DILLON CONSULTING

BUILD NOVA SCOTIA

Phase II Environmental Site Assessment

Mill Village Former Mine Site, Medway River Road, Charleston, NS

PID No. 70169214

February 2025 - 23-6446

February 21, 2025

Nova Scotia Lands Inc.
45 Wabana Court
Sydney, Nova Scotia
B1P 0B9

Attention: Cory MacPhee, P.Eng.
Project Manager

Phase II Environmental Site Assessment
Medway River Road, Charleston, NS
PID No. 70169214

Dillon Consulting Limited (Dillon) is pleased to provide this summary of Phase II Environmental Site Assessment (ESA) Activities conducted at the Mill Village Former mine site located near Medway Road in Charleston, Nova Scotia and identified by Parcel Identification Designation Number (PID) No. 70169214.

Should you have any questions, please contact us.

Sincerely,

DILLON CONSULTING LIMITED

Asia Reid, B.Sc.
Project Manager

DM:vrt

Our file: 23-6446

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Dillon Consulting Limited

Table of Contents

Executive Summary

1.0 **Introduction** **1**

1.1 Purpose 1
1.2 Background 4
1.3 Regional Geology and Hydrogeology 5
1.4 Regulatory Framework 5
1.4.1 Nova Scotia Contaminated Sites Regulations and Associated Ministerial Protocols 5
1.4.2 Atlantic Risk Based Corrective Action (RBCA) Ecological Screening Criteria 6
1.4.3 Background Concentrations 6

2.0 **Methodology** **7**

2.1 General 7
2.2 Shallow Surface Hand Auger and Shallow Surface Soil Sampling 7
2.3 Establishing Site-Specific Background Values for Soil 7
2.4 Waste Rock Sampling 8
2.5 Monitoring Well Installation & Borehole Soil Sampling 10
2.6 Monitoring Well Development 10
2.7 Groundwater Monitoring and Sampling 10
2.8 Quality Assurance and Quality Control 11

3.0 **Results** **13**

3.1 Soil Quality 13
3.1.1 Soil Stratigraphy 13
3.1.2 Metals 13
3.1.3 Petroleum Hydrocarbons 15
3.1.4 Polycyclic Aromatic Hydrocarbons 15
3.1.5 Energetics 15
3.2 Waste Rock Analysis 15

3.2.1 Total Sulphides 16
3.3 Groundwater Quality 16
3.3.1 Groundwater Depths 16
3.3.2 General Chemistry 16
3.3.3 Metals 16
3.3.4 Petroleum Hydrocarbons 17
3.3.5 Polycyclic Aromatic Hydrocarbons 17
3.4 Quality Assurance and Quality Control 17

4.0 **Conceptual Site Model** **18**

4.1 Description of Contaminants 18
4.2 Receptors 18
4.3 Operable Pathways 19
4.3.1 Soil 19
4.3.2 Groundwater 19

5.0 **Summary and Conclusions** **20**

5.1 Notification of Contamination Protocol 20

6.0 **Limitations** **21**

Figures

Figure 1: Project Location 2
Figure 2: Subject Parcel 3
Figure 3: Sample Locations 9

Tables

Table E-1: Summary of Identified Relevant APECs and COPCs iv
Table 1-1: Summary of Identified Relevant APECs and COPCs 4
Table 3-1: Groundwater Elevations 16

Appendices

A Site Photos

B Monitoring Well Logs

C Analytical Results

D Laboratory Certificates of Analysis

E NSECC Notification of Contamination Form

References

Executive Summary

Dillon Consulting Limited (Dillon) was commissioned by Build Nova Scotia to complete a Phase I and II Environmental Site Assessment (ESA) of NSDNRR Crown lands at the Mill Village former mine site (herein referred to as the "site" or the "subject property") located at near Charleston, Nova Scotia (NS). This report summarizes the Phase II ESA activities completed at the site as of June 2024.

The site was an active gold mine from the 1860s to 1950s. Dillon completed a Phase I ESA at the site in July 2023 that indicated the presence of potentially contaminating activities (PCAs) on-site. From those PCAs, two areas of potential environmental concern (APECs) were identified for the site, as summarized in the table below.

Table E-1: Summary of Identified Relevant APECs and COPCs

APEC No.	APEC	COPCs	Media of Concern	Comments
1	Waste Rock/Dump	Metals, General Chemistry (groundwater only), PHCs, PAHs	Soil, Groundwater	Suspected tailings area based on background review. Appears to be a waste rock pile, tailings not observed.
2	Former Mine Site	Metals, PAHs	Soil, Groundwater	Area surrounding waste rock pile

Notes:

Contaminant Abbreviations: PHCs – Petroleum Hydrocarbons (i.e., BTEX, modified TPH); BTEX – Benzene, Toluene, Ethylbenzene and Xylenes; Modified TPH – Total Petroleum Hydrocarbons, PAHs- Polycyclic Aromatic Hydrocarbons.

The Phase II ESA activities conducted at the site in 2023 and 2024 included the collection of:

- 25 soil samples from the assessment area;
- 24 background soil samples from outside the assessment area;
- One rock sample from within the waste rock pile; and
- Three groundwater samples.

Sample results were compared to the Nova Scotia Contaminated Sites Regulations (NS CSRs) Tier I Environmental Quality Standards (EQS). For the purpose of criteria selection, the site is considered to be commercial, with potable groundwater use and coarse-grained soil conditions. As the NS Tier 1 EQS for a commercial site do not consider ecological receptors, a screening was also conducted relative to the Atlantic Risk Based Corrective Action (RBCA) Ecological Tier 1 EQS for an agricultural site. Finally, data were compared to available background values from the Environment Canada background soils database as well as site specific background threshold values calculated for the site (i.e., expected background values).

Findings of the Phase II ESA are as follows:

- Soil samples from the assessment area exceeded the NS Tier I EQS for aluminum, arsenic, beryllium, cobalt, iron, manganese, selenium and vanadium; exceedances to the Atlantic RBCA Ecological Tier 1 EQS were noted for arsenic, cobalt, copper, molybdenum, nickel, selenium and vanadium. However, with the exception of arsenic and cobalt, the detected concentrations were below the expected background values, therefore, concentrations are interpreted to be related to, or influenced by, background conditions.
- Cobalt concentrations exceed the NS Tier 1 EQS and the expected background value for one sample within the waste rock pile (SS-3). The extent of cobalt in soil has been delineated onsite with the exception of to the northeast. Arsenic concentrations exceed the Tier 1 EQS and the expected background value in seven of the 22 soil samples analyzed. Additional delineation is required to determine the extent of arsenic impacts in soil onsite.
- The sample of rock collected from the waste rock pile exhibited concentrations of total sulphides below the exemption criteria (0.4% sulphide by weight) of the Nova Scotia Sulphide Bearing Material Disposal Regulations. As such, acid-base accounting was not completed.
- Groundwater samples from the assessment area exceeded the NS Tier 1 EQS for cobalt, iron and manganese at the background sampling location. These are listed on the NSECC Table 5 list of substances potentially considered as background occurrences, and are interpreted to be related to, or influenced by, background conditions.
- The cobalt and arsenic impacts in soil have not been delineated to the northeast, as the current assessment was limited to the subject property only.
- Dillon completed a qualitative risk review with the data collected to date to identify relevant contaminants of concern, media, pathways, receptors and potential risk at the site. Based on this review, Dillon recommends a Human Health and Ecological Risk Assessment (HHERA) be completed to refine the remedial approach and liability estimate as presented in Dillon's *Preliminary Remedial Option Technical Memo*, submitted in December 2023. The HHERA should include additional soil sampling to delineate the extent of arsenic impacts onsite as well as a confirmatory groundwater sampling event in the fall.

1.0 Introduction

Dillon Consulting Limited (Dillon) was commissioned by Build Nova Scotia to complete a Phase I and II Environmental Site Assessment (ESA) of the former Mill Village Mine (herein referred to as the "site" or the "subject property") located on Medway River Road, Charleston, Nova Scotia (refer to **Figure 1** and **Figure 2**). This report summarizes Phase II ESA assessment activities undergone at this site during 2023 and 2024. This report presents the methodology (**Section 2.0**), results (**Section 3.0**), conceptual site model (CSM) (**Section 4.0**), and summary and recommendations (**Section 5.0**).

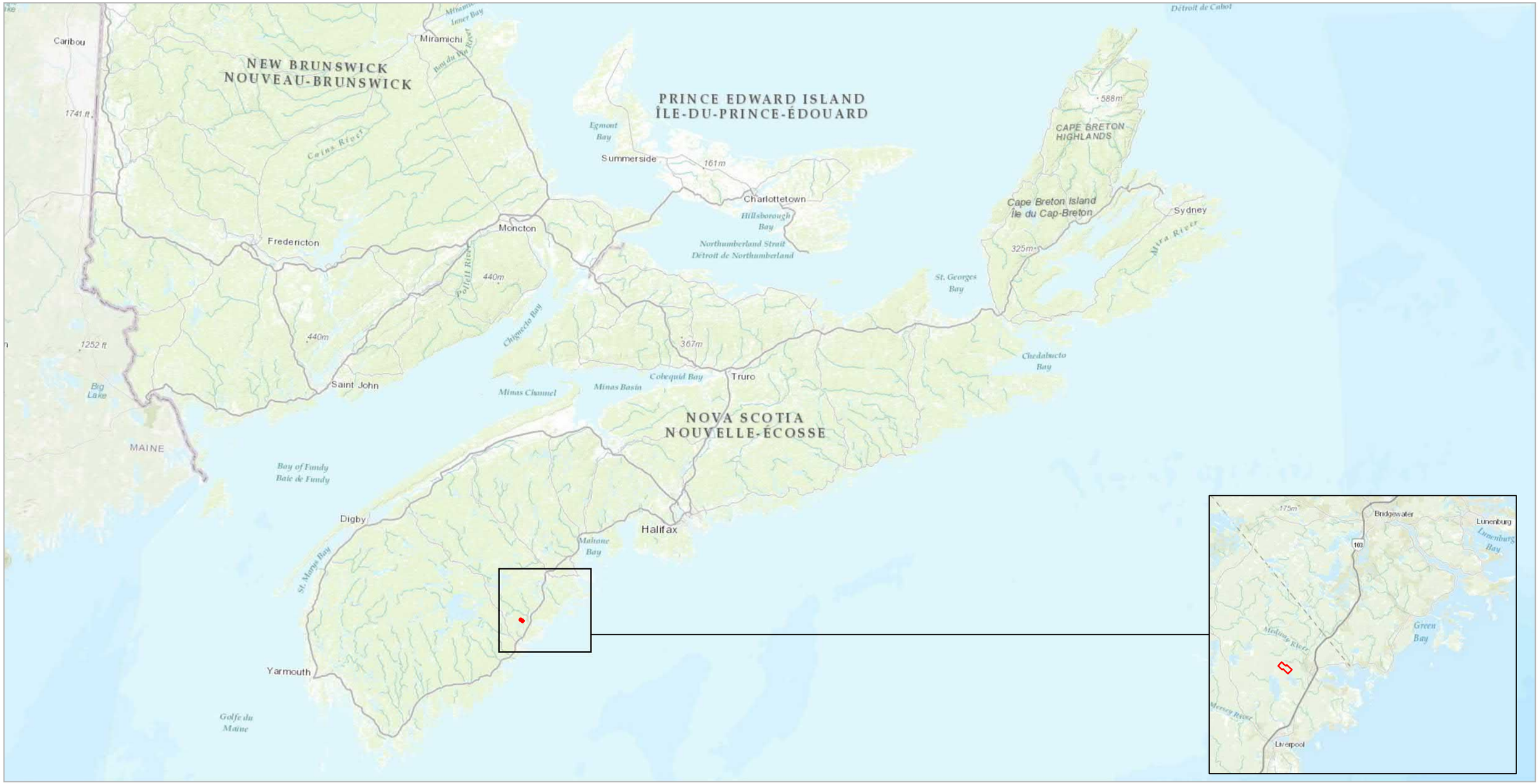
1.1 Purpose

Prior to initiation of the Phase II ESA, Dillon completed a Phase I ESA (i.e., "Phase I Environmental Site Assessment (Draft), Mill Village Former Mine Site, Medway River Road, Charleston, Nova Scotia, Property Identification Designation Number (PID No.): 70169214, March 25 2024)". It should be noted that the assessment area is limited to the assumed extents of the former mine site that exist on Crown land PID.

Findings of the Phase I ESA confirmed the location of the former mine site and identified two areas of environmental concern (APECs) onsite; a waste rock pile (in the area identified as suspected tailings in the RFP documentation) and the area immediately surrounding the waste rock pile, where mining activities would have occurred. There are potential environmental impacts on the former mine site from historic (1860ss-1950s) prospecting and mining activities and historic mineral exploration (1980s-2010s) and on the adjacent third-party property to the north (PID No.:70105796). The following contaminants of potential concern (COPCs) were identified: metals, petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), and energetics.

The Phase II ESA activities were completed in accordance with the Canadian Standards Association (CSA) Standard No. Z769-00 (R2018) and the Nova Scotia Contaminated Sites Regulations (NS CSRs) and associated Ministerial Protocols to identify and, where possible, delineate potential environmental contamination that may have resulted from historical activities on the former Mill Village mine site.

The findings presented in this report are based on limited visual observations made during Phase II ESA site visits, and intrusive investigations, which consisted of soil sampling via hand auguring, collection of soil during the advancement of boreholes, and groundwater sampling after monitoring well installation.



BUILD NOVA SCOTIA

PHASE II ENVIRONMENTAL SITE ASSESSMENT
MEDWAY RIVER ROAD, CHARLESTON, NS
PID NO. 70169214

PROJECT LOCATION

FIGURE 1

Project Location

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MAP DRAWING INFORMATION:
DATA PROVIDED BY GeoNova, NSDNRR

MAP CREATED BY: SCM
MAP CHECKED BY: AVR
MAP PROJECTION: NAD 1983 UTM Zone 20N

0 12.5 25 50 75 100 Kilometres

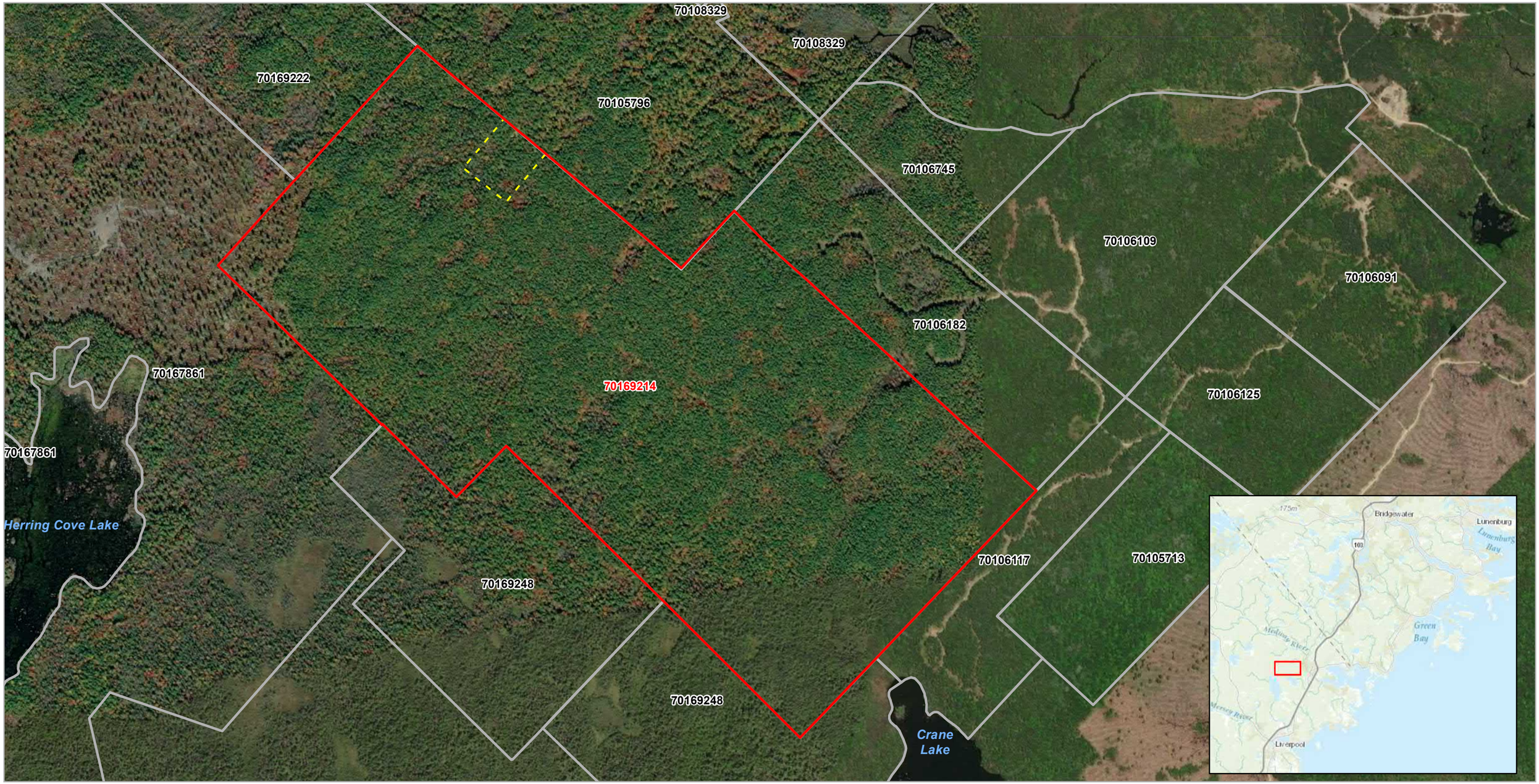
SCALE 1:2,000,000

N W E S

PROJECT: 23-6446

Date: 2023-12-11

Document Path: K:\2023\236446\product\Client\Ph1_2_ESA\Phase II Report\F1_MillVillageESAProjectLocation.mxd



BUILD NOVA SCOTIA

PHASE II ENVIRONMENTAL SITE ASSESSMENT
MEDWAY RIVER ROAD, CHARLESTON, NS
PID NO. 70169214

SUBJECT PARCEL

FIGURE 2

Subject Parcel

Adjacent Parcel

Assessment Area

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY GeoNova, NSDNRR

MAP CREATED BY: SCM
MAP CHECKED BY: SPDR
MAP PROJECTION: NAD 1983 UTM Zone 20N

0 50 100 200 300 400 Metres

SCALE 1:10,000

N W E S

PROJECT: 23-6446

Date: 2024-03-05

Document Path: \\dillon.ca\DILLON_DFS_projects\GIS\2023\236446\product\Client\Ph1_2_ESA\Phase II Report\F2_SubjectProperty.mxd

1.2 Background

The Mill Village former mine site (i.e., the site) is located in Charleston, Nova Scotia (NS) near Medway River Road, though the site is only accessible via unnamed dirt roads that extend from Zwicker Road. The site is approximately 14 km Northeast of Liverpool in Queen's County. The former mine site occupied a portion of the property identified by PID No. 70169214, which is owned by Nova Scotia Department of Natural Resources and Renewables (NSDNRR).

Beginning in the 1860s, gold mineralization was found in the Mill Village Gold district and prospecting was conducted over the area identifying several prospects. The Thompson Vein was discovered on the subject property and two shafts were reported to have been sunk to target the gold mineralization. A stamp mill was built for ore processing but burnt down in the early 1900s. Additional mine shafts were constructed in the 1940s. Mining operations ceased in the early 1950s. During mining operations ore was reportedly processed at a stamp mill on the adjacent property to the north (PID No.: 70105796).

No further activity is reported to have occurred at the site until the 1980s when a series of mineral exploration programs were conducted in the area by private companies to target gold mineralization. Activities included drilling (early 1980s), boulder and soil sampling (late 1980s and 2000s) and geochemical surveys (early 2010s). In 2013, DNRR carried out site reclamation work, which involved backfilling mine openings (shafts) and grading the surrounding areas, as documented in the AMO dataset (2013-11-18) and site photographs. This excavation and grading have significantly altered the ground conditions from when the site was originally abandoned in the 1950s.

Dillon completed Phase I ESA activities at the site in July 2023. The Phase I ESA indicated the presence of potentially contaminating activities (PCAs). From those PCAs, two APECs were identified for the site, as summarized in the table below.

Table 1-1: Summary of Identified Relevant APECs and COPCs

APEC No.	APEC	COPCs	Media of Concern	Comments
1	Waste Rock/Dump	Metals, General Chemistry (groundwater only), PHCs, PAHs	Soil, Groundwater	Suspected tailings area based on background review. Appears to be a waste rock pile, tailings not observed.
2	Former Mine Site	Metals, PAHs	Soil, Groundwater	Area surrounding waste rock pile

Notes:
Contaminant Abbreviations: PHCs – Petroleum Hydrocarbons (i.e., BTEX, modified TPH); BTEX – Benzene, Toluene, Ethylbenzene and Xylenes; TPH – Total Petroleum Hydrocarbons; PAHs- Polycyclic Aromatic Hydrocarbons.

The results of the Phase I ESA indicated that a Phase II ESA was required to characterize the identified APECs.

1.3 Regional Geology and Hydrogeology

To describe the regional physiography and expected hydrogeologic conditions beneath the subject property, the following documents were reviewed:

- Stea, R.R., Conley, H., and Brown, Y. (compilers) 1992: Surficial Geology of the province of Nova Scotia; Nova Scotia Department of Natural Resources, Map 92-3, Scale 1:500 000; and
- Keppie, J.D. (compiler) 2000: Geologic Map of the Province of Nova Scotia; Nova Scotia Department of Natural Resources, Minerals and Energy Branch, Map ME 2000-1, Scale 1:500 000.

The surficial geology of the subject area consists of glacial till, which is part of the Stony Till Plain. The till is stony with a sandy matrix, derived from local quartzite. Till thicknesses ranges from three to 10 meters (m) in the local area, although on-site observations noted the till to be thinner with depths ranging from 1.68 to 5.28 m.

The regional bedrock of the subject area consists of metamorphosed sedimentary rocks such as quartzite, greywacke and occasional layers of slate which are part of the Goldenville Formation.

The topography of the subject area is lightly undulating till plains. The western portion of the site is elevated and slopes to the east. Regional topography suggests the regional shallow groundwater flow direction is likely northeast.

Due to the nature of the site, there is significant variability in soil stratigraphy depending on the area. Additionally, the grade of the site is even more variable depending on the area. For clarification purposes, soil stratigraphy has been grouped by area.

During hand-auguring activities at the site, it was noted that the waste rock area consists of piles of boulder to cobble sized rocks inter-filled with dark brown and grey sand and silt. The assessment area immediately surrounding the waste rock pile consists of dark brown silty-sand soil with significant shallow root mass. Samples were also collected from “background” areas to the west and to the south of the assessment area. Soil stratigraphy in this area generally consists of a thin layer of organics underlain with a dark brown silty-sand soil.

