24	9-Jul-24	20-Dec-24	20-Dec-24	20-Dec-24	20-Dec-24	20-Dec-24	20-Dec-24
Sampling Depth (mbgs)			0.40	0.30	0.30	0.20	0.10	0.3 to 0.5	0.20	0.10	0.30	0.10	0.40	0.30
Petroleum Hydrocarbons														
F1 PHC (C6-C10)	µg/g	55	<10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 PHC (C10-C16)	µg/g	98	140	<10	<10	<10	<10	<10	8.7	<7.0	<7.0	<7.0	<7.0	<7.0
F3 PHC (C16-C34)	µg/g	300	2700	<50	59	590	960	250	<50	75	<50	<50	110	<50
F4 PHC (C34-C50)	µg/g	2800	430	<50	<50	130	400	160	<50	<50	<50	<50	<50	<50
Volatile Organic Compounds														
Acetone	µg/g	16	<0.49	<0.98	<0.49	<0.49	-	-	-	-	-	-	-	-
Benzene	µg/g	0.21	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	µg/g	1.5	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Bromoform	µg/g	0.27	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Bromomethane	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Carbon Tetrachloride	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Chlorobenzene	µg/g	2.4	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Chloroform	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Dibromochloromethane	µg/g	2.3	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/g	1.2	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/g	4.8	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/g	0.083	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	µg/g	16	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,1-Dichloroethane	µg/g	0.47	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/g	0.05	<0.049	<0.098	<0.049	<0.049	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Cis-1,2-Dichloroethylene	µg/g	1.9	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Trans-1,2-Dichloroethylene	µg/g	0.084	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,2-Dichloropropane	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Cis-1,3-Dichloropropylene	µg/g	NV	<0.030	<0.060	<0.030	<0.030	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropylene	µg/g	NV	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,3-Dichloropropylene, Total	µg/g	0.05	<0.050	<0.10	<0.050	<0.050	-	-	-	-	-	-	-	-
Ethylbenzene	µg/g	1.1	-	-	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Hexane(n)	µg/g	2.8	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Methylene Chloride	µg/g	0.1	<0.049	<0.098	<0.049	<0.049	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone	µg/g	16	<0.40	<0.80	<0.40	<0.40	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	µg/g	1.7	<0.40	<0.80	<0.40	<0.40	-	-	-	-	-	-	-	-
Methyl-t-Butyl Ether	µg/g	0.75	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Styrene	µg/g	0.7	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/g	0.058	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Tetrachloroethylene	µg/g	0.28	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Toluene	µg/g	2.3	-	-	-	-	0.022	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,1,1-Trichloroethane	µg/g	0.38	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/g	0.05	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Trichloroethylene	µg/g	0.061	<0.010	<0.020	<0.010	<0.010	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/g	4	<0.040	<0.080	<0.040	<0.040	-	-	-	-	-	-	-	-
Vinyl Chloride	µg/g	0.02	<0.019	<0.038	<0.019	<0.019	-	-	-	-	-	-	-	-
Total Xylenes	µg/g	3.1	-	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

NOTES:

1 Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for Residential/Parkland/Institutional Use (coarse textured soils)

<RDL Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

NV No Value

Indicates soil exceedance of MECP Table 2 SCS

Table 2 - Analytical Results in Soil - PAH - 2024
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Sample ID	UNITS	Provincial	Samples				
		MECP Table 2 Residential [1]	S1	S2	DUP1 (Field Duplicate of S2)	S3	S4
Sampling Date			9-Jul-24	9-Jul-24	9-Jul-24	9-Jul-24	9-Jul-24
Sampling Depth (mbgs)			0.40	0.30	0.30	0.30	0.20
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	µg/g	7.9	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	µg/g	0.15	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	µg/g	0.67	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[a]anthracene	µg/g	0.5	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[a]pyrene	µg/g	0.3	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[b/j]fluoranthene	µg/g	0.78	<0.050	0.0063	<0.0050	0.0067	<0.0050
Benzo[g,h,i]perylene	µg/g	6.6	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[k]fluoranthene	µg/g	0.78	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	µg/g	7	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Dibenzo[a,h]anthracene	µg/g	0.1	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	µg/g	0.69	<0.050	0.0061	<0.0050	0.0073	<0.0050
Fluorene	µg/g	62	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno[1,2,3-cd]pyrene	µg/g	0.38	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
1-Methylnaphthalene	µg/g	0.99	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
2-Methylnaphthalene	µg/g	0.99	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Naphthalene	µg/g	0.6	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	µg/g	6.2	<0.050	<0.0050	<0.0050	<0.0050	<0.0050
Pyrene	µg/g	78	<0.050	0.0055	<0.0050	0.0062	<0.0050

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for Residential/Parkland/Institutional Use (coarse textured soils)
<RDL	Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.
NV	No Value
-	Parameter not analyzed
	Indicates soil exceedance of MECP Table 2 SCS

Table 3 - Analytical Results in Soil - Inorganic Parameters - 2024
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Sample ID	UNITS	Provincial	Samples			
		MECP Table 2 Residential [1]	S1	S2	S3	S4
Sampling Date			**9-Jul-24**	**9-Jul-24**	**9-Jul-24**	**9-Jul-24**
Sampling Depth (mbgs)			0.40	0.30	0.30	0.20
Metals						
Antimony	µg/g	7.5	0.65	<0.20	<0.20	<0.20
Arsenic	µg/g	18	1.9	2.1	<1.0	<1.0
Barium	µg/g	390	210	36	25	32
Beryllium	µg/g	4	0.22	0.21	<0.20	<0.20
Boron (Hot Water Soluble)	µg/g	1.5	0.74	0.085	0.22	0.1
Boron (Total)	µg/g	120	14	<5.0	<5.0	<5.0
Cadmium	µg/g	1.2	0.25	0.12	<0.10	<0.10
Chromium (Total)	µg/g	160	11.00	8.40	4.80	8.40
Chromium VI	µg/g	8	<0.18	<0.18	<0.18	<0.18
Cobalt	µg/g	22	**75**	2	0.95	1.9
Copper	µg/g	140	30	5.2	2.2	2.9
Lead	µg/g	120	16	8.2	7.8	2.7
Mercury	µg/g	0.27	<0.25	0.065	<0.050	<0.050
Molybdenum	µg/g	6.9	5.1	<0.50	<0.50	<0.50
Nickel	µg/g	100	15	3.8	1.8	4
Selenium	µg/g	2.4	<0.50	<0.50	<0.50	<0.50
Silver	µg/g	20	<0.20	<0.20	<0.20	<0.20
Thallium	µg/g	1	0.16	<0.050	<0.050	<0.050
Uranium	µg/g	23	0.36	0.35	0.22	0.44
Vanadium	µg/g	86	7.5	20	12	17
Zinc	µg/g	340	97	21	16	14
Other Inorganic Parameters						
pH	pH	NV	7.48	7.27	7.19	7.2
SAR	NA	5	0.29	0.26	0.23	0.62
EC	mS/cm	0.7	0.17	0.15	0.19	0.23
Cyanide (Free)	µg/g	0.051	<0.01	<0.01	<0.01	<0.01

NOTES:

1 Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 3.1 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Inductrial/Commercial/Community Use (fine-medium textured soils)

<RDL Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

NV No Value

- Parameter not analyzed

Indicates soil exceedance of MECP Table 2 SCS

Table 4 - Analytical Results in Groundwater - PHC and VOC - 2024
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Parameter	Units	MECP Table 2 Residential [1]	MW-1	MW-2	MW-3	DUP1 (Field Duplicate of MW-3)
Sampling Date			9-Jul-2024	9-Jul-2024	9-Jul-2024	9-Jul-2024
Screen Depth (mbgs)			3.0 to 4.5	3.0 to 4.5	3.0 to 4.5	3.0 to 4.5
Volatile Organic Compounds						
Acetone	ug/L	2700	<10	<10	-	-
Benzene	ug/L	5	<0.17	<0.17	<0.20	<0.20
Bromodichloromethane	ug/L	16	<0.50	<0.50	-	-
Bromoform	ug/L	25	<1.0	<1.0	-	-
Bromomethane	ug/L	0.89	<0.50	<0.50	-	-
Carbon Tetrachloride	ug/L	0.79	<0.20	<0.20	-	-
Chlorobenzene	ug/L	30	<0.20	<0.20	-	-
Chloroform	ug/L	2.4	<0.20	<0.20	-	-
Dibromochloromethane	ug/L	25	<0.50	<0.50	-	-
Dichlorodifluoromethane	ug/L	590	<1.0	<1.0	-	-
1,2-Dichlorobenzene	ug/L	3	<0.50	<0.50	-	-
1,3-Dichlorobenzene	ug/L	59	<0.50	<0.50	-	-
1,4-Dichlorobenzene	ug/L	1	<0.50	<0.50	-	-
1,1-Dichloroethane	ug/L	5	<0.20	<0.20	-	-
1,2-Dichloroethane	ug/L	1.6	<0.50	<0.50	-	-
1,1-Dichloroethylene	ug/L	1.6	<0.20	<0.20	-	-
cis-1,2-Dichloroethylene	ug/L	1.6	<0.50	<0.50	-	-
trans-1,2-Dichloroethylene	ug/L	1.6	<0.50	<0.50	-	-
1,2-Dichloropropane	ug/L	5	<0.20	<0.20	-	-
cis-1,3-Dichloropropylene	ug/L	NV	<0.30	<0.30	-	-
trans-1,3-Dichloropropylene	ug/L	NV	<0.40	<0.40	-	-
1,3-Dichloropropene, total	ug/L	0.5	<0.50	<0.50	-	-
Ethylbenzene	ug/L	2.4	<0.20	<0.20	<0.20	<0.20
Ethylene dibromide (dibromoethane, 1,2-)	ug/L	0.20	<0.20	<0.20	-	-
Hexane	ug/L	51	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	ug/L	1800	<10	<10	-	-
Methyl Isobutyl Ketone	ug/L	640	<5.0	<5.0	-	-
Methyl tert-butyl ether	ug/L	15	<0.50	<0.50	-	-
Methylene Chloride	ug/L	50	<2.0	<2.0	-	-
Styrene	ug/L	5.4	<0.50	<0.50	-	-
1,1,1,2-Tetrachloroethane	ug/L	1.1	<0.50	<0.50	-	-
1,1,2,2-Tetrachloroethane	ug/L	1	<0.50	<0.50	-	-
Tetrachloroethylene	ug/L	1.6	<0.20	<0.20	-	-
Toluene	ug/L	24	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	ug/L	200	<0.20	<0.20	-	-
1,1,2-Trichloroethane	ug/L	4.7	<0.50	<0.50	-	-
Trichloroethylene	ug/L	1.6	<0.20	<0.20	-	-
Trichlorofluoromethane	ug/L	150	<0.50	<0.50	-	-
Vinyl Chloride	ug/L	0.5	<0.20	<0.20	-	-
m/p-Xylene	ug/L	NV	<0.20	<0.20	<0.40	<0.40
o-Xylene	ug/L	NV	<0.20	<0.20	<0.20	<0.20
Xylenes, total	ug/L	300	<0.20	<0.20	<0.40	<0.40
Petroleum Hydrocarbons						
F1 PHC (C6 - C10) - BTEX*	ug/L	750	<25	<25	<25	<25
F2 PHC (C10-C16)	ug/L	150	<100	<100	<100	-
F3 PHC (C16-C34)	ug/L	500	300	<200	<200	-
F4 PHC (C34-C50)**	ug/L	500	<200	<200	<200	-

NOTES:

1	Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 2 Generic Site Condition Standards in a Potable Ground Water Condition for all types of Property Use (coarse textured soils).
*	F1 fraction does not include BTEX.
**	In instances where the PHC F2 to F4 chromatogram did not reach baseline, the F4 fraction result shown is the highest value obtained via the gas
ND	Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.
NV	No Value
N/A	Not Applicable
-	Parameter not analyzed
m bgs	Metres below ground surface
	Indicates groundwater exceedance of MECP Table 2 SCS

Table 5 - Maximum Concentrations in Soil
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Parameter	Sample Location	Sampling Date	Sampling Depth (mbgs)	Maximum Concentration	MECP Table 2 Residential [1]
Petroleum Hydrocarbons					
F1 PHC (C6-C10)	All sample locations	9-Jul-24	0.10 to 0.50	< 10	55
F2 PHC (C10-C16)	S1	9-Jul-24	0.40	**140**	98
F3 PHC (C16-C34)	S1	9-Jul-24	0.40	**2700**	300
F4 PHC (C34-C50)	S1	9-Jul-24	0.40	430	2800
Volatile Organic Compounds					
Acetone	All sample locations	9-Jul-24	0.10 to 0.50	<0.49	16
Benzene	All sample locations	9-Jul-24	0.10 to 0.50	<0.020	0.210
Bromodichloromethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	1.5
Bromoform	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.27
Bromomethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Carbon Tetrachloride	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Chlorobenzene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	2.4
Chloroform	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Dibromochloromethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	2.3
1,2-Dichlorobenzene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	1.2
1,3-Dichlorobenzene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	4.8
1,4-Dichlorobenzene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.083
Dichlorodifluoromethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	16
1,1-Dichloroethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.47
1,2-Dichloroethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.049	0.05
1,1-Dichloroethylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Cis-1,2-Dichloroethylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	1.9
Trans-1,2-Dichloroethylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.084
1,2-Dichloropropane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Cis-1,3-Dichloropropylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.030	NV
Trans-1,3-Dichloropropylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	NV
1,3-Dichloropropylene, Total	All sample locations	9-Jul-24	0.10 to 0.50	<0.050	0.05
Ethylbenzene	All sample locations	9-Jul-24	0.10 to 0.50	<0.020	1.1
Ethylene Dibromide	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Hexane(n)	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	2.8
Methylene Chloride	All sample locations	9-Jul-24	0.10 to 0.50	<0.049	0.1
Methyl Ethyl Ketone	All sample locations	9-Jul-24	0.10 to 0.50	<0.40	16
Methyl Isobutyl Ketone	All sample locations	9-Jul-24	0.10 to 0.50	<0.40	1.7
Methyl-t-Butyl Ether	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.75
Styrene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.7
1,1,1,2-Tetrachloroethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.058
1,1,2,2-Tetrachloroethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Tetrachloroethylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.28
Toluene	S5	9-Jul-24	0.10	0.022	2.3
1,1,1-Trichloroethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.38
1,1,2-Trichloroethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	0.05
Trichloroethylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.010	0.061
Trichlorofluoromethane	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	4
Vinyl Chloride	All sample locations	9-Jul-24	0.10 to 0.50	<0.019	0.02
Total Xylenes	All sample locations	9-Jul-24	0.10 to 0.50	<0.040	3.1
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	7.9
Acenaphthylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.15
Anthracene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.67
Benzo[a]anthracene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.5
Benzo[a]pyrene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.3
Benzo[b/j]fluoranthene	S3	9-Jul-24	0.30	0.0067	0.78
Benzo[g,h,i]perylene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	6.6
Benzo[k]fluoranthene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.78
Chrysene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	7
Dibenzo[a,h]anthracene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.1
Fluoranthene	S3	9-Jul-24	0.30	0.0073	0.69
Fluorene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	62
Indeno[1,2,3-cd]pyrene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.38
1-Methylnaphthalene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.99
2-Methylnaphthalene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.99
Naphthalene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	0.6
Phenanthrene	All sample locations	9-Jul-24	0.10 to 0.50	<0.0050	6.2
Pyrene	S3	9-Jul-24	0.30	0.0062	78
Metals					
Antimony	S1	9-Jul-24	0.40	0.65	7.5
Arsenic	S2	9-Jul-24	0.30	2.1	18
Barium	S1	9-Jul-24	0.40	210	390
Beryllium	S1	9-Jul-24	0.40	0.22	4
Boron (Hot Water Soluble)	S1	9-Jul-24	0.40	0.74	1.5
Boron (Total)	S1	9-Jul-24	0.40	14	120
Cadmium	S1	9-Jul-24	0.40	0.25	1.2
Chromium (Total)	S1	9-Jul-24	0.40	11	160
Chromium VI	All sample locations	9-Jul-24	0.10 to 0.50	<0.18	8
Cobalt	S1	9-Jul-24	0.40	**75**	22
Copper	S1	9-Jul-24	0.40	30	140
Lead	S1	9-Jul-24	0.40	16	120
Mercury	S3	9-Jul-24	0.30	0.065	0.27
Molybdenum	S1	9-Jul-24	0.40	5.1	6.9
Nickel	S1	9-Jul-24	0.40	15	100
Selenium	All sample locations	9-Jul-24	0.10 to 0.50	<0.50	2.4
Silver	All sample locations	9-Jul-24	0.10 to 0.50	<0.20	20
Thallium	S1	9-Jul-24	0.40	0.16	1
Uranium	S4	9-Jul-24	0.20	0.44	23
Vanadium	S2	9-Jul-24	0.30	20	86
Zinc	S1	9-Jul-24	0.40	97	340
Other Inorganic Parameters					
pH	S1	9-Jul-24	0.40	7.48	NV
SAR	S4	9-Jul-24	0.20	0.62	5
EC	S4	9-Jul-24	0.20	0.23	0.7
Cyanide (Free)	All sample locations	9-Jul-24	0.10 to 0.50	<0.01	0.051

NOTES:

1 Ontario Ministry of Environment, Conservation and Parks (MECP), Soil, Groundwater and Sediment Standards for use under Part XV.1 of the Environmental Protection Act, April 2011, Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for Residential/Parkland/Institutional Use (coarse textured soils)

NV No Value

- Parameter not analyzed

Table 6 - Relative Percent Differences - PHC and VOC in Groundwater
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Parameter	Units	RDL	MW-3	DUP 1	RPD (%)	Alert Limit (%)
			9-Jul-24	9-Jul-24		
Petroleum Hydrocarbons						
F1 PHC (C6 - C10) - BTEX	ug/g dry	10	<25	<25	nc	60
F2 PHC (C10-C16)	ug/g dry	10	<100	-	nc	60
F3 PHC (C16-C34)	ug/g dry	50	<200	-	nc	60
F4 PHC (C34-C50)	ug/g dry	50	<200	-	nc	60
Volatiles						
Benzene	ug/g dry	0.0060	<0.20	<0.20	nc	100
Ethylbenzene	ug/g dry	0.010	<0.20	<0.20	nc	100
Toluene	ug/g dry	0.020	<0.20	<0.20	nc	100
Xylenes, total	ug/g dry	0.020	<0.40	<0.40	nc	100

NOTES:

Analysis by Bureau Veritas Labratories

All results on dry weight basis; Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Table 7- Relative Percent Differences - PAH in Soil
6659 Franktown Road, Ottawa, Ontario
OTT-00243705-C0

Parameter	Units	RDL	S2	DUP 1	RPD (%)	Alert Limit (%)
			9-Jul-2024	9-Jul-2024		
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Acenaphthylene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Anthracene	ug/g dry	0.010	<0.0050	<0.0050	nc	80
Benzo[a]anthracene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Benzo[a]pyrene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Benzo[b/j]fluoranthene	ug/g dry	0.0050	0.0063	<0.0050	nc	80
Benzo[g,h,i]perylene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Benzo[k]fluoranthene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Chrysene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Dibenzo[a,h]anthracene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Fluoranthene	ug/g dry	0.0050	0.0061	<0.0050	nc	80
Fluorene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Indeno[1,2,3-cd]pyrene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
1-Methylnaphthalene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
2-Methylnaphthalene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Naphthalene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Phenanthrene	ug/g dry	0.0050	<0.0050	<0.0050	nc	80
Pyrene	ug/g dry	0.0050	0.0055	<0.0050	nc	80

NOTES:

Analysis by Bureau Veritas Labratories

All results on dry weight basis; Non-detectable results are shown as "< (RDL)" where RDL represents the reporting detection limit.

- means "not analysed"

nc means "not calculable" - one (or both) of the results are <5x RDL

Exceedances of alert limits are shown in **bold**

Appendix G: Laboratory Certificates of Analysis

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Matt Laneville

Client PO:
Project: OTT00243705AO
Custody: 40796

Report Date: 21-Nov-2017
Order Date: 20-Nov-2017

Order #: 1747092

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

Paracel ID	Client ID
1747092-01	TP3B
1747092-02	TP7B
1747092-03	TP8B
1747092-04	TP9B

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 21-Nov-2017
Order Date: 20-Nov-2017
Project Description: OTT00243705AO

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	20-Nov-17	21-Nov-17
PHC F1	CWS Tier 1 - P&T GC-FID	20-Nov-17	21-Nov-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	20-Nov-17	21-Nov-17
Solids, %	Gravimetric, calculation	21-Nov-17	21-Nov-17

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 21-Nov-2017

Order Date: 20-Nov-2017

Project Description: OTT00243705AO

	Client ID:	TP3B	TP7B	TP8B	TP9B
	Sample Date:	14-Nov-17	20-Nov-17	20-Nov-17	20-Nov-17
	Sample ID:	1747092-01	1747092-02	1747092-03	1747092-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	82.5	78.4	81.3	86.3
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	84.6%	84.5%	84.3%	83.2%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<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	*2.89*		*ug/g*		*90.2*	*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				40	
F2 PHCs (C10-C16)	ND	4	ug/g wet	ND			0.0	30	
F3 PHCs (C16-C34)	68	8	ug/g wet	85			21.6	30	
F4 PHCs (C34-C50)	90	6	ug/g wet	108			18.3	30	
Physical Characteristics									
% Solids	75.1	0.1	% by Wt.	72.1			4.1	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*2.64*		*ug/g dry*		*92.9*	*50-140*			

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 21-Nov-2017
Order Date: 20-Nov-2017
Project Description: OTT00243705AO

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g		98.8	80-120			
F2 PHCs (C10-C16)	89	4	ug/g	ND	99.3	60-140			
F3 PHCs (C16-C34)	276	8	ug/g	85	102	60-140			
F4 PHCs (C34-C50)	243	6	ug/g	108	108	60-140			
Volatiles									
Benzene	2.91	0.02	ug/g		72.7	60-130			
Ethylbenzene	3.96	0.05	ug/g		98.9	60-130			
Toluene	3.81	0.05	ug/g		95.3	60-130			
m,p-Xylenes	9.10	0.05	ug/g		114	60-130			
o-Xylene	4.58	0.05	ug/g		115	60-130			
Surrogate: Toluene-d8	*2.20*		*ug/g*		*68.8*	*50-140*			

Qualifier Notes:

None

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.

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.

Paracel ID: 1747092

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Chain of Custody
(Lab Use Only)
Nº 40796

Page 1 of 1

Client Name: EXP	Project Reference: OTT 00243705AO	**Turnaround Time:**
Contact Name: MATT LANEVILLE	Quote #	☑ 1 Day ☐ 3 Day
Address: 2650 Queensview Dr.	PO #	☐ 2 Day ☐ Regular
Telephone: 613-608-1958	Email Address: matthew.laneville@exp.com	Date Required: NOV 21 /17

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ 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)

Paracel Order Number: 1747092

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC F1-F4	BTEX	Required Analyses								
1	TP3B	S		3	NOV 14		✓	✓	120mL + 250mL + 1 vial								
2	TP7B	S		3	NOV 20		✓	✓	↓								
3	TP8B	S		3	NOV 20		✓	✓									
4	TP9B	S		3	NOV 20		✓	✓									
5																	
6																	
7																	
8																	
9																	
10																	

Comments:

Method of Delivery: walk-in

Relinquished By (Sign): [signature]	Received by Driver/Depot: Karen Cull	Received at Lab: SUNDEEP DOKMAI	Verified By: Rachel subject
Relinquished By (Print): MATT LANEVILLE	Date/Time: Nov 20/17 11:59	Date/Time: NOV 20, 2017 02.51	Date/Time: NOV 20 /17 3:06
Date/Time: NOV 20/17 @ 11:55 Am	Temperature: 6.3 °C	Temperature: 9.5 °C	pH Verified ☒ By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Matt Laneville

Client PO:
Project: OTT00243705A0
Custody: 40150

Report Date: 17-Nov-2017
Order Date: 15-Nov-2017

Order #: 1746321

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

Paracel ID	Client ID
1746321-01	MW#1
1746321-02	MW#2
1746321-03	MW#3

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 17-Nov-2017
Order Date: 15-Nov-2017
Project Description: OTT00243705A0

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	16-Nov-17	16-Nov-17
PHC F1	CWS Tier 1 - P&T GC-FID	16-Nov-17	16-Nov-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	16-Nov-17	17-Nov-17

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 17-Nov-2017

Order Date: 15-Nov-2017

Project Description: OTT00243705A0

	Client ID:	MW#1	MW#2	MW#3	-
	Sample Date:	15-Nov-17	15-Nov-17	15-Nov-17	-
	Sample ID:	1746321-01	1746321-02	1746321-03	-
	MDL/Units	Water	Water	Water	-
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene-d8	Surrogate	89.6%	88.1%	88.3%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	172	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: Toluene-d8	*72.3*		*ug/L*		*90.4*	*50-140*			

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 17-Nov-2017
Order Date: 15-Nov-2017
Project Description: OTT00243705A0

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND				30	
Volatiles									
Benzene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: Toluene-d8	*70.4*		*ug/L*		*88.0*	*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)	2020	25	ug/L		101	68-117			
F2 PHCs (C10-C16)	1830	100	ug/L		102	60-140			
F3 PHCs (C16-C34)	4180	100	ug/L		112	60-140			
F4 PHCs (C34-C50)	3050	100	ug/L		123	60-140			
Volatiles									
Benzene	43.6	0.5	ug/L		109	60-130			
Ethylbenzene	31.1	0.5	ug/L		77.7	60-130			
Toluene	29.7	0.5	ug/L		74.2	60-130			
m,p-Xylenes	65.4	0.5	ug/L		81.7	60-130			
o-Xylene	30.3	0.5	ug/L		75.7	60-130			
Surrogate: Toluene-d8	*63.6*		*ug/L*		*79.5*	*50-140*			

Qualifier Notes:

None

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.

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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RE

Paracel ID: 1746321

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Chain of Custody
(Lab Use Only)
№ 40150

Page 1 of 1

Client Name: EXP	Project Reference: 65297
Contact Name: MATT LANEVILLE	Quote #
Address: 2650 Queensview Dr	PO #
Telephone: 613-608 1958	Email Address: matthew.laneville@exp.com

Turnaround Time:
- ☐ 1 Day
- ~~☑ 3 Day~~
- ~~☑ 2 Day~~
- ☐ Regular

Date Required: ~~Friday Nov 17~~

Criteria: ☑ O. Reg. 153/04 (As Amended) Table 2 ☐ 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)

Paracel Order Number: 1746321

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: BTEX	PHCs
1	MW #1	GW		3	Nov 15		✓	✓
2	MW #2	"		3	"		✓	✓
3	MW #3	"		3	"		✓	✓
4								
5								
6								
7								
8								
9								
10								

Comments: ~~3 day TAT per client~~ -> Updated TAT to 2-day per Matt. SC

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot: Karen Cyll	Received at Lab:	Verified By:
Relinquished By (Print): Matt Laneville	Date/Time: Nov 15/17 1:16	Date/Time: 11/16/17 4:20pm	Date/Time: Nov 16/17 7:50a
Date/Time: Nov 15/17	Temperature: 7.9 °C	Temperature: 9.3 °C	pH Verified ☐ By: NIA

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Matt Laneville

Client PO:
Project: OTT00243705A0
Custody: 110819

Report Date: 17-Nov-2017
Order Date: 14-Nov-2017

Order #: 1746264

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

Paracel ID	Client ID
1746264-01	TP1A
1746264-02	TP2B
1746264-03	TP3A
1746264-04	TP6A
1746264-05	TP5B

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 17-Nov-2017
Order Date: 14-Nov-2017
Project Description: OTT00243705A0

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	16-Nov-17	17-Nov-17
PHC F1	CWS Tier 1 - P&T GC-FID	16-Nov-17	17-Nov-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	15-Nov-17	16-Nov-17
REG 153: Metals by ICP/OES, soil	based on MOE E3470, ICP-OES	17-Nov-17	17-Nov-17
Solids, %	Gravimetric, calculation	16-Nov-17	17-Nov-17

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 17-Nov-2017

Order Date: 14-Nov-2017

Project Description: OTT00243705A0

	Client ID:	TP1A	TP2B	TP3A	TP6A
	Sample Date:	14-Nov-17	14-Nov-17	14-Nov-17	14-Nov-17
	Sample ID:	1746264-01	1746264-02	1746264-03	1746264-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	84.8	73.9	80.0	76.3
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	-	-
Arsenic	1.0 ug/g dry	<1.0	<1.0	-	-
Barium	1.0 ug/g dry	23.0	30.2	-	-
Beryllium	1.0 ug/g dry	<1.0	<1.0	-	-
Boron	1.0 ug/g dry	1.9	2.0	-	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	-	-
Chromium	1.0 ug/g dry	6.2	10.8	-	-
Cobalt	1.0 ug/g dry	1.9	4.0	-	-
Copper	1.0 ug/g dry	2.2	10.3	-	-
Lead	1.0 ug/g dry	3.8	3.1	-	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	-	-
Nickel	1.0 ug/g dry	3.3	6.1	-	-
Selenium	1.0 ug/g dry	<1.0	<1.0	-	-
Silver	0.5 ug/g dry	<0.5	<0.5	-	-
Thallium	1.0 ug/g dry	<1.0	<1.0	-	-
Uranium	1.0 ug/g dry	1.6	<1.0	-	-
Vanadium	1.0 ug/g dry	14.7	24.9	-	-
Zinc	1.0 ug/g dry	9.3	17.1	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	104%	105%	104%	105%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 17-Nov-2017
Order Date: 14-Nov-2017
Project Description: OTT00243705A0

	Client ID:	TP5B	-	-	-
	Sample Date:	14-Nov-17	-	-	-
	Sample ID:	1746264-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	78.7	-	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
Toluene-d8	Surrogate	100%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	68	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	412	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	202	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<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						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	1.0	ug/g						
Boron	ND	1.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	1.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	1.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	1.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.5	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	1.0	ug/g						
Zinc	ND	1.0	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	*7.77*		*ug/g*		*97.1*	*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				40	
F2 PHCs (C10-C16)	ND	4	ug/g wet	ND				30	
F3 PHCs (C16-C34)	47	8	ug/g wet	50			6.4	30	
F4 PHCs (C34-C50)	41	6	ug/g wet	54			27.4	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND				30	
Arsenic	7.13	1.0	ug/g dry	6.61			7.5	30	
Barium	147	1.0	ug/g dry	148			0.7	30	
Beryllium	ND	1.0	ug/g dry	ND			0.0	30	
Boron	10.4	1.0	ug/g dry	11.1			6.9	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium	15.4	1.0	ug/g dry	14.9			3.2	30	
Cobalt	5.17	1.0	ug/g dry	5.26			1.6	30	
Copper	42.7	1.0	ug/g dry	39.6			7.7	30	
Lead	110	1.0	ug/g dry	109			0.6	30	
Molybdenum	1.01	1.0	ug/g dry	1.18			15.1	30	
Nickel	13.7	1.0	ug/g dry	13.2			3.9	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.5	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	1.89	1.0	ug/g dry	1.97			4.1	30	
Vanadium	24.0	1.0	ug/g dry	24.2			1.0	30	
Zinc	168	1.0	ug/g dry	169			0.4	30	
Physical Characteristics									
% Solids	83.2	0.1	% by Wt.	82.9			0.4	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND			0.0	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			0.0	50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			0.0	50	
o-Xylene	ND	0.05	ug/g dry	ND			0.0	50	
Surrogate: Toluene-d8	*6.84*		*ug/g dry*		*104*	*50-140*			

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 17-Nov-2017
Order Date: 14-Nov-2017
Project Description: OTT00243705A0

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	172	7	ug/g		86.1	80-120			
F2 PHCs (C10-C16)	85	4	ug/g	ND	94.3	60-140			
F3 PHCs (C16-C34)	248	8	ug/g	50	107	60-140			
F4 PHCs (C34-C50)	174	6	ug/g	54	96.7	60-140			
Metals									
Antimony	310		ug/L	ND	124	70-130			
Arsenic	402		ug/L	132	108	70-130			
Barium	251		ug/L		100	70-130			
Beryllium	252		ug/L	1.87	100	70-130			
Boron	456		ug/L	222	93.3	70-130			
Cadmium	246		ug/L	8.94	94.8	70-130			
Chromium	515		ug/L	298	86.8	70-130			
Cobalt	327		ug/L	105	88.9	70-130			
Copper	1020		ug/L	791	89.9	70-130			
Lead	2360		ug/L	2180	74.1	70-130			
Molybdenum	245		ug/L	23.5	88.5	70-130			
Nickel	479		ug/L	263	86.1	70-130			
Selenium	224		ug/L	7.82	86.3	70-130			
Silver	230		ug/L	ND	91.9	70-130			
Thallium	235		ug/L	ND	94.1	70-130			
Uranium	307		ug/L	39.4	107	70-130			
Vanadium	714		ug/L	484	91.8	70-130			
Zinc	226		ug/L		90.4	70-130			
Volatiles									
Benzene	2.85	0.02	ug/g		71.3	60-130			
Ethylbenzene	3.46	0.05	ug/g		86.6	60-130			
Toluene	3.09	0.05	ug/g		77.2	60-130			
m,p-Xylenes	7.59	0.05	ug/g		94.9	60-130			
o-Xylene	3.81	0.05	ug/g		95.2	60-130			
Surrogate: Toluene-d8	*6.33*		*ug/g*		*79.1*	*50-140*			

Qualifier Notes:

None

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.

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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Paracel ID: 1746264

Chain of Custody
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№ 110819

Page 1 of 1

Client Name: EXP	Project Reference: 6529	**Turnaround Time:**
Contact Name: MATT LANEVILLE	Quote #	☐ 1 Day ☑ 3 Day
Address: 2650 Queensview Dr	PO #	☐ 2 Day ☐ Regular
Telephone: 613-608-1956	Email Address: matthew.laneville@exp.com	Date Required: NOV 17/17

Criteria: ☑ O. Reg. 153/04 (As Amended) Table 2 ☐ 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: 1746264 / 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	TP1A	S		3	NOV 14/17		✓			✓			
2	TP2B	S		3			✓			✓			
3	TP3A	S		3			✓			✓			
4	TP6A	S		3			✓			✓			
5	TP5B	S		3			✓			✓			
6													
7													
8													
9													
10													

Comments: Cancel metals analysis on samples TP3A, TP6A and TP5B per client.