1.4 Regulatory Framework

1.4.1 Nova Scotia Contaminated Sites Regulations and Associated Ministerial Protocols

The Phase II ESA activities for the site were conducted in accordance with the NS CSRs and associated Ministerial Protocols. The assessment work was conducted in accordance with the Ministerial Protocol PRO-200 (Environmental Site Assessment for Limited Remediation). Specifically, the criteria used to assess impacts at the site were the NS Tier 1 Environmental Quality Standards (EQS) (October 2022) for soil and groundwater, at a property having commercial land-use, potable groundwater conditions and coarse-grained soils.

1.4.2 Atlantic Risk Based Corrective Action (RBCA) Ecological Screening Criteria

Soil concentrations were also compared to the Atlantic Risk-Based Corrective Action (RBCA) Ecological Tier 1 EQS for soil at an agricultural site, to identify potential risks to ecological receptors. Since the site is vacant, agricultural guidelines are considered appropriate for initial screening as they take soil contact and soil and food ingestion exposure pathways into account to protect ecological receptors (soil invertebrates, birds, mammals) at a population level.

Groundwater data were not compared against these criteria as the nearest receiving water body is > 200 m from the onsite wells and as such, is not expected to be impacted from potential contamination on the site.

1.4.3 Background Concentrations

Metals in soil concentrations were also evaluated against the Nova Scotia Maximum Concentration Background Levels, as specified in Environment Canada's (EC) Background Soil Database (March 2011). Additionally, comparisons were made to Site-Specific Background Threshold Values (BTVs), which were derived from measured metal concentrations in background samples collected in May 2024.

2.0 Methodology

2.1 General

Dillon conducted a public utility locates check through Info-ex and Nova Scotia Power Incorporated (NSPI) to confirm the presence/absence of underground services at the site. No underground services were reported for the study area. Private utility clearances were not pursued.

Dillon selected sample locations prior to site activities and used the Field Maps application published by Esri to navigate to the selected locations. Coordinates were georeferenced using UTM Zone 20N, NAD 83. For the current scope of work, sample locations were confined to the subject property PID.

Locations of surface soil samples are presented in **Figure 3** (appended). Site photographs are presented in **Appendix A**.

2.2 Shallow Surface Hand Auger and Shallow Surface Soil Sampling

Shallow surface soil sampling was completed on November 9 and 10, 2023, and additional background sampling was conducted on May 14, 2024 at the site. Soil samples were visually inspected as they were collected, and these observations are included in **Section 3.1.1**. Of note, visual signs of tailings were not observed during sample collection. Shallow surface soil samples were collected using hand tools (i.e., spade, hand-auger). Samples were collected directly from these tools and placed immediately in laboratory supplied containers and then placed in coolers containing ice pending delivery to ALS Labs. Hand tools used for soil sample collection were decontaminated between each sample location using a phosphate free detergent and rinsed with distilled water. Soil samples were submitted to ALS Environmental Analytical Laboratories (ALS Labs) in Dartmouth, Nova Scotia for analysis of metals, PHCs, PAHs and/or energetics.

2.3 Establishing Site-Specific Background Values for Soil

A supplemental background soil sampling program conducted in May 2024 which consisted of collection of 19 soil samples, including one field duplicate sample, using similar methodology as noted in **Section 2.2**. Nine of the samples were analysed for full metals analysis and 10 samples submitted for arsenic analysis only. Including background samples collected during the initial sampling program, a total of 23 samples were included in the BTV calculations for arsenic and a total of 13 samples were included in the BTV calculations for other metals.

To determine site-specific background levels for metals in soil that exceed the Nova Scotia Tier 1 EQS, the following statistical procedure was conducted using ProUCL Version 5.1, a statistical software for environmental applications published by the United States Environmental Protection Agency (USEPA).

1. Data Evaluation for Distribution Type and Frequency of Detection: The background soil dataset, including new samples collected in May 2024, was first evaluated to identify the distribution type. This involved determining whether the data followed a normal, log-normal, gamma, or nonparametric distribution. The frequency of detection for each metal was also assessed.
2. Outlier Detection: Potential outliers were identified visually using Q-Q plots for individual parameters. If necessary, histograms were generated to further investigate the distribution of the data. Parameters of interest were evaluated as a whole using Q-Q plots and histograms. Rosner's Outlier Test was applied to confirm the presence of any significant outliers.
3. Generation of Background Threshold Values (BTVs): Using the cleaned dataset, BTVs were calculated at a 95% confidence level. This step ensured that the statistical analysis aligns with the methodology employed by Environment Canada in establishing their background soils database.

BTVs were specifically calculated for metals that exceeded the Nova Scotia Tier 1 EQS as identified in the Phase II ESA activities report, issued on 25 March 2024. The derived BTVs serve as the proposed comparison criteria to statistically determine if the analytical results from media samples collected at areas of environmental concern exceed the background concentrations. This approach ensures that the site-specific background levels are robust and representative of the local environmental conditions.

2.4 Waste Rock Sampling

Waste rock sampling was completed on December 9 and 10, 2023. A piece of lightly weathered rock was collected by hand from inside the waste rock pile on site. Field staff indicated there was no visible evidence of Acid Rock Drainage (ARD) (i.e., orange/brown staining resultant from iron oxidation), and therefore, only one sample was submitted for analysis of total sulphides. The rock sample was submitted to Bureau Veritas Laboratories in Bedford, NS for analysis.

BGSS-13
BGSS-15
BGSS-16
BGSS-14
BGSS-17
BGSS-18
BGSS-19
BGSS-20
BGSS-21
HA6SS1
HA6SS2
HA1SS1
HA1SS2
HA5SS1
HA5SS2
HA4SS1
HA4SS2
HA3SS2
HA3SS1
HA2SS1
HA2SS2
MW23-3
MW23-2
MW23-1
SS1
SS2
SS3
SS4
SS5
SS6
SS7
SS8
SS9
SS10
SS11
SS12

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PHASE II ENVIRONMENTAL SITE ASSESSMENT
MEDWAY RIVER ROAD, CHARLESTON, NS
PID NO. 70169214

SAMPLE LOCATIONS
FIGURE 3

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Monitoring Well
Rock Sample
Background Sample
Hand Auger Sample
Soil/Tailings Sample
Step-out Surficial Soil Sample
Proposed Access Road
Mine Openings Buffer (10m)
Mine Opening
AccessRoute
Assessment Area
Subject Parcel
Tailings Area

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MAP DRAWING INFORMATION:
DATA PROVIDED BY GeoNova, NSDNRR

MAP CREATED BY: SCM
MAP CHECKED BY: AVR
MAP PROJECTION: NAD 1983 UTM Zone 20N

0 12.5 25 50 Meters
SCALE 1:1,250

N W E S

PROJECT: 23-6446
Date: 2024-06-25

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2.5 Monitoring Well Installation & Borehole Soil Sampling

Between December 13 and 14, 2023, Dillon coordinated with Logan Drilling Group of Stewiacke, NS to advance/drill three boreholes across the site to be completed as monitoring wells. Monitoring wells MW23-1 and MW23-3 were installed to a depth of 6.1 m below ground surface (mbgs), while MW23-2 was installed to a depth of 3.7 mbgs. Boreholes were advanced using standard split spoon and auger methods for overburden and coring for bedrock. Soil stratigraphy was recorded along with soil observations such as the presence of rock, odours and staining. Monitoring well logs are presented in **Appendix B**.

Initial observations noted that limited soil was available for collection as the subsurface was composed primarily of cobbles and boulders. As such, composite soil samples were collected using soil from the entire length of the boreholes. As samples were collected, they were placed immediately in laboratory supplied containers and then placed in coolers containing ice pending delivery the laboratory. Soil samples from the drilling program were submitted to ALS Labs in Dartmouth, NS for analysis of metals, PHCs and PAHs.

Upon completion of the boreholes, monitoring wells were installed using 50 mm diameter, Schedule 40, PVC screen (0.025 cm slot) and casing with silica sand filter pack and a bentonite seal. Each monitoring well was sealed with a J-plug and finished with a steel monument style protective casing. Borehole and monitoring well locations are presented on **Figure 3**. Borehole/monitoring well logs describing observations made during the drilling program and monitoring well construction details are presented in **Appendix B**.

2.6 Monitoring Well Development

On January 15, 2024, the three monitoring wells at the site were developed to remove water that was disturbed during the drilling process, water that was introduced during coring, and to enhance the operation of the screen and sand pack as an effective particulate filter system. Well development involved removal of a minimum of five times the water column volume. Where purging five times the water column was not feasible due to recharge conditions, the well was purged dry a minimum of five times. To reduce the potential of cross contamination between monitoring wells, each well was equipped with dedicated low-density, HDPE tubing as well as silicone tubing and an inertial foot valve. A period of at least 24 hours was left between the initial well development and sampling to allow the wells to recover.

2.7 Groundwater Monitoring and Sampling

Groundwater monitoring and sampling was completed May 14, 2024. Prior to purging the well, the depth to groundwater was measured from an established reference point (top of PVC casing) using an oil-water interface probe. Low flow sampling was used to minimize sample turbidity. Sample turbidity

has the potential to bias the dissolved phase analytical results, as targeted substances present within or sorbed to soil particles may be released during sample preparation/analysis, resulting in an artificially high measurement.

A battery powered peristaltic pump set at a low pumping rate (e.g., 0.1 L/min) to minimize drawdown was utilized to purge and sample the monitoring wells. Monitoring wells were purged according to Dillon Standard Environmental Field Procedures and industry standards for low-flow groundwater sampling. Groundwater field parameters were measured using a Horiba U-52 multimeter calibrated according to the manufacture's published instructions and a flow-through cell. Field parameters recorded from the instrument included pH, conductivity, dissolved oxygen, oxidation-reduction potential, turbidity and temperature. Groundwater field parameters and drawdown were monitored and recorded typically every three to five minutes. Once the monitored parameters had stabilized such that successive measurements were within 10%, a groundwater sample was collected.

The collected groundwater samples were directly placed into laboratory supplied containers. Metals and mercury samples were field filtered and preserved. The sample containers were filled, labeled, and stored in a sample cooler containing ice pending delivery to ALS Labs in Dartmouth, NS for general chemistry, dissolved metals (including mercury), PHC and PAH analysis. Monitoring well locations are presented on **Figure 3**.

ALS Labs is accredited to ISO/IEC 17025 for soil and groundwater analyses by the Canadian Association for Laboratory Accreditation Inc. (CALA). For each of the analytical methods used, ALS applied internal QA/QC programs including laboratory duplicates, surrogate recoveries, reference materials, spiked method blanks, and matrix spikes to govern sample analysis and analytical data quality assurance. The appropriate laboratory analytical methods were used to meet the data quality objectives and achieve the method / reportable detection limits suitable for the current investigation.

2.8 Quality Assurance and Quality Control

Quality Assurance/Quality Control (QA/QC) protocols were established and followed throughout the monitoring program. This included the collection of duplicate samples. As discussed in sections above, non-dedicated equipment, such as the hand-auger and water level meter, were decontaminated between sampling locations. Methods used during the field work followed Dillon's Standard Environmental Field Procedures which are based on industry standards and described in the respective sections above.

Four blind field duplicate soil samples and one duplicate groundwater sample were collected during the assessment. Additionally, ALS Labs analyzed select laboratory duplicate samples as part of their internal QA program. The results of this testing were used to evaluate the reliability of the sampling.

Sample containers were labelled with sample/location ID, project name and number, company name (Dillon), and time and date of collection. Where sufficient soil volume was present, soil samples collected for analysis of PHCs were collected using a 10 mL Terracore sampler and stored in two 40mL vials containing a methanol preservation agent, as well as a 60 mL laboratory supplied glass sample container. Soil samples proposed for other analysis were collected and placed directly into laboratory supplied glass sample containers. Groundwater samples were collected in laboratory supplied containers prepared with appropriate preservatives for the intended analysis. Once collected, samples were immediately placed in coolers containing ice to maintain a temperature of less than 10°C. Where insufficient sample volume was available, the volume available was provided to the laboratory in an appropriate container and the lab was able to conduct the analyses with limited sample volume. To minimize the potential for cross contamination, new nitrile gloves were used to collect each sample, and non-dedicated sampling equipment was decontaminated between each sampling location.

To evaluate the precision associated with sampling and analytical methods, the samples and their duplicates were used to calculate the relative percent difference (RPD). The RPD is defined as the absolute value of the variation between a sample's analytical concentration and its duplicate, when compared to the average concentration of the original and the duplicate in detected samples. The RPD is calculated using the following equation:

$$= \frac{|V_1 - V_2|}{\frac{(V_1+V_2)}{2}} \times 100$$

RPD is used to assess the validity of the field and laboratory analytical procedures for parameters analyzed that are greater than 5 times the reportable detection limit (RDL) in both the parent and duplicate sample. Dillon set a screening-level RPD acceptance criterion of less than 60% for acceptability in soil and 40% for acceptability in groundwater. In cases where the measured concentration of a parameter is less than 5 times the RDL, the absolute difference of the two measured concentration of the sample and its duplicate must be less than 2 times the RDL for acceptability. As noted above, field duplicates were collected during each sampling program, with RPDs calculated for each duplicate.

3.0 Results

3.1 Soil Quality

Soil analytical results are presented in **Table C-1** through to **C-7** of **Appendix C** and are summarized in the sections below. Laboratory Certificates of Analysis are provided in **Appendix D**.

3.1.1 Soil Stratigraphy

As noted previously, soil stratigraphy varies across the site. Generally, the soil was a brown colored silt overlain by vegetation and tree roots. Visual signs of tailings were not observed. Soil observed can be considered coarse-grained.

3.1.2 Metals

A total of 12 soil samples, including one field duplicate sample, were collected from the assessment area and submitted for metals analysis, including mercury. An additional 13 soil samples, including two field duplicates, were collected from the assessment area and submitted for analysis of arsenic only. **Table C-1** presents full metal analysis of the original 12 soil samples collected from the assessment area and **Table C-2** presents the arsenic concentrations from the original 12 soil samples from the assessment area along with the 13 additional soil samples analysed for Arsenic only. Sample results are compared to the NS Tier I EQS and background values.

The background values were established by selecting the higher value from either the range provided by the Review of Environment Canada's Background Soil Database (2004-2009), Version No.1, March 2011, and the calculated Site-Specific BTVs. **Table C-3** presents the results of the 24 background soil samples, including one field duplicate, collected from outside the assessment area. The site-specific BTVs are summarized in **Table C-4**.

Metals exceedances within the assessment area are summarized below:

- Aluminum concentrations (ranging from 3,500 mg/kg to 24,900 mg/kg) exceeded the applicable NS Tier 1 EQS (15,400 mg/kg) in most samples, except for three soil samples; however, it is noted that these concentrations are below the background value of 59,000 mg/kg. Aluminum concentrations are interpreted to be related to, or influenced by, background concentrations.
- Arsenic concentrations (ranging from 4.2 mg/kg to 958 mg/kg) exceeded the applicable NS Tier 1 EQS (10 mg/kg), and the Atlantic RBCA Ecological Tier 1 EQS for soil - Agricultural value (17.1 mg/kg) in 28 out of 30 soil samples; however, only seven samples exceeded the background value (281 mg/kg), with samples HA3 SS1, SS9, and SS10 requiring delineation to the south.

- Beryllium concentrations (ranging from 0.11 mg/kg to 1.09 mg/kg) exceeded the applicable NS Tier 1 EQS (1 mg/kg) in one soil sample, however it is noted that this concentration is below the background value of 1.8 mg/kg, and the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (5 mg/kg). Beryllium concentrations are interpreted to be related to, or influenced by, background concentrations.
- Cobalt concentrations (ranging from 0.78 mg/kg to 49.3 mg/kg) exceeded the applicable NS Tier 1 EQS (22 mg/kg), the background value (30.6 mg/kg), and the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (20 mg/kg) in one soil sample; however, this sample has been delineated onsite.
- Copper concentrations (ranging from 4.65 mg/kg to 99.5 mg/kg) exceeded the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (63 mg/kg) in one soil sample but did not exceed the NS Tier 1 EQS or background value; however, the sample (SS3) has been delineated onsite and was within the waste pile, so a possible exceedance would be expected.
- Iron concentrations (ranging from 1,680 mg/kg to 37,400 mg/kg) exceeded the applicable NS Tier 1 EQS (11,000 mg/kg) in 12 out of 15 analyzed samples; however, it is noted that the concentrations were well below the background value of 52,000 mg/kg. Iron concentrations are likely related to, or influenced by, background concentrations.
- Manganese concentrations (ranging from 13 mg/kg to 719 mg/kg) exceeded the applicable NS Tier 1 EQS (360 mg/kg) in three soil samples; however, it is noted that these concentrations are below the background value of 6,530 mg/kg and are interpreted to be related to, or influenced by, background concentrations.
- Molybdenum concentrations (ranging from 0.14 mg/kg to 4.64 mg/kg) exceeded the background value (3.5 mg/kg), and the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (4 mg/kg) in one soil sample but did not exceed the NS Tier 1 EQS; however, the sample was within the waste pile, so possible exceedances were expected, and have been delineated onsite.
- Nickel concentrations (ranging from 3.22 mg/kg to 55.4 mg/kg) exceeded the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (45 mg/kg) in one soil sample; however, it is noted that the concentrations were well below the background value of 187 mg/kg and are interpreted as being related to, or influenced by, background concentrations.
- Selenium concentrations (ranging from 1.2 mg/kg to 1.4 mg/kg) exceeded the applicable NS Tier 1 EQS (1 mg/kg), and the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (1 mg/kg) in four soil samples; however, it is noted that these concentrations are below the background value of 3.1 mg/kg and are interpreted to be related to, or influenced by, background concentrations; and
- Vanadium concentrations (ranging from 3.3 mg/kg to 40.7 mg/kg) exceeded the applicable NS Tier 1 EQS (1 mg/kg) in one soil sample. The concentrations also exceeded the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural value (18 mg/kg) in 12 out of 15 analyzed samples; however, it is noted that all concentrations are below the background value of 115 mg/kg. Vanadium concentrations are interpreted to be related to, or influenced by, background concentrations.

In summary, excluding arsenic and cobalt, the detected metal concentrations were lower than the background values.

3.1.3 Petroleum Hydrocarbons

A total of nine soil samples, including one field duplicate, were submitted for analysis of BTEX and modified TPH. The results are presented in **Table C-5**.

Concentrations of BTEX parameters were below the laboratory detection limits. Modified TPH was detected in all soil samples analysed; however, concentrations were below the applicable NS Tier 1 EQS, and the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural values in all cases. The laboratory commented the hydrocarbon resemblance was lube oil fraction in all samples.

The highest PHC concentrations were measured for the heavier factions (C_{21}-C_{50}). It should be noted that in some cases naturally occurring organic materials (e.g., peat, vegetation) may appear as typically low levels of heavy fraction PHCs during analysis; the lab was unable to provide a comment on the source (i.e., petrogenic or organic) of the materials analyzed due to limited instrument response. The NS Tier I EQS for modified TPH does not include the >C_{34}-C_{50} hydrocarbon fraction, however, concentrations were below the Atlantic RBCA Ecological Tier 1 EQS, which are consistent with the CCME Canada Wide Standards.

3.1.4 Polycyclic Aromatic Hydrocarbons

A total of 15 soil samples, including one field duplicate, were submitted for analysis of PAHs. The results are presented in **Table C-6**. PAHs were either not detected above laboratory detection limits or were detected at concentrations below the applicable NS Tier 1 EQS, and the Atlantic RBCA Ecological Tier 1 EQS for soil – Agricultural values.

3.1.5 Energetics

A total of four soil samples, including one field duplicate, were submitted for analysis of energetics. The results are presented in **Table C-7**. Energetics were not detected at concentrations above laboratory detection limits.

3.2 Waste Rock Analysis

Waste rock analytical results are presented in **Table C-8** of **Appendix C** and are summarized in the sections below. Laboratory Certificates of Analysis are provided in **Appendix D**.

3.2.1 Total Sulphides

One rock sample was submitted for analysis of total sulphide. Sulphide concentrations were below the exemption criteria (0.4% sulphide by weight) of the Nova Scotia Sulphide Bearing Material Disposal Regulations. As such, acid-base accounting was not completed.

3.3 Groundwater Quality

Groundwater analytical results are presented in **Table C-9** of **Appendix C** and are summarized in the sections below. Laboratory Certificates of Analysis are provided in **Appendix D**.

3.3.1 Groundwater Depths

Groundwater was encountered during the May 14, 2024 sampling event at depths ranging from 1.86 meters below top of casing (mbtoc) (i.e., in MW23-02) to 4.65 mbtoc (i.e., in MW23-01). Non-aqueous phase liquids (NAPL) were not measured or observed in on-site monitoring wells during the groundwater monitoring event. Based on the orientation of the monitoring wells, groundwater flow directions were not calculated. The inferred groundwater flow direction is to the northeast.

Table 3-1: Groundwater Elevations

Monitoring Well ID	Depth to Groundwater (mbtoc)
MW23-01	4.65
MW23-02	1.86
MW23-03	2.48

Notes:
1. mbtoc – meters below top of casing
2. Water levels were collected on May 14, 2024.

3.3.2 General Chemistry

A total of three groundwater samples were submitted for General Chemistry analysis. The results are presented in **Table C-9**, **Appendix C**. General Chemistry parameters were detected at concentrations below the applicable NS Tier 1 EQS.

3.3.3 Metals

Three groundwater samples were submitted for dissolved metals analysis, including mercury. The results are presented in **Table C-9**, **Appendix C**. In one of the analyzed samples (MW23-1), concentrations of cobalt (0.00906 mg/L), iron (1.26 mg/L), and manganese (0.245 mg/L) exceeded the applicable NS Tier 1 EQS (0.0038 mg/L, 0.3 mg/L, and 0.12 mg/L, respectively). This sample was collected from a background location, suggesting the concentrations are naturally occurring.

3.3.4 Petroleum Hydrocarbons

A total of three groundwater samples were submitted for analysis of BTEX and modified TPH. The results are presented in **Table C-9**, **Appendix C**. Concentrations of BTEX and modified TPH were below the laboratory detection limits for all samples.

3.3.5 Polycyclic Aromatic Hydrocarbons

A total of three groundwater samples were submitted for analysis of PAHs. The results are presented in **Table C-9**, **Appendix C**. PAH concentrations were below the laboratory detection limits for all samples.

3.4 Quality Assurance and Quality Control

A program to ensure quality assurance and control (QA/QC) was implemented throughout the Phase II ESA. The QA/QC program consisted of a number of elements:

- Collection of samples using protocols consistent with Dillon Standard Environmental Field Procedures and/or industry standards;
- Use of dedicated sampling equipment and/or adherence to established equipment cleaning protocols, where applicable;
- Use of laboratory supplied containers;
- Collection of blind field duplicates; and
- Implementation of laboratory QA/QC procedures including analysis of reference standards, laboratory blanks and replicates.

Validation criteria were established that required the analytical data to have an acceptable and documented level of precision, accuracy, representativeness, comparability and completeness . The precision of the data for the samples collected was evaluated by calculating the RPD between the original samples and its duplicate when the samples had concentrations greater than 5x the laboratory Reportable Detection Limit (RDL).