Method of Delivery: Courier

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Matt Laneville	Date/Time: 4:48 NOV.14/17	Date/Time: NOV 15/17 11:30	Date/Time: NOV 15/17 11:40 am
Date/Time: NOV 14/17 @ 4:30pm	Temperature: 3.8 °C	Temperature: 5.4 °C	pH Verified [ ] By:

Your Project #: (EXP) OTT-00243705-B0
Your C.O.C. #: 943454-01-01

Attention: Mark McCalla

exp Services Inc
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2023/07/14
Report #: R7717059
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K4929
Received: 2023/07/11, 13:53

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydro. CCME F1 & BTEX in Water (1)	6	N/A	2023/07/13	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	6	2023/07/13	2023/07/13	CAM SOP-00316	CCME PHC-CWS m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: (EXP) OTT-00243705-B0
Your C.O.C. #: 943454-01-01

Attention: Mark McCalla

exp Services Inc
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2023/07/14
Report #: R7717059
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K4929
Received: 2023/07/11, 13:53

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		WIX824	WIX825			WIX825			WIX826		
Sampling Date		2023/07/11 10:30	2023/07/11 11:25			2023/07/11 11:25			2023/07/11 12:10		
COC Number		943454-01-01	943454-01-01			943454-01-01			943454-01-01		
	UNITS	**MW-1**	**MW-2**	**RDL**	**QC Batch**	**MW-2 Lab-Dup**	**RDL**	**QC Batch**	**MW-3**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons											
Benzene	ug/L	<0.20	<0.20	0.20	8787759				<0.20	0.20	8787759
Toluene	ug/L	<0.20	<0.20	0.20	8787759				0.24	0.20	8787759
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8787759				<0.20	0.20	8787759
o-Xylene	ug/L	<0.20	<0.20	0.20	8787759				<0.20	0.20	8787759
p+m-Xylene	ug/L	<0.40	<0.40	0.40	8787759				<0.40	0.40	8787759
Total Xylenes	ug/L	<0.40	<0.40	0.40	8787759				<0.40	0.40	8787759
F1 (C6-C10)	ug/L	<25	<25	25	8787759				<25	25	8787759
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	8787759				<25	25	8787759
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	8786310	<100	100	8786310	<100	100	8786310
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	8786310	<200	200	8786310	850	200	8786310
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	8786310	<200	200	8786310	970	200	8786310
Reached Baseline at C50	ug/L	Yes	Yes		8786310	Yes		8786310	Yes		8786310
Surrogate Recovery (%)											
1,4-Difluorobenzene	%	122	121		8787759				121		8787759
4-Bromofluorobenzene	%	87	88		8787759				87		8787759
D10-o-Xylene	%	113	112		8787759				113		8787759
D4-1,2-Dichloroethane	%	109	109		8787759				112		8787759
o-Terphenyl	%	90	98		8786310	96		8786310	97		8786310

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		WIX827	WIX828	WIX829		
Sampling Date		2023/07/11 12:30	2023/07/11	2023/07/11 12:10		
COC Number		943454-01-01	943454-01-01	943454-01-01		
	UNITS	**FIELD BLANK**	**TRIP BLANK**	**DUP**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons						
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	8787759
Toluene	ug/L	<0.20	<0.20	0.22	0.20	8787759
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	8787759
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8787759
p+m-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	8787759
Total Xylenes	ug/L	<0.40	<0.40	<0.40	0.40	8787759
F1 (C6-C10)	ug/L	<25	<25	<25	25	8787759
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	25	8787759
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	8786310
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	550	200	8786310
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	620	200	8786310
Reached Baseline at C50	ug/L	Yes	Yes	Yes		8786310
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	119	117	120		8787759
4-Bromofluorobenzene	%	88	89	87		8787759
D10-o-Xylene	%	110	108	113		8787759
D4-1,2-Dichloroethane	%	107	111	111		8787759
o-Terphenyl	%	95	97	97		8786310

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

Bureau Veritas ID: WIX824 **Collected:** 2023/07/11
Sample ID: MW-1 **Shipped:**
Matrix: Water **Received:** 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8787759	N/A	2023/07/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

Bureau Veritas ID: WIX825 **Collected:** 2023/07/11
Sample ID: MW-2 **Shipped:**
Matrix: Water **Received:** 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8787759	N/A	2023/07/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

Bureau Veritas ID: WIX825 Dup **Collected:** 2023/07/11
Sample ID: MW-2 **Shipped:**
Matrix: Water **Received:** 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

Bureau Veritas ID: WIX826 **Collected:** 2023/07/11
Sample ID: MW-3 **Shipped:**
Matrix: Water **Received:** 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8787759	N/A	2023/07/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

Bureau Veritas ID: WIX827 **Collected:** 2023/07/11
Sample ID: FIELD BLANK **Shipped:**
Matrix: Water **Received:** 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8787759	N/A	2023/07/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

Bureau Veritas ID: WIX828 **Collected:** 2023/07/11
Sample ID: TRIP BLANK **Shipped:**
Matrix: Water **Received:** 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8787759	N/A	2023/07/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

Bureau Veritas Job #: C3K4929
Report Date: 2023/07/14

exp Services Inc
Client Project #: (EXP) OTT-00243705-B0
Sampler Initials: MR

TEST SUMMARY

Bureau Veritas ID: WIX829
Sample ID: DUP
Matrix: Water

Collected: 2023/07/11
Shipped:
Received: 2023/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8787759	N/A	2023/07/13	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8786310	2023/07/13	2023/07/13	Emir Danisman

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	20.7°C

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8786310	o-Terphenyl	2023/07/13	101	60 - 130	100	60 - 130	100	%		
8787759	1,4-Difluorobenzene	2023/07/13	98	70 - 130	114	70 - 130	118	%		
8787759	4-Bromofluorobenzene	2023/07/13	107	70 - 130	91	70 - 130	89	%		
8787759	D10-o-Xylene	2023/07/13	94	70 - 130	112	70 - 130	107	%		
8787759	D4-1,2-Dichloroethane	2023/07/13	94	70 - 130	101	70 - 130	108	%		
8786310	F2 (C10-C16 Hydrocarbons)	2023/07/13	113	60 - 130	101	60 - 130	<100	ug/L	NC	30
8786310	F3 (C16-C34 Hydrocarbons)	2023/07/13	117	60 - 130	108	60 - 130	<200	ug/L	NC	30
8786310	F4 (C34-C50 Hydrocarbons)	2023/07/13	117	60 - 130	106	60 - 130	<200	ug/L	NC	30
8787759	Benzene	2023/07/14	97	50 - 140	114	50 - 140	<0.20	ug/L	NC	30
8787759	Ethylbenzene	2023/07/14	108	50 - 140	130	50 - 140	<0.20	ug/L	NC	30
8787759	F1 (C6-C10) - BTEX	2023/07/14					<25	ug/L	NC	30
8787759	F1 (C6-C10)	2023/07/14	97	60 - 140	101	60 - 140	<25	ug/L	NC	30
8787759	o-Xylene	2023/07/14	100	50 - 140	120	50 - 140	<0.20	ug/L	NC	30
8787759	p+m-Xylene	2023/07/14	97	50 - 140	119	50 - 140	<0.40	ug/L	NC	30
8787759	Toluene	2023/07/14	89	50 - 140	106	50 - 140	<0.20	ug/L	NC	30
8787759	Total Xylenes	2023/07/14					<0.40	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

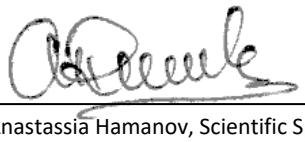
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

Bureau Veritas
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvna.com

Received in Ottawa 11-Jul-23 13:53 Katherine Szozda C3K4929 AN4 ENV-910

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:	REPORT TO:	PROJECT INFORMATION:
Company Name: #17497 exp Services Inc	Company Name:	Quotation #: C31678
Attention: Accounts Payable	Attention: Mark McCalla	P.O. #:
Address: 100-2650 Queensview Drive, Ottawa ON K2B 8H6	Address:	Project: (EXP) OTT-00243705-B0
Tel: (613) 688-1899 Fax: (613) 225-7337	Tel: (613) 225-9940 Ext: 243 Fax:	Project Name:
Email: AP@exp.com	Email: mark.mccalla@exp.com	Site #:
		Sampled By: Mackenzie Russell

Order #: 3454

Project Manager: Katherine Szozda

C#943454-01-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine; ☐ Table 2 ☐ Ind/Comm ☐ Coarse; ☑ Table 3 ☐ Agri/Other ☐ For RSC; ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw; ☐ Reg 558 ☐ Storm Sewer Bylaw; ☐ MISA Municipality ___; ☐ PWQO ☐ Reg 406 Table ___; ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ANALYSIS REQUESTED (PLEASE BE SPECIFIC): O Reg 153 PHCs, BTEX/F1-F4	# of Bottles	Comments
1	MW-1		07/11/23	10:30	GW		✓	4	
2	MW-2			11:25			✓	4	
3	MW-3			12:10			✓	4	turbid
4	Field Blank			12:30			✓	4	
5	Trip Blank			—			✓	3	
6	DUP			12:10			✓	4	turbid
7									
8									
9									
10									

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Mackenzie Russell	23/07/11	13:20	Samuel Durand Samuel Durand	2023/07/11	13:53	
				023/07/12	08:30	

Laboratory Use Only ICEPACKS

Time Sensitive

Temperature (°C) on Rece: 20, 20, 22

Custody Seal	Yes	No
Present	✓	
Intact	✓	

7/8/18

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

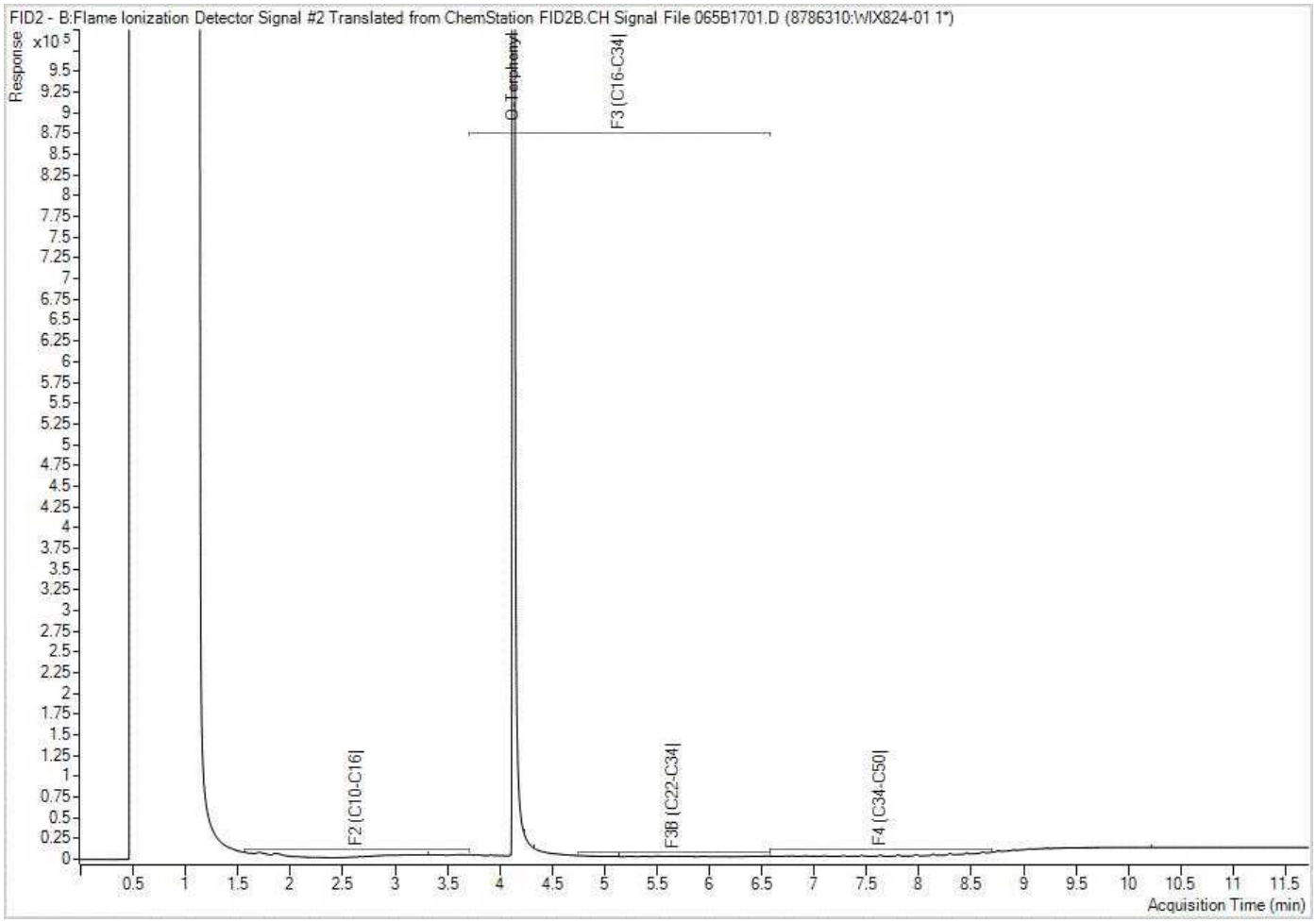
White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C3K4929
Report Date: 2023/07/14
Bureau Veritas Sample: WIX824

exp Services Inc
Client Project #: (EXP) OTT-00243705-B0
Client ID: MW-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

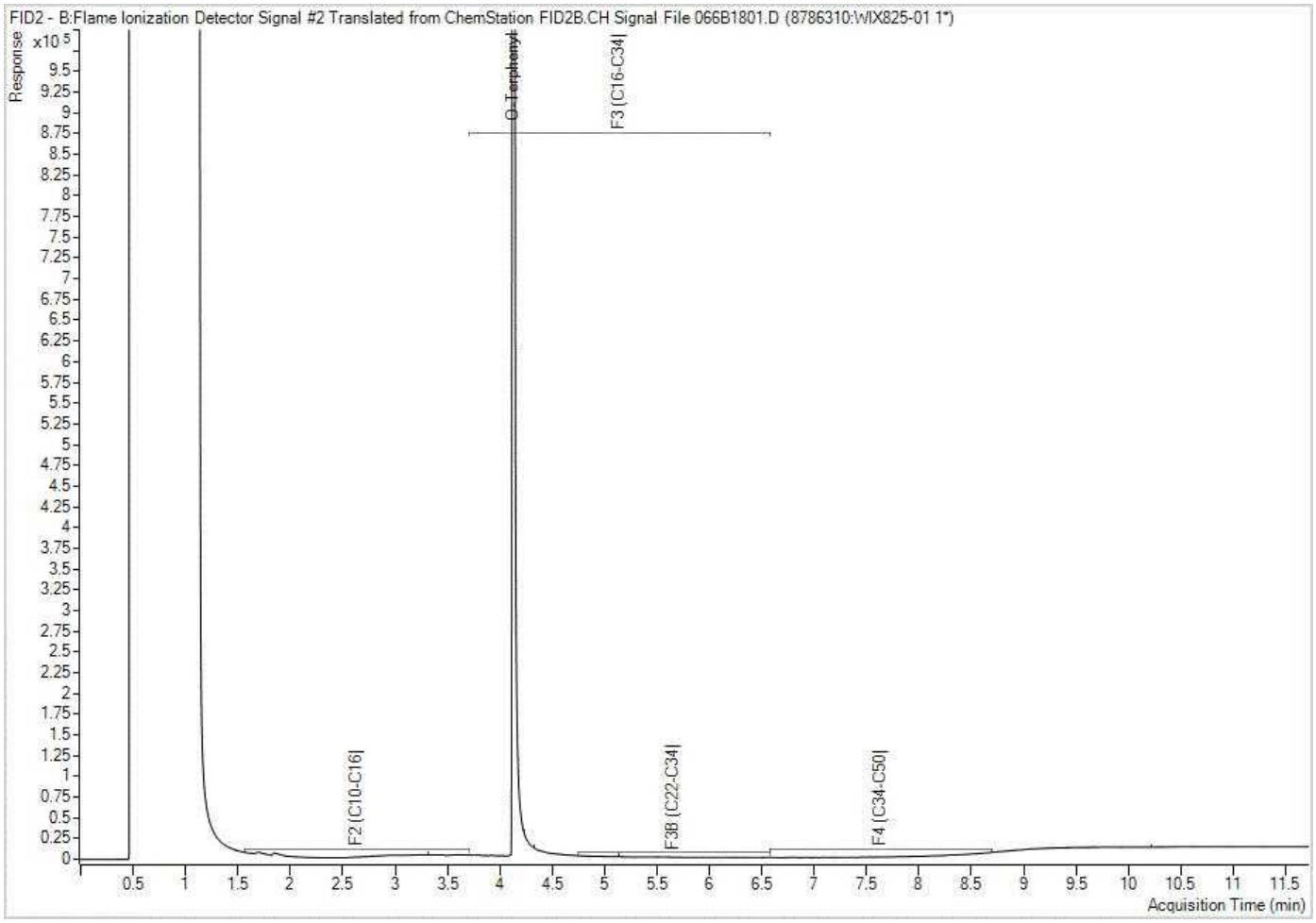


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C3K4929
Report Date: 2023/07/14
Bureau Veritas Sample: WIX825

exp Services Inc
Client Project #: (EXP) OTT-00243705-B0
Client ID: MW-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

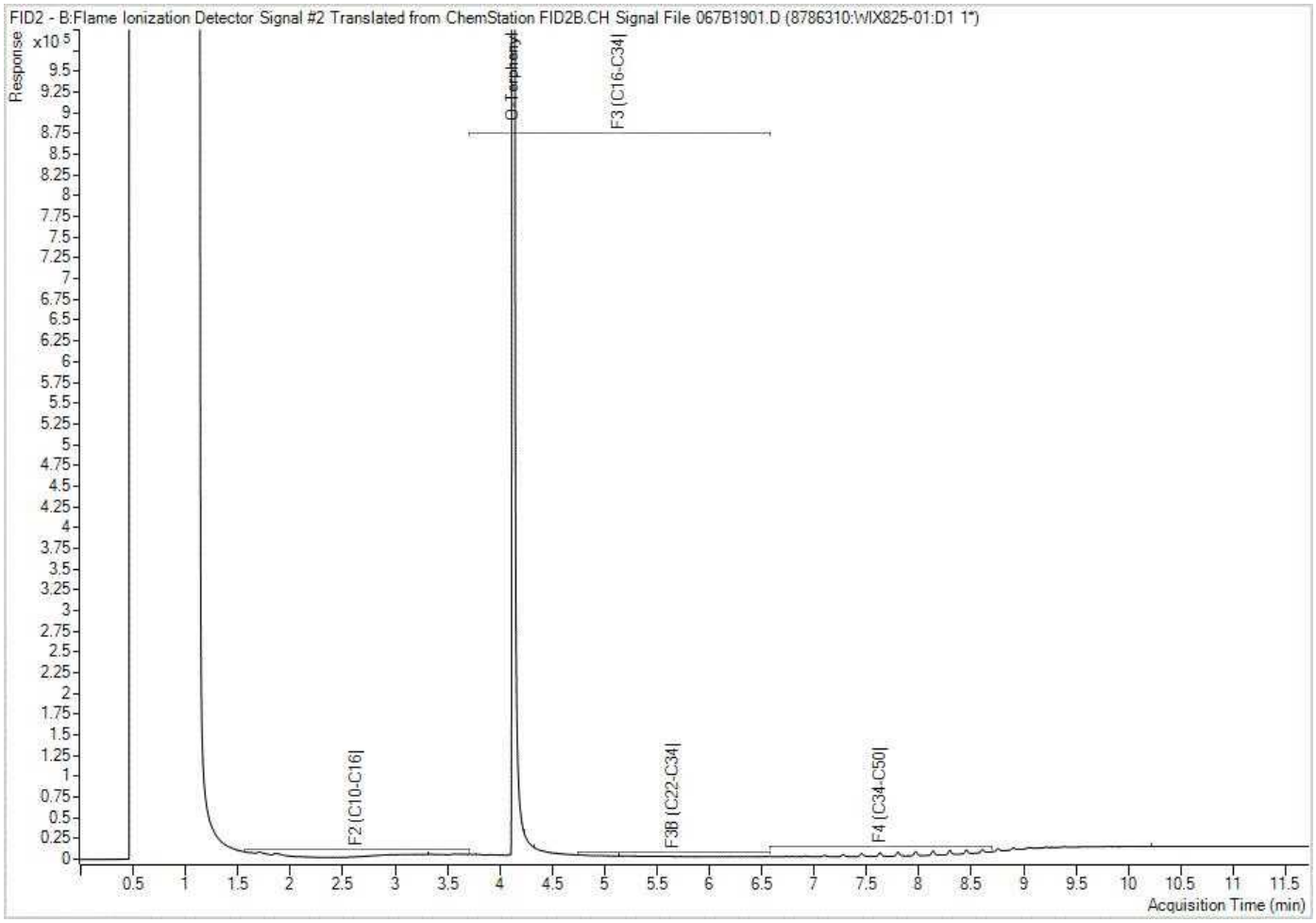


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C3K4929
Report Date: 2023/07/14
Bureau Veritas Sample: WIX825 Lab-Dup

exp Services Inc
Client Project #: (EXP) OTT-00243705-B0
Client ID: MW-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

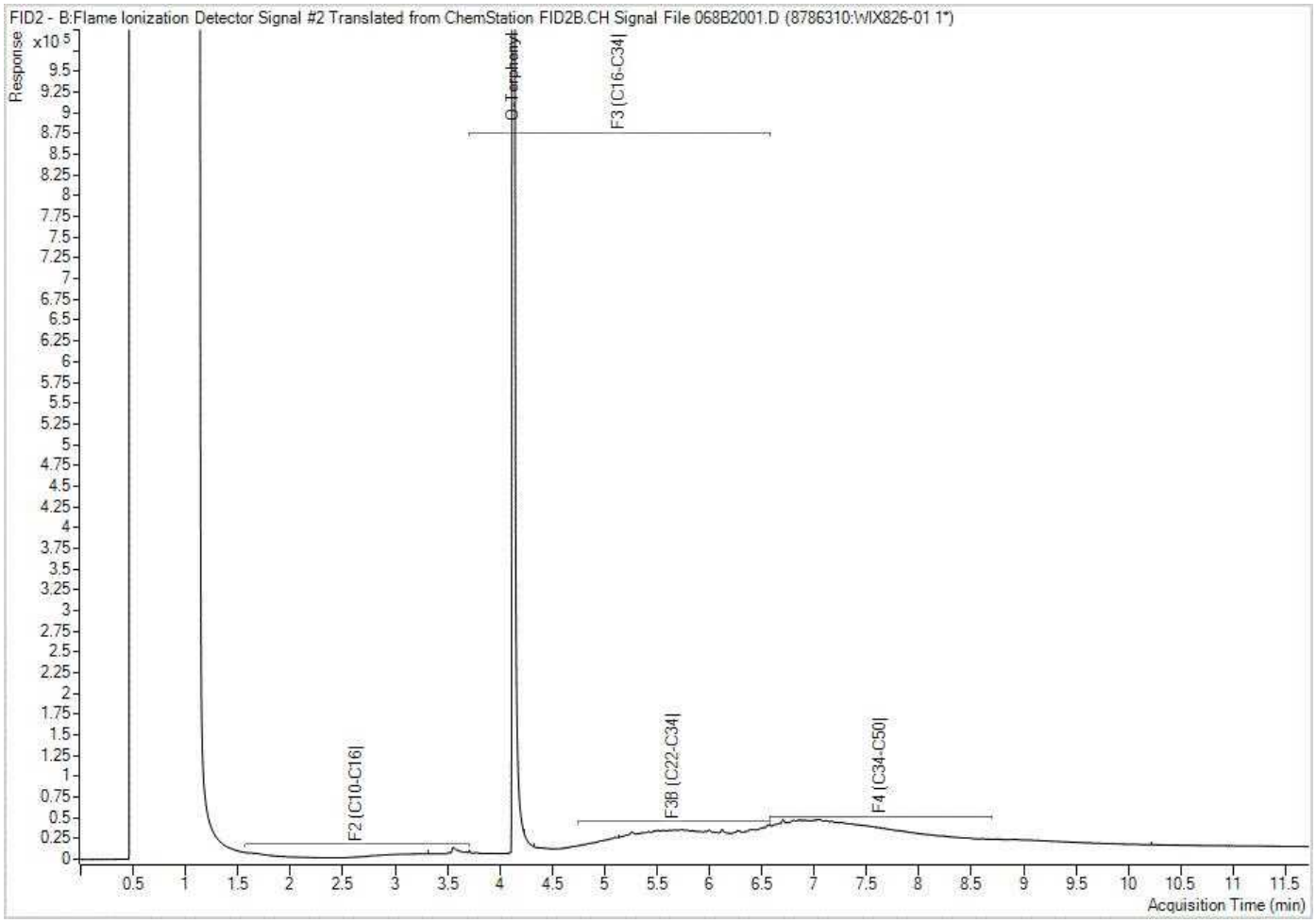


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C3K4929
Report Date: 2023/07/14
Bureau Veritas Sample: WIX826

exp Services Inc
Client Project #: (EXP) OTT-00243705-B0
Client ID: MW-3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

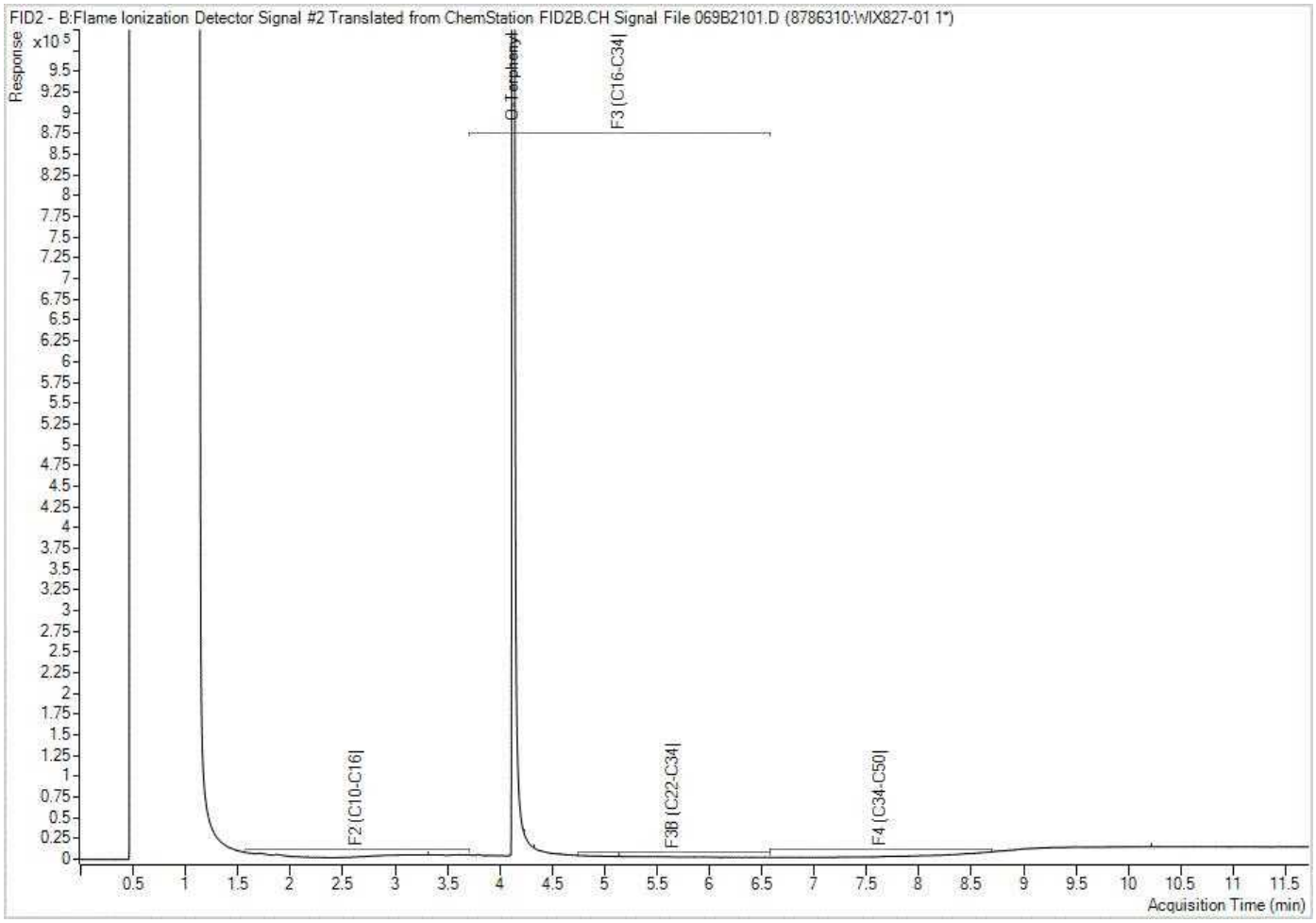


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C3K4929
Report Date: 2023/07/14
Bureau Veritas Sample: WIX827

exp Services Inc
Client Project #: (EXP) OTT-00243705-B0
Client ID: FIELD BLANK

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: OTT-00243750-B
Site Location: 6659 FRANKTOWN RD
Your C.O.C. #: n/a

Attention: Mark McCalla

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2023/07/19
Report #: R7724936
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3L0437
Received: 2023/07/14, 16:29

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydro. CCME F1 & BTEX in Water (1)	1	N/A	2023/07/17	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	1	2023/07/18	2023/07/19	CAM SOP-00316	CCME PHC-CWS m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: OTT-00243750-B
Site Location: 6659 FRANKTOWN RD
Your C.O.C. #: n/a

Attention: Mark McCalla

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2023/07/19
Report #: R7724936
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3L0437
Received: 2023/07/14, 16:29

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

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Bureau Veritas Job #: C3L0437
Report Date: 2023/07/19

exp Services Inc
Client Project #: OTT-00243750-B
Site Location: 6659 FRANKTOWN RD
Sampler Initials: MR

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		WKB310			WKB310		
Sampling Date		2023/07/14 15:00			2023/07/14 15:00		
COC Number		n/a			n/a		
	UNITS	**MW-3**	**RDL**	**QC Batch**	**MW-3 Lab-Dup**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons							
Benzene	ug/L	<0.20	0.20	8794260			
Toluene	ug/L	0.23	0.20	8794260			
Ethylbenzene	ug/L	<0.20	0.20	8794260			
o-Xylene	ug/L	<0.20	0.20	8794260			
p+m-Xylene	ug/L	<0.40	0.40	8794260			
Total Xylenes	ug/L	<0.40	0.40	8794260			
F1 (C6-C10)	ug/L	<25	25	8794260			
F1 (C6-C10) - BTEX	ug/L	<25	25	8794260			
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	8795823	<100	100	8795823
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	8795823	<200	200	8795823
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	8795823	<200	200	8795823
Reached Baseline at C50	ug/L	Yes		8795823	Yes		8795823
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	107		8794260			
4-Bromofluorobenzene	%	94		8794260			
D10-o-Xylene	%	99		8794260			
D4-1,2-Dichloroethane	%	91		8794260			
o-Terphenyl	%	95		8795823	95		8795823

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas Job #: C3L0437
Report Date: 2023/07/19

exp Services Inc
Client Project #: OTT-00243750-B
Site Location: 6659 FRANKTOWN RD
Sampler Initials: MR

TEST SUMMARY

Bureau Veritas ID: WKB310
Sample ID: MW-3
Matrix: Water

Collected: 2023/07/14
Shipped:
Received: 2023/07/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8794260	N/A	2023/07/17	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8795823	2023/07/18	2023/07/19	Agnieszka Brzuzy-Snopko

Bureau Veritas ID: WKB310 Dup
Sample ID: MW-3
Matrix: Water

Collected: 2023/07/14
Shipped:
Received: 2023/07/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8795823	2023/07/18	2023/07/19	Agnieszka Brzuzy-Snopko

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	21.7°C

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8794260	1,4-Difluorobenzene	2023/07/17	105	70 - 130	108	70 - 130	110	%		
8794260	4-Bromofluorobenzene	2023/07/17	99	70 - 130	96	70 - 130	94	%		
8794260	D10-o-Xylene	2023/07/17	100	70 - 130	102	70 - 130	106	%		
8794260	D4-1,2-Dichloroethane	2023/07/17	91	70 - 130	89	70 - 130	92	%		
8795823	o-Terphenyl	2023/07/18	96	60 - 130	93	60 - 130	96	%		
8794260	Benzene	2023/07/17	98	50 - 140	99	50 - 140	<0.20	ug/L	NC	30
8794260	Ethylbenzene	2023/07/17	108	50 - 140	112	50 - 140	<0.20	ug/L	NC	30
8794260	F1 (C6-C10) - BTEX	2023/07/17					<25	ug/L		
8794260	F1 (C6-C10)	2023/07/17	108	60 - 140	114	60 - 140	<25	ug/L		
8794260	o-Xylene	2023/07/17	101	50 - 140	103	50 - 140	<0.20	ug/L	NC	30
8794260	p+m-Xylene	2023/07/17	105	50 - 140	111	50 - 140	<0.40	ug/L	NC	30
8794260	Toluene	2023/07/17	95	50 - 140	98	50 - 140	<0.20	ug/L	NC	30
8794260	Total Xylenes	2023/07/17					<0.40	ug/L	NC	30
8795823	F2 (C10-C16 Hydrocarbons)	2023/07/19	100	60 - 130	96	60 - 130	<100	ug/L	NC	30
8795823	F3 (C16-C34 Hydrocarbons)	2023/07/19	105	60 - 130	101	60 - 130	<200	ug/L	NC	30
8795823	F4 (C34-C50 Hydrocarbons)	2023/07/19	104	60 - 130	100	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

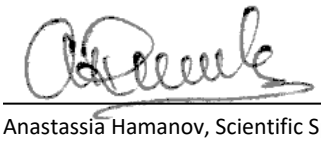
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

BUREAU VERITAS

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

Received in Ottawa

CHAIN OF CUSTODY RECORD 159929

Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: EXP Services Inc.	Company Name:	Quotation #:	☑ Regular TAT (5-7 days) Most analyses
Contact Name: Mark McCalla	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 2650 Queensview Dr. Ottawa	Address:	Project #: OTT-00243750-B	Rush TAT (Surcharges will be applied)
Phone: 613 688 1899 Fax:	Phone: Fax:	Site Location: 6659 Franktown rd.	☐ 1 Day ☐ 2 Days ☐ 3-4 Days
Email: mark.mccalla@exp.com	Email:	Site #:	Date Required:
		Site Location Province: Ontario	Rush Confirmation #:
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY		Sampled By: Mackenzie Rundell	

Regulation 153

☐ Table 1 ☐ Res/Park ☐ Med/ Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☑ Table 3 ☐ Agri/ Other
☐ Table ____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations

☐ CCME ☐ Sanitary Sewer Bylaw
☐ MISA ☐ Storm Sewer Bylaw
☐ PWQO Region ____
☐ Other (Specify) ____
☐ REG 558 (MIN. 3 DAY TAT REQUIRED)
☐ REG 406 Table ____

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Analysis Requested

LABORATORY USE ONLY

CUSTODY SEAL Y / N: Present / Intact — COOLER TEMPERATURES

Present	Intact	Cooler Temperatures
N	N	23.22.20
Y	Y	2/3/3

COOLING MEDIA PRESENT: (Y) / N ICE

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	HOLD- DO NOT ANALYZE	COMMENTS
1	MW-3	2023/07/14	15:00	GW	4		✓	✓						
2														
3														
4														
5														
6														
7														
8														
9														
10														

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
[signature]	2023/07/14	16:25	[signature] LAWRENCE	2023/07/14	1629
Mackenzie Rundell			[signature] PEARMOT	2023/07/15	0813

14-Jul-23 16:29
Katherine Szozda
C3L0437
RUK ENV-902

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and accept... terms available at http://www.bvlabs.com/terms-and-conditions

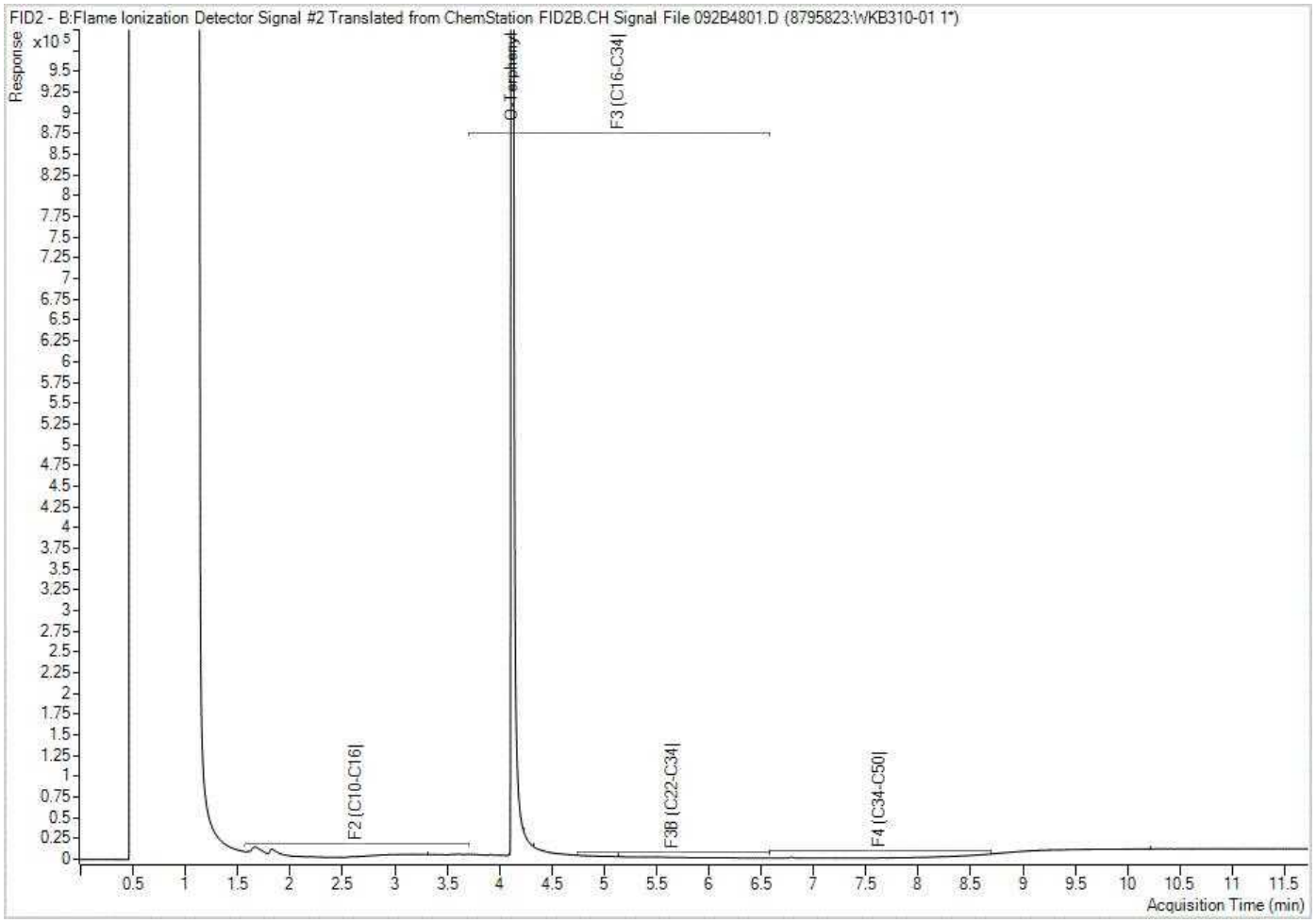
COC-1004 (06/19)

White: BV Labs - Yellow: Client

Bureau Veritas Job #: C3L0437
Report Date: 2023/07/19
Bureau Veritas Sample: WKB310

exp Services Inc
Client Project #: OTT-00243750-B
Project name: 6659 FRANKTOWN RD
Client ID: MW-3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

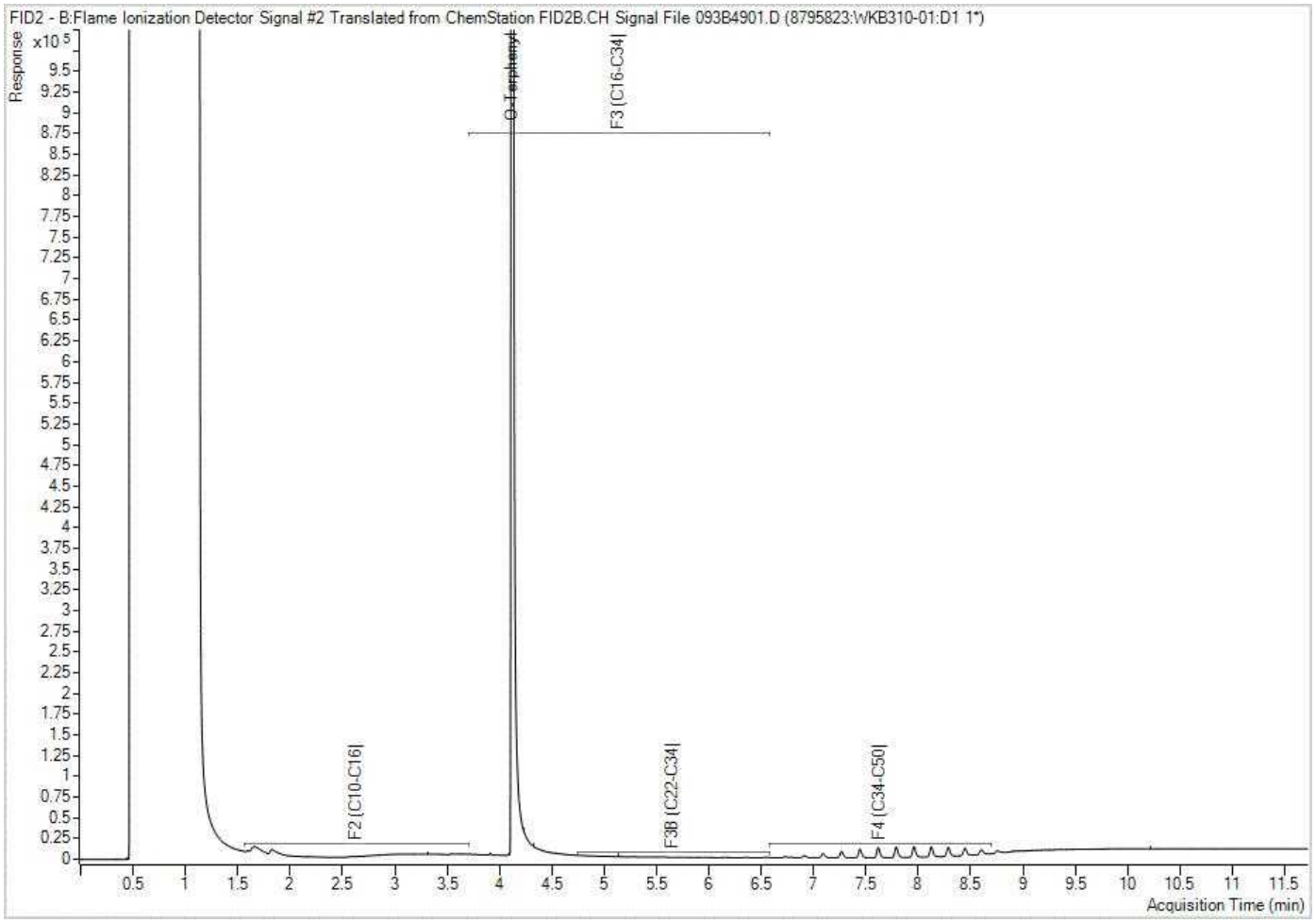


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C3L0437
Report Date: 2023/07/19
Bureau Veritas Sample: WKB310 Lab-Dup

exp Services Inc
Client Project #: OTT-00243750-B
Project name: 6659 FRANKTOWN RD
Client ID: MW-3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Appendix G: Hydraulic Conductivity

6659 Franktown Road, Ottawa **MW1** **2-Aug-23**
Rising Head Test Analysis Test 1
Hvorslev Method (1951)

H_0 1.27 m
(static water level in metres)

Time (sec)	Water Level (m)	Drawdown (m)	H-h/H-h0
0	4.05	2.78	1.00
30	3.26	1.99	0.72
60	3.27	2.00	0.72
90	3.07	1.80	0.65
120	2.86	1.59	0.57
150	2.67	1.40	0.50
180	2.49	1.22	0.44
210	2.38	1.11	0.40
240	2.35	1.08	0.39
360	1.86	0.59	0.21
480	1.62	0.35	0.13
600	1.48	0.21	0.08
720	1.4	0.13	0.05
780	1.36	0.09	0.03

To constant= 0.37

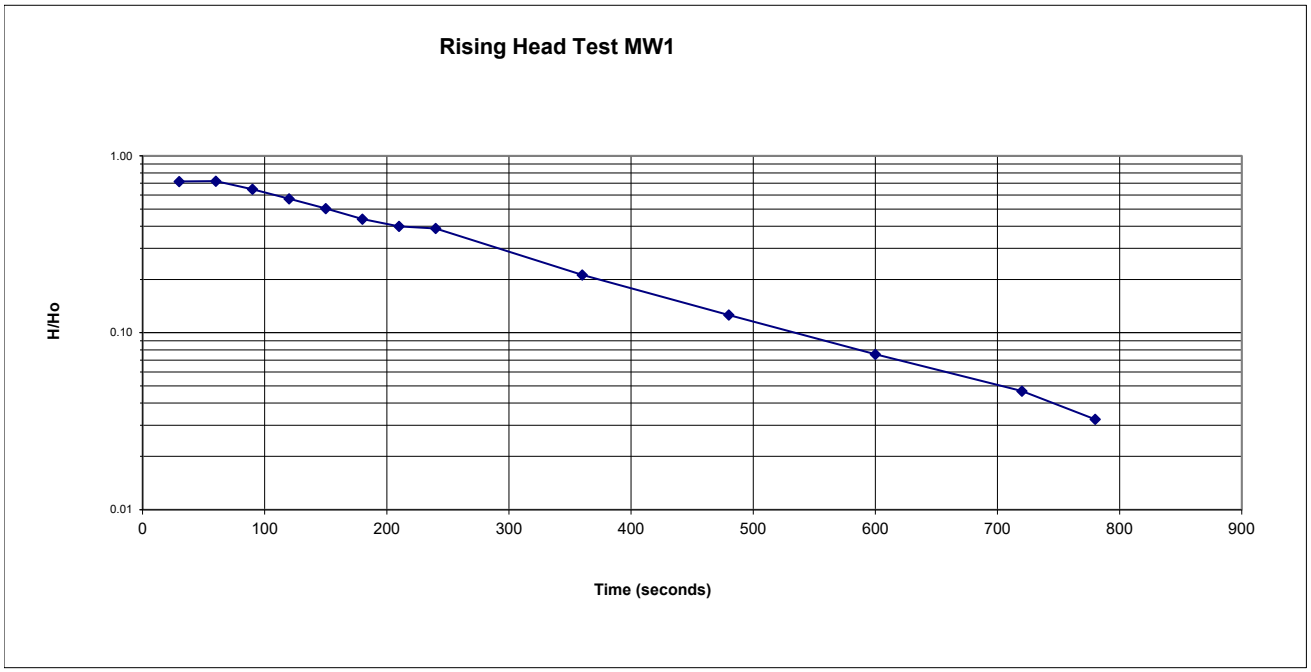
L/R	ln(L/R)
30.0	3.401197

input

r= 0.018 (pipe radius)
L= 1.50 (effective screen length, if strattles water)
R= 0.05 (hole radius)
To= 260

$$K = \frac{r^2 \ln(L/R)}{2(To)(L)}$$

K= 1.41E-06 m/sec or **1.41E-04 cm/sec**



Your Project #: OTT-00243705-C0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/12/30
Report #: R8463893
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4BP677
Received: 2024/12/20, 16:00

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	6	N/A	2024/12/24	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	6	2024/12/24	2024/12/24	CAM SOP-00316	CCME CWS m
Moisture (1)	6	N/A	2024/12/23	CAM SOP-00445	Carter 2nd ed 70.2 m

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	1	N/A	2024/12/30	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	1	N/A	2024/12/30		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1, 3)	1	2024/12/24	2024/12/24	CAM SOP-00316	CCME PHC-CWS m
Lab Filtered Metals by ICPMS (1)	1	2024/12/23	2024/12/24	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM) (1)	1	2024/12/24	2024/12/25	CAM SOP-00318	EPA 8270E
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2024/12/28	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Your Project #: OTT-00243705-C0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/12/30
Report #: R8463893
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4BP677

Received: 2024/12/20, 16:00

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8

(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

This report has been generated and distributed using a secure automated process.
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O.REG 153 PHCS, BTEX/F1-F4 (SOIL)

Bureau Veritas ID		AMLI44	AMLI45	AMLI46	AMLI47			AMLI47		
Sampling Date		2024/12/20 12:30	2024/12/20 10:45	2024/12/20 11:00	2024/12/20 12:10			2024/12/20 12:10		
COC Number		N/A	N/A	N/A	N/A			N/A		
	UNITS	**S7**	**S8**	**S9**	**S10**	**RDL**	**QC Batch**	**S10 Lab-Dup**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	9845359			
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	9845359			
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	9845359			
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	9845359			
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	9845359			
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	9845359			
F1 (C6-C10)	ug/g	<10	<10	<10	<10	10	9845359			
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	10	9845359			
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	8.7	<7.0	<7.0	<7.0	7.0	9845281	<7.0	7.0	9845281
F3 (C16-C34 Hydrocarbons)	ug/g	<50	75	<50	<50	50	9845281	<50	50	9845281
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	50	9845281	<50	50	9845281
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		9845281	Yes		9845281
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	99	98	99	99		9845359			
4-Bromofluorobenzene	%	122	116	111	115		9845359			
D10-o-Xylene	%	95	98	93	97		9845359			
D4-1,2-Dichloroethane	%	94	96	94	97		9845359			
o-Terphenyl	%	96	93	93	92		9845281	94		9845281

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

O.REG 153 PHCS, BTEX/F1-F4 (SOIL)

Bureau Veritas ID		AMLI48		AMLI49		
Sampling Date		2024/12/20 11:50		2024/12/20 11:15		
COC Number		N/A		N/A		
	UNITS	**S11**	**QC Batch**	**S12**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons						
Benzene	ug/g	<0.020	9845359	<0.020	0.020	9845359
Toluene	ug/g	<0.020	9845359	<0.020	0.020	9845359
Ethylbenzene	ug/g	<0.020	9845359	<0.020	0.020	9845359
o-Xylene	ug/g	<0.020	9845359	<0.020	0.020	9845359
p+m-Xylene	ug/g	<0.040	9845359	<0.040	0.040	9845359
Total Xylenes	ug/g	<0.040	9845359	<0.040	0.040	9845359
F1 (C6-C10)	ug/g	<10	9845359	<10	10	9845359
F1 (C6-C10) - BTEX	ug/g	<10	9845359	<10	10	9845359
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<7.0	9845281	<7.0	7.0	9846560
F3 (C16-C34 Hydrocarbons)	ug/g	110	9845281	<50	50	9846560
F4 (C34-C50 Hydrocarbons)	ug/g	<50	9845281	<50	50	9846560
Reached Baseline at C50	ug/g	Yes	9845281	Yes		9846560
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	99	9845359	99		9845359
4-Bromofluorobenzene	%	116	9845359	112		9845359
D10-o-Xylene	%	91	9845359	98		9845359
D4-1,2-Dichloroethane	%	98	9845359	98		9845359
o-Terphenyl	%	89	9845281	90		9846560

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Job #: C4BP677
Report Date: 2024/12/30

exp Services Inc
Client Project #: OTT-00243705-C0
Sampler Initials: PO

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		AMLI44	AMLI45	AMLI46	AMLI47	AMLI48	AMLI49		
Sampling Date		2024/12/20 12:30	2024/12/20 10:45	2024/12/20 11:00	2024/12/20 12:10	2024/12/20 11:50	2024/12/20 11:15		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	**S7**	**S8**	**S9**	**S10**	**S11**	**S12**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	5.0	24	23	20	19	18	1.0	9843947

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 ICPMS METALS (LAB FILTERED)

Bureau Veritas ID		AMLI50		
Sampling Date		2024/12/20 13:20		
COC Number		N/A		
	UNITS	**SUMP**	**RDL**	**QC Batch**
Metals				
Dissolved Antimony (Sb)	ug/L	3.3	0.50	9844553
Dissolved Arsenic (As)	ug/L	<1.0	1.0	9844553
Dissolved Barium (Ba)	ug/L	120	2.0	9844553
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	9844553
Dissolved Boron (B)	ug/L	150	10	9844553
Dissolved Cadmium (Cd)	ug/L	0.27	0.090	9844553
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	9844553
Dissolved Cobalt (Co)	ug/L	35	0.50	9844553
Dissolved Copper (Cu)	ug/L	4.5	0.90	9844553
Dissolved Lead (Pb)	ug/L	<0.50	0.50	9844553
Dissolved Molybdenum (Mo)	ug/L	9.4	0.50	9844553
Dissolved Nickel (Ni)	ug/L	8.7	1.0	9844553
Dissolved Selenium (Se)	ug/L	<2.0	2.0	9844553
Dissolved Silver (Ag)	ug/L	<0.090	0.090	9844553
Dissolved Sodium (Na)	ug/L	51000	100	9844553
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	9844553
Dissolved Uranium (U)	ug/L	0.50	0.10	9844553
Dissolved Vanadium (V)	ug/L	<0.50	0.50	9844553
Dissolved Zinc (Zn)	ug/L	45	5.0	9844553

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PAHS (WATER)

Bureau Veritas ID		AMLI50		
Sampling Date		2024/12/20 13:20		
COC Number		N/A		
	UNITS	**SUMP**	**RDL**	**QC Batch**
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/L	<0.42	0.42	9843311
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	<0.50 (1)	0.50	9845295
Acenaphthylene	ug/L	<0.050	0.050	9845295
Anthracene	ug/L	<0.90 (1)	0.90	9845295
Benzo(a)anthracene	ug/L	<0.050	0.050	9845295
Benzo(a)pyrene	ug/L	<0.0090	0.0090	9845295
Benzo(b/j)fluoranthene	ug/L	<0.050	0.050	9845295
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	9845295
Benzo(k)fluoranthene	ug/L	<0.050	0.050	9845295
Chrysene	ug/L	<0.050	0.050	9845295
Dibenzo(a,h)anthracene	ug/L	<0.050	0.050	9845295
Fluoranthene	ug/L	<0.070 (1)	0.070	9845295
Fluorene	ug/L	<0.050	0.050	9845295
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	9845295
1-Methylnaphthalene	ug/L	<0.30 (1)	0.30	9845295
2-Methylnaphthalene	ug/L	<0.30 (1)	0.30	9845295
Naphthalene	ug/L	<0.40 (1)	0.40	9845295
Phenanthrene	ug/L	0.85	0.030	9845295
Pyrene	ug/L	0.34	0.050	9845295
Surrogate Recovery (%)				
D10-Anthracene	%	94		9845295
D14-Terphenyl (FS)	%	95		9845295
D8-Acenaphthylene	%	103		9845295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		AMLI50		
Sampling Date		2024/12/20 13:20		
COC Number		N/A		
	UNITS	**SUMP**	**RDL**	**QC Batch**
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	9843312
Volatile Organics				
Acetone (2-Propanone)	ug/L	24	10	9845440
Benzene	ug/L	<0.17	0.17	9845440
Bromodichloromethane	ug/L	<0.50	0.50	9845440
Bromoform	ug/L	<1.0	1.0	9845440
Bromomethane	ug/L	<0.50	0.50	9845440
Carbon Tetrachloride	ug/L	<0.20	0.20	9845440
Chlorobenzene	ug/L	<0.20	0.20	9845440
Chloroform	ug/L	<0.20	0.20	9845440
Dibromochloromethane	ug/L	<0.50	0.50	9845440
1,2-Dichlorobenzene	ug/L	<0.50	0.50	9845440
1,3-Dichlorobenzene	ug/L	<0.50	0.50	9845440
1,4-Dichlorobenzene	ug/L	<0.50	0.50	9845440
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	9845440
1,1-Dichloroethane	ug/L	<0.20	0.20	9845440
1,2-Dichloroethane	ug/L	<0.50	0.50	9845440
1,1-Dichloroethylene	ug/L	<0.20	0.20	9845440
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	9845440
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	9845440
1,2-Dichloropropane	ug/L	<0.20	0.20	9845440
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	9845440
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	9845440
Ethylbenzene	ug/L	0.35	0.20	9845440
Ethylene Dibromide	ug/L	<0.20	0.20	9845440
Hexane	ug/L	1.1	1.0	9845440
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	9845440
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	9845440
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	9845440
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	9845440
Styrene	ug/L	<0.50	0.50	9845440
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	9845440
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	9845440
Tetrachloroethylene	ug/L	<0.20	0.20	9845440
Toluene	ug/L	0.87	0.20	9845440

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		AMLI50		
Sampling Date		2024/12/20 13:20		
COC Number		N/A		
	UNITS	**SUMP**	**RDL**	**QC Batch**
1,1,1-Trichloroethane	ug/L	<0.20	0.20	9845440
1,1,2-Trichloroethane	ug/L	<0.50	0.50	9845440
Trichloroethylene	ug/L	<0.20	0.20	9845440
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	9845440
Vinyl Chloride	ug/L	<0.20	0.20	9845440
p+m-Xylene	ug/L	1.5	0.20	9845440
o-Xylene	ug/L	1.3	0.20	9845440
Total Xylenes	ug/L	2.8	0.20	9845440
F1 (C6-C10)	ug/L	310	25	9845440
F1 (C6-C10) - BTEX	ug/L	300	25	9845440
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	150000	90	9845338
F3 (C16-C34 Hydrocarbons)	ug/L	43000	200	9845338
F4 (C34-C50 Hydrocarbons)	ug/L	6800	200	9845338
Reached Baseline at C50	ug/L	Yes		9845338
Surrogate Recovery (%)				
o-Terphenyl	%	104		9845338
4-Bromofluorobenzene	%	92		9845440
D4-1,2-Dichloroethane	%	109		9845440
D8-Toluene	%	100		9845440

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

Bureau Veritas ID: AMLI44 **Collected:** 2024/12/20
Sample ID: S7 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9845359	N/A	2024/12/24	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9845281	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Moisture	BAL	9843947	N/A	2024/12/23	Muhammad Chhaidan

Bureau Veritas ID: AMLI45 **Collected:** 2024/12/20
Sample ID: S8 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9845359	N/A	2024/12/24	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9845281	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Moisture	BAL	9843947	N/A	2024/12/23	Muhammad Chhaidan

Bureau Veritas ID: AMLI46 **Collected:** 2024/12/20
Sample ID: S9 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9845359	N/A	2024/12/24	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9845281	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Moisture	BAL	9843947	N/A	2024/12/23	Muhammad Chhaidan

Bureau Veritas ID: AMLI47 **Collected:** 2024/12/20
Sample ID: S10 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9845359	N/A	2024/12/24	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9845281	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Moisture	BAL	9843947	N/A	2024/12/23	Muhammad Chhaidan

Bureau Veritas ID: AMLI47 Dup **Collected:** 2024/12/20
Sample ID: S10 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9845281	2024/12/24	2024/12/24	Anna Stuglik-Rolland

Bureau Veritas ID: AMLI48 **Collected:** 2024/12/20
Sample ID: S11 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9845359	N/A	2024/12/24	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9845281	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Moisture	BAL	9843947	N/A	2024/12/23	Muhammad Chhaidan

TEST SUMMARY

Bureau Veritas ID: AMLI49 **Collected:** 2024/12/20
Sample ID: S12 **Shipped:**
Matrix: Soil **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9845359	N/A	2024/12/24	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9846560	2024/12/24	2024/12/24	Dennis Ngondu
Moisture	BAL	9843947	N/A	2024/12/23	Muhammad Chhaidan

Bureau Veritas ID: AMLI50 **Collected:** 2024/12/20
Sample ID: SUMP **Shipped:**
Matrix: Water **Received:** 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9843311	N/A	2024/12/30	Automated Statchk
1,3-Dichloropropene Sum	CALC	9843312	N/A	2024/12/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9845338	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Lab Filtered Metals by ICPMS	ICP/MS	9844553	2024/12/23	2024/12/24	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9845295	2024/12/24	2024/12/25	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9845440	N/A	2024/12/28	Xueming Jiang

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C

Sample AMLI45 [S8] : F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Sample AMLI46 [S9] : F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Sample AMLI47 [S10] : F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Sample AMLI48 [S11] : F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Sample AMLI49 [S12] : F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845281	o-Terphenyl	2024/12/24	104	60 - 140	98	60 - 140	99	%		
9845295	D10-Anthracene	2024/12/25	102	50 - 130	108	50 - 130	108	%		
9845295	D14-Terphenyl (FS)	2024/12/25	103	50 - 130	104	50 - 130	107	%		
9845295	D8-Acenaphthylene	2024/12/25	101	50 - 130	103	50 - 130	98	%		
9845338	o-Terphenyl	2024/12/24	106	60 - 140	105	60 - 140	104	%		
9845359	1,4-Difluorobenzene	2024/12/24	98	60 - 140	99	60 - 140	100	%		
9845359	4-Bromofluorobenzene	2024/12/24	123	60 - 140	120	60 - 140	115	%		
9845359	D10-o-Xylene	2024/12/24	97	60 - 140	93	60 - 140	91	%		
9845359	D4-1,2-Dichloroethane	2024/12/24	93	60 - 140	91	60 - 140	95	%		
9845440	4-Bromofluorobenzene	2024/12/28	101	70 - 130	100	70 - 130	99	%		
9845440	D4-1,2-Dichloroethane	2024/12/28	105	70 - 130	103	70 - 130	96	%		
9845440	D8-Toluene	2024/12/28	100	70 - 130	101	70 - 130	102	%		
9846560	o-Terphenyl	2024/12/24	112	60 - 140	117	60 - 140	116	%		
9843947	Moisture	2024/12/23							1.6	20
9844553	Dissolved Antimony (Sb)	2024/12/30	103	80 - 120	99	80 - 120	<0.50	ug/L	1.0	20
9844553	Dissolved Arsenic (As)	2024/12/30	NC	80 - 120	99	80 - 120	<1.0	ug/L	2.3	20
9844553	Dissolved Barium (Ba)	2024/12/30	97	80 - 120	98	80 - 120	<2.0	ug/L	2.5	20
9844553	Dissolved Beryllium (Be)	2024/12/30	100	80 - 120	106	80 - 120	<0.40	ug/L	NC	20
9844553	Dissolved Boron (B)	2024/12/30	NC	80 - 120	99	80 - 120	<10	ug/L	5.9	20
9844553	Dissolved Cadmium (Cd)	2024/12/30	99	80 - 120	97	80 - 120	<0.090	ug/L	NC	20
9844553	Dissolved Chromium (Cr)	2024/12/30	102	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
9844553	Dissolved Cobalt (Co)	2024/12/30	100	80 - 120	99	80 - 120	<0.50	ug/L	2.4	20
9844553	Dissolved Copper (Cu)	2024/12/30	99	80 - 120	100	80 - 120	<0.90	ug/L	1.9	20
9844553	Dissolved Lead (Pb)	2024/12/30	95	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
9844553	Dissolved Molybdenum (Mo)	2024/12/30	NC	80 - 120	100	80 - 120	<0.50	ug/L	2.4	20
9844553	Dissolved Nickel (Ni)	2024/12/30	94	80 - 120	95	80 - 120	<1.0	ug/L	0.27	20
9844553	Dissolved Selenium (Se)	2024/12/30	99	80 - 120	97	80 - 120	<2.0	ug/L	NC	20
9844553	Dissolved Silver (Ag)	2024/12/30	81	80 - 120	96	80 - 120	<0.090	ug/L	NC	20
9844553	Dissolved Sodium (Na)	2024/12/30	NC	80 - 120	100	80 - 120	<100	ug/L	0.97	20
9844553	Dissolved Thallium (Tl)	2024/12/30	98	80 - 120	99	80 - 120	<0.050	ug/L	2.9	20
9844553	Dissolved Uranium (U)	2024/12/30	NC	80 - 120	99	80 - 120	<0.10	ug/L	3.2	20
9844553	Dissolved Vanadium (V)	2024/12/30	100	80 - 120	97	80 - 120	<0.50	ug/L	NC	20

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9844553	Dissolved Zinc (Zn)	2024/12/30	95	80 - 120	98	80 - 120	<5.0	ug/L	0.75	20
9845281	F2 (C10-C16 Hydrocarbons)	2024/12/24	111	60 - 140	106	80 - 120	<7.0	ug/g	NC	30
9845281	F3 (C16-C34 Hydrocarbons)	2024/12/24	112	60 - 140	107	80 - 120	<50	ug/g	NC	30
9845281	F4 (C34-C50 Hydrocarbons)	2024/12/24	105	60 - 140	99	80 - 120	<50	ug/g	NC	30
9845295	1-Methylnaphthalene	2024/12/25	NC	50 - 130	88	50 - 130	<0.050	ug/L	NC	30
9845295	2-Methylnaphthalene	2024/12/25	NC	50 - 130	84	50 - 130	<0.050	ug/L	7.8	30
9845295	Acenaphthene	2024/12/25	100	50 - 130	97	50 - 130	<0.050	ug/L	NC	30
9845295	Acenaphthylene	2024/12/25	104	50 - 130	100	50 - 130	<0.050	ug/L	NC	30
9845295	Anthracene	2024/12/25	103	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(a)anthracene	2024/12/25	112	50 - 130	110	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(a)pyrene	2024/12/25	111	50 - 130	110	50 - 130	<0.0090	ug/L	NC	30
9845295	Benzo(b/j)fluoranthene	2024/12/25	110	50 - 130	109	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(g,h,i)perylene	2024/12/25	113	50 - 130	111	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(k)fluoranthene	2024/12/25	107	50 - 130	106	50 - 130	<0.050	ug/L	NC	30
9845295	Chrysene	2024/12/25	103	50 - 130	103	50 - 130	<0.050	ug/L	NC	30
9845295	Dibenzo(a,h)anthracene	2024/12/25	100	50 - 130	98	50 - 130	<0.050	ug/L	NC	30
9845295	Fluoranthene	2024/12/25	117	50 - 130	116	50 - 130	<0.050	ug/L	NC	30
9845295	Fluorene	2024/12/25	108	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
9845295	Indeno(1,2,3-cd)pyrene	2024/12/25	114	50 - 130	115	50 - 130	<0.050	ug/L	NC	30
9845295	Naphthalene	2024/12/25	NC	50 - 130	83	50 - 130	<0.050	ug/L	2.8	30
9845295	Phenanthrene	2024/12/25	105	50 - 130	104	50 - 130	<0.030	ug/L	NC	30
9845295	Pyrene	2024/12/25	115	50 - 130	114	50 - 130	<0.050	ug/L	NC	30
9845338	F2 (C10-C16 Hydrocarbons)	2024/12/24	108	60 - 140	105	60 - 140	<90	ug/L	NC	30
9845338	F3 (C16-C34 Hydrocarbons)	2024/12/24	109	60 - 140	108	60 - 140	<200	ug/L	NC	30
9845338	F4 (C34-C50 Hydrocarbons)	2024/12/24	103	60 - 140	98	60 - 140	<200	ug/L	NC	30
9845359	Benzene	2024/12/24	90	50 - 140	84	50 - 140	<0.020	ug/g	NC	50
9845359	Ethylbenzene	2024/12/24	98	50 - 140	92	50 - 140	<0.020	ug/g	NC	50
9845359	F1 (C6-C10) - BTEX	2024/12/24					<10	ug/g	NC	30
9845359	F1 (C6-C10)	2024/12/24	101	60 - 140	98	80 - 120	<10	ug/g	NC	30
9845359	o-Xylene	2024/12/24	93	50 - 140	88	50 - 140	<0.020	ug/g	NC	50
9845359	p+m-Xylene	2024/12/24	89	50 - 140	85	50 - 140	<0.040	ug/g	NC	50
9845359	Toluene	2024/12/24	86	50 - 140	81	50 - 140	<0.020	ug/g	1.5	50

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			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845359	Total Xylenes	2024/12/24					<0.040	ug/g	NC	50
9845440	1,1,1,2-Tetrachloroethane	2024/12/28	91	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
9845440	1,1,1-Trichloroethane	2024/12/28	82	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
9845440	1,1,2,2-Tetrachloroethane	2024/12/28	84	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
9845440	1,1,2-Trichloroethane	2024/12/28	90	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
9845440	1,1-Dichloroethane	2024/12/28	81	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
9845440	1,1-Dichloroethylene	2024/12/28	81	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
9845440	1,2-Dichlorobenzene	2024/12/28	85	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9845440	1,2-Dichloroethane	2024/12/28	89	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
9845440	1,2-Dichloropropane	2024/12/28	83	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
9845440	1,3-Dichlorobenzene	2024/12/28	84	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
9845440	1,4-Dichlorobenzene	2024/12/28	85	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9845440	Acetone (2-Propanone)	2024/12/28	89	60 - 140	102	60 - 140	<10	ug/L	NC	30
9845440	Benzene	2024/12/28	83	70 - 130	101	70 - 130	<0.17	ug/L	NC	30
9845440	Bromodichloromethane	2024/12/28	84	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
9845440	Bromoform	2024/12/28	88	70 - 130	104	70 - 130	<1.0	ug/L	NC	30
9845440	Bromomethane	2024/12/28	78	60 - 140	95	60 - 140	<0.50	ug/L	NC	30
9845440	Carbon Tetrachloride	2024/12/28	89	70 - 130	109	70 - 130	<0.20	ug/L	NC	30
9845440	Chlorobenzene	2024/12/28	77	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
9845440	Chloroform	2024/12/28	85	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9845440	cis-1,2-Dichloroethylene	2024/12/28	86	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
9845440	cis-1,3-Dichloropropene	2024/12/28	72	70 - 130	82	70 - 130	<0.30	ug/L	NC	30
9845440	Dibromochloromethane	2024/12/28	89	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
9845440	Dichlorodifluoromethane (FREON 12)	2024/12/28	86	60 - 140	125	60 - 140	<1.0	ug/L	NC	30
9845440	Ethylbenzene	2024/12/28	80	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9845440	Ethylene Dibromide	2024/12/28	86	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
9845440	F1 (C6-C10) - BTEX	2024/12/28					<25	ug/L	NC	30
9845440	F1 (C6-C10)	2024/12/28	94	60 - 140	100	60 - 140	<25	ug/L	NC	30
9845440	Hexane	2024/12/28	89	70 - 130	112	70 - 130	<1.0	ug/L	NC	30
9845440	Methyl Ethyl Ketone (2-Butanone)	2024/12/28	96	60 - 140	111	60 - 140	<10	ug/L	NC	30
9845440	Methyl Isobutyl Ketone	2024/12/28	86	70 - 130	101	70 - 130	<5.0	ug/L	NC	30
9845440	Methyl t-butyl ether (MTBE)	2024/12/28	82	70 - 130	99	70 - 130	<0.50	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845440	Methylene Chloride(Dichloromethane)	2024/12/28	83	70 - 130	100	70 - 130	<2.0	ug/L	NC	30
9845440	o-Xylene	2024/12/28	85	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9845440	p+m-Xylene	2024/12/28	81	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9845440	Styrene	2024/12/28	80	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
9845440	Tetrachloroethylene	2024/12/28	81	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
9845440	Toluene	2024/12/28	84	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
9845440	Total Xylenes	2024/12/28					<0.20	ug/L	NC	30
9845440	trans-1,2-Dichloroethylene	2024/12/28	84	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
9845440	trans-1,3-Dichloropropene	2024/12/28	79	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
9845440	Trichloroethylene	2024/12/28	84	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
9845440	Trichlorofluoromethane (FREON 11)	2024/12/28	82	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
9845440	Vinyl Chloride	2024/12/28	79	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9846560	F2 (C10-C16 Hydrocarbons)	2024/12/24	114	60 - 140	119	80 - 120	<7.0	ug/g	NC	30
9846560	F3 (C16-C34 Hydrocarbons)	2024/12/24	113	60 - 140	118	80 - 120	<50	ug/g	NC	30
9846560	F4 (C34-C50 Hydrocarbons)	2024/12/24	103	60 - 140	108	80 - 120	<50	ug/g	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

C4BP677
2024/12/20 16:00

www.BVNA.com

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD
ENV COC - 00014v6

Page 1 of 1

SP8

NONT-2024-12-4537

Invoice Information		Report Information (if differs from invoice)		Project Information	
Company:	EXP SERVICES INC	Company:	EXP SERVICES INC	Quotation #:	STREAM 3
Contact Name:	Accounts Payable	Contact Name:	Chris Kimmerly	P.O. #/ AFE#:	
Street Address:	2650 Queensview DR	Street Address:	2650 Queensview DR.	Project #:	OTT-00243705-C0
City:	OTTAWA Prov: ON Postal Code:	City:	OTTAWA Prov: Postal Code:	Site #:	
Phone:	613-688-1899	Phone:	613-688-1899	Site Location:	
Email:	AP@exp.com	Email:	Chris.Kimmerly@exp.com	Site Location Province:	
Copies:		Copies:	Philip.Oliveira@exp.com	Sampled By:	Philip Oliveira