In order to assess the precision and accuracy of the laboratory results, the RPD was calculated for each parameter, where RPDs below 60% and 40% are deemed to be acceptable in soil and groundwater, respectively. RPD values were not calculated for parameters that had concentrations that were less than the laboratory limit of detection. Calculated RPD values are presented in **Table C-10**, **Table C-11,** and **Table C-12** (see **Appendix C**) for soil and groundwater. A summary of RPD results, where calculated, is presented below:

- RPDs for soil were below 60% for all parameters.
- RPDs for groundwater were below 40% for all parameters.

4.0 Conceptual Site Model

4.1 Description of Contaminants

Soil concentrations of metals (i.e., aluminum, arsenic, beryllium, cobalt, iron, manganese, selenium, vanadium) have been detected above Tier I EQS based on soil samples at the site. Concentrations of aluminum, beryllium, iron, manganese, selenium, vanadium in soil were below the background values and can be attributed to natural background concentrations of till and underlying bedrock. Concentrations of arsenic (in seven of thirty samples) and cobalt (in one of fifteen samples) exceed both the NS Tier I EQS and the background values.

Groundwater quality analysis involved testing three samples for general chemistry, metals, PHCs, and PAHs. General chemistry, PAHs and PHCs were below detection limits. Cobalt, iron, and manganese levels were detected at concentrations exceeding NS Tier 1 EQS in groundwater, however, this sample was collected from a background location and therefore, these exceedances are likely attributed to background conditions.

4.2 Receptors

The site is owned by the province of Nova Scotia and has no restrictions to public access; however, the site is located several kilometers from the nearest community is only accessible via irregularly maintained dirt roads. As such, Dillon believes it appropriate to consider the land use at this site to be commercial in regard to guideline selection, however, it is considered conservative, as commercial guidelines assume presence on site for 5 days/week for 48 weeks/year. The site is currently vacant with no buildings present. Potential human receptors for this site include hikers who may come in contact with metals in surface soil (i.e., inadvertent contact).

No potable wells are currently located on site. The neighbouring property to the north is privately owned and though currently there are no known buildings on site, in the future there could potentially be potable wells on the property.

Terrestrial ecological receptors such as plants, soil invertebrates, bird and/or mammals will also need to be considered. Since the nearest aquatic habitat is greater than 200 m from the site, aquatic ecological receptors are not considered to be a potential receptor of concern.

4.3 Operable Pathways

4.3.1 Soil

Results of the Phase II ESA activities conducted for the site indicate that the documented residual metals impacts (i.e., arsenic, cobalt) pose a potential unacceptable risk to commercial receptors via soil ingestion or direct contact based on the applicable pathway specific standards (PSS). The site is currently vacant and not easily accessible to the public; however, the site is not secure and as a result the pathway of soil ingestion or direct contact is operable.

Metals impacts also pose a potential unacceptable risk to commercial receptors via soil leaching to potable groundwater based on the applicable PSS. No potable wells are present on-site; therefore this pathway is not operable. If there were to be a potable well installed on a neighboring property in the future, this pathway would be considered operable. However, groundwater was assessed at the site, and metals, general chemistry, PAHs and PHCs in groundwater were below applicable Tier I EQS for potable groundwater, with the exception of exceedances in a background groundwater sample.

4.3.2 Groundwater

Results of the Phase II ESA activities conducted for the site indicate that metals in groundwater at the site do not pose an unacceptable risk to commercial receptors via groundwater ingestion as there are currently no wells onsite or on adjacent properties. However, this pathway could become operable in the future should a property owner establish a well. In addition, groundwater was assessed at the site, and metals, general chemistry, PAHs and PHCs in groundwater were below applicable Tier I EQS for potable groundwater, with the exception of exceedances in a background groundwater sample. Since the metals exceedances are considered background, and commonly occur in the province, it would be the property owner's responsibility to treat the water as appropriate based on their due diligence water sampling.

Ecological receptor pathways for groundwater are incomplete as the monitoring wells onsite are more than 200 m from the nearest receiving water body.

5.0 Summary and Conclusions

The Phase II ESA activities in 2023 and 2024 included the collection of 49 shallow soil samples and three groundwater samples. For comparison to the NS CSRs Tier I EQS, the site is considered to be commercial, potable with coarse-grained soil conditions. Soil data were also compared to the Atlantic RBCA Tier 1 EQS for Agricultural land use, to identify potential impacts to ecological receptors. Ecological screening was not conducted for groundwater, as the nearest receptor (surface water body) is over 200 meters away, and therefore is not expected to be impacted by concentrations onsite.

Concentrations in soil were generally below guidelines or within expected background concentrations, with the exception of Arsenic and Cobalt. Cobalt exceedances are delineated horizontally onsite, while arsenic exceedances require follow up sampling to delineate. The cobalt and arsenic impacts have not been delineated to the northeast, as the current assessment was limited to the site only.

One rock sample collected from the site and analysed for total Sulphides was within the exemption criteria of the Nova Scotia Sulphide Bearing Material Disposal Regulations.

Groundwater samples from the assessment area exceeded the NS Tier 1 EQS for cobalt, iron and manganese at the background sampling location. These are listed on the NSECC Table 5 list of substances potentially considered as background occurrences, and are interpreted to be related to, or influenced by, background conditions.

At this stage of the assessment, we recommend the following supplemental studies be undertaken:

- Obtain supplemental surface soil data to establish lateral delineation of metals impacts in soil;
- Complete a confirmatory groundwater sampling event in the fall (under low flow conditions); and
- Complete a Human Health and Ecological Risk Assessment (HHERA).

5.1 Notification of Contamination Protocol

As per the NS CSRs, a FRM-100 Notification of Contamination Form has been prepared for the site (**Appendix E**).

6.0 Limitations

This report was prepared exclusively for the purposes, project and site location(s) outlined in the report. The report is based on information provided to, or obtained by Dillon Consulting Limited (Dillon) as indicated in the report, and applies solely to site conditions existing at the time of the site investigation(s). Although a reasonable investigation was conducted by Dillon, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site(s). Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site(s), and that the levels of contamination or hazardous materials may vary across the site(s). Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

This report was prepared by Dillon for the sole benefit of our client Build Nova Scotia. The material in the report reflects Dillon's judgment in light of the information available to Dillon at the time of preparation. Any use which a third party (i.e., a party other than our Client or our Client's lending institution) makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Respectfully Submitted,

DILLON CONSULTING LIMITED

Asia Reid, B.Sc.
Project Manager

Susan Barfoot, P.Eng.
Site Professional

Appendix A

Site Photos

Photo 1: Soil Sample SS-1; Note presence of rocks and root mass.

Photo 2: Soil Sample SS-2; Note presence of rocks.

Photo 3: Soil Sample SS-5; Note presence of root mass.

Photo 4: Soil Sample SS-11; note shallow depth of refusal.

Photo 5: Rock sample ROCK, collected from within the waste rock pile.

Photo 6: MW23-01

Photo 7: MW23-01, upper portion composed of boulders (left side with poor RQD) which transitions to competent bedrock (right side)

Photo 8: MW23-02

Photo 9: MW23-02, competent quartzite bedrock

Photo 10: MW23-03, edge of waste rock pile

Appendix B

Monitoring Well Logs

DILLON CONSULTING

MW23-01

Client: Build Nova Scotia
Project No.: 23-6446
Drilling Co.: Logan Drilling
Supervised by: AVR

Project: Mill Village Former Former Mine Site
Location: Charleston, N.S.
Drilling Method: Split Spoon/Auger & Coring
Date Started: 12-14-23 Date Completed: 12-14-23

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	N Value	RQD	Rec %	Depth Scale (m)
0	Overburden; brown sandy/silt soil mixed with gravel near surface, progessely less soil and larger rock size (up to boulders) with depth					38		43	0
				Sand		69		65	
1.0				Bentonite Seal		Refusal		20	1.0
2.0								100	2.0
3.0								56	3.0
								43	
4.0				PVC Screen				15	4.0
5.0								98	5.0
	Quartzite bedrock.		5.28				47	97	
6.0				Sand and Plug					6.0
			6.1						

DILLON MW - ROCK CORE MILL VILLLAGE 2023 MONITORING WELLS.GPJ DILLON TEMPLATE.GDT 2-23-24

LITHOLOGY SYMBOLS: Glacial Till; Gneiss Bedrock

SAMPLE TYPE: Split Spoon; Auger; Rock Core

Water found

* Indicates sample submitted for analysis

DILLON CONSULTING

MW23-02

Client: Build Nova Scotia
Project No.: 23-6446
Drilling Co.: Logan Drilling
Supervised by: MK

Project: Mill Village Former Former Mine Site
Location: Charleston, N.S.
Drilling Method: Split Spoon/Auger & Coring
Date Started: 12-13-24 Date Completed: 12-13-24

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample N Value	Sample RQD	Sample Rec %	Depth Scale (m)
1.0	Overburdern; light brown sandy silt mixed with gravel and cobbles.			Sand		2		8	1.0
						Refusal		33	
				Bentonite Seal					
2.0	Quartzite bedrock, factured near surface, minimal staining		1.96			Refusal		33	2.0
				PVC Screen			80	66	
3.0							71	82	3.0
				Sand and Plug					
			3.66						

DILLON MW - ROCK CORE MILL VILLLAGE 2023 MONITORING WELLS.GPJ DILLON TEMPLATE.GDT 2-23-24

LITHOLOGY SYMBOLS: Glacial Till; Gneiss Bedrock

SAMPLE TYPE: Split Spoon; Auger; Rock Core

Water found

* Indicates sample submitted for analysis

DILLON CONSULTING

MW23-03

Client: Build Nova Scotia
Project No.: 23-6446
Drilling Co.: Logan Drilling
Supervised by: MK

Project: Mill Village Former Former Mine Site
Location: Charleston, N.S.
Drilling Method: Split Spoon and Auger
Date Started: 12-12-24 Date Completed: 12-13-24

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	N Value	RQD	Rec %	Depth Scale (m)
0	Overburdern; Minor amounts of light brown soil interfilling large boulders/cobbles.					10		50	0
1.0				Sand riser		Refusal		25	1.0
				Bentonite Seal		Refusal		0	
	Quartzite bedrock, heavily fractured near surface with brown staining		1.68				83	100	
2.0									2.0
3.0							65	22	3.0
4.0				PVC Screen			78	73	4.0
5.0									5.0
6.0				Sand and Plug			92	92	6.0
			6.1						

DILLON MW - ROCK CORE MILL VILLLAGE 2023 MONITORING WELLS.GPJ DILLON TEMPLATE.GDT 2-23-24

LITHOLOGY SYMBOLS: Glacial Till; Gneiss Bedrock

SAMPLE TYPE: Split Spoon; Auger; Rock Core

Water found

* Indicates sample submitted for analysis

Appendix C

Analytical Results

Table C-1: Metal Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

				Metals																						
				Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (Total, III+VI)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Sulphur as S	Thallium	Tin	Uranium	Vanadium	Zinc
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			RDL	50	0.1	0.1	0.5	0.1	5	0.02	0.5	0.1	0.5	50	0.5	1	0.005	0.1	0.5	0.2	0.1	0.5	1,000	0.05	2	0.05	0.2	2
			Background[A]	59,000	2	281	194	1.8	1.18	1.1	143	30.6	140	52,000	112	6,530	0.23	3.5	187	3.1	0.6	86	-	2.5	15.2	4.8	115	270
			NS Tier I EQS[B]	15,400	7.5	10	350	1	4,300	1	630	22	250	11,000	120	360	24	15	70	1	77	9,400	-	1	9,400	30	39	200
			Atlantic RBCA - Ecological Tier 1 EQS[C]	-	*20*	*17.1*	*400*	*5*	*120*	*3.8*	*64*	*20*	*63*	-	*70*		*12*	*4*	*45*	*1*	*20*		-	*1*	*5*	*33*	*18*	*200*
Location Code	Sample Type	Depth	Date																									
HA3 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	24,800	0.2	*393*	24.4	0.79	<5.0	0.133	25.6	2.92	8.06	36,100	11.8	119	0.101	0.92	7.96	*1.56*	0.13	6.34	<1,000	0.091	<2.0	0.585	*40.7*	30.9
HA4 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	24,900	0.15	*97.1*	23.6	0.34	<5.0	0.045	20.4	2.56	7.07	23,800	11.1	112	0.102	0.37	7.8	*1.34*	0.17	2.72	<1,000	0.109	<2.0	0.402	*31.1*	48.2
HA5 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	21,600	0.15	*154*	24.6	0.36	<5.0	0.052	21.2	3.34	10.2	24,800	10.6	181	0.162	0.34	11.6	0.97	0.16	3.7	<1,000	0.124	<2.0	0.407	*25.9*	41.8
HA6 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	20,800	0.16	*147*	17.7	0.26	<5.0	0.049	18	1.79	5.48	25,400	12.1	101	0.077	0.4	6.01	*1.14*	0.14	2.8	<1,000	0.106	<2.0	0.358	*28.7*	27
SS1	Field Duplicate of SS1	Surface	09 Nov 2023	9,150	<0.10	*48.8*	19.6	0.15	<5.0	0.064	6.74	1.77	5.2	9,270	7.5	54.9	0.0504	0.2	3.85	0.48	<0.10	7.85	<1,000	0.074	<2.0	0.272	12.7	17
	Assessing soil within waste rock pile	Surface	09 Nov 2023	6,460	0.13	*56.8*	20.9	0.11	<5.0	0.08	5.79	1.52	4.65	9,980	9.58	49.1	0.0491	0.23	3.22	0.44	0.1	7.79	<1,000	0.087	<2.0	0.252	16.5	14.5
SS2	Assessing soil within waste rock pile	Surface	09 Nov 2023	14,900	0.29	*181*	24	0.46	<5.0	0.05	22.3	8.97	24.6	25,100	22.3	360	0.113	0.26	22.9	0.31	<0.10	5.64	<1,000	0.131	<2.0	0.73	*24.3*	56.8
SS3	Assessing soil within waste rock pile	Surface	09 Nov 2023	18,400	0.78	*373*	73.3	1.09	<5.0	0.13	29.8	*49.3*	*99.5*	37,400	67.5	719	0.132	0.24	*55.4*	<0.20	0.22	18.2	<1,000	0.257	<2.0	1.7	*32.7*	121
SS4	Deliniation step-out sample	Surface	09 Nov 2023	18,800	0.17	*132*	23.1	0.19	<5.0	0.057	17.1	1.36	5.45	24,900	9.73	102	0.0599	0.45	5.1	0.76	0.16	3.2	<1,000	0.162	<2.0	0.317	*30.9*	19.6
SS11	Deliniation step-out sample	Surface	09 Nov 2023	13,400	0.12	*151*	25.9	0.27	<5.0	0.039	18.4	2.65	5.71	26,700	10.6	156	0.0631	0.4	9.76	0.42	<0.10	5.46	<1,000	0.118	<2.0	0.388	*32.7*	26.2
MW23-2	Composite soil sample from borehole	0-3.7 mbgs	13 Dec 2023	22,200	0.26	*371*	47.4	0.62	<5.0	0.039	31.6	11.8	30.8	31,300	11.6	404	0.0392	1.13	27.8	0.61	0.1	6.57	<1,000	0.205	<2.0	1.11	*33.6*	68.6
MW23-3	Composite soil sample from borehole	0-6.1 mbgs	13 Dec 2023	23,400	0.22	*333*	57.8	0.44	<5.0	0.043	53.9	12.5	24.8	33,200	13.8	404	0.0232	*4.64*	28	0.56	<0.10	5.14	<1,000	0.19	<2.0	0.736	*32.2*	72.2

Notes:
A - The higher value was selected from the Background Soil range provided by the Review of Environment Canada's Background Soil Database (2004-2009), Version No.1, March 2011, and the calculated Site-Specific Background Threshold Values.
B - Nova Scotia Tier I EQS for Soil - Commercial Land Use, Potable Site Conditions, Coarse Grain Size
C - Atlantic RBCA Ecological Tier I EQS for Soil - Agricultural Land Use, Potable Site Conditions, Coarse Grain Size
100 Bold values indicate the concentrations exceed the Background Value
100 Highlighed values indicate the concentrations exceed the NS Tier I EQS
100 Italic values indicate the concentrations exceed the Atlantic RBCA Tier 1 EQS
mbgs - meters below ground surface

Table C-2: Arsenic Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

					Arsenic
					mg/kg
				RDL	0.1
				Background[A]	281
				NS Tier I EQS[B]	10
				Atlantic RBCA - Ecological Tier 1 EQS[C]	*17.1*
Location/Sample ID		Sample Type	Depth	Date	
HA3	HA3 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	*393*
	HA3 SS2	Soil immediately adjacent to waste rock		10 Nov 2023	*391*
HA4	HA4 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	*97.1*
	HA4 SS2	Soil immediately adjacent to waste rock		10 Nov 2023	*122*
HA5	HA5 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	*154*
	HA5 SS2	Soil immediately adjacent to waste rock		10 Nov 2023	*170*
HA6	HA6 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	*147*
	HA6 SS2	Soil immediately adjacent to waste rock		10 Nov 2023	*182*
SS1	DUP 1	Field Duplicate of SS1	Surface	09 Nov 2023	*48.8*
	SS1	Soil within the waste rock pile	Surface	09 Nov 2023	*56.8*
SS2	SS2	Soil within the waste rock pile	Surface	09 Nov 2023	*181*
SS3	SS3	Soil within the waste rock pile	Surface	09 Nov 2023	*373*
SS4	DUP 2	Field Duplicate of SS4	Surface	09 Nov 2023	*132*
	SS4	Deliniation step-out samples	Surface	09 Nov 2023	*87.5*
SS5	SS5	Deliniation step-out samples	Surface	09 Nov 2023	*99*
SS6	SS6	Deliniation step-out samples	Surface	09 Nov 2023	*114*
SS7	SS7	Deliniation step-out samples	Surface	09 Nov 2023	*96*
SS8	SS8	Deliniation step-out samples	Surface	09 Nov 2023	*180*
SS9	SS9	Deliniation step-out samples	Surface	09 Nov 2023	*958*
SS10	SS10	Deliniation step-out samples	Surface	09 Nov 2023	*370*
SS11	DUP 3	Field Duplicate of SS11	Surface	09 Nov 2023	*151*
	SS11	Deliniation step-out samples	Surface	09 Nov 2023	*105*
SS12	SS12	Deliniation step-out samples	Surface	09 Nov 2023	*58.6*
MW23-2	MW23-2	Composite soil sample from borehole	0-3.7 mbgs	13 Dec 2023	*371*
MW23-3	MW23-3	Composite soil sample from borehole	0-6.1 mbgs	13 Dec 2023	*333*

Notes:

A - The higher value was selected from the Background Soil range provided by the Review of Environment Canada's Background Soil Database (2004-2009), Version No.1, March 2011, and the calculated Site-Specific Background Threshold Values.

B - Nova Scotia Tier I EQS for Soil - Commercial Land Use, Potable Site Conditions, Coarse Grain Size

C - Atlantic RBCA Ecological Tier I EQS for Soil - Agricultural Land Use, Potable Site Conditions, Coarse Grain Size

100 Bold values indicate the concentrations exceed the Background Value

100 Highlighed values indicate the concentrations exceed the NS Tier I EQS

100 Italic values indicate the concentrations exceed the Atlantic RBCA Tier 1 EQS

Table C-3: Metal concentrations in background soil samples
Mill Village Former Mine Site
Dillon Project Number: 23-6446

				Metals																							
				Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (Total, III+VI)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Sulphur as S	Thallium	Tin	Uranium	Vanadium	Zinc
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				50	0.1	0.1	0.5	0.1	5	0.02	0.5	0.1	0.5	50	0.5	1	0.005	0.1	0.5	0.2	0.1	0.5	1,000	0.05	2	0.05	0.2	2
Location Code	Field ID	Depth	Date																								
BGSS-13	BGSS-13 0-1	0 - 1	13 May 2024	23,400	0.14	136	19.5	0.26	<5.0	0.045	18.5	1.43	5.60	25,900	11.0	125	0.0669	0.32	6.54	0.88	0.20	2.29	<1,000	0.123	<2.0	0.445	35.4	17.4
BGSS-14	BGSS-14 0-1	0 - 1	13 May 2024	14,100	0.17	101	14.6	0.12	<5.0	0.024	13.3	0.91	4.18	23,700	8.83	91.8	0.0347	0.28	3.93	0.58	<0.10	2.15	<1,000	0.150	<2.0	0.265	35.3	12.7
BGSS-15	BGSS-15 0-1	0 - 1	14 May 2024	30,600	0.18	223	25.9	0.35	<5.0	0.047	24.3	2.63	10.4	26,800	12.8	170	0.0971	0.35	9.50	1.31	0.21	4.10	<1,000	0.137	<2.0	0.555	25.1	33.4
	BGSS-15 1-2	1 - 2	14 May 2024	-	-	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-16	BGSS-16 0-1	0 - 1	14 May 2024	31,400	0.12	263	25.1	0.34	<5.0	0.050	26.0	3.32	9.46	25,500	13.7	177	0.0940	0.39	10.6	1.95	0.22	4.64	<1,000	0.104	<2.0	0.687	29.0	24.7
	BGSS-16 1-2	1 - 2	14 May 2024	-	-	225	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-17	BGSS-17 0-1	0 - 1	14 May 2024	16,700	0.17	145	17.9	0.21	<5.0	0.033	14.7	2.15	6.98	18,500	11.2	133	0.0551	0.34	8.43	0.63	<0.10	3.18	<1,000	0.117	<2.0	0.392	25.2	18.4
	BGSS-17 1-2	1 - 2	14 May 2024	-	-	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-18	BGSS-18 0-1	0 - 1	14 May 2024	19,600	0.15	60.0	24.1	0.22	<5.0	0.049	17.5	1.82	7.72	21,200	9.84	117	0.0646	0.29	6.67	0.67	<0.10	2.02	<1,000	0.137	<2.0	0.444	36.8	15.7
	BGSS-18 1-2	1 - 2	14 May 2024	-	-	61.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-19	BGSS-19 0-1	0 - 1	14 May 2024	1,130	0.21	1.89	47.7	<0.10	<5.0	0.535	2.27	0.29	8.14	579	18.1	16.6	0.110	0.18	3.26	0.72	<0.10	42.9	<1,000	0.050	<2.0	0.093	3.51	17.4
	BGSS-19 1-2	1 - 2	14 May 2024	-	-	1.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-20	BGSS-20 0-1	0 - 1	14 May 2024	4,640	0.14	63.9	12.5	<0.10	<5.0	0.044	4.83	0.34	2.28	6,540	11.3	43.3	0.0401	0.18	1.55	0.22	<0.10	2.42	<1,000	0.072	<2.0	0.179	14.1	6.1
	BGSS-20 1-2	1 - 2	14 May 2024	-	-	116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-21	BGSS-21 0-1	0 - 1	14 May 2024	18,500	0.21	189	21.1	0.23	<5.0	0.056	17.8	2.32	7.21	24,000	12.5	158	0.0487	0.32	8.45	0.75	0.14	4.28	<1,000	0.124	<2.0	0.396	28.9	22.4
	BGSS-21 1-2	1 - 2	14 May 2024	-	-	197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	DUP A	0-1	14 May 2024	17,200	0.20	164	22.3	0.24	<5.0	0.096	16.4	2.14	7.31	21,600	13.4	138	0.0655	0.31	7.92	0.76	0.16	4.14	<1,000	0.117	<2.0	0.394	24.4	20.5
BGSS-22	BGSS-22 0-1	0 - 1	14 May 2024	6,910	0.21	156	16.7	<0.10	<5.0	0.052	7.21	0.65	2.16	11,200	11.8	89.8	0.0407	0.28	2.11	0.45	0.15	4.20	<1,000	0.104	<2.0	0.213	20.1	8.3
	BGSS-22 1-2	1 - 2	14 May 2024	-	-	281	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA1	HA1 SS1	0-1	09 Nov 2023	17,000	0.16	145	18.2	0.21	<5.0	0.048	18.9	2.73	8.07	19,800	11.4	178	0.0605	0.35	9.30	1.04	0.11	6.22	<1,000	0.086	<2.0	0.419	22.8	22.0
	HA1 SS2	1-2	09 Nov 2023	-	-	165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA2	HA2 SS1	0-1	10 Nov 2023	3,500	<0.10	4.24	30.7	0.43	<5.0	0.169	3.76	0.78	13.5	1,680	14.2	12.6	0.0474	0.14	5.80	0.49	0.11	6.57	<1,000	0.058	<2.0	0.346	3.32	3.7
	HA2 SS2	1-2	10 Nov 2023	-	-	5.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW23-1	BH1 Composite	-	14 Dec 2023	14,100	0.14	104	32.4	0.38	<5.0	0.032	23.5	8.13	22.2	21,400	8.90	315	0.0200	0.59	21.8	0.26	<0.10	4.63	<1,000	0.114	<2.0	0.647	21.9	44.1

Table C-4: Site-Specific Background Threshold Values
Mill Village Former Mine Site
Dillon Project Number: 23-6446

Parameter	Min (mg/kg)	Max (mg/kg)	Mean (mg/kg)	Median (mg/kg)	Count	#NDs	Distribution	BTV (mg/kg)	Recommended Method	Potential Outliers
Aluminium	1,130	31,400	15,627	16,850	14	0	Data appear Normal; Detected data also follow Approximate Gamma Distribution	31400	95% USL	No significant outliers detected
Arsenic	1.77	281	132	140.5	24	0	Data appear Normal	281	95% USL	No significant outliers detected
Cobalt	0.29	8.13	2.1	1.98	14	0	Data appear Approximate Normal; Detected data appear Gamma Distributed at; Data appear Lognormal	8.13	95% USL	No significant outliers detected
Iron	579	26,800	17,743	21,300	14	0	Data appear Normal	26,800	95% USL	No significant outliers detected
Manganese	12.6	315	126	129	14	0	Data appear Normal; Detected data appear Gamma Distributed	315	95% USL	No significant outliers detected
Selenium	0.22	1.95	0.76	0.695	14	0	Data appear Normal; Detected data appear Gamma Distributed; Data appear Lognormal	1.95	95% USL	No significant outliers detected
Vanadium	3.32	36.8	23	24.75	14	0	Data appear Normal	36.8	95% USL	No significant outliers detected

*Values in mg/kg

Table C-5: Petroleum Hydrocarbon Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

				BTEX						Petroleum Hydrocarbons (PHCs)						
				Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	VPH (C6-C10 - BTEX)	EPH >C10-C16	EPH >C16-C21	EPH >C21-C32	EPH >C34-C50	Modified TPH (Tier 1)	Hydrocarbon Resemblance
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
			RDL	0.005	0.05	0.015	0.03	0.03	0.05	5	5	5	5	20	10	-
			NS Tier I EQS[A]	0.042	0.35	0.043	-	-	0.73	-	-	-	-	-	10000[B]	-
			Atlantic RBCA - Ecological Tier 1 EQS[B]	*18*	*75*	*55*			*95*	210	150	300		2800		
Location Code	Sample Type	Depth	Date													
SS1	Field Duplicate of SS1	Surface	09 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	6.0	168	274	174	LOF
	Assessing soil within waste rock pile	Surface	09 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	6.8	155	270	162	LOF
SS2	Assessing soil within waste rock pile	Surface	09 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	<5.0	19.1	31	19	LOF
SS3	Assessing soil within waste rock pile	Surface	09 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	<5.0	46.5	76	46	LOF
HA3 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	12.8	<5.0	12.7	133	217	158	LOF
HA4 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	10.9	<5.0	10.2	108	198	129	LOF
HA6 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	6.9	124	226	131	LOF
MW23-2	Composite soil sample from borehole	0-3.7 mbgs	13 Dec 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	<5.0	40.9	62	41	LOF
MW23-3	Composite soil sample from borehole	0-6.1 mbgs	13 Dec 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	<5.0	28.4	45	28	LOF

Notes:
A - Nova Scotia Tier I EQS for Soil - Commercial Land Use, Potable Site Conditions, Coarse Grain Size
B - Atlantic RBCA Ecological Tier I EQS for Soil - Agricultural Land Use, Potable Site Conditions, Coarse Grain Size
100 Highlighed values indicate the concentrations exceed the NS Tier I EQS
100 Italic values indicate the concentrations exceed the Atlantic RBCA Tier 1 EQS
mbgs - meters below ground surface
LOF - Lube Oil Fraction

Table C-6: Polycyclic Aromatic Hydrocarbon Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

				Polycyclic Aromatic Hydrocarbons (PAHs)																						
				1-Methylnaphthalene	2-methylnaphthalene	1 & 2 Methylnaphthalene	Acenaphthene	Acenaphthylene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+j)fluoranthene	Benzo(b+j+k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Perylene	Phenanthrene	Pyrene	Quinoline	B(A)P TPE
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			RDL	0.01	0.01	0.015	0.005	0.005	0.01	0.004	0.01	0.01	0.01	0.015	0.01	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
			2011 Env Can NS Database Background Maximum[A]	0.22	0.54	-	115	4.8	-	0.04	-	74	-	-	0.31	8.4	-	0.66	270	1.18	84	15.2	6.4	0.23	58	-	-
			NS Tier I EQS[B]	30	30	-	8,000	23	-	37,000	12	14	1.2	1.2	250	1.2	78	8.8	4,100	5,300	98	25	-	17	3,200	-	5.3
			*Atlantic RBCA - Ecological Tier 1 EQS for soil - Agricultural (mg/kg)**	-	-	-	*21.5*	-	-	*2.5*	*0.5*	*0.6*	-	*6.2*	*6.6*	-	*6.2*	-	*15.4*	*15.4*	*0.38*	*0.6*	-	*6.2*	*7.7*	-	-
Location Code	Sample Type	Depth	Date																								
HA1 SS1	Background	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.040	<0.0043	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
HA2 SS1	Background	Surface	10 Nov 2023	<0.010	<0.010	<0.015	<0.0060	<0.0060	<0.061	<0.0060	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	0.0078	<0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
HA3 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.010	<0.010	<0.015	<0.0052	<0.0052	<0.010	<0.0052	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0052	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
HA4 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.010	<0.0040	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
HA5 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.010	<0.010	<0.015	<0.0050	0.0083	<0.010	0.0082	0.019	0.014	0.028	0.028	<0.010	<0.010	0.018	<0.0050	<0.010	0.038	0.011	<0.010	<0.010	0.018	0.027	<0.010	0.023
HA6 SS1	Soil immediately adjacent to waste rock	Surface	10 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.044	<0.0045	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
SS1	Field Duplicate of SS1	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0075	<0.0050	<0.041	<0.0043	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
	Assessing soil within waste rock pile	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.040	<0.0043	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
SS2	Assessing soil within waste rock pile	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.010	0.0058	0.013	<0.010	0.04	0.055	<0.010	0.015	0.035	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
SS3	Assessing soil within waste rock pile	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.010	<0.0040	<0.010	<0.010	0.012	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
SS4	Deliniation step-out sample	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.046	<0.0045	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
SS11	Deliniation step-out sample	Surface	09 Nov 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.051	<0.0050	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
MW23-1	Composite soil sample from background borehole	0-6.1 mbgs	14 Dec 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.010	<0.0040	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
MW23-2	Composite soil sample from borehole	0-3.7 mbgs	13 Dec 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.010	<0.0040	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
MW23-3	Composite soil sample from borehole	0-6.1 mbgs	13 Dec 2023	<0.010	<0.010	<0.015	<0.0050	<0.0050	<0.010	<0.0040	<0.010	<0.010	<0.010	<0.015	<0.010	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020

Notes:
Nova Scotia Tier I Environmental Quality Standard - October 2022
A - Background soil range from the Review of Environment Canada's Background Soil Data base (2004-2009), Version No.1, March 2011
B - Nova Scotia Tier I EQS for Soil - Commercial Land Use, Potable Site Conditions, Coarse Grain Size
C - Atlantic RBCA Ecological Tier I EQS for Soil - Agricultural Land Use, Potable Site Conditions, Coarse Grain Size
100 Bold values indicate the concentrations exceed the Background Value
100 Highlighed values indicate the concentrations exceed the NS Tier I EQS
100 Italic values indicate the concentrations exceed the Atlantic RBCA Tier 1 EQS
mbgs - meters below ground surface

Table C-7: Energetic Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

			Energetics																
			1,3,5-Trinitrobenzene	1,3-Dinitrobenzene	2,4,6-Trinitrotoluene (TNT)	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Amino-4,6-Dinitrotoluene	2-Nitrotoluene	4-Amino-2,6-Dinitrotoluene	4-Nitrotoluene	HMX	m-Nitrotoluene	Nitrobenzene	Nitroglycerine	PETN	RDX	Tetryl	3,5-Dinitroaniline
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		RDL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.05	0.05	0.05
Location Code	Sample Type	Date																	
SS1	Soil immediately adjacent to waste rock	09 Nov 2023	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050
	Field Duplicate of SS1	09 Nov 2023	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050
SS2	Assessing soil within waste rock pile	09 Nov 2023	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050
SS3	Assessing soil within waste rock pile	09 Nov 2023	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.050	<0.050	<0.050

Notes:
Coarse Grain Size
There are no applicable guidelines available from NSECC

Table C-8: Total Sulphide Concentrations in Rock
Mill Village Former Mine Site
Dillon Project Number: 23-6446

			Sulfide	Sulfur
			%	%
		RDL	0.005	0.005
		Exemption Criteria[A]	0.4	-
Samnple ID	Sample Type	Date		
ROCK	Waste Rock	09 Nov 2023	0.023	0.023

Nova Scotia Sulphide Bearing Material Disposal Regulations - 1995

A - Value listed in Section 5 of the Sulphide Bearing Material Disposal Regulations

100 Highlighed values indicate the concentrations exceed the NS Sulphide Bearing Materials Regulations Exemption Criteria

Table C-9: Groundwater Analytical Results
Mill Village Former Mine Site
Dillon Project Number: 23-6446

			Location Code	MW23-1	MW23-2		MW23-3
			Field ID	MW23-1	DUP A	MW23-2	MW23-3
			Sample Type	Normal	Field_D	Normal	Normal
			Date	14 May 2024	14 May 2024	14 May 2024	14 May 2024
	Unit	EQL	NS Tier I EQS[A]				
Calculated Parameters							
Anions Total (filtered)	meq/L	0.1	-	0.29	0.84	0.82	0.49
Cations Total (filtered)	meq/L	0.1	-	0.31	0.75	0.74	0.47
Ionic Balance (filtered)	%	0.01	-	107	89.3	90.2	95.9
Langelier Index (@ 20C)	N/A	0.01	-	-4.26	-2.08	-2.10	-3.11
Langelier Index (@ 4C)	N/A	0.01	-	-4.51	-2.34	-2.35	-3.36
Saturation @ 4c	-	0.01	-	10.7	9.09	9.09	9.72
Saturation pH (@ 20C)	N/A	0.01	-	10.4	8.83	8.84	9.47
General Chemistry							
Carbonate	mg/L	1	-	<1.0	<1.0	<1.0	<1.0
Alkalinity (total)	mg/L	1	-	6.6	30.9	30.2	14.1
Bicarbonate	mg/L	1	-	8.0	37.6	36.9	17.2
Ammonia as N	mg/L	0.005	-	<0.0050	0.0072	<0.0050	0.0186
Total Organic Carbon (TOC)	mg/L	0.5	-	10.4	0.81	0.74	0.67
Ortho Phosphate as P (filtered)	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	0.0013
Phosphorus (filtered)	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050
Fluoride	mg/L	0.02	-	<0.020	0.025	0.025	<0.020
Chloride (filtered)	mg/L	0.5	250	4.24	5.33	5.30	5.49
Colour, Apparent	CU	2	-	20.9	42.0	42.0	116
Electrical Conductivity (Lab)	µS/cm	1	-	36.0	87.8	87.0	56.9
Hydroxide	mg/L	1	-	<1.0	<1.0	<1.0	<1.0
Nitrate (as N)	mg/L	0.02	-	<0.020	<0.020	<0.020	<0.020
Nitrite (as N)	mg/L	0.01	-	<0.010	<0.010	<0.010	<0.010
Nitrite + Nitrate as N	mg/L	0.0224	-	<0.0224	<0.0224	<0.0224	<0.0224
pH (Lab)	pH Units	0.1	-	6.17	6.75	6.74	6.36
Sulphate (filtered)	mg/L	0.3	-	1.66	3.20	3.23	2.64
Total Dissolved Solids (TDS) - Measured	mg/L	10	-	20	44	43	28
Turbidity	NTU	0.1	-	3.37	10.3	10.5	21.4
Metals							
Aluminium (filtered)	mg/L	0.001	0.1	0.0098	0.0030	0.0027	0.0074
Antimony (filtered)	mg/L	0.0001	0.006	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic (filtered)	mg/L	0.0001	0.01	0.00020	0.00682	0.00721	0.00233
Barium (filtered)	mg/L	0.0001	1	0.00999	0.00395	0.00416	0.00499
Beryllium (filtered)	mg/L	0.00002	0.004	0.000026	<0.000020	<0.000020	0.000028
Bismuth (filtered)	mg/L	0.00005	-	<0.000050	<0.000050	<0.000050	<0.000050
Boron (filtered)	mg/L	0.01	5	<0.010	<0.010	<0.010	<0.010
Cadmium (filtered)	mg/L	0.000005	0.005	0.0000179	0.0000095	0.0000113	0.0000198
Calcium (filtered)	mg/L	0.05	-	1.07	9.58	9.60	4.67
Chromium (Total, III+VI) (filtered)	mg/L	0.0005	0.05	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (filtered)	mg/L	0.0001	0.0038	0.00906	0.00097	0.00083	0.00127
Copper (filtered)	mg/L	0.0002	2	0.109	0.00114	0.00148	0.00354
Iron (filtered)	mg/L	0.01	0.3	1.26	0.128	0.092	0.015
Lead (filtered)	mg/L	0.00005	0.005	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium (filtered)	mg/L	0.005	-	0.598	0.882	0.894	0.656
Manganese (filtered)	mg/L	0.0001	0.12	0.245	0.0471	0.0411	0.0416
Mercury (filtered)	mg/L	0.000005	0.001	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (filtered)	mg/L	0.00005	0.07	0.000095	0.000133	0.000195	0.000233
Nickel (filtered)	mg/L	0.0005	0.1	0.0330	0.00082	0.00082	0.00350
Silica (SiO2) (filtered)	mg/L	0.11	-	6.24	7.89	7.61	6.40
Potassium (filtered)	mg/L	0.05	-	0.771	0.678	0.676	0.533
Selenium (filtered)	mg/L	0.00005	0.05	<0.000050	0.000109	0.000110	0.000065
Cesium (filtered)	mg/L	0.00001	-	0.000016	0.000057	0.000058	<0.000010
Rubidium (filtered)	mg/L	0.0002	-	0.00276	0.00121	0.00117	0.00089
Tellurium (filtered)	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020
Thorium (filtered)	mg/L	0.0001	-	<0.00010	<0.00010	<0.00010	<0.00010
Tungsten (filtered)	mg/L	0.0001	-	0.0195	0.00251	0.00311	0.00371
Lithium (filtered)	mg/L	0.001	-	<0.0010	<0.0010	<0.0010	<0.0010
Silver (filtered)	mg/L	0.00001	-	0.000058	<0.000010	<0.000010	0.000028
Silicon (filtered)	mg/L	0.05	-	2.92	3.69	3.56	2.99
Sodium (filtered)	mg/L	0.05	200	3.05	3.93	3.90	3.83
Strontium (filtered)	mg/L	0.0002	2.4	0.0148	0.0380	0.0386	0.0234
Sulphur as S (filtered)	mg/L	0.5	-	<0.50	1.02	1.02	0.82
Titanium (filtered)	mg/L	0.0003	-	<0.00030	<0.00030	<0.00030	<0.00030
Thallium (filtered)	mg/L	0.00001	0.002	0.000013	<0.000010	<0.000010	<0.000010
Tin (filtered)	mg/L	0.0001	2.4	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (filtered)	mg/L	0.00001	0.02	<0.000010	0.000105	0.000106	0.000080
Vanadium (filtered)	mg/L	0.0005	0.0062	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (filtered)	mg/L	0.001	5	0.0152	0.0025	0.0030	0.0036
Zirconium (filtered)	mg/L	0.0002	-	<0.00020	<0.00020	<0.00020	<0.00020
BTEX							
Benzene	mg/L	0.0005	0.005	<0.00050	<0.00050	<0.00050	<0.00050
Toluene	mg/L	0.0005	0.024	<0.00050	<0.00050	<0.00050	<0.00050
Ethylbenzene	mg/L	0.0005	0.0016	<0.00050	<0.00050	<0.00050	<0.00050
Xylene (o)	mg/L	0.0003	-	<0.00030	<0.00030	<0.00030	<0.00030
Xylene (m & p)	mg/L	0.0004	-	<0.00040	<0.00040	<0.00040	<0.00040
Xylene Total	mg/L	0.0005	0.02	<0.00050	<0.00050	<0.00050	<0.00050
Petroleum Hydrocarbons (PHCs)							
VPH (C6-C10 - BTEX)	mg/L	0.025	-	<0.025	<0.025	<0.025	<0.025
EPH >C10-C16	mg/L	0.05	-	<0.050	<0.050	<0.125	<0.125
EPH >C16-C21	mg/L	0.05	-	<0.050	<0.050	<0.125	<0.125
EPH >C21-C32	mg/L	0.05	-	<0.050	<0.050	<0.050	<0.050
Modified TPH (Tier 1)	mg/L	0.09	3.2	<0.090	<0.090	<0.184	<0.184
EPH >C34-C50	mg/L	0.1	-	<0.10	<0.10	<0.10	<0.10
Reached Baseline at C32	-		-	Yes	Yes	Yes	Yes
Hydrocarbon Resemblance	none		-	N/A	N/A	N/A	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)							
1-Methylnaphthalene	mg/L	0.00001	0.012	<0.000010	<0.000010	<0.000010	<0.000010
2-methylnaphthalene	mg/L	0.00001	0.012	<0.000010	<0.000010	<0.000010	<0.000010
1 & 2 Methylnaphthalene	mg/L	0.000015	-	<0.000015	<0.000015	<0.000015	<0.000015
Acenaphthene	mg/L	0.00001	1.4	<0.000010	<0.000010	<0.000010	<0.000010
Acenaphthylene	mg/L	0.00001	0.0045	<0.000010	<0.000010	<0.000010	<0.000010
Acridine	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Anthracene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Benz(a)anthracene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene	mg/L	0.000005	0.00004	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo(b+j)fluoranthene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(b+j+k)fluoranthene	mg/L	0.000015	-	<0.000015	<0.000015	<0.000015	<0.000015
Benzo(g,h,i)perylene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(k)fluoranthene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz(a,h)anthracene	mg/L	0.000005	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluorene	mg/L	0.00001	0.94	<0.000010	<0.000010	<0.000010	<0.000010
Fluoranthene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Indeno(1,2,3-c,d)pyrene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Naphthalene	mg/L	0.00001	0.47	<0.000010	<0.000010	<0.000010	<0.000010
Perylene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Phenanthrene	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
Pyrene	mg/L	0.00001	0.71	<0.000010	<0.000010	<0.000010	<0.000010
Quinoline	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010
B(A)P TPE	mg/L	0.00001	-	<0.000010	<0.000010	<0.000010	<0.000010

Notes:
A - Nova Scotia Tier I EQS for groundwater - commercial land use, potable site condition, coarse grain size
Highlighted Values indicate the concentrations exceed the NS Tier 1 EQS

Table C-10: Quality Control for Metal Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

				Metals																						
				Aluminium	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium (Total, III+VI)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Tin	Uranium	Vanadium	Zinc
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			RDL	50	0.1	0.1	0.5	0.1	5	0.02	0.5	0.1	0.5	50	0.5	1	0.005	0.1	0.5	0.2	0.1	0.5	0.05	2	0.05	0.2	2
Location Code	Sample ID	Sample Type	Date																								
SS1	DUP 1	Field Duplicate of SS1	09 Nov 2023	9,150	<0.10	48.8	19.6	0.15	<5.0	0.064	6.74	1.77	5.2	9,270	7.5	54.9	0.0504	0.2	3.85	0.48	<0.10	7.85	0.074	<2.0	0.272	12.7	17
	SS1	Soil immediately adjacent to waste rock	09 Nov 2023	6,460	0.13	56.8	20.9	0.11	<5.0	0.08	5.79	1.52	4.65	9,980	9.58	49.1	0.0491	0.23	3.22	0.44	0.1	7.79	0.087	<2.0	0.252	16.5	14.5
		RPD (%) [C]		*34.5*	-	*15.2*	*6.4*	-	-	-	*15.2*	*15.2*	*11.2*	*7.4*	*24.4*	*11.2*	*2.6*	-	*17.8*	-	-	*0.8*	-	-	*7.6*	*26.0*	*15.9*
		Abs Difference [D]		-	-	-	-	*0.04*	-	*0.02*	-	-	-	-	-	-	-	*0.03*	-	*0.04*	-	-	*0.013*	-	-	-	-	-
SS4	DUP 2	Field Duplicate of SS4	09 Nov 2023	18,800	0.17	132	23.1	0.19	<5.0	0.057	17.1	1.36	5.45	24,900	9.73	102	0.0599	0.45	5.1	0.76	0.16	3.2	0.162	<2.0	0.317	30.9	19.6
	SS4	Deliniation step-out sample	09 Nov 2023	-	-	87.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RPD (%) [C]		-	-	*40.5*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Abs Difference [D]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SS11	DUP 3	Field Duplicate of SS11	09 Nov 2023	13,400	0.12	151	*25.9*	0.27	<5.0	0.039	18.4	2.65	5.71	26,700	10.6	156	0.0631	0.4	9.76	0.42	<0.10	5.46	0.118	<2.0	0.388	32.7	26.2
	SS11	Deliniation step-out sample	09 Nov 2023	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		RPD (%) [C]		-	-	*35.9*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Abs Difference [D]		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BGSS-21 0-1	DUP A	Field Duplicate of BGSS-21 0-1	14 May 2024	17,200	0.2	164	22.3	0.24	<5.0	0.096	16.4	2.14	7.31	21,600	13.4	138	0.0655	0.31	7.92	0.76	0.16	4.14	0.117	<2.0	0.394	24.4	20.5
	BGSS-21 0-1	Background soil	14 May 2024	18,500	0.21	189	21.1	0.23	<5.0	0.056	17.8	2.32	7.21	24,000	12.5	158	0.0487	0.32	8.45	0.75	0.14	4.28	0.124	<2.0	0.396	28.9	22.4
		RPD (%) [C]		*7.3*	-	*14.2*	*5.5*	-	-	-	*8.2*	*8.1*	*1.4*	*10.5*	*6.9*	*13.5*	*29.4*	-	*6.5*	-	-	*3.3*	-	-	*0.5*	*16.9*	*8.9*
		Abs Difference [D]		-	*0.01*	-	-	*0.01*	-	*0.04*	-	-	-	-	-	-	-	*0.01*	-	*0.01*	*0.0*	-	*0.0*	-	-	-	-	-

Nova Scotia Tier I Environmental Quality Standard - October 2022

A - The higher value was selected from the Background Soil range provided by the Review of Environment Canada's Background Soil Database (2004-2009), Version No.1, March 2011, and the calculated Site-Specific Background Threshold Values.