Invoice to (requires report) ☐

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Res/Park ☐ Med/Fine; ☐ Table 2 ☐ Ind/Comm ☐ Coarse; ☐ Table 3 ☐ Agri/other ☐ For RSC; ☐ Table ____

OTHER: ☐ CCME ☐ Reg 406, Table: ____; ☐ Reg 558* ☐ Sanitary Sewer Bylaw; *min 3 day TAT ☐ Storm Sewer Bylaw; ☐ MISA Municipality ____; ☐ PWQO ☐ Other: ____

Include Criteria on Certificate of Analysis (check if yes): ☐

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Analysis columns: 1 Field Filtered; 2 Field Preserved; 3 Lab Filtration Required; 4 BTEX/ F1 (PHC); 5 F2-F4 (PHC); 6 VOCs; 7 Reg 153 metals and inorganics; 8 Reg 153 ICPMS metals; 9 Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS - B); 10 PAH; 11–20; 21 # of containers submitted; 22 Hold - do not analyze

#	Sample Identification	YYYY	MM	DD	HH	MM	Matrix	1	2	3	4	5	6	7	8	9	10	# of Containers	Hold
1	S7	2024	12	20	12	30	Soil				X	X						4	
2	S8	↓	↓	↓	10	45	↓				↓	↓						↓	
3	S9	↓	↓	↓	11	00	↓				↓	↓						↓	
4	S10	↓	↓	↓	12	10	↓				↓	↓						↓	
5	S11	↓	↓	↓	11	50	↓				↓	↓						↓	
6	S12	↓	↓	↓	11	15	↓				↓	↓						↓	
7																			
8	SUMP	↓	↓	↓	13	20	Water			X	X	X	X	X			X	7	
9																			
10																			
11																			
12																			

Regular Turnaround Time (TAT): ☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply: ☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

Comments

Received in Ottawa

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY

LAB USE ONLY	Yes	No	°C (ice packs)
Seal present		✓	1: 5
Seal intact		✓	2: 6
Cooling media present	✓		3: 4

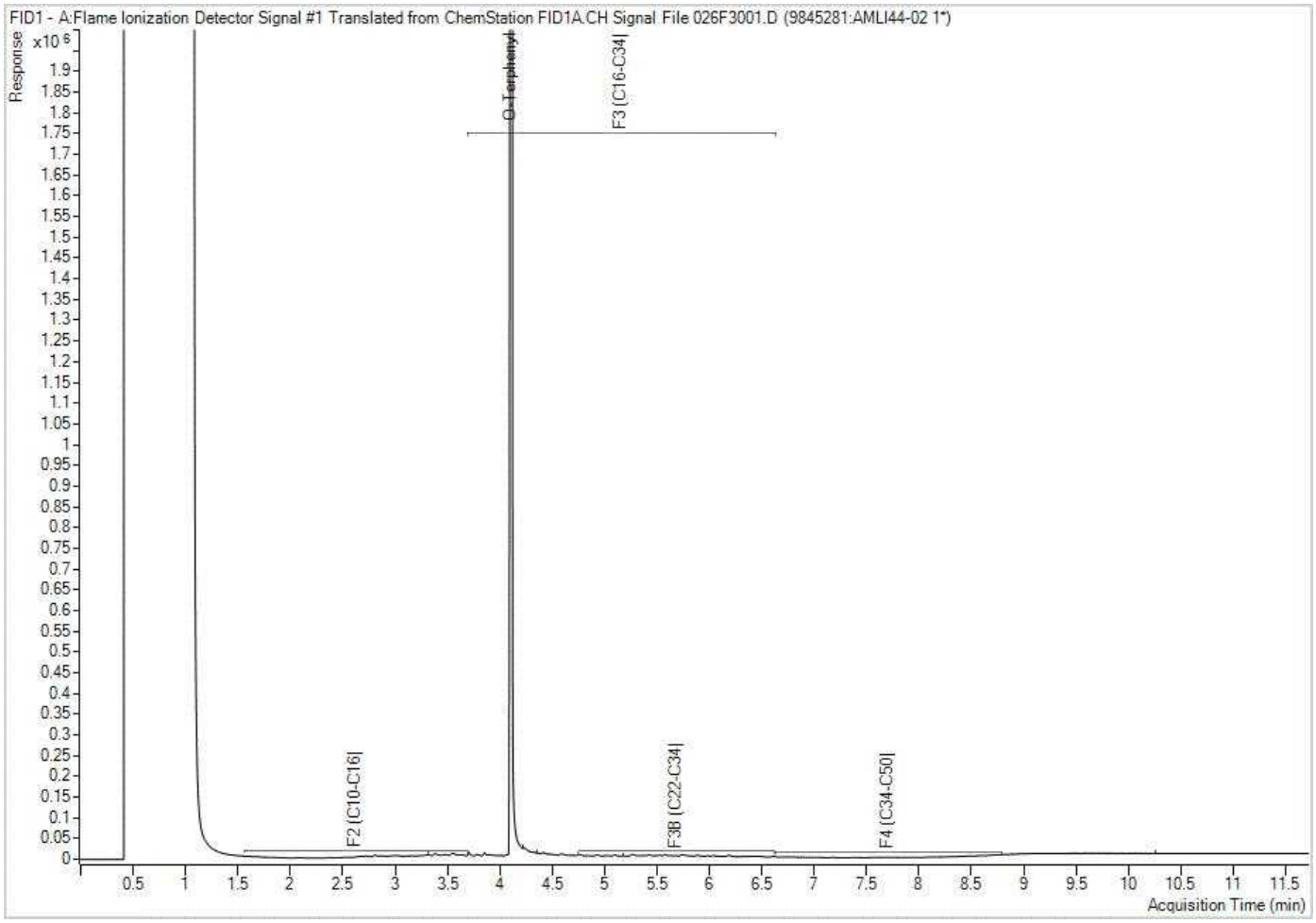
LAB USE ONLY	Yes	No	°C
Seal present	✓		1: 4
Seal intact	–		2: 1
Cooling media present	✓		3: 3

LAB USE ONLY	Yes	No	°C
Seal present			1:
Seal intact			2:
Cooling media present			3:

Temperature reading by:

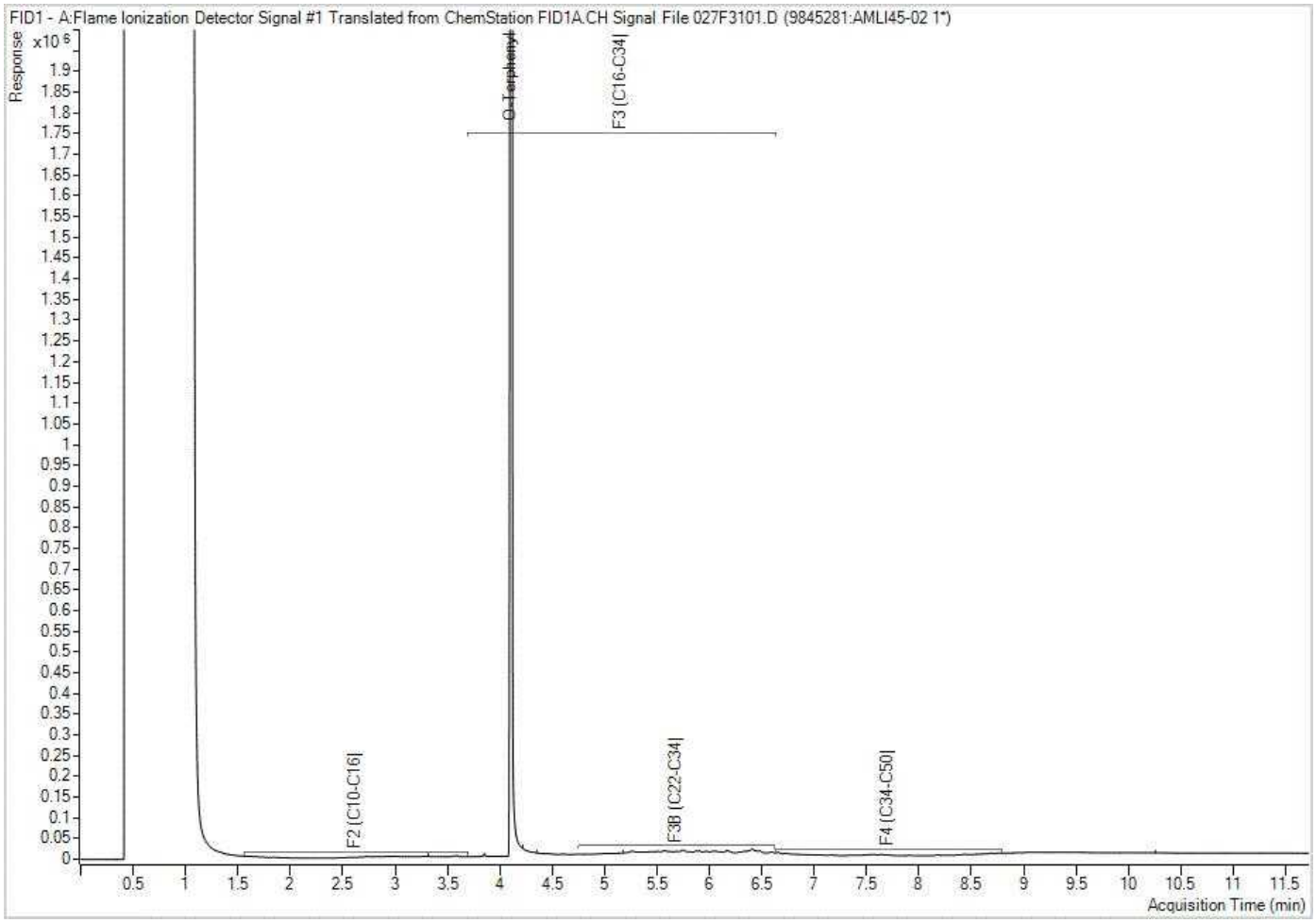
#	Relinquished by: (Signature/ Print)	YYYY	MM	DD	HH	MM	Received by: (Signature/ Print)	YYYY	MM	DD	HH	MM	Special instructions
1	Philip Oliveira	2024	12	20	15	55	Angelica Santiago A87	2024	12	20	16	00	
2	Philip Oliveira						Sugan Salvan	2024	12	21	08	32	

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

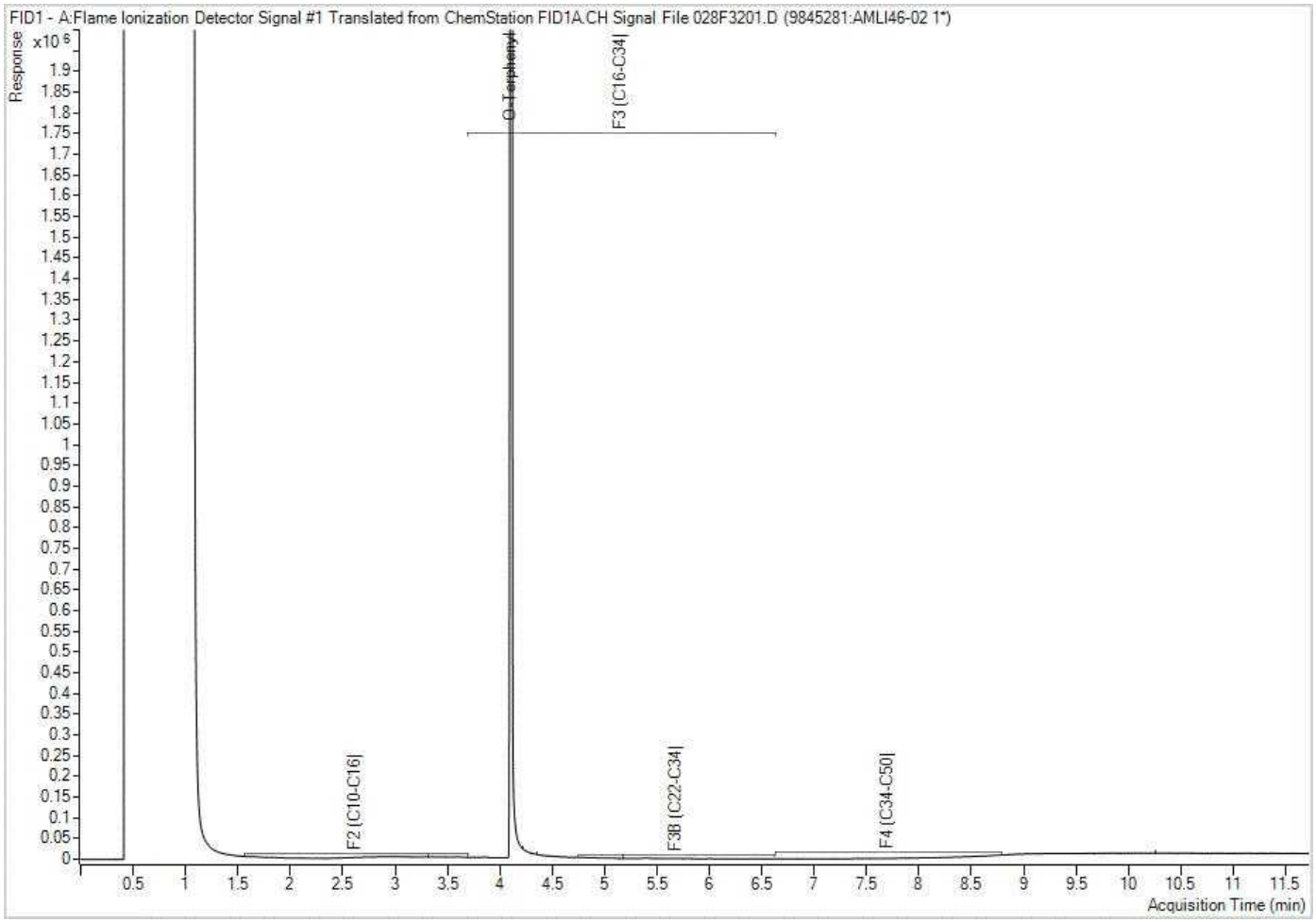


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4BP677
Report Date: 2024/12/30
Bureau Veritas Sample: AMLI46

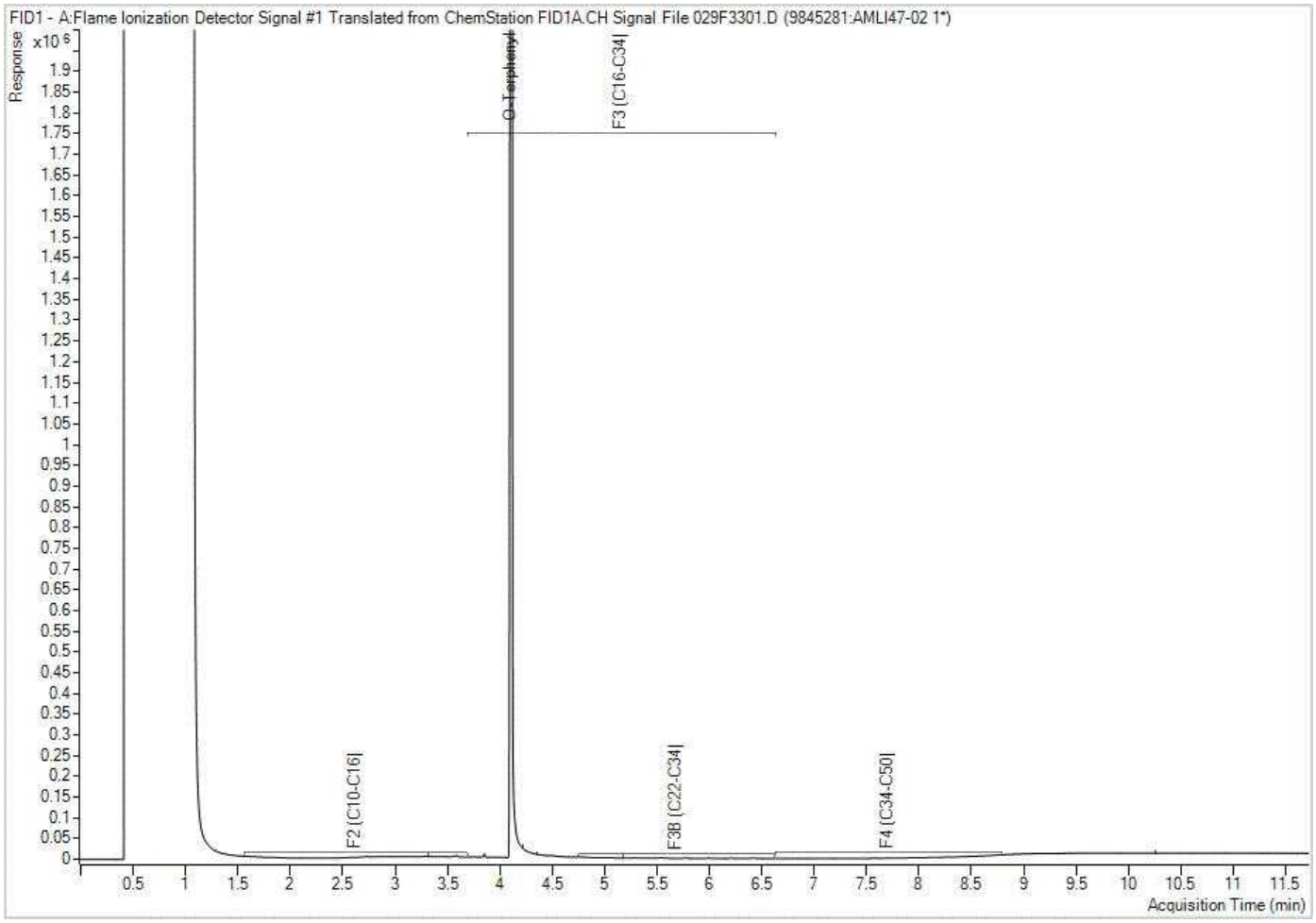
exp Services Inc
Client Project #: OTT-00243705-C0
Client ID: S9

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

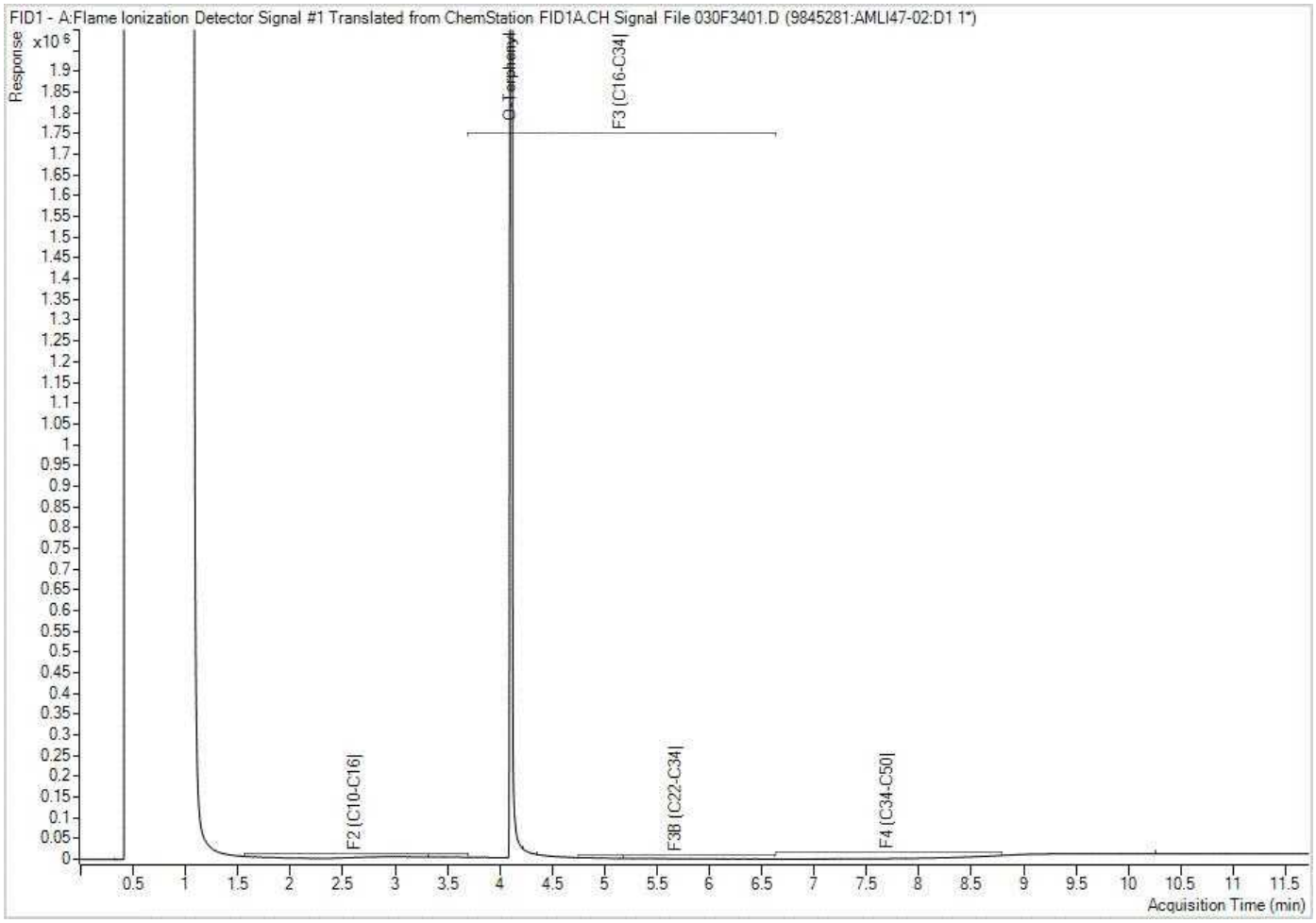


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4BP677
Report Date: 2024/12/30
Bureau Veritas Sample: AMLI47 Lab-Dup

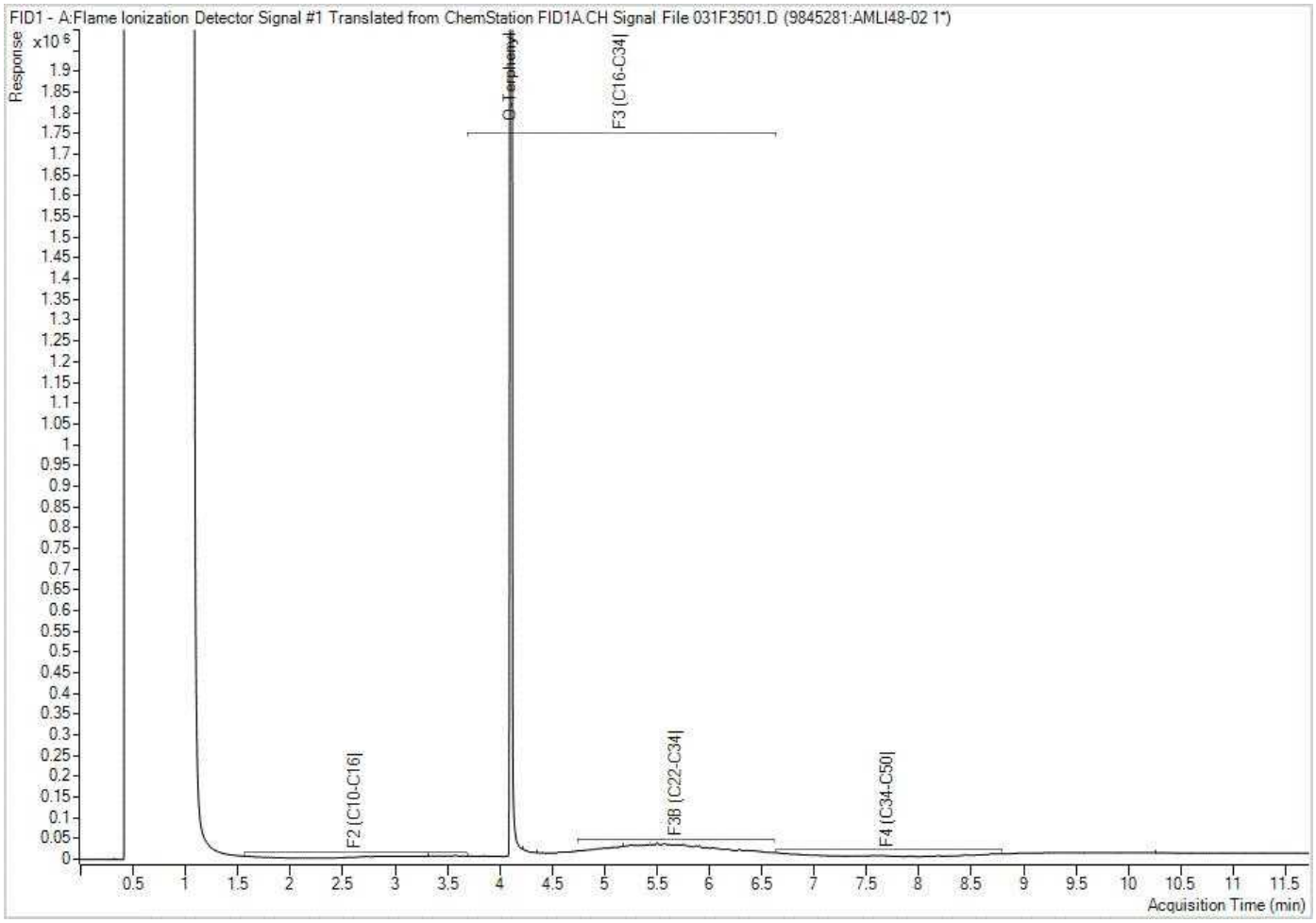
exp Services Inc
Client Project #: OTT-00243705-C0
Client ID: S10

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



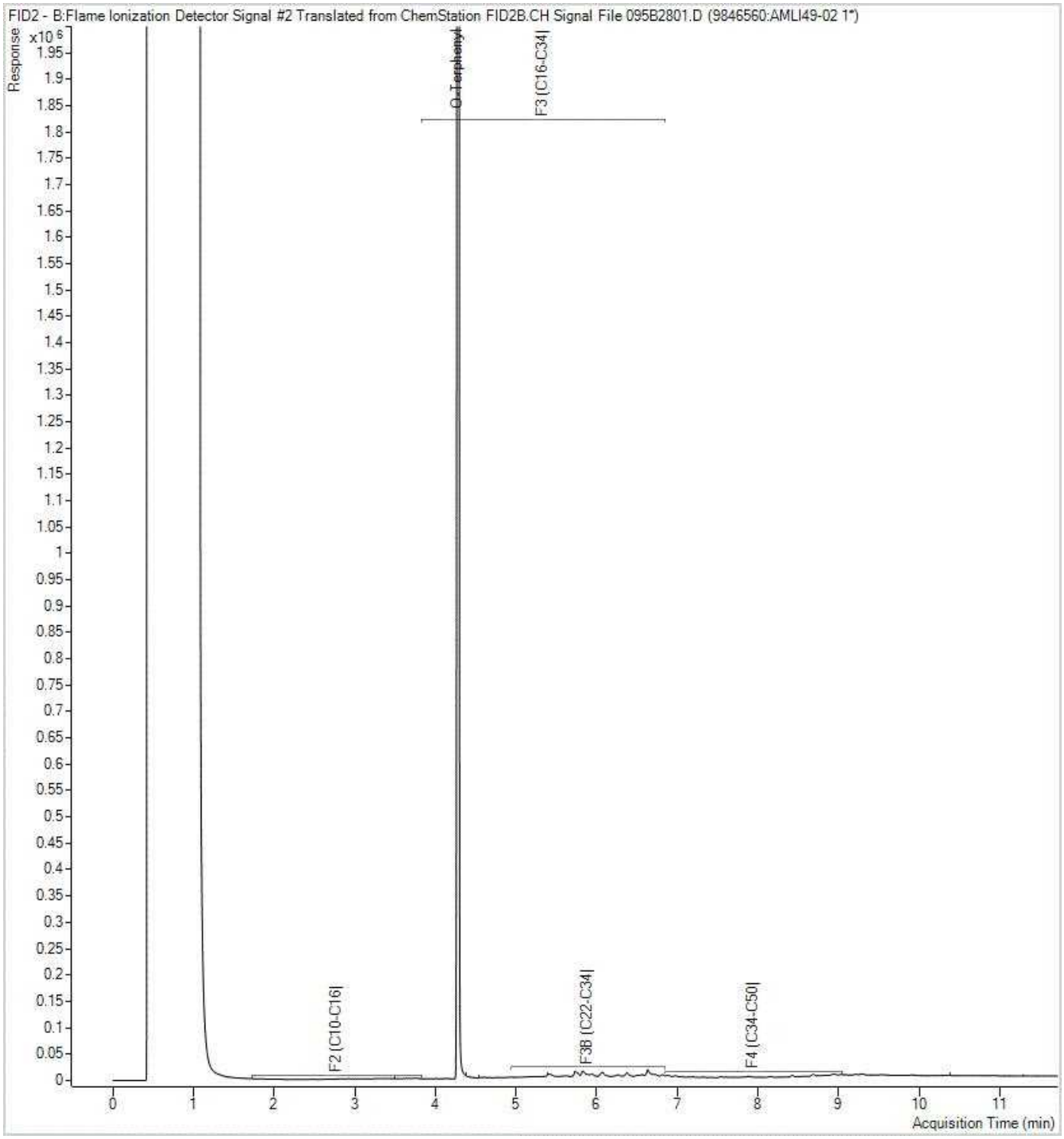
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



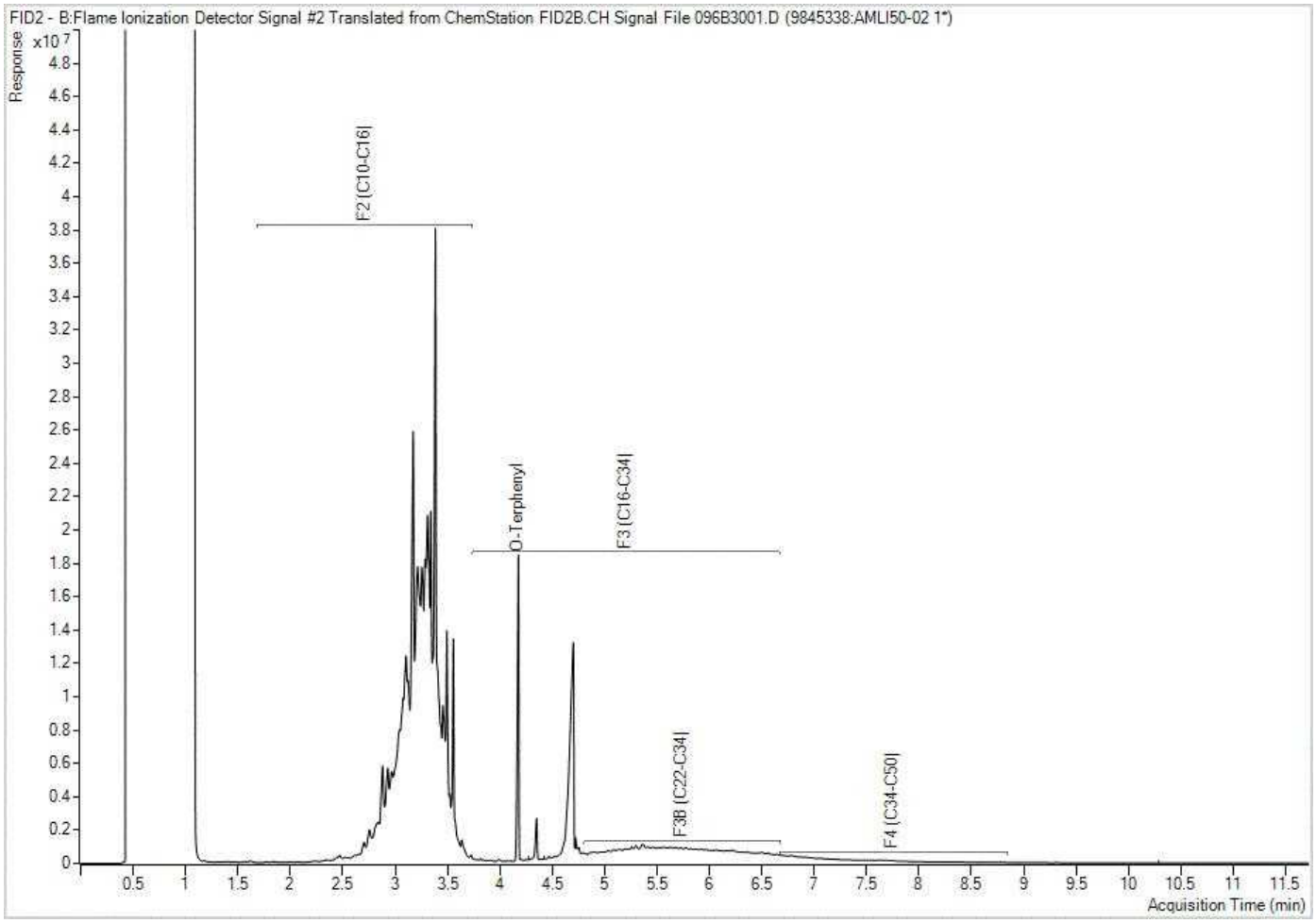
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: OTT-00243705-C0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2025/01/02
Report #: R8465243
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4BP680
Received: 2024/12/20, 16:00

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	1	N/A	2024/12/30	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	1	N/A	2024/12/30		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	1	2024/12/24	2024/12/24	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS (1)	1	N/A	2025/01/02	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM) (1)	1	2024/12/24	2024/12/25	CAM SOP-00318	EPA 8270E
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2024/12/28	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: OTT-00243705-C0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2025/01/02
Report #: R8465243
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4BP680
Received: 2024/12/20, 16:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

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O.REG 153 DISSOLVED ICPMS METALS (WATER)

Bureau Veritas ID		AMLI61		
Sampling Date		2024/12/20		
COC Number		N/A		
	UNITS	**FILTRED**	**RDL**	**QC Batch**
Metals				
Dissolved Antimony (Sb)	ug/L	1.3	0.50	9845566
Dissolved Arsenic (As)	ug/L	<1.0	1.0	9845566
Dissolved Barium (Ba)	ug/L	140	2.0	9845566
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	9845566
Dissolved Boron (B)	ug/L	150	10	9845566
Dissolved Cadmium (Cd)	ug/L	0.12	0.090	9845566
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	9845566
Dissolved Cobalt (Co)	ug/L	22	0.50	9845566
Dissolved Copper (Cu)	ug/L	3.4	0.90	9845566
Dissolved Lead (Pb)	ug/L	<0.50	0.50	9845566
Dissolved Molybdenum (Mo)	ug/L	12	0.50	9845566
Dissolved Nickel (Ni)	ug/L	8.0	1.0	9845566
Dissolved Selenium (Se)	ug/L	<2.0	2.0	9845566
Dissolved Silver (Ag)	ug/L	<0.090	0.090	9845566
Dissolved Sodium (Na)	ug/L	73000	100	9845566
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	9845566
Dissolved Uranium (U)	ug/L	0.50	0.10	9845566
Dissolved Vanadium (V)	ug/L	<0.50	0.50	9845566
Dissolved Zinc (Zn)	ug/L	33	5.0	9845566

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PAHS (WATER)