B - Nova Scotia Tier I EQS for Soil - Commercial Land Use, Potable Site Conditions, Coarse Grain Size

C - Calculated RPD must be less than 50%

D - In cases where measured concentrations are less than 5x the RDL, RPD is not calculated; instread the absolute difference between the measured concentrations is calculated and must be less than 2x the RDL

Table C-11: Quality Control Petroleum Hydrocarbon Concentrations in Soil
Mill Village Former Mine Site
Dillon Project Number: 23-6446

			BTEX						Petroleum Hydrocarbons (PHCs)							
			Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	VPH (C6-C10 - BTEX)	EPH >C10-C16	EPH >C16-C21	EPH >C21-C32	EPH >C34-C50	Modified TPH (Tier 1)	Reached Baseline at C32	Hydrocarbon Resemblance
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	none
		RDL	0.005	0.05	0.015	0.03	0.03	0.05	5	5	5	5	20	10		
		NS Tier I EQS[A]	0.042	0.35	0.043	-	-	0.73	-	-	-	-	-	10000[C]	-	-
Location Code	Sample Type	Date														
SS1	Field Duplicate of SS1	09 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	6	168	274	174	No	LOF
	Soil immediately adjacent to waste rock	09 Nov 2023	<0.0050	<0.050	<0.015	<0.030	<0.030	<0.050	<5.0	<5.0	6.8	155	270	162	No	LOF
	RPD (%)[C]		-	-	-	-	-	-	-	-	-	*8*	*1.5*	*7.1*	-	-
	Abs Difference[D]		-	-	-	-	-	-	-	-	*0.8*	-	-	-	-	-

Nova Scotia Tier I Environmental Quality Standard - October 2022
A - Nova Scotia Tier I EQS for Soil - Commercial Land Use, Potable Site Conditions, Coarse Grain Size
B - Guidline for Lube Oil Fraction
C - Calculated RPD must be less than 50%
D - In cases where measured concentrations are less than 5x the RDL, RPD is not calculated; instread the absolute difference between the measured concentrations is calculated and must be less than 2x the RDL
LOF - Lube Oil Fraction

Table C-12: Quality Control for Metal Concentrations in Groundwater
Mill Village Former Mine Site
Dillon Project Number: 23-6446

			Location Code	MW23-2	MW23-2	MW23-2	MW23-2	MW23-2	MW23-2	MW23-2
			Sample Type	Normal	Field Duplicate	5 x the RDL	Absolute Difference b/w Parent and Duplicate	2 x the RDL	Relative Percent Difference	QC Result
			Date	14 May 2024	14 May 2024					
	Unit	RDL								
Metals										
Aluminium	mg/L	10		0.0027	0.0030	50	Both Samples >5x RDL	Not Calculated	11%	Acceptable
Antimony	mg/L	2		<0.00010	<0.00010	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Arsenic	mg/L	2		0.00721	0.00682	10	Both Samples >5x RDL	Not Calculated	6%	Acceptable
Barium	mg/L	5		0.00416	0.00395	25	Both Samples >5x RDL	Not Calculated	5%	Acceptable
Beryllium	mg/L	1		<0.000020	<0.000020	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Bismuth	mg/L	2		<0.000050	<0.000050	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Boron	mg/L	50		<0.010	<0.010	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Cadmium	mg/L	0.3		0.0000113	0.0000095	1.5	Both Samples >5x RDL	Not Calculated	17%	Acceptable
Chromium (Total, III+VI)	mg/L	2		<0.00050	<0.00050	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Cobalt	mg/L	1		0.00083	0.00097	5	Both Samples >5x RDL	Not Calculated	16%	Acceptable
Copper	mg/L	2		0.00148	0.00114	10	Both Samples >5x RDL	Not Calculated	26%	Acceptable
Iron	mg/L	50		0.092	0.128	250	Both Samples >5x RDL	Not Calculated	33%	Acceptable
Lead	mg/L	0.5		<0.000050	<0.000050	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Manganese	mg/L	2		0.0411	0.0471	10	Both Samples >5x RDL	Not Calculated	14%	Acceptable
Molybdenum	mg/L	2		0.000195	0.000133	10	Both Samples >5x RDL	Not Calculated	38%	Acceptable
Nickel	mg/L	2		0.00082	0.00082	10	Both Samples >5x RDL	Not Calculated	0%	Acceptable
Selenium	mg/L	0.5		0.000110	0.000109	2.5	Both Samples >5x RDL	Not Calculated	1%	Acceptable
Rubidium	mg/L	2		0.00117	0.00121	10	Both Samples >5x RDL	Not Calculated	3%	Acceptable
Lithium	mg/L	2		<0.0010	<0.0010	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Silver	mg/L	0.5		<0.000010	<0.000010	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Strontium	mg/L	5		0.0386	0.0380	25	Both Samples >5x RDL	Not Calculated	2%	Acceptable
Thallium	mg/L	0.1		<0.000010	<0.000010	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Tin	mg/L	1		<0.00010	<0.00010	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Uranium	mg/L	0.1		0.000106	0.000105	0.5	Both Samples >5x RDL	Not Calculated	1%	Acceptable
Vanadium	mg/L	2		<0.00050	<0.00050	Not Calculated	Not Calculated	Not Calculated	Not Calculated	Not Calculated
Zinc	mg/L	5		0.0030	0.0025	25	Both Samples >5x RDL	Not Calculated	18%	Acceptable

Comments:
Where either parent and field duplicate sample concentrations are less than 5X the RDL, then the absolute difference in values is shown. The difference is acceptable if it is less than 2X the RDL.

Relative percent difference (RPD) is only considered where parent and duplicate sample concentrations are both greater than 5X the RDL. The RPD is considered acceptable if it is within the industry accepted ranges for metals in soil (as detailed in the report).
RPD = ((parent result - duplicate result)/((parent result + duplicate result)/2)) *100
QC calculations and results have been evaulated in accordance of the Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment (CCME, 2016).
BOLD value indicates the value which the acceptance criteria is based on (i.e. absolute difference or RPD).

Appendix D

Laboratory Certificates of Analysis

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **HA2301058**	Page	: 1 of 21
Amendment	: **1**		
Client	: **Dillon Consulting Limited**	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 14-Nov-2023 10:40
PO	: ----	Date Analysis Commenced	: 15-Nov-2023
C-O-C number	: ----	Issue Date	: 08-Dec-2023 10:29
Sampler	: M.Keefe & I.F. Tzgerald		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Lump Sum Rate - Build NS (Mill Village)		
No. of samples received	: 27		
No. of samples analysed	: 27		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Metals, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Sanja Risticevic	Department Manager - LCMS	LCMS, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
none	none

<: less than.

>: greater than.

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

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

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

Workorder Comments

Amendment (05/12/2023): This report has been amended and re-released to allow the reporting of additional analytical data.

Sample Comments

Sample	Client Id	*Comment*
HA2301058-001	SS1	LOF: Lube oil fraction
HA2301058-002	SS2	LOF: Lube oil fraction
HA2301058-003	SS3	LOF: Lube oil fraction
HA2301058-017	HA3 SS1	LOF: Lube oil fraction
HA2301058-019	HA4 SS1	LOF: Lube oil fraction
HA2301058-021	HA5 SS1	LOF: Lube oil fraction
HA2301058-023	HA6 SS1	LOF: Lube oil fraction
HA2301058-025	DUP 1	LOF: Lube oil fraction

Qualifiers

Qualifier	Description
DLHM	Detection Limit Adjusted: Sample has high moisture content.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
SUR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS1	SS2	SS3	SS4	SS5
					Client sampling date / time	09-Nov-2023 10:58	09-Nov-2023 11:05	09-Nov-2023 11:40	09-Nov-2023 12:14	09-Nov-2023 12:16
						HA2301058-001	HA2301058-002	HA2301058-003	HA2301058-004	HA2301058-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/WT	0.25	%		28.9	16.0	24.8	----	----
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		6460	14900	18400	----	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg		0.13	0.29	0.78	----	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		56.8	181	373	87.5	99.0
Barium	7440-39-3	E440/WT	0.50	mg/kg		20.9	24.0	73.3	----	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		0.11	0.46	1.09	----	----
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.080	0.050	0.130	----	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg		5.79	22.3	29.8	----	----
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		1.52	8.97	49.3	----	----
Copper	7440-50-8	E440/WT	0.50	mg/kg		4.65	24.6	99.5	----	----
Iron	7439-89-6	E440/WT	50	mg/kg		9980	25100	37400	----	----
Lead	7439-92-1	E440/WT	0.50	mg/kg		9.58	22.3	67.5	----	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg		49.1	360	719	----	----
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		0.0491	0.113	0.132	----	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		0.23	0.26	0.24	----	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg		3.22	22.9	55.4	----	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.44	0.31	<0.20	----	----
Silver	7440-22-4	E440/WT	0.10	mg/kg		0.10	<0.10	0.22	----	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg		7.79	5.64	18.2	----	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	<1000	<1000	----	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.087	0.131	0.257	----	----
Tin	7440-31-5	E440/WT	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.252	0.730	1.70	----	----
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		16.5	24.3	32.7	----	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg		14.5	56.8	121	----	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		<1	<1	<1	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS1	SS2	SS3	SS4	SS5
					Client sampling date / time	09-Nov-2023 10:58	09-Nov-2023 11:05	09-Nov-2023 11:40	09-Nov-2023 12:14	09-Nov-2023 12:16
						HA2301058-001	HA2301058-002	HA2301058-003	HA2301058-004	HA2301058-005
						Result	Result	Result	Result	Result
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		<1	<1	<1	----	----
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		4	<1	<1	----	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		96	100	100	----	----
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		<0.015	<0.015	<0.015	----	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		<0.030	<0.030	<0.030	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		<0.030	<0.030	<0.030	----	----
VPH C6-C10	n/a	E581.VPH/WT	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
EPH >C10-C16	n/a	E601F/WT	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
EPH >C16-C21	n/a	E601F/WT	5.0	mg/kg		6.8	<5.0	<5.0	----	----
EPH >C21-C32	n/a	E601F/WT	5.0	mg/kg		155	19.1	46.5	----	----
EPH >C34-C50	n/a	E601F/WT	20	mg/kg		270	31	76	----	----
hydrocarbon resemblance	n/a	E601F/WT	-	none		LOF	LOF	LOF	----	----
mTPH (Tier I)	n/a	EC581D/WT	10	mg/kg		162	19	46	----	----
return to baseline at C32	n/a	E601F/WT	-	-		No	No	No	----	----
TEH >C10-C32	n/a	E601F/WT	10	mg/kg		162	19	46	----	----
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		66.5	83.2	72.4	----	----
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		107	109	109	----	----
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		128	140	125	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		135	95.1	140	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		136	98.6	131	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS1	SS2	SS3	SS4	SS5
					Client sampling date / time	09-Nov-2023 10:58	09-Nov-2023 11:05	09-Nov-2023 11:40	09-Nov-2023 12:14	09-Nov-2023 12:16
						HA2301058-001	HA2301058-002	HA2301058-003	HA2301058-004	HA2301058-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		<0.040 DLM	<0.010	<0.010	----	----
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		<0.0043 DLHM	0.0058	<0.0040	----	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		<0.010	0.013	<0.010	----	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		<0.010	0.040	0.012	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		<0.015	0.055	<0.015	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		<0.010	0.015	<0.010	----	----
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		<0.010	0.035	<0.010	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	0.010	----	----
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		<0.015	<0.015	<0.015	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		<0.020	<0.020	<0.020	----	----
IACR (CCME)	----	E641A-L/WT	0.150	-		<0.150	0.427	0.151	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		86.6	98.6	81.2	----	----
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		85.4	89.5	89.6	----	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		95.3	94.6	92.1	----	----
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		96.9	96.7	94.0	----	----
Explosives										
Dinitroaniline, 3,5-	618-87-1	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS1	SS2	SS3	SS4	SS5
					Client sampling date / time	09-Nov-2023 10:58	09-Nov-2023 11:05	09-Nov-2023 11:40	09-Nov-2023 12:14	09-Nov-2023 12:16
						HA2301058-001	HA2301058-002	HA2301058-003	HA2301058-004	HA2301058-005
						Result	Result	Result	Result	Result
Explosives										
Dinitrobenzene, 1,3-	99-65-0	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dinitrotoluene, 2,4-	121-14-2	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dinitrotoluene, 2,6-	606-20-2	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dinitrotoluene, 2-amino-4,6-	35572-78-2	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Dinitrotoluene, 4-amino-2,6-	19406-51-0	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121-82-4	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Nitrobenzene	98-95-3	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Nitroglycerin	55-63-0	E726A/WT	0.10	mg/kg		<0.10	<0.10	<0.10	----	----
Nitrotoluene, 2-	88-72-2	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Nitrotoluene, 3-	99-08-1	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Nitrotoluene, 4-	99-99-0	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	2691-41-0	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Pentaerythritol tetranitrate [PETN]	78-11-5	E726A/WT	0.10	mg/kg		<0.10	<0.10	<0.10	----	----
Tetryl	479-45-8	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Trinitrobenzene, 1,3,5-	99-35-4	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----
Trinitrotoluene, 2,4,6- [TNT]	118-96-7	E726A/WT	0.050	mg/kg		<0.050	<0.050	<0.050	----	----

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

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

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	SS6	SS7	SS8	SS9	SS10
					Client sampling date / time	09-Nov-2023 12:32	09-Nov-2023 12:38	09-Nov-2023 13:00	09-Nov-2023 12:55	09-Nov-2023 13:16
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2301058-006	HA2301058-007	HA2301058-008	HA2301058-009	HA2301058-010
						Result	Result	Result	Result	Result
Metals										
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		114	96.0	180	958	370

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS11	SS12	HA1 SS1	HA1 SS2	HA2 SS1
					Client sampling date / time	09-Nov-2023 13:25	09-Nov-2023 13:30	09-Nov-2023 14:28	09-Nov-2023 14:34	10-Nov-2023 10:00
						HA2301058-011	HA2301058-012	HA2301058-013	HA2301058-014	HA2301058-015
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/WT	0.25	%		----	----	27.0	----	48.0
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		----	----	17000	----	3500
Antimony	7440-36-0	E440/WT	0.10	mg/kg		----	----	0.16	----	<0.10
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		105	58.6	145	165	4.24
Barium	7440-39-3	E440/WT	0.50	mg/kg		----	----	18.2	----	30.7
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		----	----	0.21	----	0.43
Boron	7440-42-8	E440/WT	5.0	mg/kg		----	----	<5.0	----	<5.0
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		----	----	0.048	----	0.169
Chromium	7440-47-3	E440/WT	0.50	mg/kg		----	----	18.9	----	3.76
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		----	----	2.73	----	0.78
Copper	7440-50-8	E440/WT	0.50	mg/kg		----	----	8.07	----	13.5
Iron	7439-89-6	E440/WT	50	mg/kg		----	----	19800	----	1680
Lead	7439-92-1	E440/WT	0.50	mg/kg		----	----	11.4	----	14.2
Manganese	7439-96-5	E440/WT	1.0	mg/kg		----	----	178	----	12.6
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		----	----	0.0605	----	0.0474
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		----	----	0.35	----	0.14
Nickel	7440-02-0	E440/WT	0.50	mg/kg		----	----	9.30	----	5.80
Selenium	7782-49-2	E440/WT	0.20	mg/kg		----	----	1.04	----	0.49
Silver	7440-22-4	E440/WT	0.10	mg/kg		----	----	0.11	----	0.11
Strontium	7440-24-6	E440/WT	0.50	mg/kg		----	----	6.22	----	6.57
Sulfur	7704-34-9	E440/WT	1000	mg/kg		----	----	<1000	----	<1000
Thallium	7440-28-0	E440/WT	0.050	mg/kg		----	----	0.086	----	0.058
Tin	7440-31-5	E440/WT	2.0	mg/kg		----	----	<2.0	----	<2.0
Uranium	7440-61-1	E440/WT	0.050	mg/kg		----	----	0.419	----	0.346
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		----	----	22.8	----	3.32
Zinc	7440-66-6	E440/WT	2.0	mg/kg		----	----	22.0	----	3.7
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg		----	----	<0.0050	----	<0.0060 DLHM
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg		----	----	<0.0050	----	<0.0060 DLHM

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SS11	SS12	HA1 SS1	HA1 SS2	HA2 SS1
					Client sampling date / time	09-Nov-2023 13:25	09-Nov-2023 13:30	09-Nov-2023 14:28	09-Nov-2023 14:34	10-Nov-2023 10:00
						HA2301058-011	HA2301058-012	HA2301058-013	HA2301058-014	HA2301058-015
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		----	----	<0.040 DLM	----	<0.061 DLM
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		----	----	<0.0043 DLHM	----	<0.0060 DLHM
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		----	----	<0.015	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		----	----	<0.0050	----	0.0078
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.012 DLM
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		----	----	<0.015	----	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		----	----	<0.010	----	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		----	----	<0.020	----	<0.020
IACR (CCME)	----	E641A-L/WT	0.150	-		----	----	<0.150	----	<0.150
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		----	----	78.3	----	56.3 SUR-ND
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		----	----	84.9	----	77.2
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		----	----	96.0	----	92.8
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		----	----	97.1	----	90.9

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA2 SS2	HA3 SS1	HA3 SS2	HA4 SS1	HA4 SS2
					Client sampling date / time	10-Nov-2023 10:02	10-Nov-2023 10:30	10-Nov-2023 10:35	10-Nov-2023 10:50	10-Nov-2023 11:05
						HA2301058-016	HA2301058-017	HA2301058-018	HA2301058-019	HA2301058-020
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/WT	0.25	%		----	40.2	----	26.1	----
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		----	24800	----	24900	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg		----	0.20	----	0.15	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		5.36	393	391	97.1	122
Barium	7440-39-3	E440/WT	0.50	mg/kg		----	24.4	----	23.6	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		----	0.79	----	0.34	----
Boron	7440-42-8	E440/WT	5.0	mg/kg		----	<5.0	----	<5.0	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		----	0.133	----	0.045	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg		----	25.6	----	20.4	----
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		----	2.92	----	2.56	----
Copper	7440-50-8	E440/WT	0.50	mg/kg		----	8.06	----	7.07	----
Iron	7439-89-6	E440/WT	50	mg/kg		----	36100	----	23800	----
Lead	7439-92-1	E440/WT	0.50	mg/kg		----	11.8	----	11.1	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg		----	119	----	112	----
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		----	0.101	----	0.102	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		----	0.92	----	0.37	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg		----	7.96	----	7.80	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg		----	1.56	----	1.34	----
Silver	7440-22-4	E440/WT	0.10	mg/kg		----	0.13	----	0.17	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg		----	6.34	----	2.72	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg		----	<1000	----	<1000	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg		----	0.091	----	0.109	----
Tin	7440-31-5	E440/WT	2.0	mg/kg		----	<2.0	----	<2.0	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg		----	0.585	----	0.402	----
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		----	40.7	----	31.1	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg		----	30.9	----	48.2	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		----	8	----	8	----
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		----	<1	----	<1	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA2 SS2	HA3 SS1	HA3 SS2	HA4 SS1	HA4 SS2
					Client sampling date / time	10-Nov-2023 10:02	10-Nov-2023 10:30	10-Nov-2023 10:35	10-Nov-2023 10:50	10-Nov-2023 11:05
						HA2301058-016	HA2301058-017	HA2301058-018	HA2301058-019	HA2301058-020
						Result	Result	Result	Result	Result
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		----	8	----	8	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		----	84	----	84	----
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		----	<0.0050	----	<0.0050	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		----	<0.015	----	<0.015	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		----	<0.050	----	<0.050	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		----	<0.030	----	<0.030	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		----	<0.030	----	<0.030	----
VPH C6-C10	n/a	E581.VPH/WT	5.0	mg/kg		----	12.8	----	10.9	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	5.0	mg/kg		----	12.8	----	10.9	----
EPH >C10-C16	n/a	E601F/WT	5.0	mg/kg		----	<5.0	----	<5.0	----
EPH >C16-C21	n/a	E601F/WT	5.0	mg/kg		----	12.7	----	10.2	----
EPH >C21-C32	n/a	E601F/WT	5.0	mg/kg		----	133	----	108	----
EPH >C34-C50	n/a	E601F/WT	20	mg/kg		----	217	----	198	----
hydrocarbon resemblance	n/a	E601F/WT	-	none		----	LOF	----	LOF	----
mTPH (Tier I)	n/a	EC581D/WT	10	mg/kg		----	158	----	129	----
return to baseline at C32	n/a	E601F/WT	-	-		----	No	----	No	----
TEH >C10-C32	n/a	E601F/WT	10	mg/kg		----	146	----	118	----
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		----	60.2	----	69.1	----
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		----	92.5	----	95.2	----
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		----	101	----	96.8	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		----	114	----	108	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		----	137	----	116	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg		----	<0.0052 DLHM	----	<0.0050	----
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg		----	<0.0052 DLHM	----	<0.0050	----
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA2 SS2	HA3 SS1	HA3 SS2	HA4 SS1	HA4 SS2
					Client sampling date / time	10-Nov-2023 10:02	10-Nov-2023 10:30	10-Nov-2023 10:35	10-Nov-2023 10:50	10-Nov-2023 11:05
						HA2301058-016	HA2301058-017	HA2301058-018	HA2301058-019	HA2301058-020
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		----	<0.0052 DLHM	----	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		----	<0.015	----	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		----	<0.0052 DLHM	----	<0.0050	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		----	<0.015	----	<0.015	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		----	<0.010	----	<0.010	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		----	<0.020	----	<0.020	----
IACR (CCME)	----	E641A-L/WT	0.150	-		----	<0.150	----	<0.150	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		----	74.8	----	85.0	----
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		----	91.1	----	87.6	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		----	97.1	----	93.6	----
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		----	98.3	----	95.3	----

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA5 SS1	HA5 SS2	HA6 SS1	HA6 SS2	DUP 1
					Client sampling date / time	10-Nov-2023 11:25	10-Nov-2023 11:45	10-Nov-2023 12:10	10-Nov-2023 12:15	09-Nov-2023 00:00
						HA2301058-021	HA2301058-022	HA2301058-023	HA2301058-024	HA2301058-025
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/WT	0.25	%		22.6	----	29.9	----	28.8
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		21600	----	20800	----	9150
Antimony	7440-36-0	E440/WT	0.10	mg/kg		0.15	----	0.16	----	<0.10
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		154	170	147	182	48.8
Barium	7440-39-3	E440/WT	0.50	mg/kg		24.6	----	17.7	----	19.6
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		0.36	----	0.26	----	0.15
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	----	<5.0	----	<5.0
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.052	----	0.049	----	0.064
Chromium	7440-47-3	E440/WT	0.50	mg/kg		21.2	----	18.0	----	6.74
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		3.34	----	1.79	----	1.77
Copper	7440-50-8	E440/WT	0.50	mg/kg		10.2	----	5.48	----	5.20
Iron	7439-89-6	E440/WT	50	mg/kg		24800	----	25400	----	9270
Lead	7439-92-1	E440/WT	0.50	mg/kg		10.6	----	12.1	----	7.50
Manganese	7439-96-5	E440/WT	1.0	mg/kg		181	----	101	----	54.9
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		0.162	----	0.0770	----	0.0504
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		0.34	----	0.40	----	0.20
Nickel	7440-02-0	E440/WT	0.50	mg/kg		11.6	----	6.01	----	3.85
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.97	----	1.14	----	0.48
Silver	7440-22-4	E440/WT	0.10	mg/kg		0.16	----	0.14	----	<0.10
Strontium	7440-24-6	E440/WT	0.50	mg/kg		3.70	----	2.80	----	7.85
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	----	<1000	----	<1000
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.124	----	0.106	----	0.074
Tin	7440-31-5	E440/WT	2.0	mg/kg		<2.0	----	<2.0	----	<2.0
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.407	----	0.358	----	0.272
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		25.9	----	28.7	----	12.7
Zinc	7440-66-6	E440/WT	2.0	mg/kg		41.8	----	27.0	----	17.0
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		4	----	<1	----	<1
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	<1	----	<1

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA5 SS1	HA5 SS2	HA6 SS1	HA6 SS2	DUP 1
					Client sampling date / time	10-Nov-2023 11:25	10-Nov-2023 11:45	10-Nov-2023 12:10	10-Nov-2023 12:15	09-Nov-2023 00:00
						HA2301058-021	HA2301058-022	HA2301058-023	HA2301058-024	HA2301058-025
						Result	Result	Result	Result	Result
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		7	----	5	----	3
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		89	----	95	----	96
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		<0.0050	----	<0.0050	----	<0.0050
Toluene	108-88-3	E611A/WT	0.050	mg/kg		<0.050	----	<0.050	----	<0.050
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		<0.015	----	<0.015	----	<0.015
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		<0.050	----	<0.050	----	<0.050
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		<0.030	----	<0.030	----	<0.030
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		<0.030	----	<0.030	----	<0.030
VPH C6-C10	n/a	E581.VPH/WT	5.0	mg/kg		5.7	----	<5.0	----	<5.0
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	5.0	mg/kg		5.7	----	<5.0	----	<5.0
EPH >C10-C16	n/a	E601F/WT	5.0	mg/kg		<5.0	----	<5.0	----	<5.0
EPH >C16-C21	n/a	E601F/WT	5.0	mg/kg		9.7	----	6.9	----	6.0
EPH >C21-C32	n/a	E601F/WT	5.0	mg/kg		126	----	124	----	168
EPH >C34-C50	n/a	E601F/WT	20	mg/kg		170	----	226	----	274
hydrocarbon resemblance	n/a	E601F/WT	-	none		LOF	----	LOF	----	LOF
mTPH (Tier I)	n/a	EC581D/WT	10	mg/kg		141	----	131	----	174
return to baseline at C32	n/a	E601F/WT	-	-		No	----	No	----	No
TEH >C10-C32	n/a	E601F/WT	10	mg/kg		136	----	131	----	174
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		68.4	----	64.6	----	80.5
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		96.0	----	93.8	----	108
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		88.8	----	115	----	126
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		108	----	120	----	140
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		112	----	98.4	----	136
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg		<0.0050	----	<0.0050	----	<0.0075 DLM
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg		0.0083	----	<0.0050	----	<0.0050
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.044 DLM	----	<0.041 DLM

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA5 SS1	HA5 SS2	HA6 SS1	HA6 SS2	DUP 1
					Client sampling date / time	10-Nov-2023 11:25	10-Nov-2023 11:45	10-Nov-2023 12:10	10-Nov-2023 12:15	09-Nov-2023 00:00
						HA2301058-021	HA2301058-022	HA2301058-023	HA2301058-024	HA2301058-025
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		0.0082	----	<0.0045 DLHM	----	<0.0043 DLHM
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		0.019	----	<0.010	----	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		0.014	----	<0.010	----	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		0.028	----	<0.010	----	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		0.028	----	<0.015	----	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		0.018	----	<0.010	----	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		<0.0050	----	<0.0050	----	<0.0050
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		0.038	----	<0.010	----	<0.010
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		0.011	----	<0.010	----	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		<0.015	----	<0.015	----	<0.015
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		0.018	----	<0.010	----	<0.010
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		0.027	----	<0.010	----	<0.010
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		<0.010	----	<0.010	----	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		0.023	----	<0.020	----	<0.020
IACR (CCME)	----	E641A-L/WT	0.150	-		0.326	----	<0.150	----	<0.150
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		94.1	----	68.4	----	82.6
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		86.9	----	90.8	----	82.4
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		89.4	----	99.8	----	90.6
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		92.3	----	98.9	----	91.0
Explosives										
Dinitroaniline, 3,5-	618-87-1	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Dinitrobenzene, 1,3-	99-65-0	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	HA5 SS1	HA5 SS2	HA6 SS1	HA6 SS2	DUP 1
					Client sampling date / time	10-Nov-2023 11:25	10-Nov-2023 11:45	10-Nov-2023 12:10	10-Nov-2023 12:15	09-Nov-2023 00:00
						HA2301058-021	HA2301058-022	HA2301058-023	HA2301058-024	HA2301058-025
						Result	Result	Result	Result	Result
Explosives										
Dinitrotoluene, 2,4-	121-14-2	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Dinitrotoluene, 2,6-	606-20-2	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Dinitrotoluene, 2-amino-4,6-	35572-78-2	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Dinitrotoluene, 4-amino-2,6-	19406-51-0	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121-82-4	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Nitrobenzene	98-95-3	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Nitroglycerin	55-63-0	E726A/WT	0.10	mg/kg		----	----	----	----	<0.10
Nitrotoluene, 2-	88-72-2	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Nitrotoluene, 3-	99-08-1	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Nitrotoluene, 4-	99-99-0	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	2691-41-0	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Pentaerythritol tetranitrate [PETN]	78-11-5	E726A/WT	0.10	mg/kg		----	----	----	----	<0.10
Tetryl	479-45-8	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Trinitrobenzene, 1,3,5-	99-35-4	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050
Trinitrotoluene, 2,4,6- [TNT]	118-96-7	E726A/WT	0.050	mg/kg		----	----	----	----	<0.050

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

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

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)				Client sample ID	DUP 2	DUP 3	----	----	----
				Client sampling date / time	09-Nov-2023 00:00	09-Nov-2023 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	HA2301058-026	HA2301058-027	--------	--------	--------
					Result	Result	----	----	----
Physical Tests									
Moisture	----	E144/WT	0.25	%	31.3	40.4	----	----	----
Metals									
Aluminum	7429-90-5	E440/WT	50	mg/kg	18800	13400	----	----	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg	0.17	0.12	----	----	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg	132	151	----	----	----
Barium	7440-39-3	E440/WT	0.50	mg/kg	23.1	25.9	----	----	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg	0.19	0.27	----	----	----
Boron	7440-42-8	E440/WT	5.0	mg/kg	<5.0	<5.0	----	----	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg	0.057	0.039	----	----	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg	17.1	18.4	----	----	----
Cobalt	7440-48-4	E440/WT	0.10	mg/kg	1.36	2.65	----	----	----
Copper	7440-50-8	E440/WT	0.50	mg/kg	5.45	5.71	----	----	----
Iron	7439-89-6	E440/WT	50	mg/kg	24900	26700	----	----	----
Lead	7439-92-1	E440/WT	0.50	mg/kg	9.73	10.6	----	----	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg	102	156	----	----	----
Mercury	7439-97-6	E510/WT	0.0050	mg/kg	0.0599	0.0631	----	----	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg	0.45	0.40	----	----	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg	5.10	9.76	----	----	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg	0.76	0.42	----	----	----
Silver	7440-22-4	E440/WT	0.10	mg/kg	0.16	<0.10	----	----	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg	3.20	5.46	----	----	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg	<1000	<1000	----	----	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg	0.162	0.118	----	----	----
Tin	7440-31-5	E440/WT	2.0	mg/kg	<2.0	<2.0	----	----	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg	0.317	0.388	----	----	----
Vanadium	7440-62-2	E440/WT	0.20	mg/kg	30.9	32.7	----	----	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg	19.6	26.2	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg	<0.0050	<0.0050	----	----	----
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg	<0.0050	<0.0050	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	DUP 2	DUP 3	----	----	----
					Client sampling date / time	09-Nov-2023 00:00	09-Nov-2023 00:00	----	----	----
						HA2301058-026	HA2301058-027	--------	--------	--------
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		<0.046 DLM	<0.051 DLM	----	----	----
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		<0.0045 DLHM	<0.0050 DLHM	----	----	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		<0.013 DLM	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		<0.015	<0.015	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		<0.020	<0.020	----	----	----
IACR (CCME)	----	E641A-L/WT	0.150	-		<0.150	<0.150	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		67.5	75.0	----	----	----
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		83.6	86.4	----	----	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		94.9	92.1	----	----	----
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		96.0	94.0	----	----	----

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

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

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **HA2301058**	Page	: 1 of 18
Amendment	: 1		
Client	: **Dillon Consulting Limited**	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 14-Nov-2023 10:40
PO	: ----	Issue Date	: 08-Dec-2023 10:30
C-O-C number	: ----		
Sampler	: M.Keefe & I.F. Tzgerald		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Lump Sum Rate - Build NS (Mill Village)		
No. of samples received	: 27		
No. of samples analysed	: 27		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Metals	QC-MRG2-1239082 001	----	Arsenic	7440-38-2	E440	0.14 mg/kg B	0.1 mg/kg	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Duplicate (DUP) RPDs								
Hydrocarbons	Anonymous	Anonymous	EPH >C21-C32	n/a	E601F	51.8 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Hydrocarbons	Anonymous	Anonymous	EPH >C34-C50	n/a	E601F	46.1 % DUP-H	40%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Acenaphthylene	208-96-8	E641A-L	121 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Acridine	260-94-6	E641A-L	0.021 % DUP-H, J	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Anthracene	120-12-7	E641A-L	121 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benz(a)anthracene	56-55-3	E641A-L	114 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(a)pyrene	50-32-8	E641A-L	114 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(b+j)fluoranthene	n/a	E641A-L	104 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(g,h,i)perylene	191-24-2	E641A-L	93.4 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(k)fluoranthene	207-08-9	E641A-L	107 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Chrysene	218-01-9	E641A-L	108 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Dibenz(a,h)anthracene	53-70-3	E641A-L	90.0 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Fluoranthene	206-44-0	E641A-L	123 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs - Continued								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	98.5 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Perylene	198-55-0	E641A-L	113 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Phenanthrene	85-01-8	E641A-L	103 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Pyrene	129-00-0	E641A-L	122 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

Laboratory Control Sample (LCS) Recoveries								
Hydrocarbons	QC-1238594-002	----	VPH C6-C10	n/a	E581.VPH	79.6 % LCS-L	80.0-120%	Recovery less than lower control limit

Result Qualifiers

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

Regular Sample Surrogates

Sub-Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Polycyclic Aromatic Hydrocarbons Surrogates	HA2301058-015	HA2 SS1	Acridine-d9	34749-75-2	56.3 %	60.0-130 %	Recovery less than lower data quality objective

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Explosives : Energetics in Soil by HPLC										
Glass soil jar/Teflon lined cap										
DUP 1	E726A	09-Nov-2023	22-Nov-2023	14 days	13 days	✓	24-Nov-2023	40 days	2 days	✓
Explosives : Energetics in Soil by HPLC										
Glass soil jar/Teflon lined cap										
SS1	E726A	09-Nov-2023	22-Nov-2023	14 days	13 days	✓	24-Nov-2023	40 days	2 days	✓
Explosives : Energetics in Soil by HPLC										
Glass soil jar/Teflon lined cap										
SS2	E726A	09-Nov-2023	22-Nov-2023	14 days	13 days	✓	24-Nov-2023	40 days	2 days	✓
Explosives : Energetics in Soil by HPLC										
Glass soil jar/Teflon lined cap										
SS3	E726A	09-Nov-2023	22-Nov-2023	14 days	13 days	✓	24-Nov-2023	40 days	2 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
DUP 1	E601F	09-Nov-2023	20-Nov-2023	14 days	11 days	✓	21-Nov-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SS1	E601F	09-Nov-2023	20-Nov-2023	14 days	11 days	✓	21-Nov-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SS2	E601F	09-Nov-2023	20-Nov-2023	14 days	11 days	✓	21-Nov-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
SS3	E601F	09-Nov-2023	20-Nov-2023	14 days	11 days	✓	21-Nov-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
HA3 SS1	E601F	10-Nov-2023	05-Dec-2023	14 days	25 days	× EHT	06-Dec-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
HA4 SS1	E601F	10-Nov-2023	05-Dec-2023	14 days	25 days	× EHT	06-Dec-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
HA5 SS1	E601F	10-Nov-2023	05-Dec-2023	14 days	25 days	× EHT	06-Dec-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
HA6 SS1	E601F	10-Nov-2023	05-Dec-2023	14 days	25 days	× EHT	06-Dec-2023	40 days	1 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
HA3 SS1	E581.VPH	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
HA4 SS1	E581.VPH	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
HA5 SS1	E581.VPH	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
HA6 SS1	E581.VPH	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
DUP 1	E581.VPH	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	6 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
SS1	E581.VPH	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	7 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
SS2	E581.VPH	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	7 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
SS3	E581.VPH	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
HA6 SS1	E510	10-Nov-2023	16-Nov-2023	28 days	6 days	✓	17-Nov-2023	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
HA2 SS1	E510	10-Nov-2023	16-Nov-2023	28 days	7 days	✓	17-Nov-2023	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
HA3 SS1	E510	10-Nov-2023	16-Nov-2023	28 days	7 days	✓	17-Nov-2023	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
HA4 SS1	E510	10-Nov-2023	16-Nov-2023	28 days	7 days	✓	17-Nov-2023	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
HA5 SS1	E510	10-Nov-2023	16-Nov-2023	28 days	7 days	✓	17-Nov-2023	28 days	7 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
HA1 SS1	E510	09-Nov-2023	16-Nov-2023	28 days	7 days	✓	17-Nov-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP 2	E510	09-Nov-2023	17-Nov-2023	28 days	8 days	✓	20-Nov-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP 3	E510	09-Nov-2023	17-Nov-2023	28 days	8 days	✓	20-Nov-2023	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SS1	E510	09-Nov-2023	16-Nov-2023	28 days	8 days	✓	17-Nov-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SS2	E510	09-Nov-2023	16-Nov-2023	28 days	8 days	✓	17-Nov-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SS3	E510	09-Nov-2023	16-Nov-2023	28 days	8 days	✓	17-Nov-2023	28 days	8 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP 1	E510	09-Nov-2023	18-Nov-2023	28 days	9 days	✓	20-Nov-2023	28 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA2 SS2	E440	10-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	27 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA3 SS2	E440	10-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	27 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA4 SS2	E440	10-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	27 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA5 SS2	E440	10-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	27 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA6 SS2	E440	10-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	27 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA1 SS2	E440	09-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS11	E440	09-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS12	E440	09-Nov-2023	07-Dec-2023	180 days	27 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS10	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS4	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS5	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS6	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS7	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS8	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS9	E440	09-Nov-2023	07-Dec-2023	180 days	28 days	✓	07-Dec-2023	180 days	28 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA6 SS1	E440	10-Nov-2023	16-Nov-2023	180 days	6 days	✓	17-Nov-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA2 SS1	E440	10-Nov-2023	16-Nov-2023	180 days	7 days	✓	17-Nov-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA3 SS1	E440	10-Nov-2023	16-Nov-2023	180 days	7 days	✓	17-Nov-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA4 SS1	E440	10-Nov-2023	16-Nov-2023	180 days	7 days	✓	17-Nov-2023	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA5 SS1	E440	10-Nov-2023	16-Nov-2023	180 days	7 days	✓	17-Nov-2023	180 days	7 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
HA1 SS1	E440	09-Nov-2023	16-Nov-2023	180 days	7 days	✓	17-Nov-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP 2	E440	09-Nov-2023	17-Nov-2023	180 days	8 days	✓	20-Nov-2023	180 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP 3	E440	09-Nov-2023	17-Nov-2023	180 days	8 days	✓	20-Nov-2023	180 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS1	E440	09-Nov-2023	16-Nov-2023	180 days	8 days	✓	17-Nov-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS2	E440	09-Nov-2023	16-Nov-2023	180 days	8 days	✓	17-Nov-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SS3	E440	09-Nov-2023	16-Nov-2023	180 days	8 days	✓	17-Nov-2023	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP 1	E440	09-Nov-2023	18-Nov-2023	180 days	9 days	✓	20-Nov-2023	180 days	11 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
HA2 SS1	E144	10-Nov-2023	----	----	----		16-Nov-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
HA3 SS1	E144	10-Nov-2023	----	----	----		16-Nov-2023	----	6 days	

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap HA4 SS1	E144	10-Nov-2023	----	----	----		16-Nov-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap HA5 SS1	E144	10-Nov-2023	----	----	----		16-Nov-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap HA6 SS1	E144	10-Nov-2023	----	----	----		16-Nov-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap DUP 1	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap DUP 2	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap DUP 3	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap HA1 SS1	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SS1	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SS2	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SS3	E144	09-Nov-2023	----	----	----		16-Nov-2023	----	7 days	
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP 1	E641A-L	09-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP 2	E641A-L	09-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DUP 3	E641A-L	09-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
HA2 SS1	E641A-L	10-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
HA3 SS1	E641A-L	10-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
HA4 SS1	E641A-L	10-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
HA5 SS1	E641A-L	10-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
HA6 SS1	E641A-L	10-Nov-2023	16-Nov-2023	14 days	6 days	✓	17-Nov-2023	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
HA1 SS1	E641A-L	09-Nov-2023	16-Nov-2023	14 days	7 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS1	E641A-L	09-Nov-2023	16-Nov-2023	14 days	7 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS2	E641A-L	09-Nov-2023	16-Nov-2023	14 days	7 days	✓	17-Nov-2023	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SS3	E641A-L	09-Nov-2023	16-Nov-2023	14 days	7 days	✓	17-Nov-2023	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
HA3 SS1	E611A	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
HA4 SS1	E611A	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
HA5 SS1	E611A	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
HA6 SS1	E611A	10-Nov-2023	06-Dec-2023	40 days	26 days	✓	06-Dec-2023	40 days	26 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
DUP 1	E611A	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	6 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SS1	E611A	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	7 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SS2	E611A	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	7 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial SS3	E611A	09-Nov-2023	15-Nov-2023	40 days	6 days	✓	16-Nov-2023	40 days	7 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1238593	2	12	16.6	5.0	✓
Energetics in Soil by HPLC	E726A	1246501	1	20	5.0	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1244077	2	13	15.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1238746	3	32	9.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1238747	4	50	8.0	5.0	✓
Moisture Content by Gravimetry	E144	1239170	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1238810	2	17	11.7	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1238594	2	12	16.6	5.0	✓
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1238593	2	12	16.6	5.0	✓
Energetics in Soil by HPLC	E726A	1246501	1	20	5.0	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1244077	2	13	15.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1238746	6	32	18.7	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1238747	8	50	16.0	10.0	✓
Moisture Content by Gravimetry	E144	1239170	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1238810	2	17	11.7	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1238594	2	12	16.6	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1238593	2	12	16.6	5.0	✓
Energetics in Soil by HPLC	E726A	1246501	1	20	5.0	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1244077	2	13	15.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1238746	3	32	9.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1238747	4	50	8.0	5.0	✓
Moisture Content by Gravimetry	E144	1239170	1	20	5.0	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1238810	2	17	11.7	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1238594	2	12	16.6	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1238593	2	12	16.6	5.0	✓
Energetics in Soil by HPLC	E726A	1246501	1	20	5.0	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1244077	2	13	15.3	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1238810	2	17	11.7	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1238594	2	12	16.6	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	VPH (Volatile Petroleum Hydrocarbons) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EPH in Soil/Solid by GC-FID (RBCA)	E601F ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	Sample Extracts are analyzed by GC-FID for RBCA Tier I hydrocarbon fractions C10-C16, C16-C21, C21-C32.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Energetics in Soil by HPLC	E726A ALS Environmental - Waterloo	Soil/Solid	SW846 8330A	Analytes are extracted from soil using acidified acetonitrile in a cooled ultrasonic bath. The extract undergoes solvent exchange and is analyzed by HPLC with UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VPH C6-C10 (less BTEX) [RBCA]	EC580C ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	VPH C6-C10 (less BTEX) is calculated as follows: VPH (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Modified TPH (RBCA) Tier I	EC581D ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	Modified TPH (RBCA), Tier I is the sum of PIRI Fraction (C6 - C10 - BTEX) + (>C10 - C16) +(>C16 – C21) + (>C21 - C32).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
PHCs Hexane-Acetone Tumbler Extraction (RBCA)	EP601F ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) are extracted with 1:1 hexane:acetone using a rotary extractor.
Preparation of Energetics in Soil (Routine-No ISM)	EP726 ALS Environmental - Waterloo	Soil/Solid	SW846 8330A	Analytes are extracted from soil using acidified acetonitrile in a cooled ultrasonic bath . The extract undergoes solvent exchange and is analyzed by HPLC with UV detection.

ALS Canada Ltd.