Bureau Veritas ID		AMLI61		
Sampling Date		2024/12/20		
COC Number		N/A		
	UNITS	**FILTRED**	**RDL**	**QC Batch**
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/L	<0.67	0.67	9843311
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	<0.80 (1)	0.80	9845295
Acenaphthylene	ug/L	<0.060 (1)	0.060	9845295
Anthracene	ug/L	<0.50 (1)	0.50	9845295
Benzo(a)anthracene	ug/L	<0.050	0.050	9845295
Benzo(a)pyrene	ug/L	<0.0090	0.0090	9845295
Benzo(b/j)fluoranthene	ug/L	<0.050	0.050	9845295
Benzo(g,h,i)perylene	ug/L	0.080	0.050	9845295
Benzo(k)fluoranthene	ug/L	<0.050	0.050	9845295
Chrysene	ug/L	<0.050	0.050	9845295
Dibenzo(a,h)anthracene	ug/L	<0.050	0.050	9845295
Fluoranthene	ug/L	<0.20 (1)	0.20	9845295
Fluorene	ug/L	<0.050	0.050	9845295
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	9845295
1-Methylnaphthalene	ug/L	<0.30 (1)	0.30	9845295
2-Methylnaphthalene	ug/L	<0.60 (1)	0.60	9845295
Naphthalene	ug/L	<0.30 (1)	0.30	9845295
Phenanthrene	ug/L	<0.40 (1)	0.40	9845295
Pyrene	ug/L	0.74	0.050	9845295
Surrogate Recovery (%)				
D10-Anthracene	%	100		9845295
D14-Terphenyl (FS)	%	93		9845295
D8-Acenaphthylene	%	107		9845295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		AMLI61		
Sampling Date		2024/12/20		
COC Number		N/A		
	UNITS	**FILTRED**	**RDL**	**QC Batch**
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	9843312
Volatile Organics				
Acetone (2-Propanone)	ug/L	26	10	9845440
Benzene	ug/L	<0.17	0.17	9845440
Bromodichloromethane	ug/L	<0.50	0.50	9845440
Bromoform	ug/L	<1.0	1.0	9845440
Bromomethane	ug/L	<0.50	0.50	9845440
Carbon Tetrachloride	ug/L	<0.20	0.20	9845440
Chlorobenzene	ug/L	<0.20	0.20	9845440
Chloroform	ug/L	<0.20	0.20	9845440
Dibromochloromethane	ug/L	<0.50	0.50	9845440
1,2-Dichlorobenzene	ug/L	<0.50	0.50	9845440
1,3-Dichlorobenzene	ug/L	<0.50	0.50	9845440
1,4-Dichlorobenzene	ug/L	<0.50	0.50	9845440
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	9845440
1,1-Dichloroethane	ug/L	<0.20	0.20	9845440
1,2-Dichloroethane	ug/L	<0.50	0.50	9845440
1,1-Dichloroethylene	ug/L	<0.20	0.20	9845440
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	9845440
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	9845440
1,2-Dichloropropane	ug/L	<0.20	0.20	9845440
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	9845440
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	9845440
Ethylbenzene	ug/L	1.3	0.20	9845440
Ethylene Dibromide	ug/L	<0.20	0.20	9845440
Hexane	ug/L	<1.0	1.0	9845440
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	9845440
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	9845440
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	9845440
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	9845440
Styrene	ug/L	<0.50	0.50	9845440
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	9845440
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	9845440
Tetrachloroethylene	ug/L	<0.20	0.20	9845440
Toluene	ug/L	1.9	0.20	9845440
1,1,1-Trichloroethane	ug/L	<0.20	0.20	9845440

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		AMLI61		
Sampling Date		2024/12/20		
COC Number		N/A		
	UNITS	**FILTRED**	**RDL**	**QC Batch**
1,1,2-Trichloroethane	ug/L	<0.50	0.50	9845440
Trichloroethylene	ug/L	<0.20	0.20	9845440
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	9845440
Vinyl Chloride	ug/L	<0.20	0.20	9845440
p+m-Xylene	ug/L	6.8	0.20	9845440
o-Xylene	ug/L	5.6	0.20	9845440
Total Xylenes	ug/L	12	0.20	9845440
F1 (C6-C10)	ug/L	360	25	9845440
F1 (C6-C10) - BTEX	ug/L	350	25	9845440
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	120000	90	9845338
F3 (C16-C34 Hydrocarbons)	ug/L	66000	200	9845338
F4 (C34-C50 Hydrocarbons)	ug/L	12000	200	9845338
Reached Baseline at C50	ug/L	Yes		9845338
Surrogate Recovery (%)				
o-Terphenyl	%	106		9845338
4-Bromofluorobenzene	%	96		9845440
D4-1,2-Dichloroethane	%	103		9845440
D8-Toluene	%	100		9845440

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Job #: C4BP680
Report Date: 2025/01/02

exp Services Inc
Client Project #: OTT-00243705-C0
Sampler Initials: PO

TEST SUMMARY

Bureau Veritas ID: AMLI61
Sample ID: FILTRED
Matrix: Water

Collected: 2024/12/20
Shipped:
Received: 2024/12/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9843311	N/A	2024/12/30	Automated Statchk
1,3-Dichloropropene Sum	CALC	9843312	N/A	2024/12/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9845338	2024/12/24	2024/12/24	Anna Stuglik-Rolland
Dissolved Metals by ICPMS	ICP/MS	9845566	N/A	2025/01/02	Prempal Bhatti
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9845295	2024/12/24	2024/12/25	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9845440	N/A	2024/12/28	Xueming Jiang

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845295	D10-Anthracene	2024/12/25	102	50 - 130	108	50 - 130	108	%		
9845295	D14-Terphenyl (FS)	2024/12/25	103	50 - 130	104	50 - 130	107	%		
9845295	D8-Acenaphthylene	2024/12/25	101	50 - 130	103	50 - 130	98	%		
9845338	o-Terphenyl	2024/12/24	106	60 - 140	105	60 - 140	104	%		
9845440	4-Bromofluorobenzene	2024/12/28	101	70 - 130	100	70 - 130	99	%		
9845440	D4-1,2-Dichloroethane	2024/12/28	105	70 - 130	103	70 - 130	96	%		
9845440	D8-Toluene	2024/12/28	100	70 - 130	101	70 - 130	102	%		
9845295	1-Methylnaphthalene	2024/12/25	NC	50 - 130	88	50 - 130	<0.050	ug/L	NC	30
9845295	2-Methylnaphthalene	2024/12/25	NC	50 - 130	84	50 - 130	<0.050	ug/L	7.8	30
9845295	Acenaphthene	2024/12/25	100	50 - 130	97	50 - 130	<0.050	ug/L	NC	30
9845295	Acenaphthylene	2024/12/25	104	50 - 130	100	50 - 130	<0.050	ug/L	NC	30
9845295	Anthracene	2024/12/25	103	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(a)anthracene	2024/12/25	112	50 - 130	110	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(a)pyrene	2024/12/25	111	50 - 130	110	50 - 130	<0.0090	ug/L	NC	30
9845295	Benzo(b/j)fluoranthene	2024/12/25	110	50 - 130	109	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(g,h,i)perylene	2024/12/25	113	50 - 130	111	50 - 130	<0.050	ug/L	NC	30
9845295	Benzo(k)fluoranthene	2024/12/25	107	50 - 130	106	50 - 130	<0.050	ug/L	NC	30
9845295	Chrysene	2024/12/25	103	50 - 130	103	50 - 130	<0.050	ug/L	NC	30
9845295	Dibenzo(a,h)anthracene	2024/12/25	100	50 - 130	98	50 - 130	<0.050	ug/L	NC	30
9845295	Fluoranthene	2024/12/25	117	50 - 130	116	50 - 130	<0.050	ug/L	NC	30
9845295	Fluorene	2024/12/25	108	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
9845295	Indeno(1,2,3-cd)pyrene	2024/12/25	114	50 - 130	115	50 - 130	<0.050	ug/L	NC	30
9845295	Naphthalene	2024/12/25	NC	50 - 130	83	50 - 130	<0.050	ug/L	2.8	30
9845295	Phenanthrene	2024/12/25	105	50 - 130	104	50 - 130	<0.030	ug/L	NC	30
9845295	Pyrene	2024/12/25	115	50 - 130	114	50 - 130	<0.050	ug/L	NC	30
9845338	F2 (C10-C16 Hydrocarbons)	2024/12/24	108	60 - 140	105	60 - 140	<90	ug/L	NC	30
9845338	F3 (C16-C34 Hydrocarbons)	2024/12/24	109	60 - 140	108	60 - 140	<200	ug/L	NC	30
9845338	F4 (C34-C50 Hydrocarbons)	2024/12/24	103	60 - 140	98	60 - 140	<200	ug/L	NC	30
9845440	1,1,1,2-Tetrachloroethane	2024/12/28	91	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
9845440	1,1,1-Trichloroethane	2024/12/28	82	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
9845440	1,1,2,2-Tetrachloroethane	2024/12/28	84	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
9845440	1,1,2-Trichloroethane	2024/12/28	90	70 - 130	106	70 - 130	<0.50	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845440	1,1-Dichloroethane	2024/12/28	81	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
9845440	1,1-Dichloroethylene	2024/12/28	81	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
9845440	1,2-Dichlorobenzene	2024/12/28	85	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9845440	1,2-Dichloroethane	2024/12/28	89	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
9845440	1,2-Dichloropropane	2024/12/28	83	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
9845440	1,3-Dichlorobenzene	2024/12/28	84	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
9845440	1,4-Dichlorobenzene	2024/12/28	85	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9845440	Acetone (2-Propanone)	2024/12/28	89	60 - 140	102	60 - 140	<10	ug/L	NC	30
9845440	Benzene	2024/12/28	83	70 - 130	101	70 - 130	<0.17	ug/L	NC	30
9845440	Bromodichloromethane	2024/12/28	84	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
9845440	Bromoform	2024/12/28	88	70 - 130	104	70 - 130	<1.0	ug/L	NC	30
9845440	Bromomethane	2024/12/28	78	60 - 140	95	60 - 140	<0.50	ug/L	NC	30
9845440	Carbon Tetrachloride	2024/12/28	89	70 - 130	109	70 - 130	<0.20	ug/L	NC	30
9845440	Chlorobenzene	2024/12/28	77	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
9845440	Chloroform	2024/12/28	85	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9845440	cis-1,2-Dichloroethylene	2024/12/28	86	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
9845440	cis-1,3-Dichloropropene	2024/12/28	72	70 - 130	82	70 - 130	<0.30	ug/L	NC	30
9845440	Dibromochloromethane	2024/12/28	89	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
9845440	Dichlorodifluoromethane (FREON 12)	2024/12/28	86	60 - 140	125	60 - 140	<1.0	ug/L	NC	30
9845440	Ethylbenzene	2024/12/28	80	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9845440	Ethylene Dibromide	2024/12/28	86	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
9845440	F1 (C6-C10) - BTEX	2024/12/28					<25	ug/L	NC	30
9845440	F1 (C6-C10)	2024/12/28	94	60 - 140	100	60 - 140	<25	ug/L	NC	30
9845440	Hexane	2024/12/28	89	70 - 130	112	70 - 130	<1.0	ug/L	NC	30
9845440	Methyl Ethyl Ketone (2-Butanone)	2024/12/28	96	60 - 140	111	60 - 140	<10	ug/L	NC	30
9845440	Methyl Isobutyl Ketone	2024/12/28	86	70 - 130	101	70 - 130	<5.0	ug/L	NC	30
9845440	Methyl t-butyl ether (MTBE)	2024/12/28	82	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
9845440	Methylene Chloride(Dichloromethane)	2024/12/28	83	70 - 130	100	70 - 130	<2.0	ug/L	NC	30
9845440	o-Xylene	2024/12/28	85	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9845440	p+m-Xylene	2024/12/28	81	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9845440	Styrene	2024/12/28	80	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
9845440	Tetrachloroethylene	2024/12/28	81	70 - 130	98	70 - 130	<0.20	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845440	Toluene	2024/12/28	84	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
9845440	Total Xylenes	2024/12/28					<0.20	ug/L	NC	30
9845440	trans-1,2-Dichloroethylene	2024/12/28	84	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
9845440	trans-1,3-Dichloropropene	2024/12/28	79	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
9845440	Trichloroethylene	2024/12/28	84	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
9845440	Trichlorofluoromethane (FREON 11)	2024/12/28	82	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
9845440	Vinyl Chloride	2024/12/28	79	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9845566	Dissolved Antimony (Sb)	2025/01/02	105	80 - 120	101	80 - 120	<0.50	ug/L		
9845566	Dissolved Arsenic (As)	2025/01/02	103	80 - 120	101	80 - 120	<1.0	ug/L		
9845566	Dissolved Barium (Ba)	2025/01/02	102	80 - 120	99	80 - 120	<2.0	ug/L		
9845566	Dissolved Beryllium (Be)	2025/01/02	104	80 - 120	100	80 - 120	<0.40	ug/L		
9845566	Dissolved Boron (B)	2025/01/02	98	80 - 120	94	80 - 120	<10	ug/L		
9845566	Dissolved Cadmium (Cd)	2025/01/02	101	80 - 120	98	80 - 120	<0.090	ug/L		
9845566	Dissolved Chromium (Cr)	2025/01/02	103	80 - 120	101	80 - 120	<5.0	ug/L		
9845566	Dissolved Cobalt (Co)	2025/01/02	99	80 - 120	99	80 - 120	<0.50	ug/L		
9845566	Dissolved Copper (Cu)	2025/01/02	103	80 - 120	102	80 - 120	<0.90	ug/L		
9845566	Dissolved Lead (Pb)	2025/01/02	98	80 - 120	96	80 - 120	<0.50	ug/L	NC	20
9845566	Dissolved Molybdenum (Mo)	2025/01/02	105	80 - 120	101	80 - 120	<0.50	ug/L		
9845566	Dissolved Nickel (Ni)	2025/01/02	96	80 - 120	97	80 - 120	<1.0	ug/L		
9845566	Dissolved Selenium (Se)	2025/01/02	101	80 - 120	99	80 - 120	<2.0	ug/L		
9845566	Dissolved Silver (Ag)	2025/01/02	99	80 - 120	97	80 - 120	<0.090	ug/L		
9845566	Dissolved Sodium (Na)	2025/01/02	102	80 - 120	102	80 - 120	<100	ug/L		
9845566	Dissolved Thallium (Tl)	2025/01/02	99	80 - 120	97	80 - 120	<0.050	ug/L		
9845566	Dissolved Uranium (U)	2025/01/02	100	80 - 120	96	80 - 120	<0.10	ug/L		
9845566	Dissolved Vanadium (V)	2025/01/02	103	80 - 120	101	80 - 120	<0.50	ug/L		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9845566	Dissolved Zinc (Zn)	2025/01/02	99	80 - 120	99	80 - 120	<5.0	ug/L		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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C4BP680
2024/12/20 16:00

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Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD
ENV COC - 00014v6

508

NONT-2024-12-4538

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information	
Company:	EXP SERVICES INC	Company:	EXP SERVICES INC	Quotation #:	STREAM 3
Contact Name:	Accounts Payable	Contact Name:	Chris Kimmerly	P.O. #/ AFE#:	
Street Address:	2650 Queensview Dr	Street Address:	2650 Queensview Rd.	Project #:	OTT-00243705-C0
City:	OTTAWA Prov: ON Postal Code:	City:	OTTAWA Prov: ON. Postal Code:	Site #:	
Phone:	613-688-1899	Phone:	613-688-1899	Site Location:	
Email:	AP@exp.com	Email:	Chris.Kimmerly@exp.com	Site Location Province:	
Copies:		Copies:	Philip.Oliveira@exp.com	Sampled By:	Philip Oliveira

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Res/Park ☐ Med/Fine; ☐ Table 2 ☐ Ind/Comm ☐ Coarse; ☐ Table 3 ☐ Agri/other ☐ For RSC; ☐ Table ____

OTHER: ☐ CCME ☐ Reg 558* *min 3 day TAT ☐ MISA ☐ PWQO ☐ Reg 406, Table: ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ☐ Other:

Include Criteria on Certificate of Analysis (check if yes): ☐

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

#	Sample Identification (Please print or Type)	YYYY	MM	DD	HH	MM	Matrix	FIELD FILTERED	FIELD PRESERVED	LAB FILTRATION REQUIRED	PAHs (PAE)	PHC F1-F4 (PHC)	VOCs	Reg 153 metals and inorganics	Reg 153 ICPMS metals	Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS-B) (PAH)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	Comments
1	FILTERED	2024	12	20			Water			X	X	X	X	X		X	7		
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Regular Turnaround Time (TAT): ☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply: ☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

Received in Ottawa

LAB USE ONLY	Yes	No	°C	Ice packs
Seal present		✓		1: 5
Seal intact		✓		2: 6
Cooling media present				3: 4

LAB USE ONLY	Yes	No	°C	
Seal present	✓			1: 4
Seal intact	✓			2: 1
Cooling media present	✓			3: 3

LAB USE ONLY	Yes	No	°C	
Seal present				1:
Seal intact				2:
Cooling media present				3:

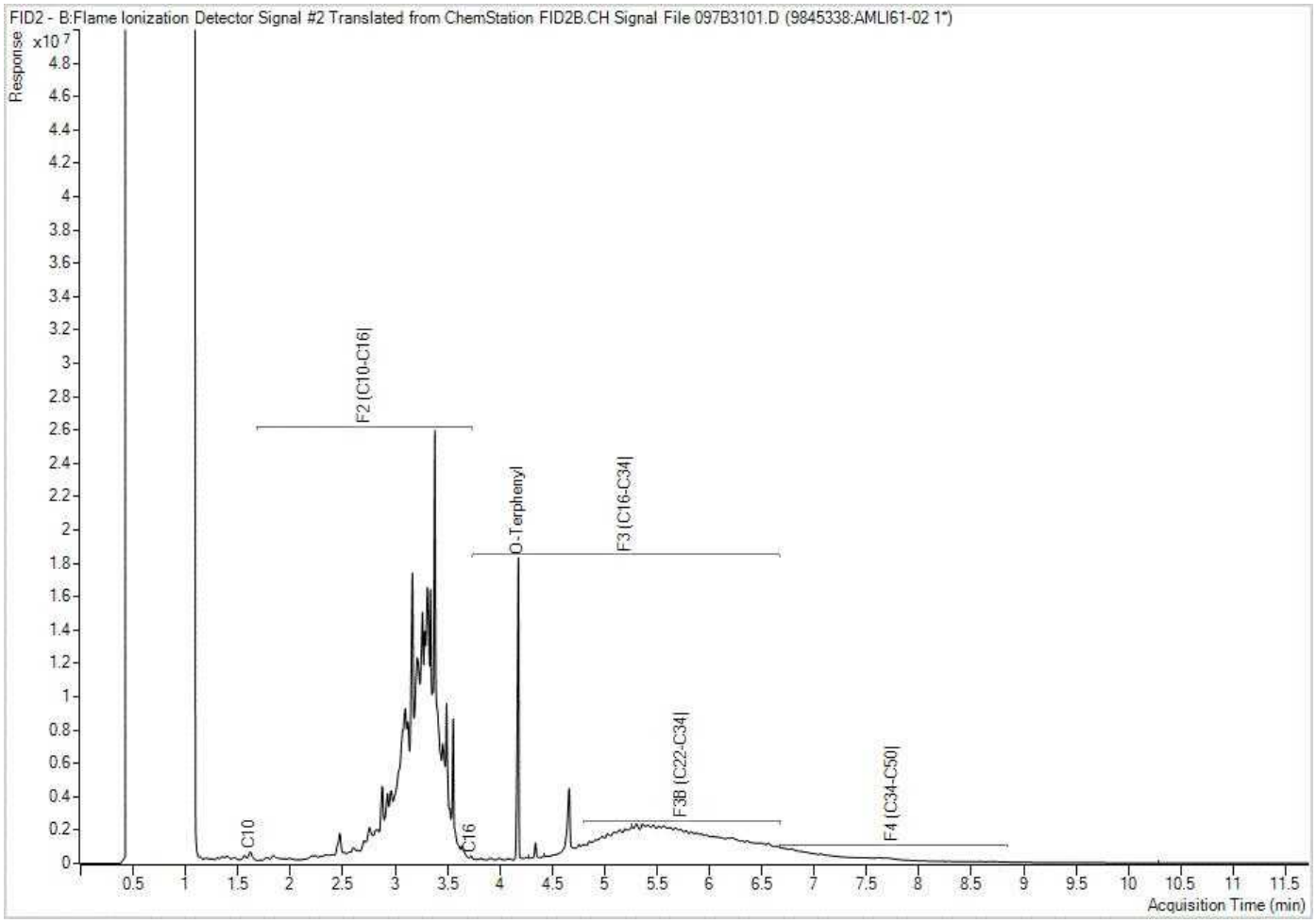
Temperature reading by:

	Relinquished by: (Signature/ Print)	YYYY	MM	DD	HH	MM	Received by: (Signature/ Print)	YYYY	MM	DD	HH	MM	Special instructions
1	[signature]	2024	12	20	15	55	Angelica Santiago (18)	2024	12	20	16	00	
2	Philip Oliveira						[signature] Sugar Salvan	2024	12	21	08	32	

Bureau Veritas Job #: C4BP680
Report Date: 2025/01/02
Bureau Veritas Sample: AMLI61

exp Services Inc
Client Project #: OTT-00243705-C0
Client ID: FILTRED

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: OTT-00243705-B0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/07/15
Report #: R8234812
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K9181
Received: 2024/07/09, 16:57

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	1	N/A	2024/07/12	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	3	N/A	2024/07/13		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water (1)	1	N/A	2024/07/11	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	4	2024/07/11	2024/07/12	CAM SOP-00316	CCME PHC-CWS m
Total Metals Analysis by ICPMS (1)	1	2024/07/12	2024/07/12	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM) (1)	1	2024/07/11	2024/07/12	CAM SOP-00318	EPA 8270E
Volatile Organic Compounds and F1 PHCs (1)	3	N/A	2024/07/12	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data

Your Project #: OTT-00243705-B0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/07/15
Report #: R8234812
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K9181
Received: 2024/07/09, 16:57
reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		ZRH739		
Sampling Date		2024/07/09 14:30		
COC Number		N/A		
	UNITS	**SUMP RAW**	**RDL**	**QC Batch**
Metals				
Total Aluminum (Al)	ug/L	5100	4.9	9510530
Total Antimony (Sb)	ug/L	39	0.50	9510530
Total Arsenic (As)	ug/L	4.6	1.0	9510530
Total Barium (Ba)	ug/L	400	2.0	9510530
Total Beryllium (Be)	ug/L	<0.40	0.40	9510530
Total Bismuth (Bi)	ug/L	1.1	1.0	9510530
Total Boron (B)	ug/L	170	10	9510530
Total Cadmium (Cd)	ug/L	3.5	0.090	9510530
Total Calcium (Ca)	ug/L	140000	200	9510530
Total Chromium (Cr)	ug/L	63	5.0	9510530
Total Cobalt (Co)	ug/L	830	0.50	9510530
Total Copper (Cu)	ug/L	820	0.90	9510530
Total Iron (Fe)	ug/L	32000	100	9510530
Total Lead (Pb)	ug/L	32	0.50	9510530
Total Lithium (Li)	ug/L	20	5.0	9510530
Total Magnesium (Mg)	ug/L	33000	50	9510530
Total Manganese (Mn)	ug/L	540	2.0	9510530
Total Molybdenum (Mo)	ug/L	120	0.50	9510530
Total Nickel (Ni)	ug/L	200	1.0	9510530
Total Potassium (K)	ug/L	7400	200	9510530
Total Selenium (Se)	ug/L	<2.0	2.0	9510530
Total Silicon (Si)	ug/L	9600	50	9510530
Total Silver (Ag)	ug/L	2.4	0.090	9510530
Total Sodium (Na)	ug/L	28000	100	9510530
Total Strontium (Sr)	ug/L	1800	1.0	9510530
Total Tellurium (Te)	ug/L	<1.0	1.0	9510530
Total Thallium (Tl)	ug/L	0.061	0.050	9510530
Total Tin (Sn)	ug/L	24	1.0	9510530
Total Titanium (Ti)	ug/L	170	5.0	9510530
Total Tungsten (W)	ug/L	5700	50	9510530
Total Uranium (U)	ug/L	2.0	0.10	9510530
Total Vanadium (V)	ug/L	13	0.50	9510530
Total Zinc (Zn)	ug/L	1600	5.0	9510530
Total Zirconium (Zr)	ug/L	7.7	1.0	9510530

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PAHS (WATER)

Bureau Veritas ID		ZRH739		
Sampling Date		2024/07/09 14:30		
COC Number		N/A		
	UNITS	**SUMP RAW**	**RDL**	**QC Batch**
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/L	<3.2	3.2	9505169
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	<1.0 (1)	1.0	9508562
Acenaphthylene	ug/L	<0.50	0.50	9508562
Anthracene	ug/L	<0.50	0.50	9508562
Benzo(a)anthracene	ug/L	<0.50	0.50	9508562
Benzo(a)pyrene	ug/L	<0.090	0.090	9508562
Benzo(b/j)fluoranthene	ug/L	<0.50	0.50	9508562
Benzo(g,h,i)perylene	ug/L	<0.50	0.50	9508562
Benzo(k)fluoranthene	ug/L	<0.50	0.50	9508562
Chrysene	ug/L	<0.50	0.50	9508562
Dibenzo(a,h)anthracene	ug/L	<0.50	0.50	9508562
Fluoranthene	ug/L	0.73	0.50	9508562
Fluorene	ug/L	<0.60 (1)	0.60	9508562
Indeno(1,2,3-cd)pyrene	ug/L	<0.50	0.50	9508562
1-Methylnaphthalene	ug/L	1.9	0.50	9508562
2-Methylnaphthalene	ug/L	<3.2 (1)	3.2	9508562
Naphthalene	ug/L	5.2	0.50	9508562
Phenanthrene	ug/L	1.8	0.30	9508562
Pyrene	ug/L	3.6	0.50	9508562
Surrogate Recovery (%)				
D10-Anthracene	%	98		9508562
D14-Terphenyl (FS)	%	59		9508562
D8-Acenaphthylene	%	80		9508562

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		ZRH738			ZRH738		
Sampling Date		2024/07/09 14:15			2024/07/09 14:15		
COC Number		N/A			N/A		
	UNITS	**MW-3**	**RDL**	**QC Batch**	**MW-3 Lab-Dup**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons							
Benzene	ug/L	<0.20	0.20	9509365	<0.20	0.20	9509365
Toluene	ug/L	<0.20	0.20	9509365	<0.20	0.20	9509365
Ethylbenzene	ug/L	<0.20	0.20	9509365	<0.20	0.20	9509365
o-Xylene	ug/L	<0.20	0.20	9509365	<0.20	0.20	9509365
p+m-Xylene	ug/L	<0.40	0.40	9509365	<0.40	0.40	9509365
Total Xylenes	ug/L	<0.40	0.40	9509365	<0.40	0.40	9509365
F1 (C6-C10)	ug/L	<25	25	9509365	<25	25	9509365
F1 (C6-C10) - BTEX	ug/L	<25	25	9509365	<25	25	9509365
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	9510391			
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	9510391			
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	9510391			
Reached Baseline at C50	ug/L	Yes		9510391			
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	108		9509365	110		9509365
4-Bromofluorobenzene	%	98		9509365	99		9509365
D10-o-Xylene	%	104		9509365	107		9509365
D4-1,2-Dichloroethane	%	109		9509365	105		9509365
o-Terphenyl	%	100		9510391			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZRH736	ZRH737			ZRH739		
Sampling Date		2024/07/09 13:30	2024/07/09 12:20			2024/07/09 14:30		
COC Number		N/A	N/A			N/A		
	UNITS	**MW-1**	**MW-2**	**RDL**	**QC Batch**	**SUMP RAW**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	9506389	<1.0	1.0	9506389
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	<10	10	9510653	770	20	9510653
Benzene	ug/L	<0.17	<0.17	0.17	9510653	<0.34	0.34	9510653
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Bromoform	ug/L	<1.0	<1.0	1.0	9510653	<2.0	2.0	9510653
Bromomethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Chlorobenzene	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Chloroform	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	9510653	<2.0	2.0	9510653
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	9510653	<0.60	0.60	9510653
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	9510653	<0.80	0.80	9510653
Ethylbenzene	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Hexane	ug/L	<1.0	<1.0	1.0	9510653	<2.0	2.0	9510653
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	9510653	<4.0	4.0	9510653
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	9510653	140	20	9510653
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	9510653	<10	10	9510653
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Styrene	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Tetrachloroethylene	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Toluene	ug/L	<0.20	<0.20	0.20	9510653	3.1	0.40	9510653

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZRH736	ZRH737			ZRH739		
Sampling Date		2024/07/09 13:30	2024/07/09 12:20			2024/07/09 14:30		
COC Number		N/A	N/A			N/A		
	UNITS	**MW-1**	**MW-2**	**RDL**	**QC Batch**	**SUMP RAW**	**RDL**	**QC Batch**
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Trichloroethylene	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	9510653	<1.0	1.0	9510653
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
p+m-Xylene	ug/L	<0.20	<0.20	0.20	9510653	0.67	0.40	9510653
o-Xylene	ug/L	<0.20	<0.20	0.20	9510653	<0.40	0.40	9510653
Total Xylenes	ug/L	<0.20	<0.20	0.20	9510653	0.67	0.40	9510653
F1 (C6-C10)	ug/L	<25	<25	25	9510653	200	50	9510653
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	9510653	190	50	9510653
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	9510391	330000	100	9508564
F3 (C16-C34 Hydrocarbons)	ug/L	300	<200	200	9510391	330000	200	9508564
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	9510391	57000	200	9508564
Reached Baseline at C50	ug/L	Yes	Yes		9510391	Yes		9508564
Surrogate Recovery (%)								
o-Terphenyl	%	102	100		9510391	97		9508564
4-Bromofluorobenzene	%	87	87		9510653	86		9510653
D4-1,2-Dichloroethane	%	115	113		9510653	114		9510653
D8-Toluene	%	88	89		9510653	91		9510653

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

Bureau Veritas ID: ZRH736 **Collected:** 2024/07/09
Sample ID: MW-1 **Shipped:**
Matrix: Water **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9506389	N/A	2024/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9510391	2024/07/11	2024/07/12	Mohammed Abdul Nafay Shoeb
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9510653	N/A	2024/07/12	Xueming Jiang

Bureau Veritas ID: ZRH737 **Collected:** 2024/07/09
Sample ID: MW-2 **Shipped:**
Matrix: Water **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9506389	N/A	2024/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9510391	2024/07/11	2024/07/12	Mohammed Abdul Nafay Shoeb
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9510653	N/A	2024/07/12	Xueming Jiang

Bureau Veritas ID: ZRH738 **Collected:** 2024/07/09
Sample ID: MW-3 **Shipped:**
Matrix: Water **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	9509365	N/A	2024/07/11	Domnica Andronescu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9510391	2024/07/11	2024/07/12	Mohammed Abdul Nafay Shoeb

Bureau Veritas ID: ZRH738 Dup **Collected:** 2024/07/09
Sample ID: MW-3 **Shipped:**
Matrix: Water **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	9509365	N/A	2024/07/11	Domnica Andronescu

Bureau Veritas ID: ZRH739 **Collected:** 2024/07/09
Sample ID: SUMP RAW **Shipped:**
Matrix: Water **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9505169	N/A	2024/07/12	Automated Statchk
1,3-Dichloropropene Sum	CALC	9506389	N/A	2024/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9508564	2024/07/11	2024/07/12	(Kent) Maolin Li
Total Metals Analysis by ICPMS	ICP/MS	9510530	2024/07/12	2024/07/12	Indira HarryPaul
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9508562	2024/07/11	2024/07/12	Jonghan Yoon
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9510653	N/A	2024/07/12	Xueming Jiang

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C

Sample ZRH739 [SUMP RAW] : PAH ANALYSIS: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.
VOC/F1 Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9508562	D10-Anthracene	2024/07/11	115	50 - 130	109	50 - 130	113	%		
9508562	D14-Terphenyl (FS)	2024/07/11	126	50 - 130	119	50 - 130	124	%		
9508562	D8-Acenaphthylene	2024/07/11	104	50 - 130	97	50 - 130	102	%		
9508564	o-Terphenyl	2024/07/12	100	60 - 140	97	60 - 140	94	%		
9509365	1,4-Difluorobenzene	2024/07/11	107	70 - 130	103	70 - 130	108	%		
9509365	4-Bromofluorobenzene	2024/07/11	99	70 - 130	98	70 - 130	98	%		
9509365	D10-o-Xylene	2024/07/11	108	70 - 130	106	70 - 130	99	%		
9509365	D4-1,2-Dichloroethane	2024/07/11	103	70 - 130	101	70 - 130	106	%		
9510391	o-Terphenyl	2024/07/12	102	60 - 140	103	60 - 140	100	%		
9510653	4-Bromofluorobenzene	2024/07/12	98	70 - 130	99	70 - 130	88	%		
9510653	D4-1,2-Dichloroethane	2024/07/12	106	70 - 130	103	70 - 130	108	%		
9510653	D8-Toluene	2024/07/12	102	70 - 130	105	70 - 130	88	%		
9508562	1-Methylnaphthalene	2024/07/11	99	50 - 130	93	50 - 130	<0.050	ug/L	NC	30
9508562	2-Methylnaphthalene	2024/07/11	101	50 - 130	94	50 - 130	<0.050	ug/L	NC	30
9508562	Acenaphthene	2024/07/11	114	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
9508562	Acenaphthylene	2024/07/11	111	50 - 130	103	50 - 130	<0.050	ug/L	NC	30
9508562	Anthracene	2024/07/11	116	50 - 130	108	50 - 130	<0.050	ug/L	NC	30
9508562	Benzo(a)anthracene	2024/07/11	115	50 - 130	107	50 - 130	<0.050	ug/L	NC	30
9508562	Benzo(a)pyrene	2024/07/11	104	50 - 130	98	50 - 130	<0.0090	ug/L	NC	30
9508562	Benzo(b/j)fluoranthene	2024/07/11	108	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
9508562	Benzo(g,h,i)perylene	2024/07/11	90	50 - 130	87	50 - 130	<0.050	ug/L	NC	30
9508562	Benzo(k)fluoranthene	2024/07/11	101	50 - 130	95	50 - 130	<0.050	ug/L	NC	30
9508562	Chrysene	2024/07/11	107	50 - 130	102	50 - 130	<0.050	ug/L	NC	30
9508562	Dibenzo(a,h)anthracene	2024/07/11	82	50 - 130	81	50 - 130	<0.050	ug/L	NC	30
9508562	Fluoranthene	2024/07/11	128	50 - 130	118	50 - 130	<0.050	ug/L	NC	30
9508562	Fluorene	2024/07/11	112	50 - 130	101	50 - 130	<0.050	ug/L	NC	30
9508562	Indeno(1,2,3-cd)pyrene	2024/07/11	90	50 - 130	93	50 - 130	<0.050	ug/L	NC	30
9508562	Naphthalene	2024/07/11	110	50 - 130	102	50 - 130	<0.050	ug/L	NC	30
9508562	Phenanthrene	2024/07/11	119	50 - 130	109	50 - 130	<0.030	ug/L	NC	30
9508562	Pyrene	2024/07/11	125	50 - 130	116	50 - 130	<0.050	ug/L	NC	30
9508564	F2 (C10-C16 Hydrocarbons)	2024/07/12	97	60 - 140	93	60 - 140	<100	ug/L	NC	30
9508564	F3 (C16-C34 Hydrocarbons)	2024/07/12	105	60 - 140	101	60 - 140	<200	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9508564	F4 (C34-C50 Hydrocarbons)	2024/07/12	96	60 - 140	94	60 - 140	<200	ug/L	NC	30
9509365	Benzene	2024/07/11	106	50 - 140	102	50 - 140	<0.20	ug/L	NC	30
9509365	Ethylbenzene	2024/07/11	111	50 - 140	108	50 - 140	<0.20	ug/L	NC	30
9509365	F1 (C6-C10) - BTEX	2024/07/11					<25	ug/L	NC	30
9509365	F1 (C6-C10)	2024/07/11	109	60 - 140	106	60 - 140	<25	ug/L	NC	30
9509365	o-Xylene	2024/07/11	106	50 - 140	104	50 - 140	<0.20	ug/L	NC	30
9509365	p+m-Xylene	2024/07/11	104	50 - 140	102	50 - 140	<0.40	ug/L	NC	30
9509365	Toluene	2024/07/11	96	50 - 140	94	50 - 140	<0.20	ug/L	NC	30
9509365	Total Xylenes	2024/07/11					<0.40	ug/L	NC	30
9510391	F2 (C10-C16 Hydrocarbons)	2024/07/12	103	60 - 140	103	60 - 140	<100	ug/L	NC	30
9510391	F3 (C16-C34 Hydrocarbons)	2024/07/12	107	60 - 140	108	60 - 140	<200	ug/L	NC	30
9510391	F4 (C34-C50 Hydrocarbons)	2024/07/12	95	60 - 140	95	60 - 140	<200	ug/L	NC	30
9510530	Total Aluminum (Al)	2024/07/12	95	80 - 120	96	80 - 120	<4.9	ug/L	17	20
9510530	Total Antimony (Sb)	2024/07/12	102	80 - 120	104	80 - 120	<0.50	ug/L	NC	20
9510530	Total Arsenic (As)	2024/07/12	98	80 - 120	99	80 - 120	<1.0	ug/L	5.7	20
9510530	Total Barium (Ba)	2024/07/12	94	80 - 120	96	80 - 120	<2.0	ug/L	0.43	20
9510530	Total Beryllium (Be)	2024/07/12	99	80 - 120	99	80 - 120	<0.40	ug/L	NC	20
9510530	Total Bismuth (Bi)	2024/07/12	97	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
9510530	Total Boron (B)	2024/07/12	94	80 - 120	95	80 - 120	<10	ug/L	2.2	20
9510530	Total Cadmium (Cd)	2024/07/12	97	80 - 120	99	80 - 120	<0.090	ug/L	NC	20
9510530	Total Calcium (Ca)	2024/07/12	NC	80 - 120	99	80 - 120	<200	ug/L	2.4	20
9510530	Total Chromium (Cr)	2024/07/12	93	80 - 120	94	80 - 120	<5.0	ug/L	NC	20
9510530	Total Cobalt (Co)	2024/07/12	90	80 - 120	92	80 - 120	<0.50	ug/L	NC	20
9510530	Total Copper (Cu)	2024/07/12	89	80 - 120	91	80 - 120	<0.90	ug/L	NC	20
9510530	Total Iron (Fe)	2024/07/12	98	80 - 120	99	80 - 120	<100	ug/L	NC	20
9510530	Total Lead (Pb)	2024/07/12	94	80 - 120	95	80 - 120	<0.50	ug/L	4.4	20
9510530	Total Lithium (Li)	2024/07/12	99	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
9510530	Total Magnesium (Mg)	2024/07/12	101	80 - 120	101	80 - 120	<50	ug/L	4.7	20
9510530	Total Manganese (Mn)	2024/07/12	95	80 - 120	97	80 - 120	<2.0	ug/L	2.0	20
9510530	Total Molybdenum (Mo)	2024/07/12	93	80 - 120	94	80 - 120	<0.50	ug/L	6.3	20
9510530	Total Nickel (Ni)	2024/07/12	94	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
9510530	Total Potassium (K)	2024/07/12	96	80 - 120	98	80 - 120	<200	ug/L	7.6	20