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QUALITY CONTROL REPORT

Work Order	: **HA2301058**	Page	: 1 of 27
Amendment	: **1**		
Client	: Dillon Consulting Limited	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	:	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 14-Nov-2023 10:40
PO	: ----	Date Analysis Commenced	: 15-Nov-2023
C-O-C number	: ----	Issue Date	: 08-Dec-2023 10:30
Sampler	: M.Keefe & I.F. Tzgerald 902.450.5015 ext. 5045		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Lump Sum Rate - Build NS (Mill Village)		
No. of samples received	: 27		
No. of samples analysed	: 27		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
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Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
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Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1239170)											
HA2301055-038	Anonymous	Moisture	----	E144	0.25	%	64.0	66.4	3.58%	20%	----
Metals (QC Lot: 1238746)											
HA2301058-002	SS2	Mercury	7439-97-6	E510	0.0050	mg/kg	0.113	0.117	4.06%	40%	----
Metals (QC Lot: 1238747)											
HA2301058-002	SS2	Aluminum	7429-90-5	E440	50	mg/kg	14900	15600	4.27%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.29	0.29	0.004	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	181	188	4.00%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	24.0	24.8	3.36%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.46	0.40	0.07	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.050	0.050	0.0002	Diff <2x LOR	----
		Chromium	7440-47-3	E440	0.50	mg/kg	22.3	23.5	5.13%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	8.97	8.66	3.46%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	24.6	25.4	3.08%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	25100	26100	3.98%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	22.3	23.7	6.03%	40%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	360	364	1.28%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.26	0.29	0.04	Diff <2x LOR	----
		Nickel	7440-02-0	E440	0.50	mg/kg	22.9	23.4	2.42%	30%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.31	0.31	0.002	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	5.64	6.13	8.44%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.131	0.137	0.005	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.730	0.750	2.73%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	24.3	26.0	6.89%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	56.8	57.8	1.80%	30%	----
Metals (QC Lot: 1239082)											
HA2301055-021	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	7900	7520	4.99%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1239082) - continued											
HA2301055-021	Anonymous	Antimony	7440-36-0	E440	0.10	mg/kg	1.46	1.52	3.90%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	194	196	1.12%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	52.1	49.1	5.92%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	1.18	1.19	0.462%	30%	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.478	0.430	10.6%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	15.3	15.4	0.606%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	13.2	12.8	2.54%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	56.7	54.0	4.89%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	112000	111000	1.75%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	35.9	36.5	1.52%	40%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	927	886	4.56%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	29.5	30.0	1.62%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	30.9	30.2	2.24%	30%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	2.34	2.28	2.77%	30%	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.15	0.14	0.01	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	36.3	34.4	5.52%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	1200	1200	20	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	1.14	1.16	1.99%	30%	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	1.02	1.04	1.17%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	32.7	32.1	1.77%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	30.4	28.8	5.22%	30%	----
Metals (QC Lot: 1239083)											
HA2301055-021	Anonymous	Mercury	7439-97-6	E510	0.0374	mg/kg	1.19	1.31	9.70%	40%	----
Metals (QC Lot: 1239896)											
HA2301058-026	DUP 2	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0599	0.0578	3.49%	40%	----
Metals (QC Lot: 1239897)											
HA2301058-026	DUP 2	Aluminum	7429-90-5	E440	50	mg/kg	18800	19600	4.66%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.17	0.18	0.006	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	132	135	1.96%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	23.1	24.1	4.25%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.19	0.19	0.002	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1239897) - continued											
HA2301058-026	DUP 2	Cadmium	7440-43-9	E440	0.020	mg/kg	0.057	0.055	0.001	Diff <2x LOR	----
		Chromium	7440-47-3	E440	0.50	mg/kg	17.1	17.7	3.52%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	1.36	1.46	7.17%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	5.45	5.38	1.35%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	24900	25400	1.99%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	9.73	9.84	1.06%	40%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	102	104	1.82%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.45	0.49	0.04	Diff <2x LOR	----
		Nickel	7440-02-0	E440	0.50	mg/kg	5.10	5.32	4.12%	30%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.76	0.74	0.02	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.16	0.16	0.004	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	3.20	3.34	4.20%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.162	0.167	0.004	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.317	0.323	0.006	Diff <2x LOR	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	30.9	31.5	2.11%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	19.6	20.0	2.36%	30%	----
Metals (QC Lot: 1264346)											
HA2301058-004	SS4	Aluminum	7429-90-5	E440	50	mg/kg	10200	8570	17.3%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.20	0.16	0.04	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	87.5	66.4	27.4%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	20.8	18.0	14.3%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.10	<0.10	0.002	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.053	0.044	0.009	Diff <2x LOR	----
		Chromium	7440-47-3	E440	0.50	mg/kg	10.0	7.99	22.7%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	0.82	0.62	28.2%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	2.92	2.44	0.48	Diff <2x LOR	----
		Iron	7439-89-6	E440	50	mg/kg	14300	11200	24.8%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	13.6	11.2	19.8%	40%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	87.8	71.7	20.2%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.31	0.26	0.04	Diff <2x LOR	----
		Nickel	7440-02-0	E440	1.00	mg/kg	3.60	2.29	1.31	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1264346) - continued											
HA2301058-004	SS4	Selenium	7782-49-2	E440	0.20	mg/kg	0.42	0.35	0.06	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.12	0.12	0.003	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	4.28	3.77	12.6%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.127	0.120	0.007	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.256	0.237	0.019	Diff <2x LOR	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	27.0	22.6	18.1%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	10.8	8.8	1.9	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1238593)											
HA2301055-036	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1265207)											
HA2301058-021	HA5 SS1	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1238594)											
HA2301055-036	Anonymous	VPH C6-C10	n/a	E581.VPH	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1244077)											
HA2301055-001	Anonymous	EPH >C10-C16	n/a	E601F	5.0	mg/kg	11.0	6.0	5.0	Diff <2x LOR	----
		EPH >C16-C21	n/a	E601F	5.0	mg/kg	25.0	15.4	9.6	Diff <2x LOR	----
		EPH >C21-C32	n/a	E601F	5.0	mg/kg	365	215	51.8%	40%	DUP-H
		EPH >C34-C50	n/a	E601F	20	mg/kg	532	332	46.1%	40%	DUP-H
Hydrocarbons (QC Lot: 1264465)											
HA2301058-017	HA3 SS1	EPH >C10-C16	n/a	E601F	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		EPH >C16-C21	n/a	E601F	5.0	mg/kg	12.7	14.0	1.3	Diff <2x LOR	----
		EPH >C21-C32	n/a	E601F	5.0	mg/kg	133	125	6.27%	40%	----
		EPH >C34-C50	n/a	E601F	20	mg/kg	217	177	20.2%	40%	----
Hydrocarbons (QC Lot: 1265206)											

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Hydrocarbons (QC Lot: 1265206) - continued											
HA2301058-021	HA5 SS1	VPH C6-C10	n/a	E581.VPH	5.0	mg/kg	5.7	6.4	0.7	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1238810)											
HA2301055-025	Anonymous	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	0.0065	0.0144	0.0079	Diff <2x LOR	J
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	0.0180	0.0738	121%	50%	DUP-H
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	# 0.031	0.021	Diff <2x LOR	DUP-H,J
		Anthracene	120-12-7	E641A-L	0.0046	mg/kg	0.0472	0.192	121%	50%	DUP-H
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	0.189	0.696	114%	50%	DUP-H
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	0.160	0.586	114%	50%	DUP-H
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	0.254	0.800	104%	50%	DUP-H
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	0.114	0.315	93.4%	50%	DUP-H
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	0.089	0.295	107%	50%	DUP-H
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	0.165	0.557	108%	50%	DUP-H
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	0.0338	0.0890	90.0%	50%	DUP-H
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	0.315	1.33	123%	50%	DUP-H
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	0.024	0.014	Diff <2x LOR	J
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	0.135	0.397	98.5%	50%	DUP-H
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	0.014	0.004	Diff <2x LOR	J
		Perylene	198-55-0	E641A-L	0.010	mg/kg	0.046	0.168	113%	50%	DUP-H
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	0.133	0.414	103%	50%	DUP-H
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	0.283	1.16	122%	50%	DUP-H
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1243130)											
HA2301055-036	Anonymous	Acridine	260-94-6	E641A-L	0.052	mg/kg	<0.053	<0.052	0.0008	Diff <2x LOR	J
Explosives (QC Lot: 1246501)											
WT2337408-021	Anonymous	Dinitroaniline, 3,5-	618-87-1	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dinitrobenzene, 1,3-	99-65-0	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dinitrotoluene, 2,4-	121-14-2	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dinitrotoluene, 2,6-	606-20-2	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dinitrotoluene, 2-amino-4,6-	35572-78-2	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dinitrotoluene, 4-amino-2,6-	19406-51-0	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121-82-4	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Nitrobenzene	98-95-3	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Explosives (QC Lot: 1246501) - continued											
WT2337408-021	Anonymous	Nitroglycerin	55-63-0	E726A	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Nitrotoluene, 2-	88-72-2	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Nitrotoluene, 3-	99-08-1	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Nitrotoluene, 4-	99-99-0	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	2691-41-0	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Pentaerythritol tetranitrate [PETN]	78-11-5	E726A	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Tetryl	479-45-8	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trinitrobenzene, 1,3,5-	99-35-4	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trinitrotoluene, 2,4,6- [TNT]	118-96-7	E726A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

Method Blank (MB) Report

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

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1239170)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 1238746)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1238747)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 1239082)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	# 0.14	B

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1239082) - continued						
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 1239083)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1239896)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1239897)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1239897) - continued						
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 1264346)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1264346) - continued						
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Volatile Organic Compounds (QCLot: 1238593)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Volatile Organic Compounds (QCLot: 1265207)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1238594)						
VPH C6-C10	n/a	E581.VPH	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1244077)						
EPH >C10-C16	n/a	E601F	5	mg/kg	<5.0	----
EPH >C16-C21	n/a	E601F	5	mg/kg	<5.0	----
EPH >C21-C32	n/a	E601F	5	mg/kg	<5.0	----
EPH >C34-C50	n/a	E601F	20	mg/kg	<20	----
Hydrocarbons (QCLot: 1264465)						
EPH >C10-C16	n/a	E601F	5	mg/kg	<5.0	----
EPH >C16-C21	n/a	E601F	5	mg/kg	<5.0	----
EPH >C21-C32	n/a	E601F	5	mg/kg	<5.0	----
EPH >C34-C50	n/a	E601F	20	mg/kg	<20	----
Hydrocarbons (QCLot: 1265206)						
VPH C6-C10	n/a	E581.VPH	5	mg/kg	<5.0	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1238810)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1238810) - continued						
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1243130)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1243130) - continued						
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----
Explosives (QCLot: 1246501)						
Dinitroaniline, 3,5-	618-87-1	E726A	0.05	mg/kg	<0.050	----
Dinitrobenzene, 1,3-	99-65-0	E726A	0.05	mg/kg	<0.050	----
Dinitrotoluene, 2,4-	121-14-2	E726A	0.05	mg/kg	<0.050	----
Dinitrotoluene, 2,6-	606-20-2	E726A	0.05	mg/kg	<0.050	----
Dinitrotoluene, 2-amino-4,6-	35572-78-2	E726A	0.05	mg/kg	<0.050	----
Dinitrotoluene, 4-amino-2,6-	19406-51-0	E726A	0.05	mg/kg	<0.050	----
Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121-82-4	E726A	0.05	mg/kg	<0.050	----
Nitrobenzene	98-95-3	E726A	0.05	mg/kg	<0.050	----
Nitroglycerin	55-63-0	E726A	0.1	mg/kg	<0.10	----
Nitrotoluene, 2-	88-72-2	E726A	0.05	mg/kg	<0.050	----
Nitrotoluene, 3-	99-08-1	E726A	0.05	mg/kg	<0.050	----
Nitrotoluene, 4-	99-99-0	E726A	0.05	mg/kg	<0.050	----
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	2691-41-0	E726A	0.05	mg/kg	<0.050	----
Pentaerythritol tetranitrate [PETN]	78-11-5	E726A	0.1	mg/kg	<0.10	----
Tetryl	479-45-8	E726A	0.05	mg/kg	<0.050	----
Trinitrobenzene, 1,3,5-	99-35-4	E726A	0.05	mg/kg	<0.050	----
Trinitrotoluene, 2,4,6- [TNT]	118-96-7	E726A	0.05	mg/kg	<0.050	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1239170)									
Moisture	----	E144	0.25	%	50 %	98.7	90.0	110	----
Metals (QCLot: 1238746)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	102	80.0	120	----
Metals (QCLot: 1238747)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	101	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	112	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	112	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	108	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	93.6	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	91.8	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	107	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	105	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	111	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	106	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	110	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	104	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	109	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	101	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	111	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	103	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	105	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	108	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	98.2	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	109	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	104	80.0	120	----
Metals (QCLot: 1239082)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	98.1	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	105	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1239082) - continued									
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	100	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.8	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	98.2	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	102	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	104	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	104	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	106	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	102	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	102	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	102	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	116	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	95.1	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	102	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	99.5	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	101	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	106	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	99.6	80.0	120	----
Metals (QCLot: 1239083)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	112	80.0	120	----
Metals (QCLot: 1239896)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	107	80.0	120	----
Metals (QCLot: 1239897)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	98.8	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	103	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	110	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.7	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	97.6	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	98.3	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	102	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1239897) - continued									
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	102	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	104	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	104	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	106	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	97.0	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	107	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	96.0	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	101	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	103	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	99.4	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	107	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	100	80.0	120	----
Metals (QCLot: 1264346)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	103	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	102	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	112	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	107	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	102	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	105	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	109	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	109	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	109	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	110	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	104	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	109	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	103	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	108	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	106	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	102	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	110	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	107	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	101	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	106	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1264346) - continued									
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	104	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	111	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	107	80.0	120	----
Volatile Organic Compounds (QCLot: 1238593)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	87.8	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	86.6	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	82.6	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	90.7	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	93.8	70.0	130	----
Volatile Organic Compounds (QCLot: 1265207)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	108	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	90.8	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	91.0	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	95.9	70.0	130	----
Hydrocarbons (QCLot: 1238594)									
VPH C6-C10	n/a	E581.VPH	5	mg/kg	69.1875 mg/kg	# 79.6	80.0	120	LCS-L
Hydrocarbons (QCLot: 1244077)									
EPH >C10-C16	n/a	E601F	5	mg/kg	799.3688 mg/kg	89.0	70.0	130	----
EPH >C16-C21	n/a	E601F	5	mg/kg	437.2594 mg/kg	114	70.0	130	----
EPH >C21-C32	n/a	E601F	5	mg/kg	565.0313 mg/kg	100	70.0	130	----
EPH >C34-C50	n/a	E601F	20	mg/kg	576.6844 mg/kg	118	70.0	130	----
Hydrocarbons (QCLot: 1264465)									
EPH >C10-C16	n/a	E601F	5	mg/kg	799.3688 mg/kg	71.7	70.0	130	----
EPH >C16-C21	n/a	E601F	5	mg/kg	437.2594 mg/kg	122	70.0	130	----
EPH >C21-C32	n/a	E601F	5	mg/kg	565.0313 mg/kg	80.2	70.0	130	----
EPH >C34-C50	n/a	E601F	20	mg/kg	576.6844 mg/kg	94.5	70.0	130	----
Hydrocarbons (QCLot: 1265206)									
VPH C6-C10	n/a	E581.VPH	5	mg/kg	69.1875 mg/kg	99.3	80.0	120	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1238810)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	85.7	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	89.2	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	92.1	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1238810) - continued									
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	89.8	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	92.4	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	82.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	93.3	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	93.1	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	90.3	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	74.7	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	73.3	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	89.0	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	90.4	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	98.9	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	78.7	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	87.5	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	80.2	60.0	130	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	0.5 mg/kg	92.8	60.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	87.5	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	87.6	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	84.0	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1243130)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	93.3	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	94.0	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	86.8	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	89.1	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	91.5	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	88.7	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	94.4	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	94.0	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	94.7	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	81.8	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	79.1	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	93.0	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	94.2	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	94.1	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	87.8	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	96.5	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	86.8	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1243130) - continued									
Perylene	198-55-0	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	89.6	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	90.9	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	84.3	60.0	130	----
Explosives (QCLot: 1246501)									
Dinitroaniline, 3,5-	618-87-1	E726A	0.05	mg/kg	0.1 mg/kg	87.6	70.0	130	----
Dinitrobenzene, 1,3-	99-65-0	E726A	0.05	mg/kg	0.1 mg/kg	96.8	70.0	130	----
Dinitrotoluene, 2,4-	121-14-2	E726A	0.05	mg/kg	0.1 mg/kg	104	70.0	130	----
Dinitrotoluene, 2,6-	606-20-2	E726A	0.05	mg/kg	0.1 mg/kg	95.2	70.0	130	----
Dinitrotoluene, 2-amino-4,6-	35572-78-2	E726A	0.05	mg/kg	0.1 mg/kg	88.5	70.0	130	----
Dinitrotoluene, 4-amino-2,6-	19406-51-0	E726A	0.05	mg/kg	0.1 mg/kg	95.2	70.0	130	----
Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121-82-4	E726A	0.05	mg/kg	0.1 mg/kg	86.9	70.0	130	----
Nitrobenzene	98-95-3	E726A	0.05	mg/kg	0.1 mg/kg	96.9	70.0	130	----
Nitroglycerin	55-63-0	E726A	0.1	mg/kg	0.2 mg/kg	75.3	70.0	130	----
Nitrotoluene, 2-	88-72-2	E726A	0.05	mg/kg	0.1 mg/kg	83.1	70.0	130	----
Nitrotoluene, 3-	99-08-1	E726A	0.05	mg/kg	0.1 mg/kg	91.9	70.0	130	----
Nitrotoluene, 4-	99-99-0	E726A	0.05	mg/kg	0.1 mg/kg	85.2	70.0	130	----
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	2691-41-0	E726A	0.05	mg/kg	0.1 mg/kg	97.4	70.0	130	----
Pentaerythritol tetranitrate [PETN]	78-11-5	E726A	0.1	mg/kg	0.2 mg/kg	85.9	70.0	130	----
Tetryl	479-45-8	E726A	0.05	mg/kg	0.1 mg/kg	89.7	70.0	130	----
Trinitrobenzene, 1,3,5-	99-35-4	E726A	0.05	mg/kg	0.1 mg/kg	94.7	70.0	130	----
Trinitrotoluene, 2,4,6- [TNT]	118-96-7	E726A	0.05	mg/kg	0.1 mg/kg	96.4	70.0	130	----

Qualifiers

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

Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1238593)										
HA2301055-036	Anonymous	Benzene	71-43-2	E611A	2.08 mg/kg	3.125 mg/kg	94.3	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.18 mg/kg	3.125 mg/kg	98.7	60.0	140	----
		Toluene	108-88-3	E611A	1.98 mg/kg	3.125 mg/kg	89.6	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.46 mg/kg	6.25 mg/kg	101	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.24 mg/kg	3.125 mg/kg	101	60.0	140	----
Volatile Organic Compounds (QCLot: 1265207)										
HA2301058-021	HA5 SS1	Benzene	71-43-2	E611A	3.34 mg/kg	3.125 mg/kg	102	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.85 mg/kg	3.125 mg/kg	86.8	60.0	140	----
		Toluene	108-88-3	E611A	2.96 mg/kg	3.125 mg/kg	90.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	5.68 mg/kg	6.25 mg/kg	86.6	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.98 mg/kg	3.125 mg/kg	90.9	60.0	140	----
Hydrocarbons (QCLot: 1238594)										
HA2301055-036	Anonymous	VPH C6-C10	n/a	E581.VPH	37.8 mg/kg	62.5 mg/kg	85.6	60.0	140	----
Hydrocarbons (QCLot: 1244077)										
HA2301055-001	Anonymous	EPH >C10-C16	n/a	E601F	507 mg/kg	799.3688 mg/kg	76.7	60.0	140	----
		EPH >C16-C21	n/a	E601F	434 mg/kg	437.2594 mg/kg	120	60.0	140	----
		EPH >C21-C32	n/a	E601F	341 mg/kg	565.0313 mg/kg	73.0	60.0	140	----
		EPH >C34-C50	n/a	E601F	459 mg/kg	576.6844 mg/kg	96.3	60.0	140	----
Hydrocarbons (QCLot: 1264465)										
HA2301058-017	HA3 SS1	EPH >C10-C16	n/a	E601F	477 mg/kg	799.3688 mg/kg	75.0	60.0	140	----
		EPH >C16-C21	n/a	E601F	441 mg/kg	437.2594 mg/kg	127	60.0	140	----
		EPH >C21-C32	n/a	E601F	355 mg/kg	565.0313 mg/kg	79.0	60.0	140	----
		EPH >C34-C50	n/a	E601F	393 mg/kg	576.6844 mg/kg	85.7	60.0	140	----
Hydrocarbons (QCLot: 1265206)										
HA2301058-021	HA5 SS1	VPH C6-C10	n/a	E581.VPH	61.9 mg/kg	62.5 mg/kg	94.4	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1238810)										
HA2301055-025	Anonymous	Acenaphthene	83-32-9	E641A-L	0.340 mg/kg	0.5 mg/kg	86.9	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.354 mg/kg	0.5 mg/kg	90.2	50.0	140	----
		Acridine	260-94-6	E641A-L	0.308 mg/kg	0.5 mg/kg	78.5	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.346 mg/kg	0.5 mg/kg	88.2	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1238810) - continued										
HA2301055-025	Anonymous	Benz(a)anthracene	56-55-3	E641A-L	0.297 mg/kg	0.5 mg/kg	75.8	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.273 mg/kg	0.5 mg/kg	69.7	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.286 mg/kg	0.5 mg/kg	73.0	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.296 mg/kg	0.5 mg/kg	75.6	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.328 mg/kg	0.5 mg/kg	83.7	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.235 mg/kg	0.5 mg/kg	59.9	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.271 mg/kg	0.5 mg/kg	69.1	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.257 mg/kg	0.5 mg/kg	65.6	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.361 mg/kg	0.5 mg/kg	92.1	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.327 mg/kg	0.5 mg/kg	83.5	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.324 mg/kg	0.5 mg/kg	82.7	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.364 mg/kg	0.5 mg/kg	93.0	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.346 mg/kg	0.5 mg/kg	88.1	50.0	140	----
		Perylene	198-55-0	E641A-L	0.337 mg/kg	0.5 mg/kg	86.0	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.304 mg/kg	0.5 mg/kg	77.5	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.268 mg/kg	0.5 mg/kg	68.5	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.313 mg/kg	0.5 mg/kg	79.8	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1243130)										
HA2301055-036	Anonymous	Acridine	260-94-6	E641A-L	10.9 mg/kg	1.5 mg/kg	88.0	50.0	140	----
Explosives (QCLot: 1246501)										
WT2337408-021	Anonymous	Dinitroaniline, 3,5-	618-87-1	E726A	0.080 mg/kg	0.1 mg/kg	80.4	50.0	150	----
		Dinitrobenzene, 1,3-	99-65-0	E726A	0.093 mg/kg	0.1 mg/kg	93.2	50.0	150	----
		Dinitrotoluene, 2,4-	121-14-2	E726A	0.096 mg/kg	0.1 mg/kg	96.7	50.0	150	----
		Dinitrotoluene, 2,6-	606-20-2	E726A	0.094 mg/kg	0.1 mg/kg	94.8	50.0	150	----
		Dinitrotoluene, 2-amino-4,6-	35572-78-2	E726A	0.093 mg/kg	0.1 mg/kg	93.7	50.0	150	----
		Dinitrotoluene, 4-amino-2,6-	19406-51-0	E726A	0.080 mg/kg	0.1 mg/kg	80.0	50.0	150	----
		Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121-82-4	E726A	0.083 mg/kg	0.1 mg/kg	83.3	50.0	150	----
		Nitrobenzene	98-95-3	E726A	0.094 mg/kg	0.1 mg/kg	94.3	50.0	150	----
		Nitroglycerin	55-63-0	E726A	0.10 mg/kg	0.2 mg/kg	51.8	50.0	150	----
		Nitrotoluene, 2-	88-72-2	E726A	0.080 mg/kg	0.1 mg/kg	80.2	50.0	150	----
		Nitrotoluene, 3-	99-08-1	E726A	0.081 mg/kg	0.1 mg/kg	81.1	50.0	150	----
		Nitrotoluene, 4-	99-99-0	E726A	0.080 mg/kg	0.1 mg/kg	80.2	50.0	150	----
		Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX]	2691-41-0	E726A	0.102 mg/kg	0.1 mg/kg	103	50.0	150	----
		Pentaerythritol tetranitrate [PETN]	78-11-5	E726A	0.14 mg/kg	0.2 mg/kg	72.2	50.0	150	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Explosives (QCLot: 1246501) - continued										
WT2337408-021	Anonymous	Tetryl	479-45-8	E726A	0.085 mg/kg	0.1 mg/kg	85.3	50.0	150	----
		Trinitrobenzene, 1,3,5-	99-35-4	E726A	0.086 mg/kg	0.1 mg/kg	86.9	50.0	150	----
		Trinitrotoluene, 2,4,6- [TNT]	118-96-7	E726A	0.090 mg/kg	0.1 mg/kg	90.6	50.0	150	----