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9510530	Total Selenium (Se)	2024/07/12	99	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
9510530	Total Silicon (Si)	2024/07/12	93	80 - 120	95	80 - 120	<50	ug/L	2.6	20
9510530	Total Silver (Ag)	2024/07/12	92	80 - 120	95	80 - 120	<0.090	ug/L	NC	20
9510530	Total Sodium (Na)	2024/07/12	99	80 - 120	102	80 - 120	<100	ug/L	5.8	20
9510530	Total Strontium (Sr)	2024/07/12	96	80 - 120	97	80 - 120	<1.0	ug/L	4.4	20
9510530	Total Tellurium (Te)	2024/07/12	96	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
9510530	Total Thallium (Tl)	2024/07/12	96	80 - 120	99	80 - 120	<0.050	ug/L	NC	20
9510530	Total Tin (Sn)	2024/07/12	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
9510530	Total Titanium (Ti)	2024/07/12	94	80 - 120	93	80 - 120	<5.0	ug/L	NC	20
9510530	Total Tungsten (W)	2024/07/12	92	80 - 120	93	80 - 120	<1.0	ug/L	NC	20
9510530	Total Uranium (U)	2024/07/12	100	80 - 120	102	80 - 120	<0.10	ug/L	4.7	20
9510530	Total Vanadium (V)	2024/07/12	96	80 - 120	98	80 - 120	<0.50	ug/L	4.9	20
9510530	Total Zinc (Zn)	2024/07/12	100	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
9510530	Total Zirconium (Zr)	2024/07/12	100	80 - 120	101	80 - 120	<1.0	ug/L	NC	20
9510653	1,1,1,2-Tetrachloroethane	2024/07/12	104	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
9510653	1,1,1-Trichloroethane	2024/07/12	109	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
9510653	1,1,2,2-Tetrachloroethane	2024/07/12	107	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
9510653	1,1,2-Trichloroethane	2024/07/12	108	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
9510653	1,1-Dichloroethane	2024/07/12	112	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
9510653	1,1-Dichloroethylene	2024/07/12	109	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
9510653	1,2-Dichlorobenzene	2024/07/12	104	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
9510653	1,2-Dichloroethane	2024/07/12	111	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
9510653	1,2-Dichloropropane	2024/07/12	103	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
9510653	1,3-Dichlorobenzene	2024/07/12	106	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
9510653	1,4-Dichlorobenzene	2024/07/12	112	70 - 130	112	70 - 130	<0.50	ug/L	NC	30
9510653	Acetone (2-Propanone)	2024/07/12	108	60 - 140	99	60 - 140	<10	ug/L	NC	30
9510653	Benzene	2024/07/12	104	70 - 130	102	70 - 130	<0.17	ug/L	NC	30
9510653	Bromodichloromethane	2024/07/12	108	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
9510653	Bromoform	2024/07/12	100	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
9510653	Bromomethane	2024/07/12	90	60 - 140	82	60 - 140	<0.50	ug/L	NC	30
9510653	Carbon Tetrachloride	2024/07/12	110	70 - 130	108	70 - 130	<0.20	ug/L	NC	30
9510653	Chlorobenzene	2024/07/12	98	70 - 130	97	70 - 130	<0.20	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9510653	Chloroform	2024/07/12	110	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9510653	cis-1,2-Dichloroethylene	2024/07/12	108	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
9510653	cis-1,3-Dichloropropene	2024/07/12	104	70 - 130	95	70 - 130	<0.30	ug/L	NC	30
9510653	Dibromochloromethane	2024/07/12	105	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9510653	Dichlorodifluoromethane (FREON 12)	2024/07/12	87	60 - 140	80	60 - 140	<1.0	ug/L	NC	30
9510653	Ethylbenzene	2024/07/12	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
9510653	Ethylene Dibromide	2024/07/12	107	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9510653	F1 (C6-C10) - BTEX	2024/07/12					<25	ug/L	NC	30
9510653	F1 (C6-C10)	2024/07/12	93	60 - 140	98	60 - 140	<25	ug/L	NC	30
9510653	Hexane	2024/07/12	109	70 - 130	109	70 - 130	<1.0	ug/L	NC	30
9510653	Methyl Ethyl Ketone (2-Butanone)	2024/07/12	110	60 - 140	104	60 - 140	<10	ug/L	NC	30
9510653	Methyl Isobutyl Ketone	2024/07/12	100	70 - 130	97	70 - 130	<5.0	ug/L	NC	30
9510653	Methyl t-butyl ether (MTBE)	2024/07/12	100	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
9510653	Methylene Chloride(Dichloromethane)	2024/07/12	110	70 - 130	105	70 - 130	<2.0	ug/L	NC	30
9510653	o-Xylene	2024/07/12	94	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
9510653	p+m-Xylene	2024/07/12	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
9510653	Styrene	2024/07/12	96	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
9510653	Tetrachloroethylene	2024/07/12	103	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
9510653	Toluene	2024/07/12	102	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
9510653	Total Xylenes	2024/07/12					<0.20	ug/L	NC	30
9510653	trans-1,2-Dichloroethylene	2024/07/12	106	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
9510653	trans-1,3-Dichloropropene	2024/07/12	111	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
9510653	Trichloroethylene	2024/07/12	105	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
9510653	Trichlorofluoromethane (FREON 11)	2024/07/12	101	70 - 130	99	70 - 130	<0.50	ug/L	NC	30

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9510653	Vinyl Chloride	2024/07/12	95	70 - 130	94	70 - 130	<0.20	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

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Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

Received in Ottawa

CHAIN OF CUSTODY RECORD

ENV COC - 00014v5

NONT-2024-07-827

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information	
Company:	EXP Services Inc	Company:	EXP Services Inc	Quotation #:	
Contact Name:	Accounts Payable	Contact Name:	Chris Kimmerly	P.O. #/ AFE#:	
Street Address:	2650 Queensview Dr	Street Address:	2650 Queensview Dr.	Project #:	OTT-00243705-B0
City:	Ottawa. Prov: Postal Code:	City:	Ottawa. Prov: Postal Code:	Site #:	
Phone:		Phone:	613-688-1899	Site Location:	
Email:		Email:	Chris.Kimmerly@exp.com	Site Location Province:	
Copies:		Copies:	Philip.Oliveira@exp.com	Sampled By:	Philip Oliveira

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table ___ ; ☐ Res/Park ☐ Ind/Comm ☐ Agri/other ; ☐ Med/Fine ☐ Coarse ☐ For RSC

OTHER: ☐ CCME ☐ Reg 558* *min 3 day TAT ☐ MISA ☐ PWQO ; ☐ Reg 406, Table: ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ☐ Other.

Include Criteria on Certificate of Analysis (check if yes): ☐

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Analysis columns: 1 Field Filtered; 2 Field Preserved; 3 Lab Filtration Required; 4 BTEX; 5 F2 - F4; 6 VOCs; 7 Reg 153 metals and Inorganics; 8 Reg 153 ICPMS metals; 9 Reg 153 metals (Hg, CrVI, ICPMS metals, HWS - B); 10 PAH; 11–20 (blank); 21 # of Containers Submitted; 22 Hold - Do Not Analyze

#	Sample Identification (Please print or Type)	YYYY	MM	DD	HH	MM	Matrix	1	2	3	4	5	6	7	8	9	10	11–20	21	22	Comments
1	MW-1	24	07	09	13	30	GW												4		
2	MW-2	↓	↓	↓	12	20	↓				X	X	X						4		PHC + VOC
3	MW-3	↓	↓	↓	14	15	↓				X	X							4		PHC + Btex
4	SUMP RAW	↓	↓	↓	14	30	↓				X	X	X	X			X		7		
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Regular Turnaround Time (TAT): ☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply: ☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

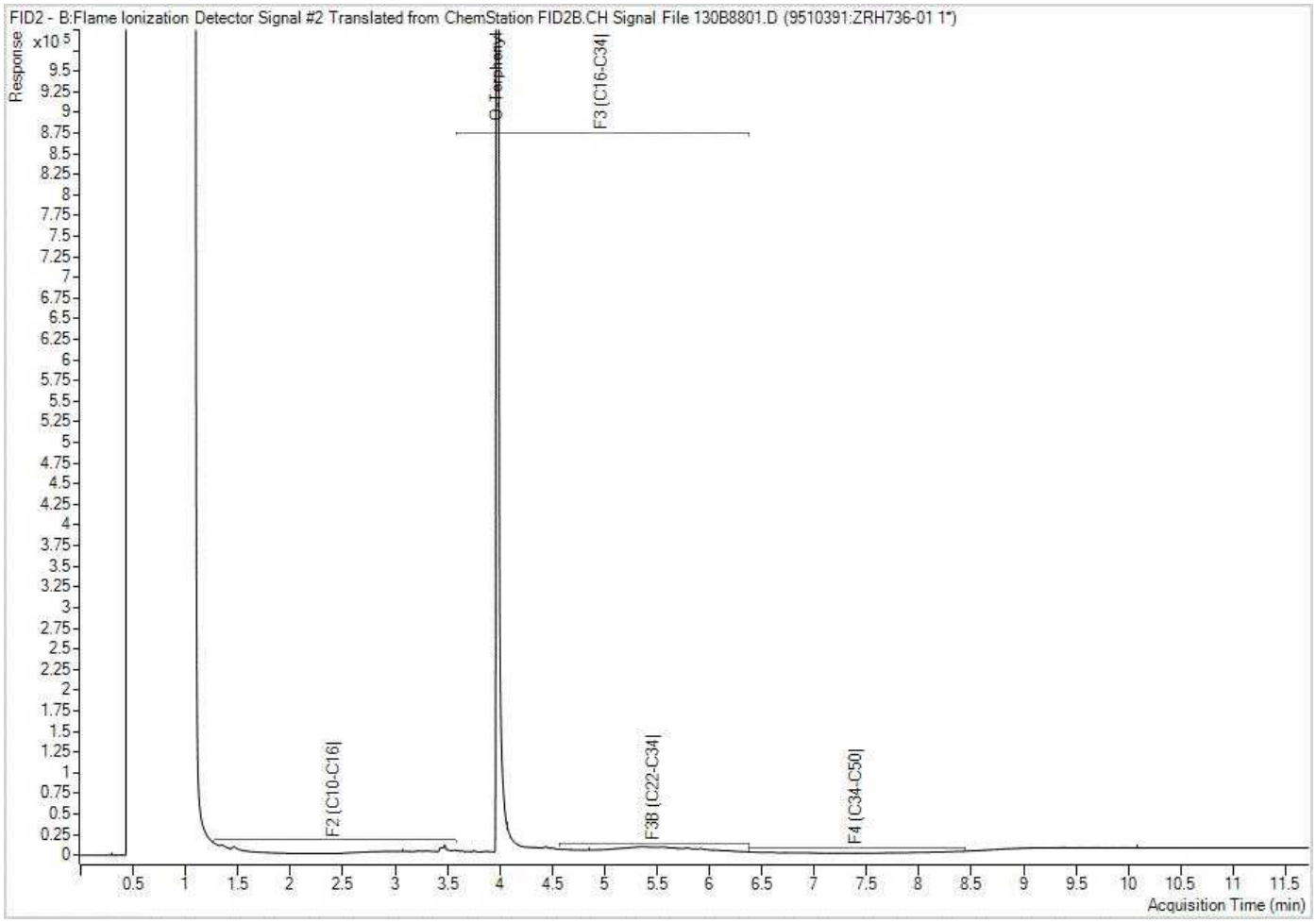
LAB USE ONLY	Yes	No	°C	1	2	3
Seal present		✓	ICE	7	7	10
Seal intact		✓				
Cooling media present	✓					

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present	—			1	2	2
Seal intact	—					
Cooling media present	—					

LAB USE ONLY	Yes	No	°C	1	2	3	Temperature reading by:
Seal present							
Seal intact							
Cooling media present							

	Relinquished by: (Signature/ Print)	YYYY	MM	DD	HH	MM	Received by: (Signature/ Print)	YYYY	MM	DD	HH	MM	Special instructions
1	Philip Oliveira	2024	07	09	17h.	00	Angelica Santiago BBJ	2024	07	09	16	57	
2							VIH VIMUSHTI PATEL	2024	07	10	8	39	

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

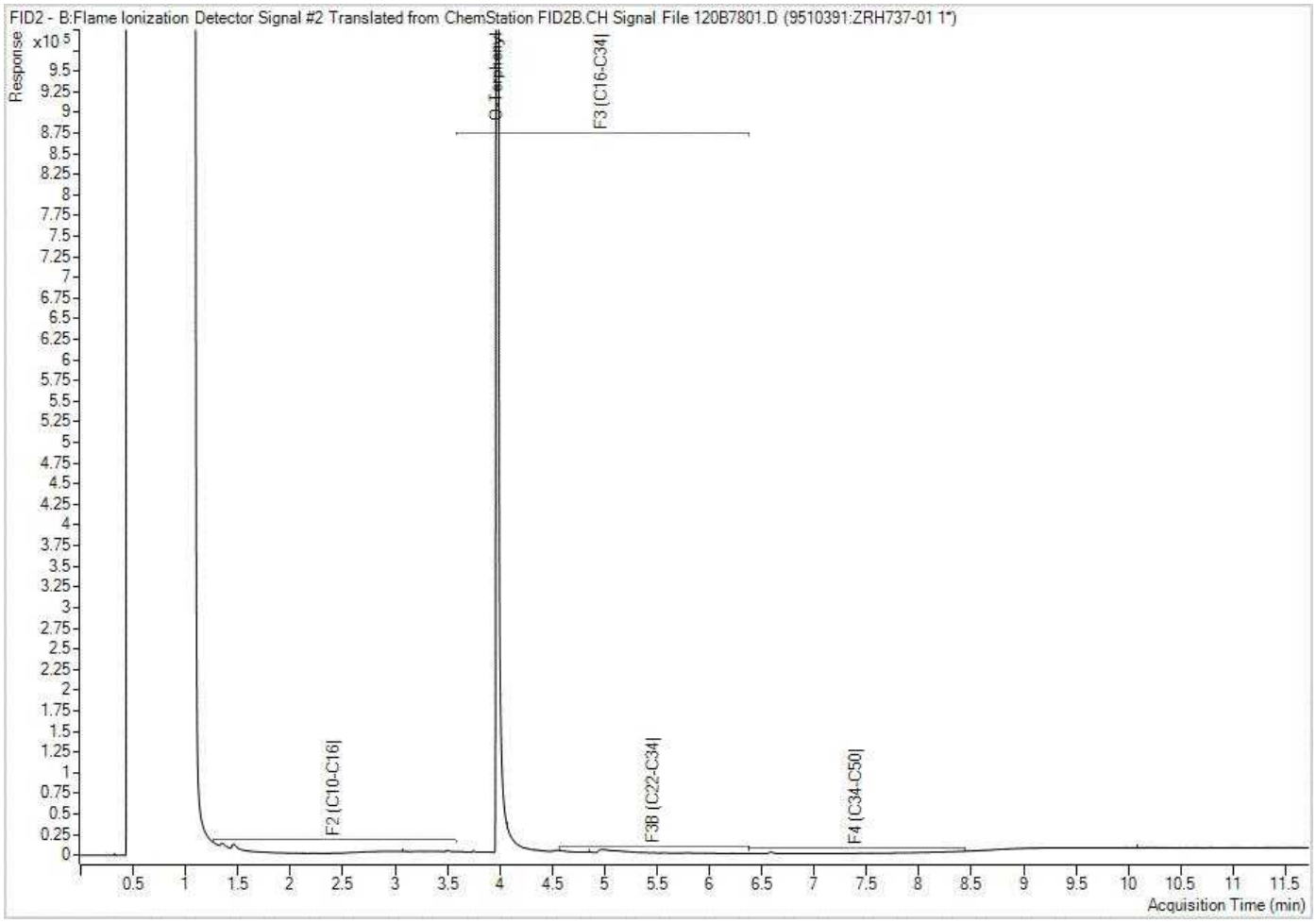


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4K9181
Report Date: 2024/07/15
Bureau Veritas Sample: ZRH737

exp Services Inc
Client Project #: OTT-00243705-B0
Client ID: MW-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

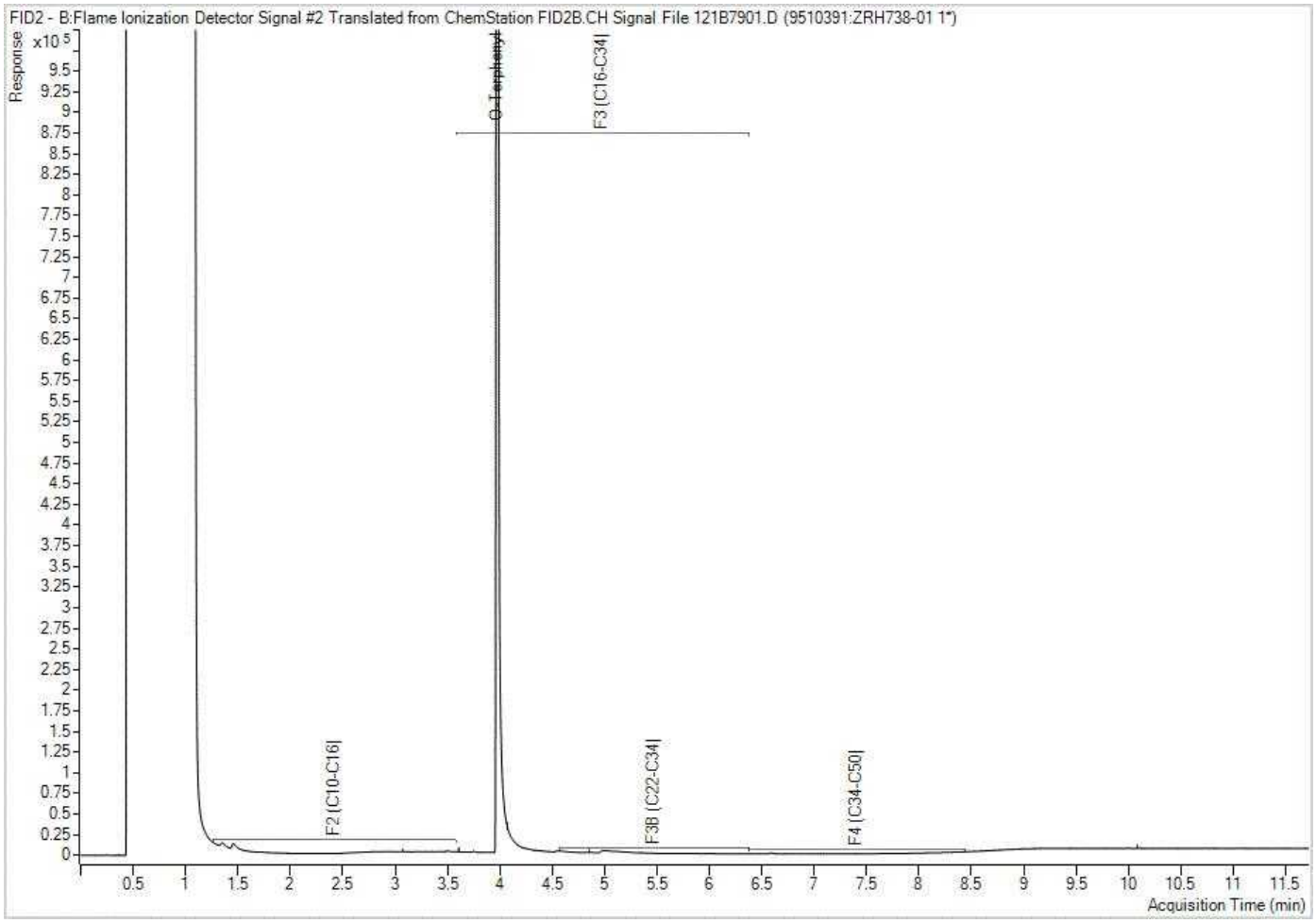


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4K9181
Report Date: 2024/07/15
Bureau Veritas Sample: ZRH738

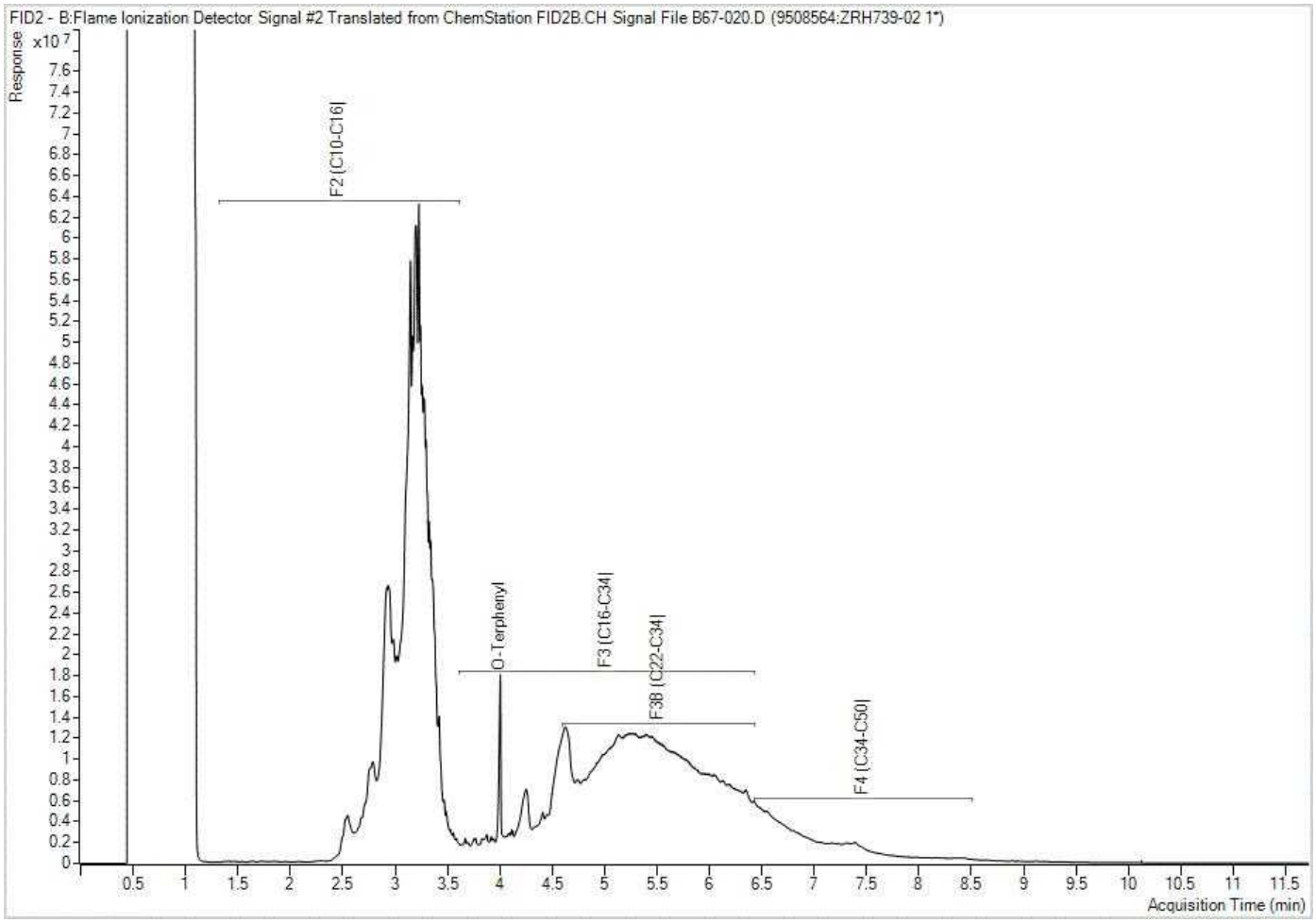
exp Services Inc
Client Project #: OTT-00243705-B0
Client ID: MW-3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: OTT-00243705-B0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/07/16
Report #: R8236343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K9189
Received: 2024/07/09, 16:57

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	1	N/A	2024/07/13	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	1	N/A	2024/07/16		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	1	2024/07/12	2024/07/12	CAM SOP-00316	CCME PHC-CWS m
PAH Compounds in Water by GC/MS (SIM) (1)	1	2024/07/12	2024/07/13	CAM SOP-00318	EPA 8270E
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2024/07/15	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: OTT-00243705-B0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/07/16
Report #: R8236343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K9189
Received: 2024/07/09, 16:57

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

==========

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

O.REG 153 PAHS (WATER)

Bureau Veritas ID		ZRH816		
Sampling Date		2024/07/09 14:45		
COC Number		N/A		
	UNITS	**SUMP FILTERED**	**RDL**	**QC Batch**
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/L	3.8	0.71	9505169
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	0.88	0.50	9510464
Acenaphthylene	ug/L	<0.50	0.50	9510464
Anthracene	ug/L	<0.50	0.50	9510464
Benzo(a)anthracene	ug/L	<0.50	0.50	9510464
Benzo(a)pyrene	ug/L	<0.090	0.090	9510464
Benzo(b/j)fluoranthene	ug/L	<0.50	0.50	9510464
Benzo(g,h,i)perylene	ug/L	<0.50	0.50	9510464
Benzo(k)fluoranthene	ug/L	<0.50	0.50	9510464
Chrysene	ug/L	<0.50	0.50	9510464
Dibenzo(a,h)anthracene	ug/L	<0.50	0.50	9510464
Fluoranthene	ug/L	<0.50	0.50	9510464
Fluorene	ug/L	<0.50	0.50	9510464
Indeno(1,2,3-cd)pyrene	ug/L	<0.50	0.50	9510464
1-Methylnaphthalene	ug/L	1.5	0.50	9510464
2-Methylnaphthalene	ug/L	2.3	0.50	9510464
Naphthalene	ug/L	<0.50	0.50	9510464
Phenanthrene	ug/L	1.2	0.30	9510464
Pyrene	ug/L	2.0	0.50	9510464
Surrogate Recovery (%)				
D10-Anthracene	%	127		9510464
D14-Terphenyl (FS)	%	73		9510464
D8-Acenaphthylene	%	100		9510464

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZRH816		
Sampling Date		2024/07/09 14:45		
COC Number		N/A		
	UNITS	**SUMP FILTERED**	**RDL**	**QC Batch**
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	9506389
Volatile Organics				
Acetone (2-Propanone)	ug/L	650	10	9511117
Benzene	ug/L	<0.17	0.17	9511117
Bromodichloromethane	ug/L	<0.50	0.50	9511117
Bromoform	ug/L	<1.0	1.0	9511117
Bromomethane	ug/L	<0.50	0.50	9511117
Carbon Tetrachloride	ug/L	<0.20	0.20	9511117
Chlorobenzene	ug/L	<0.20	0.20	9511117
Chloroform	ug/L	<0.20	0.20	9511117
Dibromochloromethane	ug/L	<0.50	0.50	9511117
1,2-Dichlorobenzene	ug/L	<0.50	0.50	9511117
1,3-Dichlorobenzene	ug/L	<0.50	0.50	9511117
1,4-Dichlorobenzene	ug/L	<0.50	0.50	9511117
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	9511117
1,1-Dichloroethane	ug/L	<0.20	0.20	9511117
1,2-Dichloroethane	ug/L	<0.50	0.50	9511117
1,1-Dichloroethylene	ug/L	<0.20	0.20	9511117
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	9511117
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	9511117
1,2-Dichloropropane	ug/L	<0.20	0.20	9511117
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	9511117
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	9511117
Ethylbenzene	ug/L	<0.20	0.20	9511117
Ethylene Dibromide	ug/L	<0.20	0.20	9511117
Hexane	ug/L	<1.0	1.0	9511117
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	9511117
Methyl Ethyl Ketone (2-Butanone)	ug/L	130	10	9511117
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	9511117
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	9511117
Styrene	ug/L	<0.50	0.50	9511117
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	9511117
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	9511117
Tetrachloroethylene	ug/L	<0.20	0.20	9511117
Toluene	ug/L	1.7	0.20	9511117

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZRH816		
Sampling Date		2024/07/09 14:45		
COC Number		N/A		
	UNITS	**SUMP FILTERED**	**RDL**	**QC Batch**
1,1,1-Trichloroethane	ug/L	<0.20	0.20	9511117
1,1,2-Trichloroethane	ug/L	<0.50	0.50	9511117
Trichloroethylene	ug/L	<0.20	0.20	9511117
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	9511117
Vinyl Chloride	ug/L	<0.20	0.20	9511117
p+m-Xylene	ug/L	0.47	0.20	9511117
o-Xylene	ug/L	0.26	0.20	9511117
Total Xylenes	ug/L	0.74	0.20	9511117
F1 (C6-C10)	ug/L	230	25	9511117
F1 (C6-C10) - BTEX	ug/L	230	25	9511117
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	110000	100	9510474
F3 (C16-C34 Hydrocarbons)	ug/L	78000	200	9510474
F4 (C34-C50 Hydrocarbons)	ug/L	14000	200	9510474
Reached Baseline at C50	ug/L	Yes		9510474
Surrogate Recovery (%)				
o-Terphenyl	%	99		9510474
4-Bromofluorobenzene	%	104		9511117
D4-1,2-Dichloroethane	%	117		9511117
D8-Toluene	%	89		9511117

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Job #: C4K9189
Report Date: 2024/07/16

exp Services Inc
Client Project #: OTT-00243705-B0
Sampler Initials: PO

TEST SUMMARY

Bureau Veritas ID: ZRH816
Sample ID: SUMP FILTERED
Matrix: Water

Collected: 2024/07/09
Shipped:
Received: 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9505169	N/A	2024/07/13	Automated Statchk
1,3-Dichloropropene Sum	CALC	9506389	N/A	2024/07/16	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9510474	2024/07/12	2024/07/12	Ksenia Trofimova
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9510464	2024/07/12	2024/07/13	Jiaxuan (Simon) Xi
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9511117	N/A	2024/07/15	Gladys Guerrero

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C

Sample ZRH816 [SUMP FILTERED] : PAH ANALYSIS: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9510464	D10-Anthracene	2024/07/12	108	50 - 130	106	50 - 130	106	%		
9510464	D14-Terphenyl (FS)	2024/07/12	103	50 - 130	115	50 - 130	117	%		
9510464	D8-Acenaphthylene	2024/07/12	101	50 - 130	96	50 - 130	95	%		
9510474	o-Terphenyl	2024/07/12	91	60 - 140	89	60 - 140	89	%		
9511117	4-Bromofluorobenzene	2024/07/15	101	70 - 130	103	70 - 130	98	%		
9511117	D4-1,2-Dichloroethane	2024/07/15	100	70 - 130	104	70 - 130	108	%		
9511117	D8-Toluene	2024/07/15	101	70 - 130	105	70 - 130	92	%		
9510464	1-Methylnaphthalene	2024/07/12	91	50 - 130	65	50 - 130	<0.050	ug/L		
9510464	2-Methylnaphthalene	2024/07/12	93	50 - 130	72	50 - 130	<0.050	ug/L		
9510464	Acenaphthene	2024/07/12	102	50 - 130	85	50 - 130	<0.050	ug/L		
9510464	Acenaphthylene	2024/07/12	96	50 - 130	83	50 - 130	<0.050	ug/L		
9510464	Anthracene	2024/07/12	79	50 - 130	95	50 - 130	<0.050	ug/L		
9510464	Benzo(a)anthracene	2024/07/12	105	50 - 130	97	50 - 130	<0.050	ug/L		
9510464	Benzo(a)pyrene	2024/07/12	98	50 - 130	91	50 - 130	<0.0090	ug/L		
9510464	Benzo(b/j)fluoranthene	2024/07/12	98	50 - 130	94	50 - 130	<0.050	ug/L		
9510464	Benzo(g,h,i)perylene	2024/07/12	77	50 - 130	73	50 - 130	<0.050	ug/L		
9510464	Benzo(k)fluoranthene	2024/07/12	98	50 - 130	92	50 - 130	<0.050	ug/L		
9510464	Chrysene	2024/07/12	99	50 - 130	93	50 - 130	<0.050	ug/L		
9510464	Dibenzo(a,h)anthracene	2024/07/12	78	50 - 130	67	50 - 130	<0.050	ug/L		
9510464	Fluoranthene	2024/07/12	107	50 - 130	105	50 - 130	<0.050	ug/L		
9510464	Fluorene	2024/07/12	98	50 - 130	87	50 - 130	<0.050	ug/L		
9510464	Indeno(1,2,3-cd)pyrene	2024/07/12	85	50 - 130	81	50 - 130	<0.050	ug/L		
9510464	Naphthalene	2024/07/12	93	50 - 130	76	50 - 130	<0.050	ug/L		
9510464	Phenanthrene	2024/07/12	108	50 - 130	95	50 - 130	<0.030	ug/L	NC	30
9510464	Pyrene	2024/07/12	112	50 - 130	104	50 - 130	<0.050	ug/L		
9510474	F2 (C10-C16 Hydrocarbons)	2024/07/12	94	60 - 140	93	60 - 140	<100	ug/L	NC	30
9510474	F3 (C16-C34 Hydrocarbons)	2024/07/12	96	60 - 140	94	60 - 140	<200	ug/L	NC	30
9510474	F4 (C34-C50 Hydrocarbons)	2024/07/12	88	60 - 140	85	60 - 140	<200	ug/L	NC	30
9511117	1,1,1,2-Tetrachloroethane	2024/07/15	97	70 - 130	108	70 - 130	<0.50	ug/L	NC	30
9511117	1,1,1-Trichloroethane	2024/07/15	99	70 - 130	109	70 - 130	<0.20	ug/L	NC	30
9511117	1,1,2,2-Tetrachloroethane	2024/07/15	97	70 - 130	111	70 - 130	<0.50	ug/L	NC	30
9511117	1,1,2-Trichloroethane	2024/07/15	101	70 - 130	109	70 - 130	<0.50	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9511117	1,1-Dichloroethane	2024/07/15	106	70 - 130	115	70 - 130	<0.20	ug/L	NC	30
9511117	1,1-Dichloroethylene	2024/07/15	104	70 - 130	111	70 - 130	<0.20	ug/L	NC	30
9511117	1,2-Dichlorobenzene	2024/07/15	90	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
9511117	1,2-Dichloroethane	2024/07/15	104	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
9511117	1,2-Dichloropropane	2024/07/15	107	70 - 130	113	70 - 130	<0.20	ug/L	NC	30
9511117	1,3-Dichlorobenzene	2024/07/15	93	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
9511117	1,4-Dichlorobenzene	2024/07/15	91	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
9511117	Acetone (2-Propanone)	2024/07/15	99	60 - 140	101	60 - 140	<10	ug/L	NC	30
9511117	Benzene	2024/07/15	101	70 - 130	105	70 - 130	<0.17	ug/L	NC	30
9511117	Bromodichloromethane	2024/07/15	99	70 - 130	108	70 - 130	<0.50	ug/L	NC	30
9511117	Bromoform	2024/07/15	92	70 - 130	104	70 - 130	<1.0	ug/L	NC	30
9511117	Bromomethane	2024/07/15	78	60 - 140	86	60 - 140	<0.50	ug/L	NC	30
9511117	Carbon Tetrachloride	2024/07/15	97	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
9511117	Chlorobenzene	2024/07/15	96	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
9511117	Chloroform	2024/07/15	98	70 - 130	108	70 - 130	<0.20	ug/L	NC	30
9511117	cis-1,2-Dichloroethylene	2024/07/15	102	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
9511117	cis-1,3-Dichloropropene	2024/07/15	101	70 - 130	97	70 - 130	<0.30	ug/L	NC	30
9511117	Dibromochloromethane	2024/07/15	97	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
9511117	Dichlorodifluoromethane (FREON 12)	2024/07/15	70	60 - 140	83	60 - 140	<1.0	ug/L	NC	30
9511117	Ethylbenzene	2024/07/15	101	70 - 130	93	70 - 130	<0.20	ug/L	0	30
9511117	Ethylene Dibromide	2024/07/15	101	70 - 130	108	70 - 130	<0.20	ug/L	NC	30
9511117	F1 (C6-C10) - BTEX	2024/07/15					<25	ug/L	4.0	30
9511117	F1 (C6-C10)	2024/07/15	NC	60 - 140	88	60 - 140	<25	ug/L	3.9	30
9511117	Hexane	2024/07/15	108	70 - 130	114	70 - 130	<1.0	ug/L	NC	30
9511117	Methyl Ethyl Ketone (2-Butanone)	2024/07/15	106	60 - 140	109	60 - 140	<10	ug/L	NC	30
9511117	Methyl Isobutyl Ketone	2024/07/15	100	70 - 130	104	70 - 130	<5.0	ug/L	NC	30
9511117	Methyl t-butyl ether (MTBE)	2024/07/15	104	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
9511117	Methylene Chloride(Dichloromethane)	2024/07/15	100	70 - 130	109	70 - 130	<2.0	ug/L	NC	30
9511117	o-Xylene	2024/07/15	94	70 - 130	96	70 - 130	<0.20	ug/L	1.5	30
9511117	p+m-Xylene	2024/07/15	97	70 - 130	95	70 - 130	<0.20	ug/L	1.8	30
9511117	Styrene	2024/07/15	74	70 - 130	76	70 - 130	<0.50	ug/L	NC	30
9511117	Tetrachloroethylene	2024/07/15	97	70 - 130	106	70 - 130	<0.20	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9511117	Toluene	2024/07/15	96	70 - 130	99	70 - 130	<0.20	ug/L	6.8	30
9511117	Total Xylenes	2024/07/15					<0.20	ug/L	1.6	30
9511117	trans-1,2-Dichloroethylene	2024/07/15	96	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
9511117	trans-1,3-Dichloropropene	2024/07/15	102	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
9511117	Trichloroethylene	2024/07/15	99	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
9511117	Trichlorofluoromethane (FREON 11)	2024/07/15	91	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
9511117	Vinyl Chloride	2024/07/15	86	70 - 130	97	70 - 130	<0.20	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

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CHAIN OF CUSTODY RECORD

ENV COC - 00014v5

NONT-2024-07-826

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information	
Company:	EXP SERVICES INC	Company:	EXP SERVICES INC	Quotation #:	Stream 3
Contact Name:	Accounts Payable	Contact Name:	Chris. Kimmerly	P.O. #/ AFE#:	
Street Address:	2650 QUEENSVIEW DR	Street Address:	2650 QUEENSVIEW DR.	Project #:	OTT-00243705-150
City:	OTTAWA Prov: Postal Code:	City:	OTTAWA Prov: ON Postal Code:	Site #:	
Phone:	613-688-1895	Phone:	613-688-1895	Site Location:	
Email:	/	Email:	Chris.Kimmerly@exp.com	Site Location Province:	
Copies:		Copies:	Philip.Oliveira@exp.com	Sampled By:	Philip Oliveira

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table ____ ☐ Res/Park ☐ Ind/Comm ☐ Agri/other ☐ Med/Fine ☐ Coarse ☐ For RSC

OTHER: ☐ CCME ☐ Reg 558* ☐ MISA ☐ PWQO ☐ Reg 406, Table: ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ____ ☐ Other: *min 3 day TAT

Include Criteria on Certificate of Analysis (check if yes): ☐

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Identification (Please print or Type)	Date Sampled YYYY	MM	DD	Time (24hr) HH	MM	Matrix	1 FIELD FILTERED	2 FIELD PRESERVED	3 LAB FILTRATION REQUIRED	4 BTEX, F1	5 F2 - F4	6 VOCs	7 Reg 153 metals and inorganics	8 Reg 153 ICPMS metals	9 Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS - B)	10 PAH	11	12	13	14	15	16	17	18	19	20	21 # OF CONTAINERS SUBMITTED	22 HOLD - DO NOT ANALYZE
1	Sump Filtered	2024	07	09	14	45	GW				X	X	X	X			X											4	
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

Regular Turnaround Time (TAT)

☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply

☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

Comments

*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY

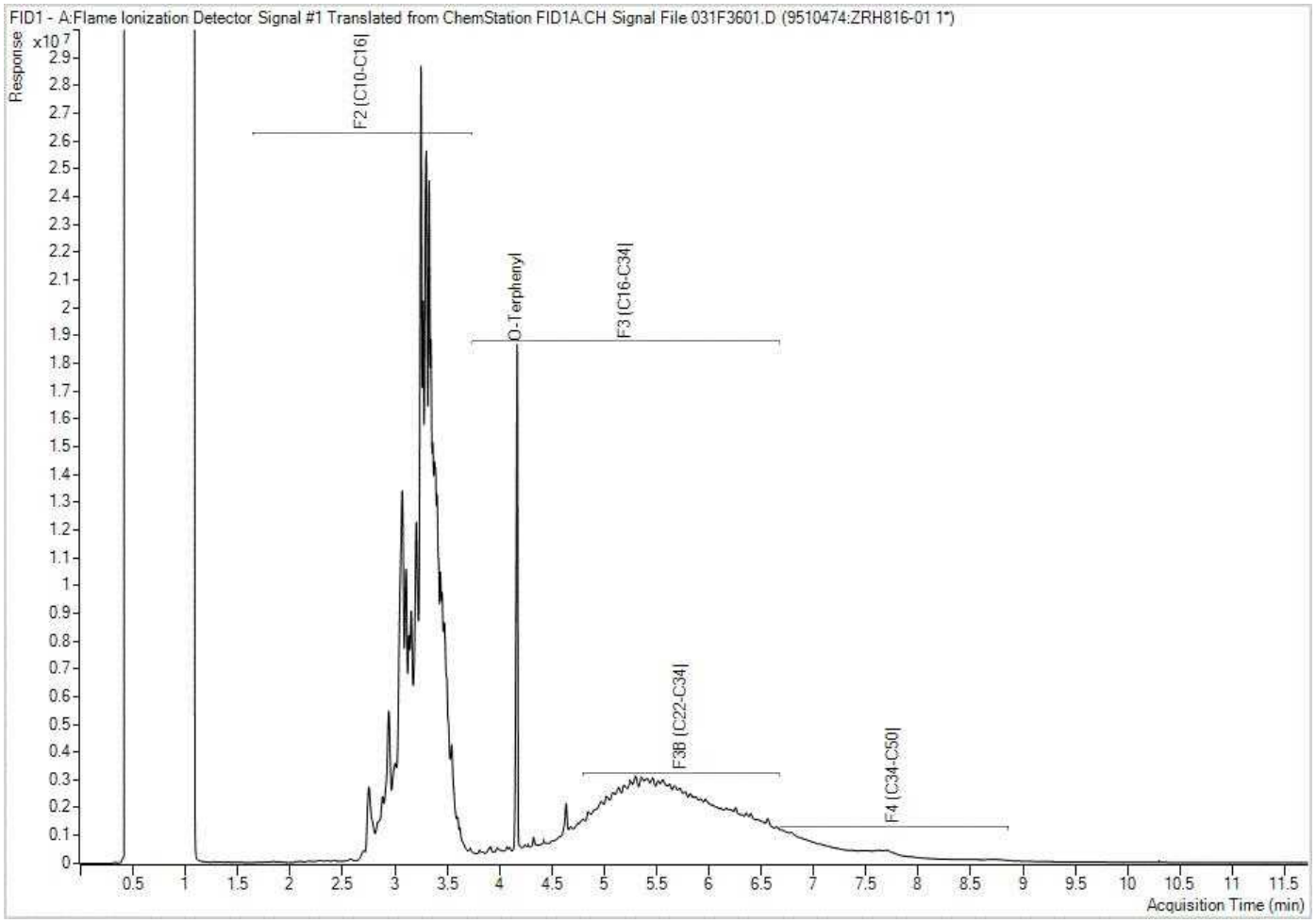
LAB USE ONLY	Yes	No	°C				LAB USE ONLY	Yes	No	°C				LAB USE ONLY	Yes	No	°C				Temperature reading by:
Seal present							Seal present							Seal present							
Seal intact							Seal intact							Seal intact							
Cooling media present	✓		ice	7	7	10	Cooling media present				1	2	2	Cooling media present				1	2	3	

Relinquished by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM	Received by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM	Special instructions
1 Philip Oliveira	2024	07	09	17	00	1 Ampolizza Santiago AST	2024	07	09	16	57	
2						2 VIA V74USHTI PAISL	2024	07	10	8	39	

Bureau Veritas Job #: C4K9189
Report Date: 2024/07/16
Bureau Veritas Sample: ZRH816

exp Services Inc
Client Project #: OTT-00243705-B0
Client ID: SUMP FILTERED

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: OTT-00243705-B0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/07/16
Report #: R8237079
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K9977
Received: 2024/07/09, 16:57

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	4	N/A	2024/07/13	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron (1)	4	2024/07/13	2024/07/15	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum (1)	4	N/A	2024/07/13		EPA 8260C m
Free (WAD) Cyanide (1)	3	2024/07/12	2024/07/15	CAM SOP-00457	OMOE E3015 m
Free (WAD) Cyanide (1)	1	2024/07/15	2024/07/15	CAM SOP-00457	OMOE E3015 m
Conductivity (1)	4	2024/07/13	2024/07/13	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1, 2)	1	2024/07/12	2024/07/12	CAM SOP-00436	EPA 3060A/7199 m
Hexavalent Chromium in Soil by IC (1, 2)	3	2024/07/13	2024/07/15	CAM SOP-00436	EPA 3060A/7199 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 3)	1	N/A	2024/07/12	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 3)	1	N/A	2024/07/14	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 4)	6	2024/07/12	2024/07/15	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS (1)	4	2024/07/13	2024/07/13	CAM SOP-00447	EPA 6020B m
Moisture (1)	6	N/A	2024/07/11	CAM SOP-00445	Carter 2nd ed 70.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2024/07/12	2024/07/12	CAM SOP-00318	EPA 8270E
PAH Compounds in Soil by GC/MS (SIM) (1)	3	2024/07/12	2024/07/13	CAM SOP-00318	EPA 8270E
pH CaCl2 EXTRACT (1)	1	2024/07/13	2024/07/13	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT (1)	3	2024/07/15	2024/07/15	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR) (1)	4	N/A	2024/07/15	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs (1)	4	N/A	2024/07/13	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.

Your Project #: OTT-00243705-B0
Your C.O.C. #: N/A

Attention: Chris Kimmerly

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2024/07/16
Report #: R8237079
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K9977

Received: 2024/07/09, 16:57

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8
(2) Soils are reported on a dry weight basis unless otherwise specified.
(3) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(4) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Katherine Szozda, Project Manager
Email: Katherine.Szozda@bureauveritas.com
Phone# (613)274-0573 Ext:7063633

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This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

O.REG 153 METALS & INORGANICS PKG (SOIL)

Bureau Veritas ID		ZRL443			ZRL444		ZRL445	ZRL446		
Sampling Date		2024/07/09 11:15			2024/07/09 11:00		2024/07/09 10:40	2024/07/09 10:20		
COC Number		N/A			N/A		N/A	N/A		
	UNITS	**S1**	**RDL**	**QC Batch**	**S2**	**QC Batch**	**S3**	**S4**	**RDL**	**QC Batch**
Calculated Parameters										
Sodium Adsorption Ratio	N/A	0.29 (1)		9506420	0.26 (1)	9506420	0.23 (1)	0.62		9506420
Inorganics										
Conductivity	mS/cm	0.17	0.002	9513128	0.15	9513128	0.19	0.23	0.002	9513128
Available (CaCl2) pH	pH	7.48		9514270	7.27	9513149	7.19	7.20		9514270
WAD Cyanide (Free)	ug/g	<0.01	0.01	9512087	<0.01	9514110	<0.01	<0.01	0.01	9512087
Chromium (VI)	ug/g	<0.18	0.18	9511617	<0.18	9513288	<0.18	<0.18	0.18	9513288
Metals										
Hot Water Ext. Boron (B)	ug/g	0.74	0.050	9513480	0.085	9513480	0.22	0.10	0.050	9513480
Acid Extractable Antimony (Sb)	ug/g	0.65	0.20	9513366	<0.20	9513366	<0.20	<0.20	0.20	9513366
Acid Extractable Arsenic (As)	ug/g	1.9	1.0	9513366	2.1	9513366	<1.0	<1.0	1.0	9513366
Acid Extractable Barium (Ba)	ug/g	210	0.50	9513366	36	9513366	25	32	0.50	9513366
Acid Extractable Beryllium (Be)	ug/g	0.22	0.20	9513366	0.21	9513366	<0.20	<0.20	0.20	9513366
Acid Extractable Boron (B)	ug/g	14	5.0	9513366	<5.0	9513366	<5.0	<5.0	5.0	9513366
Acid Extractable Cadmium (Cd)	ug/g	0.25	0.10	9513366	0.12	9513366	<0.10	<0.10	0.10	9513366
Acid Extractable Chromium (Cr)	ug/g	11	1.0	9513366	8.4	9513366	4.8	8.4	1.0	9513366
Acid Extractable Cobalt (Co)	ug/g	75	0.10	9513366	2.0	9513366	0.95	1.9	0.10	9513366
Acid Extractable Copper (Cu)	ug/g	30	0.50	9513366	5.2	9513366	2.2	2.9	0.50	9513366
Acid Extractable Lead (Pb)	ug/g	16	1.0	9513366	8.2	9513366	7.8	2.7	1.0	9513366
Acid Extractable Molybdenum (Mo)	ug/g	5.1	0.50	9513366	<0.50	9513366	<0.50	<0.50	0.50	9513366
Acid Extractable Nickel (Ni)	ug/g	15	0.50	9513366	3.8	9513366	1.8	4.0	0.50	9513366
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	9513366	<0.50	9513366	<0.50	<0.50	0.50	9513366
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	9513366	<0.20	9513366	<0.20	<0.20	0.20	9513366
Acid Extractable Thallium (Tl)	ug/g	0.16	0.050	9513366	<0.050	9513366	<0.050	<0.050	0.050	9513366
Acid Extractable Uranium (U)	ug/g	0.36	0.050	9513366	0.35	9513366	0.22	0.44	0.050	9513366
Acid Extractable Vanadium (V)	ug/g	7.5	5.0	9513366	20	9513366	12	17	5.0	9513366
Acid Extractable Zinc (Zn)	ug/g	97	5.0	9513366	21	9513366	16	14	5.0	9513366
Acid Extractable Mercury (Hg)	ug/g	<0.25	0.25	9513366	0.065	9513366	<0.050	<0.050	0.050	9513366

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

O.REG 153 PAHS (SOIL)

Bureau Veritas ID		ZRL443			ZRL444			ZRL444		
Sampling Date		2024/07/09 11:15			2024/07/09 11:00			2024/07/09 11:00		
COC Number		N/A			N/A			N/A		
	UNITS	**S1**	**RDL**	**QC Batch**	**S2**	**RDL**	**QC Batch**	**S2 Lab-Dup**	**RDL**	**QC Batch**
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	<0.071	0.071	9506426	<0.0071	0.0071	9506941			
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Acenaphthylene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Anthracene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Benzo(a)anthracene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Benzo(a)pyrene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Benzo(b/j)fluoranthene	ug/g	<0.050	0.050	9511300	0.0063	0.0050	9511300	<0.0050	0.0050	9511300
Benzo(g,h,i)perylene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Benzo(k)fluoranthene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Chrysene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Dibenzo(a,h)anthracene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Fluoranthene	ug/g	<0.050	0.050	9511300	0.0061	0.0050	9511300	<0.0050	0.0050	9511300
Fluorene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Indeno(1,2,3-cd)pyrene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
1-Methylnaphthalene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
2-Methylnaphthalene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Naphthalene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Phenanthrene	ug/g	<0.050	0.050	9511300	<0.0050	0.0050	9511300	<0.0050	0.0050	9511300
Pyrene	ug/g	<0.050	0.050	9511300	0.0055	0.0050	9511300	<0.0050	0.0050	9511300
Surrogate Recovery (%)										
D10-Anthracene	%	106		9511300	103		9511300	96		9511300
D14-Terphenyl (FS)	%	90		9511300	102		9511300	94		9511300
D8-Acenaphthylene	%	89		9511300	91		9511300	86		9511300

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

O.REG 153 PAHS (SOIL)

Bureau Veritas ID		ZRL445	ZRL446		
Sampling Date		2024/07/09 10:40	2024/07/09 10:20		
COC Number		N/A	N/A		
	UNITS	**S3**	**S4**	**RDL**	**QC Batch**
Calculated Parameters					
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	9506941
Polyaromatic Hydrocarbons					
Acenaphthene	ug/g	<0.0050	<0.0050	0.0050	9511300
Acenaphthylene	ug/g	<0.0050	<0.0050	0.0050	9511300
Anthracene	ug/g	<0.0050	<0.0050	0.0050	9511300
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.0050	9511300
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	0.0050	9511300
Benzo(b/j)fluoranthene	ug/g	0.0067	<0.0050	0.0050	9511300
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	0.0050	9511300
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	9511300
Chrysene	ug/g	<0.0050	<0.0050	0.0050	9511300
Dibenzo(a,h)anthracene	ug/g	<0.0050	<0.0050	0.0050	9511300
Fluoranthene	ug/g	0.0073	<0.0050	0.0050	9511300
Fluorene	ug/g	<0.0050	<0.0050	0.0050	9511300
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	0.0050	9511300
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	9511300
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	9511300
Naphthalene	ug/g	<0.0050	<0.0050	0.0050	9511300
Phenanthrene	ug/g	<0.0050	<0.0050	0.0050	9511300
Pyrene	ug/g	0.0062	<0.0050	0.0050	9511300
Surrogate Recovery (%)					
D10-Anthracene	%	103	108		9511300
D14-Terphenyl (FS)	%	102	105		9511300
D8-Acenaphthylene	%	94	94		9511300

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PHCS, BTEX/F1-F4 (SOIL)

Bureau Veritas ID		ZRL447		ZRL448		
Sampling Date		2024/07/09 10:00		2024/07/09 09:45		
COC Number		N/A		N/A		
	UNITS	**S5**	**QC Batch**	**S6**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons						
Benzene	ug/g	<0.020	9512436	<0.020	0.020	9513114
Toluene	ug/g	0.022	9512436	<0.020	0.020	9513114
Ethylbenzene	ug/g	<0.020	9512436	<0.020	0.020	9513114
o-Xylene	ug/g	<0.020	9512436	<0.020	0.020	9513114
p+m-Xylene	ug/g	<0.040	9512436	<0.040	0.040	9513114
Total Xylenes	ug/g	<0.040	9512436	<0.040	0.040	9513114
F1 (C6-C10)	ug/g	<10	9512436	<10	10	9513114
F1 (C6-C10) - BTEX	ug/g	<10	9512436	<10	10	9513114
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	9511555	<10	10	9511555
F3 (C16-C34 Hydrocarbons)	ug/g	960	9511555	250	50	9511555
F4 (C34-C50 Hydrocarbons)	ug/g	400	9511555	160	50	9511555
Reached Baseline at C50	ug/g	Yes	9511555	Yes		9511555
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	101	9512436	109		9513114
4-Bromofluorobenzene	%	98	9512436	99		9513114
D10-o-Xylene	%	120	9512436	135		9513114
D4-1,2-Dichloroethane	%	90	9512436	106		9513114
o-Terphenyl	%	100	9511555	102		9511555

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Bureau Veritas ID		ZRL443		ZRL444		ZRL445	ZRL446		
Sampling Date		2024/07/09 11:15		2024/07/09 11:00		2024/07/09 10:40	2024/07/09 10:20		
COC Number		N/A		N/A		N/A	N/A		
	UNITS	**S1**	**RDL**	**S2**	**RDL**	**S3**	**S4**	**RDL**	**QC Batch**
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	<0.10	0.10	<0.050	<0.050	0.050	9506427
Volatile Organics									
Acetone (2-Propanone)	ug/g	<0.49	0.49	<0.98	0.98	<0.49	<0.49	0.49	9508786
Bromodichloromethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Bromoform	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Bromomethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Carbon Tetrachloride	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Chlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Chloroform	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Dibromochloromethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,2-Dichlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,3-Dichlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,4-Dichlorobenzene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,1-Dichloroethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,2-Dichloroethane	ug/g	<0.049	0.049	<0.098	0.098	<0.049	<0.049	0.049	9508786
1,1-Dichloroethylene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
cis-1,2-Dichloroethylene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
trans-1,2-Dichloroethylene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,2-Dichloropropane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	<0.060	0.060	<0.030	<0.030	0.030	9508786
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Ethylene Dibromide	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Hexane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Methylene Chloride(Dichloromethane)	ug/g	<0.049	0.049	<0.098	0.098	<0.049	<0.049	0.049	9508786
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	0.40	<0.80	0.80	<0.40	<0.40	0.40	9508786
Methyl Isobutyl Ketone	ug/g	<0.40	0.40	<0.80	0.80	<0.40	<0.40	0.40	9508786
Methyl t-butyl ether (MTBE)	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Styrene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,1,1,2-Tetrachloroethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,1,2,2-Tetrachloroethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Tetrachloroethylene	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,1,1-Trichloroethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
1,1,2-Trichloroethane	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Trichloroethylene	ug/g	<0.010	0.010	<0.020	0.020	<0.010	<0.010	0.010	9508786

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Bureau Veritas ID		ZRL443		ZRL444		ZRL445	ZRL446		
Sampling Date		2024/07/09 11:15		2024/07/09 11:00		2024/07/09 10:40	2024/07/09 10:20		
COC Number		N/A		N/A		N/A	N/A		
	UNITS	**S1**	**RDL**	**S2**	**RDL**	**S3**	**S4**	**RDL**	**QC Batch**
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	0.040	<0.080	0.080	<0.040	<0.040	0.040	9508786
Vinyl Chloride	ug/g	<0.019	0.019	<0.038	0.038	<0.019	<0.019	0.019	9508786
F1 (C6-C10)	ug/g	<10	10	<20	20	<10	<10	10	9508786
F1 (C6-C10) - BTEX	ug/g	<10	10	<20	20	<10	<10	10	9508786
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	140	10	<10	10	<10	<10	10	9511555
F3 (C16-C34 Hydrocarbons)	ug/g	2700	50	<50	50	59	590	50	9511555
F4 (C34-C50 Hydrocarbons)	ug/g	430	50	<50	50	<50	130	50	9511555
Reached Baseline at C50	ug/g	Yes		Yes		Yes	Yes		9511555
Surrogate Recovery (%)									
o-Terphenyl	%	101		103		104	101		9511555
4-Bromofluorobenzene	%	91		102		103	107		9508786
D10-o-Xylene	%	84		97		87	102		9508786
D4-1,2-Dichloroethane	%	104		104		114	102		9508786
D8-Toluene	%	87		86		84	89		9508786

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Job #: C4K9977
Report Date: 2024/07/16

exp Services Inc
Client Project #: OTT-00243705-B0
Sampler Initials: PO

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZRL443	ZRL444	ZRL445	ZRL446	ZRL447	ZRL448		
Sampling Date		2024/07/09 11:15	2024/07/09 11:00	2024/07/09 10:40	2024/07/09 10:20	2024/07/09 10:00	2024/07/09 09:45		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	12	21	22	32	26	28	1.0	9508607

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

Bureau Veritas ID: ZRL443 **Collected:** 2024/07/09
Sample ID: S1 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9506426	N/A	2024/07/13	Automated Statchk
Hot Water Extractable Boron	ICP	9513480	2024/07/13	2024/07/15	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	9506427	N/A	2024/07/13	Automated Statchk
Free (WAD) Cyanide	TECH	9512087	2024/07/12	2024/07/15	Prgya Panchal
Conductivity	AT	9513128	2024/07/13	2024/07/13	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9511617	2024/07/12	2024/07/12	Violeta Porcila
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9511555	2024/07/12	2024/07/15	Agnieszka Brzuzy-Snopko
Acid Extractable Metals by ICPMS	ICP/MS	9513366	2024/07/13	2024/07/13	Thuy Linh Nguyen
Moisture	BAL	9508607	N/A	2024/07/11	Frances Gacayan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9511300	2024/07/12	2024/07/13	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9514270	2024/07/15	2024/07/15	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9506420	N/A	2024/07/15	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9508786	N/A	2024/07/13	Dina Wang

Bureau Veritas ID: ZRL444 **Collected:** 2024/07/09
Sample ID: S2 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9506941	N/A	2024/07/13	Automated Statchk
Hot Water Extractable Boron	ICP	9513480	2024/07/13	2024/07/15	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	9506427	N/A	2024/07/13	Automated Statchk
Free (WAD) Cyanide	TECH	9514110	2024/07/15	2024/07/15	Alen Wang
Conductivity	AT	9513128	2024/07/13	2024/07/13	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9513288	2024/07/13	2024/07/15	Rupinder Sihota
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9511555	2024/07/12	2024/07/15	Agnieszka Brzuzy-Snopko
Acid Extractable Metals by ICPMS	ICP/MS	9513366	2024/07/13	2024/07/13	Thuy Linh Nguyen
Moisture	BAL	9508607	N/A	2024/07/11	Frances Gacayan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9511300	2024/07/12	2024/07/12	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9513149	2024/07/13	2024/07/13	Gurparteek KAUR
Sodium Adsorption Ratio (SAR)	CALC/MET	9506420	N/A	2024/07/15	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9508786	N/A	2024/07/13	Dina Wang

Bureau Veritas ID: ZRL444 Dup **Collected:** 2024/07/09
Sample ID: S2 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9511300	2024/07/12	2024/07/12	Jonghan Yoon

Bureau Veritas ID: ZRL445 **Collected:** 2024/07/09
Sample ID: S3 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9506941	N/A	2024/07/13	Automated Statchk

TEST SUMMARY

Bureau Veritas ID: ZRL445 **Collected:** 2024/07/09
Sample ID: S3 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	9513480	2024/07/13	2024/07/15	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	9506427	N/A	2024/07/13	Automated Statchk
Free (WAD) Cyanide	TECH	9512087	2024/07/12	2024/07/15	Prgya Panchal
Conductivity	AT	9513128	2024/07/13	2024/07/13	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9513288	2024/07/13	2024/07/15	Rupinder Sihota
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9511555	2024/07/12	2024/07/15	Agnieszka Brzuzy-Snopko
Acid Extractable Metals by ICPMS	ICP/MS	9513366	2024/07/13	2024/07/13	Thuy Linh Nguyen
Moisture	BAL	9508607	N/A	2024/07/11	Frances Gacayan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9511300	2024/07/12	2024/07/13	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9514270	2024/07/15	2024/07/15	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9506420	N/A	2024/07/15	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9508786	N/A	2024/07/13	Dina Wang

Bureau Veritas ID: ZRL446 **Collected:** 2024/07/09
Sample ID: S4 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9506941	N/A	2024/07/13	Automated Statchk
Hot Water Extractable Boron	ICP	9513480	2024/07/13	2024/07/15	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	9506427	N/A	2024/07/13	Automated Statchk
Free (WAD) Cyanide	TECH	9512087	2024/07/12	2024/07/15	Prgya Panchal
Conductivity	AT	9513128	2024/07/13	2024/07/13	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9513288	2024/07/13	2024/07/15	Rupinder Sihota
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9511555	2024/07/12	2024/07/15	Agnieszka Brzuzy-Snopko
Acid Extractable Metals by ICPMS	ICP/MS	9513366	2024/07/13	2024/07/13	Thuy Linh Nguyen
Moisture	BAL	9508607	N/A	2024/07/11	Frances Gacayan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9511300	2024/07/12	2024/07/13	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9514270	2024/07/15	2024/07/15	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9506420	N/A	2024/07/15	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9508786	N/A	2024/07/13	Dina Wang

Bureau Veritas ID: ZRL447 **Collected:** 2024/07/09
Sample ID: S5 **Shipped:**
Matrix: Soil **Received:** 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9512436	N/A	2024/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9511555	2024/07/12	2024/07/15	Agnieszka Brzuzy-Snopko
Moisture	BAL	9508607	N/A	2024/07/11	Frances Gacayan

Bureau Veritas Job #: C4K9977
Report Date: 2024/07/16

exp Services Inc
Client Project #: OTT-00243705-B0
Sampler Initials: PO

TEST SUMMARY

Bureau Veritas ID: ZRL448
Sample ID: S6
Matrix: Soil

Collected: 2024/07/09
Shipped:
Received: 2024/07/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	9513114	N/A	2024/07/14	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9511555	2024/07/12	2024/07/15	Agnieszka Brzuzy-Snopko
Moisture	BAL	9508607	N/A	2024/07/11	Frances Gacayan

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C

Sample ZRL443 [S1] : PAH ANALYSIS: Due to the sample matrix, sample required dilution. Detection limist were adjusted accordingly.

Sample ZRL444 [S2] : VOC/F1 Analysis: Detection limits were raised due to high moisture content and/or low weight of soil provided.

Results relate only to the items tested.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9508786	4-Bromofluorobenzene	2024/07/13	97	60 - 140	105	60 - 140	98	%		
9508786	D10-o-Xylene	2024/07/13	106	60 - 130	83	60 - 130	84	%		
9508786	D4-1,2-Dichloroethane	2024/07/13	98	60 - 140	109	60 - 140	102	%		
9508786	D8-Toluene	2024/07/13	105	60 - 140	105	60 - 140	94	%		
9511300	D10-Anthracene	2024/07/12	94	50 - 130	104	50 - 130	112	%		
9511300	D14-Terphenyl (FS)	2024/07/12	93	50 - 130	99	50 - 130	101	%		
9511300	D8-Acenaphthylene	2024/07/12	86	50 - 130	89	50 - 130	83	%		
9511555	o-Terphenyl	2024/07/15	102	60 - 130	104	60 - 130	101	%		
9512436	1,4-Difluorobenzene	2024/07/12			97	60 - 140	96	%		
9512436	4-Bromofluorobenzene	2024/07/12			103	60 - 140	99	%		
9512436	D10-o-Xylene	2024/07/12			102	60 - 140	95	%		
9512436	D4-1,2-Dichloroethane	2024/07/12			103	60 - 140	99	%		
9513114	1,4-Difluorobenzene	2024/07/14	100	60 - 140	100	60 - 140	105	%		
9513114	4-Bromofluorobenzene	2024/07/14	103	60 - 140	102	60 - 140	96	%		
9513114	D10-o-Xylene	2024/07/14	108	60 - 140	89	60 - 140	99	%		
9513114	D4-1,2-Dichloroethane	2024/07/14	106	60 - 140	103	60 - 140	110	%		
9508607	Moisture	2024/07/11							2.6	20
9508786	1,1,1,2-Tetrachloroethane	2024/07/13	86	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508786	1,1,1-Trichloroethane	2024/07/13	85	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508786	1,1,2,2-Tetrachloroethane	2024/07/13	79	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
9508786	1,1,2-Trichloroethane	2024/07/13	83	60 - 140	86	60 - 130	<0.040	ug/g	NC	50
9508786	1,1-Dichloroethane	2024/07/13	86	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
9508786	1,1-Dichloroethylene	2024/07/13	87	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508786	1,2-Dichlorobenzene	2024/07/13	88	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508786	1,2-Dichloroethane	2024/07/13	83	60 - 140	93	60 - 130	<0.049	ug/g	NC	50
9508786	1,2-Dichloropropane	2024/07/13	85	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508786	1,3-Dichlorobenzene	2024/07/13	84	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508786	1,4-Dichlorobenzene	2024/07/13	85	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508786	Acetone (2-Propanone)	2024/07/13	80	60 - 140	91	60 - 140	<0.49	ug/g	NC	50
9508786	Bromodichloromethane	2024/07/13	86	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
9508786	Bromoform	2024/07/13	80	60 - 140	86	60 - 130	<0.040	ug/g	NC	50
9508786	Bromomethane	2024/07/13	72	60 - 140	81	60 - 140	<0.040	ug/g	NC	50

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9508786	Carbon Tetrachloride	2024/07/13	85	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508786	Chlorobenzene	2024/07/13	85	60 - 140	85	60 - 130	<0.040	ug/g	NC	50
9508786	Chloroform	2024/07/13	83	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508786	cis-1,2-Dichloroethylene	2024/07/13	80	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508786	cis-1,3-Dichloropropene	2024/07/13	81	60 - 140	92	60 - 130	<0.030	ug/g	NC	50
9508786	Dibromochloromethane	2024/07/13	81	60 - 140	84	60 - 130	<0.040	ug/g	NC	50
9508786	Dichlorodifluoromethane (FREON 12)	2024/07/13	70	60 - 140	78	60 - 140	<0.040	ug/g	NC	50
9508786	Ethylene Dibromide	2024/07/13	83	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508786	F1 (C6-C10) - BTEX	2024/07/13					<10	ug/g	NC	30
9508786	F1 (C6-C10)	2024/07/13	83	60 - 140	80	80 - 120	<10	ug/g	NC	30
9508786	Hexane	2024/07/13	90	60 - 140	97	60 - 130	<0.040	ug/g	1.5	50
9508786	Methyl Ethyl Ketone (2-Butanone)	2024/07/13	76	60 - 140	90	60 - 140	<0.40	ug/g	NC	50
9508786	Methyl Isobutyl Ketone	2024/07/13	73	60 - 140	88	60 - 130	<0.40	ug/g	NC	50
9508786	Methyl t-butyl ether (MTBE)	2024/07/13	81	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
9508786	Methylene Chloride(Dichloromethane)	2024/07/13	84	60 - 140	87	60 - 130	<0.049	ug/g	NC	50
9508786	Styrene	2024/07/13	72	60 - 140	71	60 - 130	<0.040	ug/g	NC	50
9508786	Tetrachloroethylene	2024/07/13	84	60 - 140	83	60 - 130	<0.040	ug/g	NC	50
9508786	trans-1,2-Dichloroethylene	2024/07/13	83	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508786	trans-1,3-Dichloropropene	2024/07/13	78	60 - 140	81	60 - 130	<0.040	ug/g	NC	50
9508786	Trichloroethylene	2024/07/13	85	60 - 140	85	60 - 130	<0.010	ug/g	NC	50
9508786	Trichlorofluoromethane (FREON 11)	2024/07/13	88	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
9508786	Vinyl Chloride	2024/07/13	82	60 - 140	91	60 - 130	<0.019	ug/g	NC	50
9511300	1-Methylnaphthalene	2024/07/12	89	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
9511300	2-Methylnaphthalene	2024/07/12	88	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
9511300	Acenaphthene	2024/07/12	88	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
9511300	Acenaphthylene	2024/07/12	86	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
9511300	Anthracene	2024/07/12	92	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
9511300	Benzo(a)anthracene	2024/07/12	95	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
9511300	Benzo(a)pyrene	2024/07/12	94	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9511300	Benzo(b/j)fluoranthene	2024/07/12	87	50 - 130	94	50 - 130	<0.0050	ug/g	23	40
9511300	Benzo(g,h,i)perylene	2024/07/12	89	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
9511300	Benzo(k)fluoranthene	2024/07/12	90	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9511300	Chrysene	2024/07/12	91	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9511300	Dibenzo(a,h)anthracene	2024/07/12	95	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
9511300	Fluoranthene	2024/07/12	92	50 - 130	98	50 - 130	<0.0050	ug/g	21	40
9511300	Fluorene	2024/07/12	90	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
9511300	Indeno(1,2,3-cd)pyrene	2024/07/12	91	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9511300	Naphthalene	2024/07/12	80	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
9511300	Phenanthrene	2024/07/12	90	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9511300	Pyrene	2024/07/12	92	50 - 130	98	50 - 130	<0.0050	ug/g	8.8	40
9511555	F2 (C10-C16 Hydrocarbons)	2024/07/15	106	60 - 130	109	80 - 120	<10	ug/g	20	30
9511555	F3 (C16-C34 Hydrocarbons)	2024/07/15	106	60 - 130	106	80 - 120	<50	ug/g	19	30
9511555	F4 (C34-C50 Hydrocarbons)	2024/07/15	93	60 - 130	83	80 - 120	<50	ug/g	26	30
9511617	Chromium (VI)	2024/07/12	0.16 (1)	70 - 130	91	80 - 120	<0.18	ug/g	NC	35
9512087	WAD Cyanide (Free)	2024/07/15	100	75 - 125	98	80 - 120	<0.01	ug/g	NC	35
9512436	Benzene	2024/07/12			90	50 - 140	<0.020	ug/g	NC	50
9512436	Ethylbenzene	2024/07/12			96	50 - 140	<0.020	ug/g	NC	50
9512436	F1 (C6-C10) - BTEX	2024/07/12					<10	ug/g	NC	30
9512436	F1 (C6-C10)	2024/07/12			99	80 - 120	<10	ug/g	NC	30
9512436	o-Xylene	2024/07/12			96	50 - 140	<0.020	ug/g	NC	50
9512436	p+m-Xylene	2024/07/12			92	50 - 140	<0.040	ug/g	NC	50
9512436	Toluene	2024/07/12			87	50 - 140	<0.020	ug/g	NC	50
9512436	Total Xylenes	2024/07/12					<0.040	ug/g	NC	50
9513114	Benzene	2024/07/14	97	50 - 140	93	50 - 140	<0.020	ug/g	NC	50
9513114	Ethylbenzene	2024/07/14	107	50 - 140	100	50 - 140	<0.020	ug/g	NC	50
9513114	F1 (C6-C10) - BTEX	2024/07/14					<10	ug/g	NC	30
9513114	F1 (C6-C10)	2024/07/14	95	60 - 140	96	80 - 120	<10	ug/g	NC	30
9513114	o-Xylene	2024/07/14	103	50 - 140	96	50 - 140	<0.020	ug/g	NC	50
9513114	p+m-Xylene	2024/07/14	92	50 - 140	86	50 - 140	<0.040	ug/g	NC	50
9513114	Toluene	2024/07/14	90	50 - 140	84	50 - 140	<0.020	ug/g	NC	50
9513114	Total Xylenes	2024/07/14					<0.040	ug/g	NC	50
9513128	Conductivity	2024/07/13			102	90 - 110	<0.002	mS/cm	2.5	10
9513149	Available (CaCl2) pH	2024/07/13			100	97 - 103			0.94	N/A
9513288	Chromium (VI)	2024/07/15	91	70 - 130	91	80 - 120	<0.18	ug/g	NC	35

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9513366	Acid Extractable Antimony (Sb)	2024/07/13	105	75 - 125	104	80 - 120	<0.20	ug/g	8.3	30
9513366	Acid Extractable Arsenic (As)	2024/07/13	105	75 - 125	102	80 - 120	<1.0	ug/g	0.61	30
9513366	Acid Extractable Barium (Ba)	2024/07/13	103	75 - 125	101	80 - 120	<0.50	ug/g	1.6	30
9513366	Acid Extractable Beryllium (Be)	2024/07/13	101	75 - 125	96	80 - 120	<0.20	ug/g	NC	30
9513366	Acid Extractable Boron (B)	2024/07/13	98	75 - 125	99	80 - 120	<5.0	ug/g	1.0	30
9513366	Acid Extractable Cadmium (Cd)	2024/07/13	102	75 - 125	98	80 - 120	<0.10	ug/g	2.2	30
9513366	Acid Extractable Chromium (Cr)	2024/07/13	104	75 - 125	100	80 - 120	<1.0	ug/g	3.2	30
9513366	Acid Extractable Cobalt (Co)	2024/07/13	103	75 - 125	100	80 - 120	<0.10	ug/g	2.6	30
9513366	Acid Extractable Copper (Cu)	2024/07/13	98	75 - 125	98	80 - 120	<0.50	ug/g	1.6	30
9513366	Acid Extractable Lead (Pb)	2024/07/13	95	75 - 125	99	80 - 120	<1.0	ug/g	9.8	30
9513366	Acid Extractable Mercury (Hg)	2024/07/13	103	75 - 125	101	80 - 120	<0.050	ug/g		
9513366	Acid Extractable Molybdenum (Mo)	2024/07/13	100	75 - 125	95	80 - 120	<0.50	ug/g	7.4	30
9513366	Acid Extractable Nickel (Ni)	2024/07/13	105	75 - 125	102	80 - 120	<0.50	ug/g	2.6	30
9513366	Acid Extractable Selenium (Se)	2024/07/13	106	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
9513366	Acid Extractable Silver (Ag)	2024/07/13	101	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
9513366	Acid Extractable Thallium (Tl)	2024/07/13	100	75 - 125	99	80 - 120	<0.050	ug/g	4.8	30
9513366	Acid Extractable Uranium (U)	2024/07/13	107	75 - 125	101	80 - 120	<0.050	ug/g	0.69	30
9513366	Acid Extractable Vanadium (V)	2024/07/13	112	75 - 125	100	80 - 120	<5.0	ug/g	2.7	30
9513366	Acid Extractable Zinc (Zn)	2024/07/13	NC	75 - 125	101	80 - 120	<5.0	ug/g	0.43	30
9513480	Hot Water Ext. Boron (B)	2024/07/15	99	75 - 125	92	75 - 125	<0.050	ug/g	5.9	40
9514110	WAD Cyanide (Free)	2024/07/15	97	75 - 125	97	80 - 120	<0.01	ug/g	NC	35

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9514270	Available (CaCl2) pH	2024/07/15			100	97 - 103			0.11	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

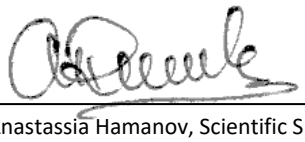
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The sample was reanalyzed with the same results.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvna.com

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6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

ENV COC - 00014v5

Page 1 of 1

NONT-2024-07-828

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information	
Company:	EXP SERVICES INC	Company:	EXP SERVICES INC	Quotation #:	Stream # 3
Contact Name:	Chris Kimmerly	Contact Name:	Chris Kimmerly	P.O. #/ AFE#:	
Street Address:	2650 QUEENSVIEW DR.	Street Address:	2650 QUEENSVIEW DR	Project #:	OTT-00243705-B0
City:	OTTAWA Prov: Postal Code:	City:	OTTAWA Prov: ON Postal Code:	Site #:	
Phone:	613-688-1899	Phone:	613-688-1899	Site Location:	
Email:	~~Chris.Kimmerly@exp.com~~	Email:	Chris.Kimmerly@exp.com	Site Location Province:	
Copies:	Accounts Payable	Copies:	Philip.Oliveira@exp.com	Sampled By:	Philip Oliveira

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table ____ ☐ Res/Park ☐ Ind/Comm ☐ Agri/other ☐ Med/Fine ☐ Coarse ☐ For RSC

OTHER: ☐ CCME ☐ Reg 558* ☐ MIS ☐ PWQO ☐ Reg 406, Table: ____ ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ____ ☐ Other: ____ *min 3 day TAT

Include Criteria on Certificate of Analysis (check if yes): ☐

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Regular Turnaround Time (TAT): ☐ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply: ☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

	Sample Identification (Please print or Type)	Date Sampled YYYY	MM	DD	Time (24hr) HH	MM	Matrix	1 FIELD FILTERED	2 FIELD PRESERVED	3 LAB FILTRATION REQUIRED	4 BTEX, F1 F2 F4	5 VOCs	6 Reg 153 metals and inorganics	7 Reg 153 ICPMS metals	8 Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS-B)	9 PHH	10	11	12	13	14	15	16	17	18	19	20	21 # OF CONTAINERS SUBMITTED	22 HOLD - DO NOT ANALYZE	Comments
1	S1	24	07	09	11	15	Soil				X	X	X	X			X											3		No Btex
2	S2				11	00					X	X	X	X			X											3		No Btex
3	S3				10	40					X	X	X	X			X											3		No Btex
4	S4				10	20					X	X	X	X			X											3		No Btex
5	S5				10	00					X	X																2		Btex + PHC
6	S6				9	45					X	X																3		Btex + PHC
7																														
8																														
9																														
10																														
11																														
12																														

*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY

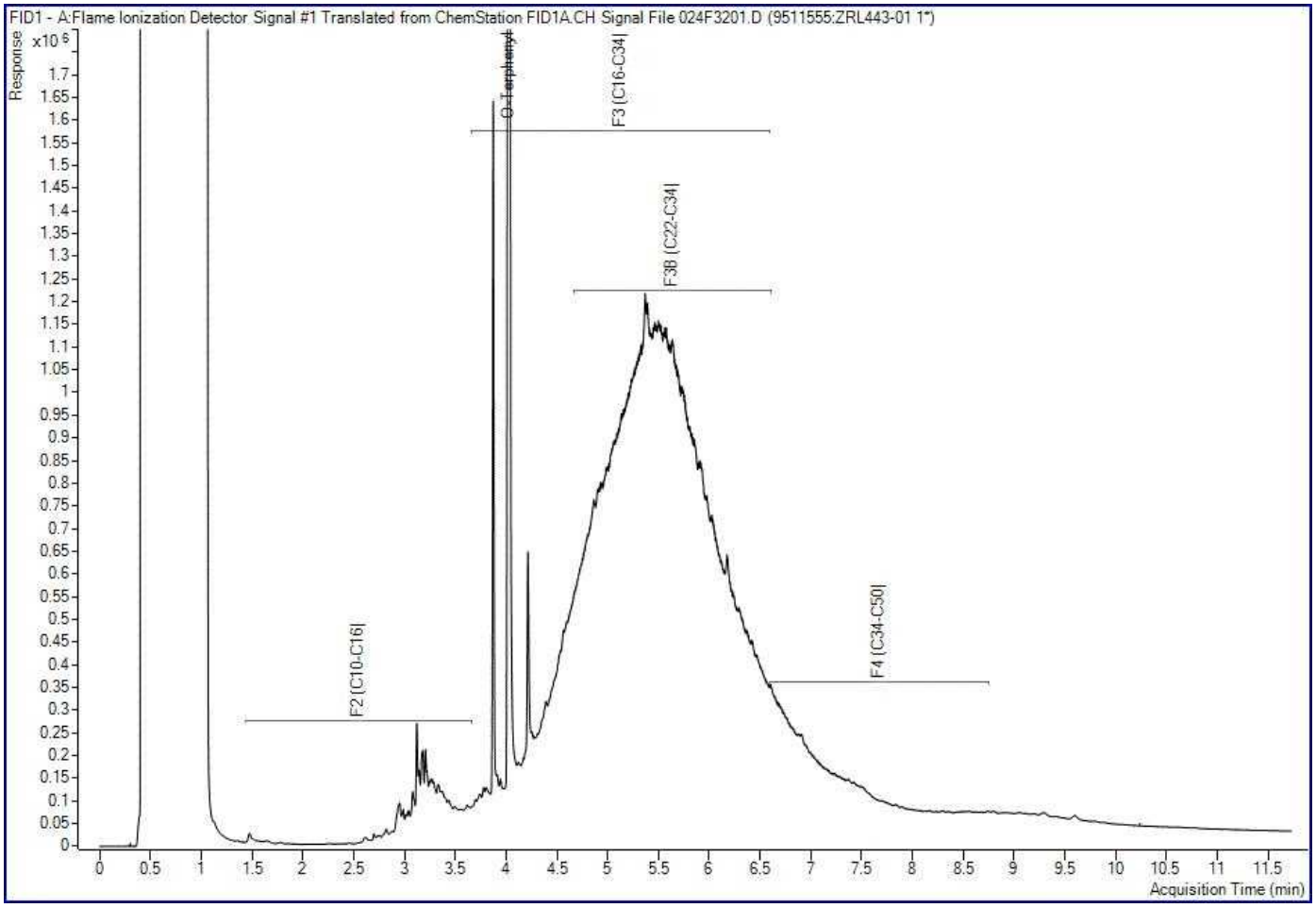
LAB USE ONLY	Yes	No					LAB USE ONLY	Yes	No					LAB USE ONLY	Yes	No					Temperature reading by:
Seal present			°C	ice			Seal present			°F				Seal present			°C				
Seal intact				7	7	10	Seal intact				1	2	2	Seal intact				1	2	3	
Cooling media present	✓			1	2	3	Cooling media present							Cooling media present							

	Relinquished by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM		Received by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM	Special instructions
1	Philip Oliveira	2024	07	09	16	55	1	Angelica Santiago	2024	07	09	16	57	
2	Philip Oliveira						2	[illegible]	2024	07	10	08	39	

Bureau Veritas Job #: C4K9977
Report Date: 2024/07/16
Bureau Veritas Sample: ZRL443

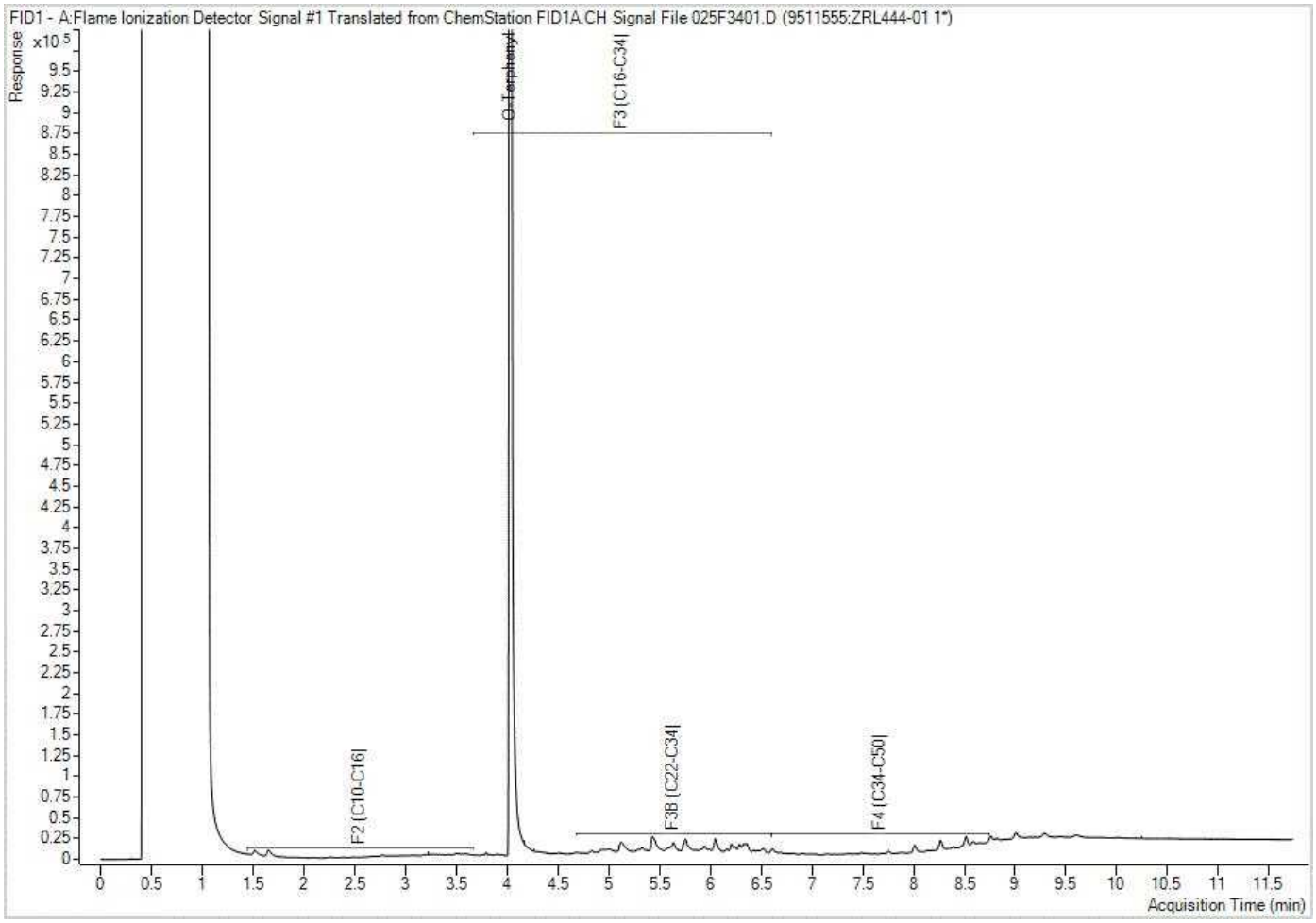
exp Services Inc
Client Project #: OTT-00243705-B0
Client ID: S1

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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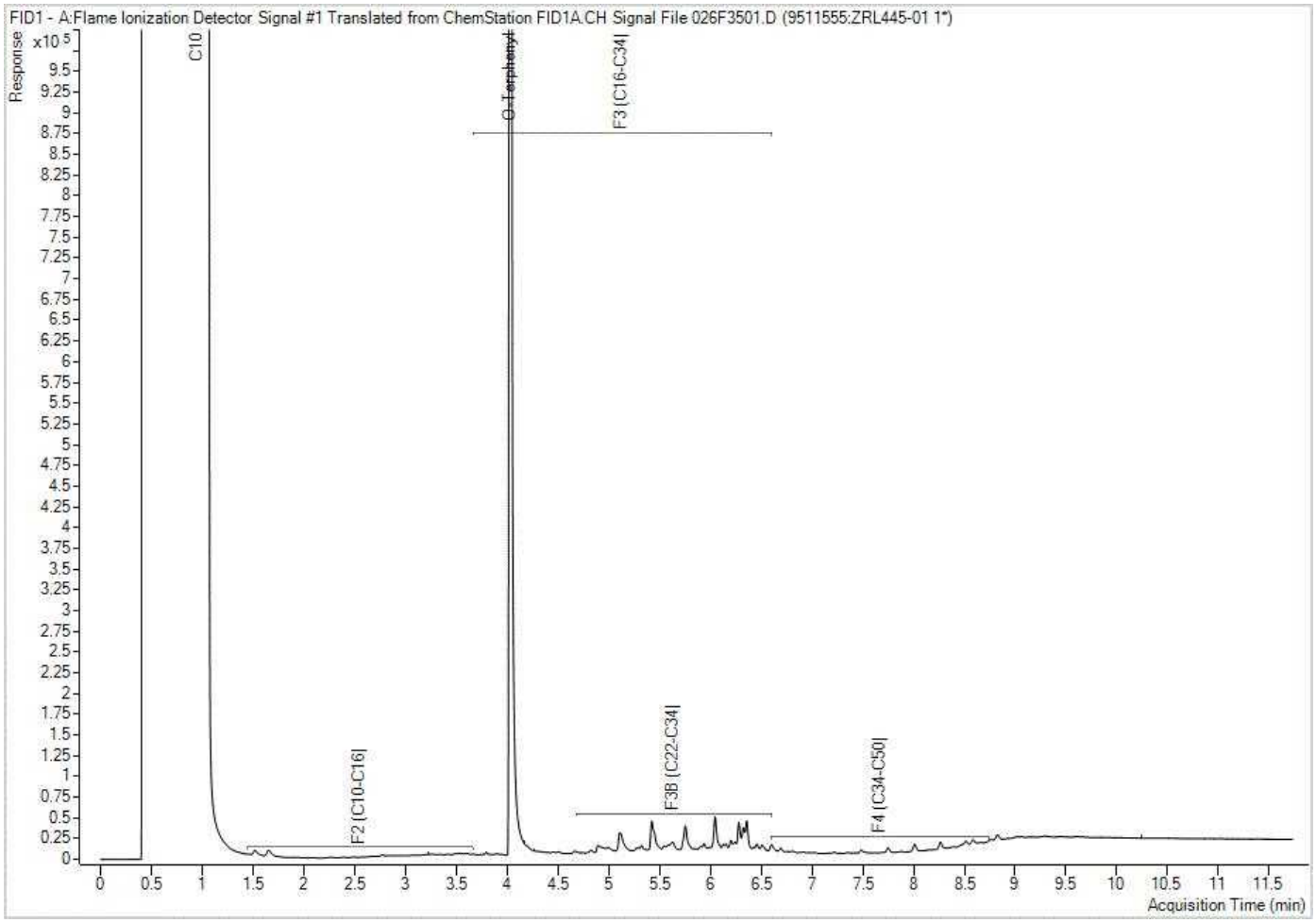
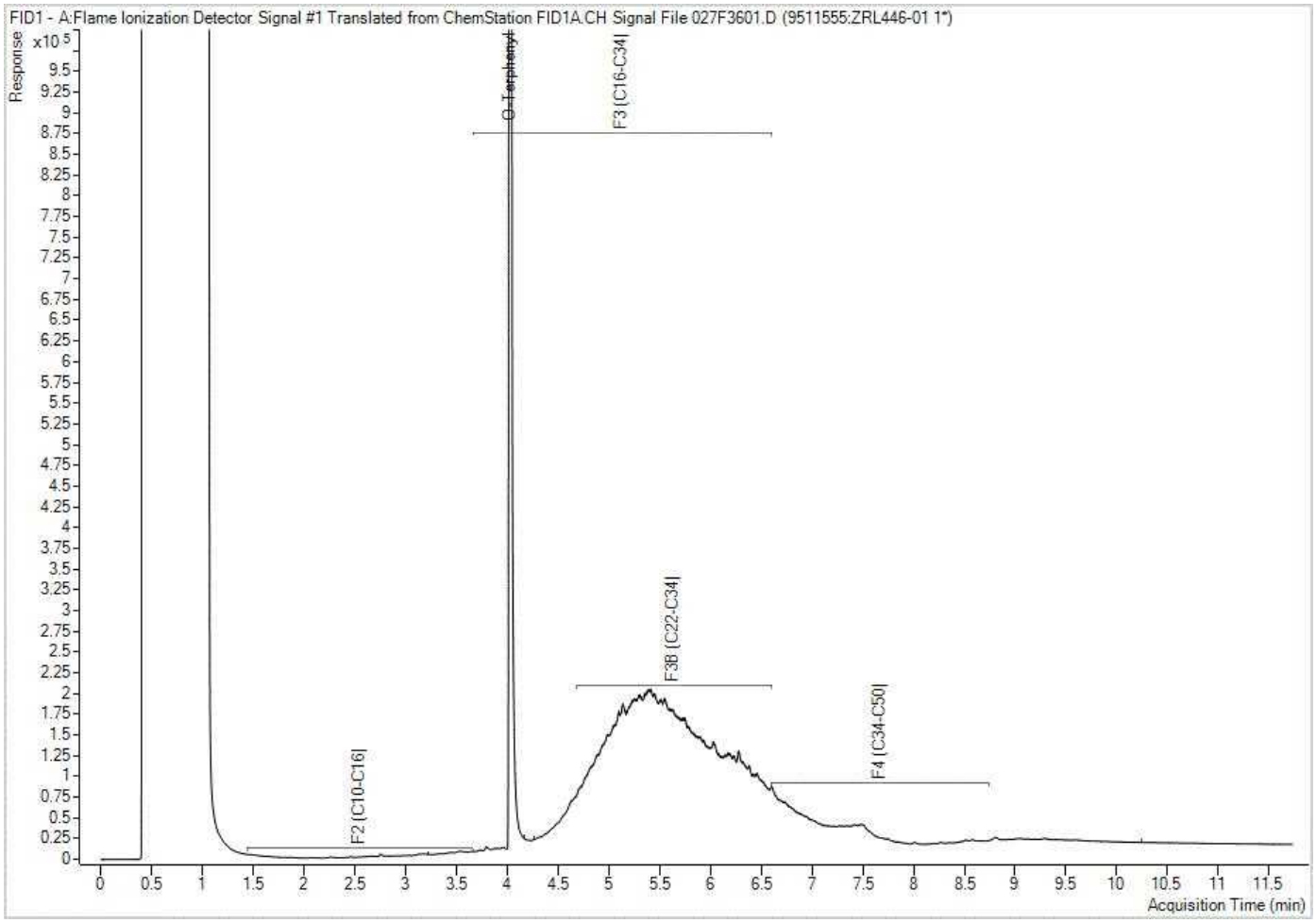
Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

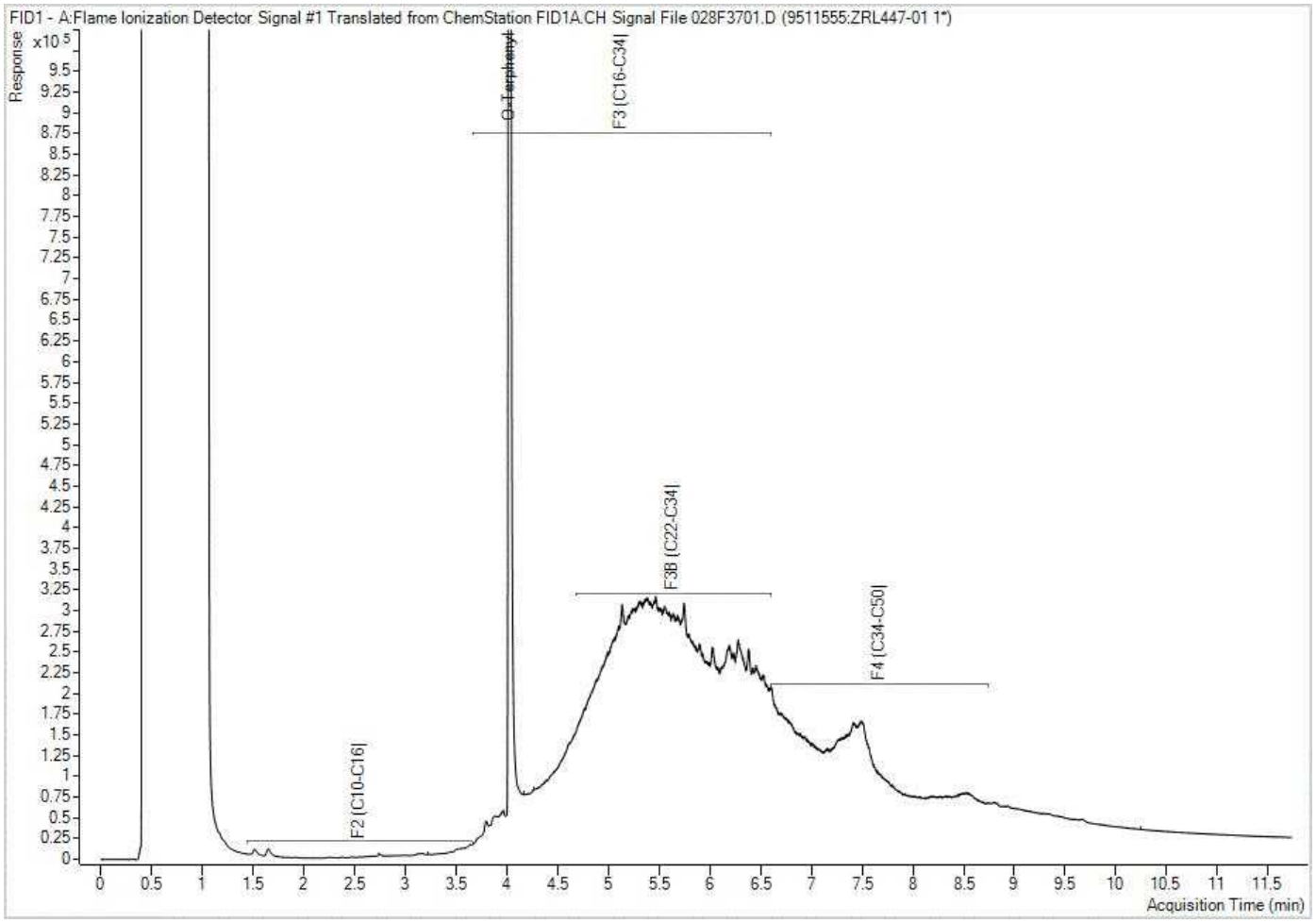


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4K9977
Report Date: 2024/07/16
Bureau Veritas Sample: ZRL447

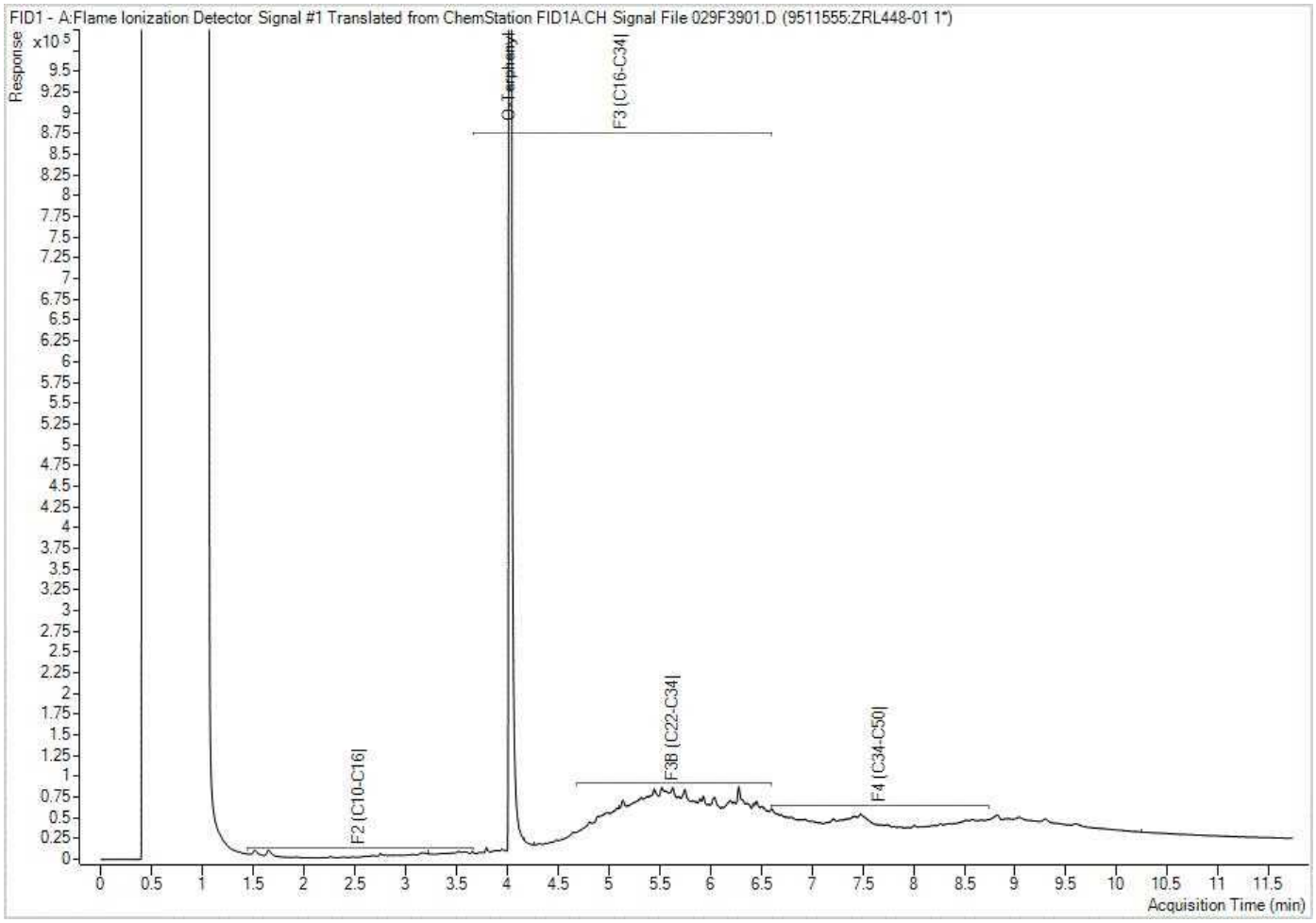
exp Services Inc
Client Project #: OTT-00243705-B0
Client ID: S5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Appendix H: Hydraulic Conductivity

6659 Franktown Road, Ottawa **MW1** **2-Aug-23**
Rising Head Test Analysis Test 1
Hvorslev Method (1951)

H_0 1.27 m
(static water level in metres)

Time (sec)	Water Level (m)	Drawdown (m)	H-h/H-h0
0	4.05	2.78	1.00
30	3.26	1.99	0.72
60	3.27	2.00	0.72
90	3.07	1.80	0.65
120	2.86	1.59	0.57
150	2.67	1.40	0.50
180	2.49	1.22	0.44
210	2.38	1.11	0.40
240	2.35	1.08	0.39
360	1.86	0.59	0.21
480	1.62	0.35	0.13
600	1.48	0.21	0.08
720	1.4	0.13	0.05
780	1.36	0.09	0.03

To constant= 0.37

L/R	ln(L/R)
30.0	3.401197

input

r= 0.018 (pipe radius)
L= 1.50 (effective screen length, if strattles water)
R= 0.05 (hole radius)
To= 260

$$K = \frac{r^2 \ln(L/R)}{2(To)(L)}$$

K= 1.41E-06 m/sec or **1.41E-04 cm/sec**