Reference Material (RM) Report

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

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1238746)									
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	106	70.0	130	----
Metals (QCLot: 1238747)									
	RM	Aluminum	7429-90-5	E440	9817 mg/kg	96.1	70.0	130	----
	RM	Antimony	7440-36-0	E440	3.99 mg/kg	100	70.0	130	----
	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	97.0	70.0	130	----
	RM	Barium	7440-39-3	E440	105 mg/kg	103	70.0	130	----
	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	88.2	70.0	130	----
	RM	Boron	7440-42-8	E440	8.5 mg/kg	103	70.0	130	----
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	99.9	70.0	130	----
	RM	Chromium	7440-47-3	E440	101 mg/kg	98.6	70.0	130	----
	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	98.9	70.0	130	----
	RM	Copper	7440-50-8	E440	123 mg/kg	101	70.0	130	----
	RM	Iron	7439-89-6	E440	23558 mg/kg	99.3	70.0	130	----
	RM	Lead	7439-92-1	E440	267 mg/kg	97.0	70.0	130	----
	RM	Manganese	7439-96-5	E440	269 mg/kg	100	70.0	130	----
	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	102	70.0	130	----
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	97.2	70.0	130	----
	RM	Silver	7440-22-4	E440	4.06 mg/kg	79.7	70.0	130	----
	RM	Strontium	7440-24-6	E440	86.1 mg/kg	102	70.0	130	----
	RM	Thallium	7440-28-0	E440	0.0786 mg/kg	93.1	70.0	130	----
	RM	Tin	7440-31-5	E440	10.6 mg/kg	95.3	70.0	130	----
	RM	Uranium	7440-61-1	E440	0.52 mg/kg	89.8	70.0	130	----
	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	100	70.0	130	----
	RM	Zinc	7440-66-6	E440	297 mg/kg	94.3	70.0	130	----
Metals (QCLot: 1239082)									
	RM	Aluminum	7429-90-5	E440	9817 mg/kg	102	70.0	130	----
	RM	Antimony	7440-36-0	E440	3.99 mg/kg	94.9	70.0	130	----
	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	102	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1239082) - continued									
	RM	Barium	7440-39-3	E440	105 mg/kg	105	70.0	130	----
	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	94.9	70.0	130	----
	RM	Boron	7440-42-8	E440	8.5 mg/kg	106	70.0	130	----
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	120	70.0	130	----
	RM	Chromium	7440-47-3	E440	101 mg/kg	101	70.0	130	----
	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	----
	RM	Copper	7440-50-8	E440	123 mg/kg	104	70.0	130	----
	RM	Iron	7439-89-6	E440	23558 mg/kg	104	70.0	130	----
	RM	Lead	7439-92-1	E440	267 mg/kg	102	70.0	130	----
	RM	Manganese	7439-96-5	E440	269 mg/kg	106	70.0	130	----
	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	104	70.0	130	----
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	105	70.0	130	----
	RM	Silver	7440-22-4	E440	4.06 mg/kg	85.8	70.0	130	----
	RM	Strontium	7440-24-6	E440	86.1 mg/kg	104	70.0	130	----
	RM	Thallium	7440-28-0	E440	0.0786 mg/kg	99.3	70.0	130	----
	RM	Tin	7440-31-5	E440	10.6 mg/kg	96.2	70.0	130	----
	RM	Uranium	7440-61-1	E440	0.52 mg/kg	97.7	70.0	130	----
	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	102	70.0	130	----
	RM	Zinc	7440-66-6	E440	297 mg/kg	100	70.0	130	----
Metals (QCLot: 1239083)									
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	109	70.0	130	----
Metals (QCLot: 1239896)									
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	103	70.0	130	----
Metals (QCLot: 1239897)									
	RM	Aluminum	7429-90-5	E440	9817 mg/kg	106	70.0	130	----
	RM	Antimony	7440-36-0	E440	3.99 mg/kg	102	70.0	130	----
	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	108	70.0	130	----
	RM	Barium	7440-39-3	E440	105 mg/kg	104	70.0	130	----
	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	96.9	70.0	130	----
	RM	Boron	7440-42-8	E440	8.5 mg/kg	113	70.0	130	----
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	105	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1239897) - continued									
	RM	Chromium	7440-47-3	E440	101 mg/kg	106	70.0	130	----
	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	106	70.0	130	----
	RM	Copper	7440-50-8	E440	123 mg/kg	107	70.0	130	----
	RM	Iron	7439-89-6	E440	23558 mg/kg	107	70.0	130	----
	RM	Lead	7439-92-1	E440	267 mg/kg	104	70.0	130	----
	RM	Manganese	7439-96-5	E440	269 mg/kg	114	70.0	130	----
	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	107	70.0	130	----
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	106	70.0	130	----
	RM	Silver	7440-22-4	E440	4.06 mg/kg	94.1	70.0	130	----
	RM	Strontium	7440-24-6	E440	86.1 mg/kg	107	70.0	130	----
	RM	Thallium	7440-28-0	E440	0.0786 mg/kg	102	70.0	130	----
	RM	Tin	7440-31-5	E440	10.6 mg/kg	99.9	70.0	130	----
	RM	Uranium	7440-61-1	E440	0.52 mg/kg	104	70.0	130	----
	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	105	70.0	130	----
	RM	Zinc	7440-66-6	E440	297 mg/kg	102	70.0	130	----
Metals (QCLot: 1264346)									
	RM	Aluminum	7429-90-5	E440	9817 mg/kg	107	70.0	130	----
	RM	Antimony	7440-36-0	E440	3.99 mg/kg	90.0	70.0	130	----
	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	112	70.0	130	----
	RM	Barium	7440-39-3	E440	105 mg/kg	105	70.0	130	----
	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	102	70.0	130	----
	RM	Boron	7440-42-8	E440	8.5 mg/kg	110	70.0	130	----
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	102	70.0	130	----
	RM	Chromium	7440-47-3	E440	101 mg/kg	105	70.0	130	----
	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	104	70.0	130	----
	RM	Copper	7440-50-8	E440	123 mg/kg	105	70.0	130	----
	RM	Iron	7439-89-6	E440	23558 mg/kg	104	70.0	130	----
	RM	Lead	7439-92-1	E440	267 mg/kg	96.8	70.0	130	----
	RM	Manganese	7439-96-5	E440	269 mg/kg	108	70.0	130	----
	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	100	70.0	130	----
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	105	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1264346) - continued									
	RM	Silver	7440-22-4	E440	4.06 mg/kg	79.6	70.0	130	----
	RM	Strontium	7440-24-6	E440	86.1 mg/kg	99.6	70.0	130	----
	RM	Thallium	7440-28-0	E440	0.0786 mg/kg	104	70.0	130	----
	RM	Tin	7440-31-5	E440	10.6 mg/kg	97.4	70.0	130	----
	RM	Uranium	7440-61-1	E440	0.52 mg/kg	102	70.0	130	----
	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	104	70.0	130	----
	RM	Zinc	7440-66-6	E440	297 mg/kg	101	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 1 of 3

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division Halifax

Work Order Reference HA2301058

Telephone : +1 902 707 4888

Report To	Contact and company name below will appear on the final report
Company:	Dillon Consulting Limited
Contact:	Asia Reid
Phone:	902.450.5015 ext. 5045
	Company address below will appear on the final report
Street:	137 Chain Lake Drive Suite 100
City/Province:	Halifax / Nova Scotia
Postal Code:	B3S 1B3
Invoice To	Same as Report To
	Copy of Invoice with Report
Company:	
Contact:	

Reports / Recipients

Select Report Format: Merge QC/QCI Reports with COA

Select Distribution:

Email 1 or Fax AReid@dillon.ca

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution:

Email 1 or Fax AReid@dillon.ca

Email 2 payables@dillon.ca

Turnaround Time (TAT) Requested

Regular

Additional fees may apply to rush requests on weekends, sta

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact

Project Information

ALS Client Code / QUOTE #: DICL100 / HA23-DICL100-11

Job / Project #: Build NS - Mill Village

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): HA2301058

ALS Contact: Andrew Martin

Sampler: M. Keefe & I. Ferguson

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX/TPH (RBCA) in Soil	Metals + Mercury in Soil	PAHs (RBCA) in Soil	Energetics in Soil	BTEX/TPH (RBCA) in Water	PAHs (RBCA) in Water	Gen. Chem. w/ Metals + Hg in Water:	Alk,Anions,NH3,EC,TOC,Color,Turb.	pH,TDS,Metals,Mercury,Hardness	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	SS1	09-11-23	10:58	Soil		X	X	X	X								
	SS2		11:05			X	X	X	X								
	SS3		11:40			X	X	X	X								
	SS4		12:14												X		
	SS5		12:16												X		
	SS6		12:32												X		
	SS7		12:38												X		
	SS8		13:00												X		
	SS9		12:55												X		
	SS10		13:16												X		
	SS11		13:25												X		
	SS12		13:30												X		

Drinking Water (DW) Samples1 (client use)

Are samples taken from a Regulated DW System?

Are samples for human consumption/ use?

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

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method:

Cooler Custody Seals Intact: Sample Custody Seals Intact:

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.7	5.4	5.6	

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Michael Keefe	14-11-23	10:37

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Shane	14 NOV 2023	10:40

MAY 2023 FINC

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 22 -

Report To	Contact and company name below will appear on the final report
Company:	Dillon Consulting Limited
Contact:	Asia Reid
Phone:	902.450.5015 ext. 5045
	Company address below will appear on the final report
Street:	137 Chain Lake Drive Suite 100
City/Province:	Halifax / Nova Scotia
Postal Code:	B3S 1B3
Invoice To	Same as Report To
	Copy of Invoice with Report
Company:	
Contact:	

Reports / Recipients

Select Report Format: Merge QC/QCI Reports with COA

Select Distribution:

Email 1 or Fax: AReid@dillon.ca

Email 2:

Email 3:

Invoice Recipients

Select Invoice Distribution:

Email 1 or Fax: AReid@dillon.ca

Email 2: payables@dillon.ca

Turnaround Time (TAT) Requested

Regular

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

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

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

Project Information

ALS Client Code / QUOTE #: DICL100 / HA23-DICL100-11

Job / Project #: Build NS - Mill Village

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): HA2301058

ALS Contact: Andrew Martin

Sampler: M. Kuifa, I. Fitzgerald

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX/TPH (RBCA) in Soil	Metals + Mercury in Soil	PAHs (RBCA) in Soil	Energetics in Soil		BTEX/TPH (RBCA) in Water	PAHs (RBCA) in Water		Gen. Chem. w/ Metals + Hg in Water	Alk,Anions,NH3,EC,TOC,Color,Turb.	pH,TDS,Metals,Mercury,Hardness				SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	HA1 551	09-11-23	14:28	Soil			X	X														
	HA1 552	09-11-23	14:34																		X	
	HA2 551	10-11-23	10:00				X	X														
	HA2 552		10:02																		X	
	HA3 551		10:36				X	X														
	HA3 552		10:35																		X	
	HA4 551		10:50				X	X														
	HA4 552		11:05																		X	
	HA5 551		11:25				X	X														
	HA5 552		11:45																		X	
	HA6 551		12:10				X	X														
	HA6 552		12:15																		X	

Drinking Water (DW) Samples1 (client use)

re samples taken from a Regulated DW System?

re samples for human consumption/ use?

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SAMPLE RECEIPT DETAILS (ALS use only)

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INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.7	5.4	5.6	

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Michael Kuifa	14-11-23	

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Shone	14 NOV 2023	10:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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MAY 2023 FRONT

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Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 3 of 3

Canada Toll Free: 1 800 668 9878

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Report To	Contact and company name below will appear on the final report
Company:	Dillon Consulting Limited
Contact:	Asia Reid
Phone:	902.450.5015 ext. 5045
	Company address below will appear on the final report
Street:	137 Chain Lake Drive Suite 100
City/Province:	Halifax / Nova Scotia
Postal Code:	B3S 1B3
Invoice To	Same as Report To
	Copy of Invoice with Report
Company:	
Contact:	

Project Information

ALS Client Code / QUOTE #:	DICL100 / HA23-DICL100-11
Job / Project #:	Build NS - Mill Village
PO / AFE:	
LSD:	

ALS Lab Work Order # (ALS use only): HA2301058

Reports / Recipients

Select Report Format: Merge QC/QCI Reports with COA

Select Distribution:

Email 1 or Fax: AReid@dillon.ca

Email 2:

Email 3:

Invoice Recipients

Select Invoice Distribution:

Email 1 or Fax: AReid@dillon.ca

Email 2: payables@dillon.ca

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Contact: Andrew Martin

Sampler: M. Kufe, I. Fitzgerald

Turnaround Time (TAT) Requested

Regular

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

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

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

Analysis Request

NUMBER OF CONTAINERS

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX/TPH (RBCA) in Soil	Metals + Mercury in Soil	PAHs (RBCA) in Soil	Energetics in Soil	BTEX/TPH (RBCA) in Water	PAHs (RBCA) in Water	Gen. Chem. w/ Metals + Hg in Water	Alk.,Anions,NH3,EC,TOC,Color,Turb.	pH,TDS,Metals,Mercury,Hardness	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Dup 1	09-11-23		Soil	X	X	X	X								
	Dup 2	09-11-23		Soil		X										
	Dup 3	09-11-23		Soil		X										

Drinking Water (DW) Samples1 (client use)

Are samples taken from a Regulated DW System?

Are samples for human consumption/ use?

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

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method:

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INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.7	5.4	5.6	

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Michael Kufe	14-11-23	

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Shone	14 NOV 2023	10:40

MAY 2023 F

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **HA2301312**	Page	: 1 of 12
Client	: **Dillon Consulting Limited**	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 18-Dec-2023 12:00
PO	: ----	Date Analysis Commenced	: 19-Dec-2023
C-O-C number	: ----	Issue Date	: 27-Dec-2023 14:59
Sampler	: ----		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Lump Sum Rate - Build NS (Mill Village)		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
John Tang	Lab Analyst	Inorganics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Metals, Waterloo, Ontario
Josphin Masihi	Analyst	Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Robyn Edwards	Supervisor - Water Chemistry	Inorganics, Dartmouth, Nova Scotia

General Comments

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

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

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

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

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
none	none
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

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

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

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

Workorder Comments

Sample(s) 002, 003: Limited Sample; Please prioritize Metals analysis, then PAH and if there is enough, PHC.

Sample Comments

Sample	Client Id	*Comment*
HA2301312-001	Drill Water	N/A: Resemblance Not Applicable (mTPH < LOR)

HA2301312-003	BH2 Composite (Limited Sample)	LOF: Lube oil fraction
HA2301312-004	BH3 SS2 (Limited Sample)	LOF: Lube oil fraction

Qualifiers

Qualifier	Description
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLHC	*Detection Limit Raised: Dilution required due to high concentration of test analyte(s).*
DLQ	*Detection Limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptance criteria.*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1 Composite	BH2 Composite (Limited Sample)	BH3 SS2 (Limited Sample)	----	----
					Client sampling date / time	14-Dec-2023 09:00	13-Dec-2023 12:30	13-Dec-2023 14:05	----	----
						HA2301312-002	HA2301312-003	HA2301312-004	--------	--------
						Result	Result	Result	----	----
Physical Tests										
Moisture	----	E144/WT	0.25	%		11.4	18.4	10.8	----	----
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		14100	22200	23400	----	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg		0.14	0.26	0.22	----	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		104	371	333	----	----
Barium	7440-39-3	E440/WT	0.50	mg/kg		32.4	47.4	57.8	----	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		0.38	0.62	0.44	----	----
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.032	0.039	0.043	----	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg		23.5	31.6	53.9	----	----
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		8.13	11.8	12.5	----	----
Copper	7440-50-8	E440/WT	0.50	mg/kg		22.2	30.8	24.8	----	----
Iron	7439-89-6	E440/WT	50	mg/kg		21400	31300	33200	----	----
Lead	7439-92-1	E440/WT	0.50	mg/kg		8.90	11.6	13.8	----	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg		315	404	404	----	----
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		0.0200	0.0392	0.0232	----	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		0.59	1.13	4.64	----	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg		21.8	27.8	28.0	----	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.26	0.61	0.56	----	----
Silver	7440-22-4	E440/WT	0.10	mg/kg		<0.10	0.10	<0.10	----	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg		4.63	6.57	5.14	----	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	<1000	<1000	----	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.114	0.205	0.190	----	----
Tin	7440-31-5	E440/WT	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.647	1.11	0.736	----	----
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		21.9	33.6	32.2	----	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg		44.1	68.6	72.2	----	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1 Composite	BH2 Composite (Limited Sample)	BH3 SS2 (Limited Sample)	----	----
					Client sampling date / time	14-Dec-2023 09:00	13-Dec-2023 12:30	13-Dec-2023 14:05	----	----
						HA2301312-002	HA2301312-003	HA2301312-004	--------	--------
						Result	Result	Result	----	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		----	<1	<1	----	----
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		----	<1	<1	----	----
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		----	<1	<1	----	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		----	100	100	----	----
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.0050	mg/kg		----	<0.0050	<0.0050	----	----
Toluene	108-88-3	E611A/WT	0.050	mg/kg		----	<0.050	<0.050	----	----
Ethylbenzene	100-41-4	E611A/WT	0.015	mg/kg		----	<0.015	<0.015	----	----
Xylenes, total	1330-20-7	E611A/WT	0.050	mg/kg		----	<0.050	<0.050	----	----
Xylene, o-	95-47-6	E611A/WT	0.030	mg/kg		----	<0.030	<0.030	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.030	mg/kg		----	<0.030	<0.030	----	----
VPH C6-C10	n/a	E581.VPH/WT	5.0	mg/kg		----	<5.0	<5.0	----	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	5.0	mg/kg		----	<5.0	<5.0	----	----
EPH >C10-C16	n/a	E601F/WT	5.0	mg/kg		----	<5.0	<5.0	----	----
EPH >C16-C21	n/a	E601F/WT	5.0	mg/kg		----	<5.0	<5.0	----	----
EPH >C21-C32	n/a	E601F/WT	5.0	mg/kg		----	40.9	28.4	----	----
EPH >C34-C50	n/a	E601F/WT	20	mg/kg		----	62	45	----	----
hydrocarbon resemblance	n/a	E601F/WT	-	none		----	LOF	LOF	----	----
mTPH (Tier I)	n/a	EC581D/WT	10	mg/kg		----	41	28	----	----
return to baseline at C32	n/a	E601F/WT	-	-		----	No	No	----	----
TEH >C10-C32	n/a	E601F/WT	10	mg/kg		----	41	28	----	----
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		----	98.9	72.2	----	----
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		----	75.4	83.2	----	----
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		----	99.7	118	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	0.10	%		----	109	115	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	0.10	%		----	99.3	114	----	----
Polycyclic Aromatic Hydrocarbons										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1 Composite	BH2 Composite (Limited Sample)	BH3 SS2 (Limited Sample)	----	----
					Client sampling date / time	14-Dec-2023 09:00	13-Dec-2023 12:30	13-Dec-2023 14:05	----	----
						HA2301312-002	HA2301312-003	HA2301312-004	--------	--------
						Result	Result	Result	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Acenaphthylene	208-96-8	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Acridine	260-94-6	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Anthracene	120-12-7	E641A-L/WT	0.0040	mg/kg		<0.0040	<0.0040	<0.0040	----	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	mg/kg		<0.015	<0.015	<0.015	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Chrysene	218-01-9	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	----	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Fluorene	86-73-7	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	mg/kg		<0.015	<0.015	<0.015	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Naphthalene	91-20-3	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Perylene	198-55-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Pyrene	129-00-0	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
Quinoline	91-22-5	E641A-L/WT	0.010	mg/kg		<0.010	<0.010	<0.010	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.020	mg/kg		<0.020	<0.020	<0.020	----	----
IACR (CCME)	----	E641A-L/WT	0.150	-		<0.150	<0.150	<0.150	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/WT	0.1	%		90.4	82.5	89.2	----	----
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		115	104	96.6	----	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		110	106	99.3	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BH1 Composite	BH2 Composite (Limited Sample)	BH3 SS2 (Limited Sample)	----	----
					Client sampling date / time	14-Dec-2023 09:00	13-Dec-2023 12:30	13-Dec-2023 14:05	----	----
						HA2301312-002	HA2301312-003	HA2301312-004	--------	--------
						Result	Result	Result	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		104	100	96.2	----	----

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

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

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Drill Water	----	----	----	----
					Client sampling date / time	14-Dec-2023 09:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2301312-001	--------	--------	--------	--------
						Result	----	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WT	1.0	mg/L		19.3	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		15.8	----	----	----	----
Colour, apparent	----	E330/WT	2.0	CU		2.4	----	----	----	----
Conductivity	----	E100/WT	1.0	µS/cm		134	----	----	----	----
Langelier index (@ 20°C)	----	EC105/WT	0.010	-		-1.82	----	----	----	----
Langelier index (@ 4°C)	----	EC105/WT	0.010	-		-2.07	----	----	----	----
pH	----	E108/WT	0.10	pH units		7.23	----	----	----	----
pH, saturation (@ 20°C)	----	EC105/WT	0.010	pH units		9.05	----	----	----	----
pH, saturation (@ 4°C)	----	EC105/WT	0.010	pH units		9.30	----	----	----	----
Solids, total dissolved [TDS]	----	E162/HA	10	mg/L		69 DLDS	----	----	----	----
Turbidity	----	E121/WT	0.10	NTU		0.53	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		<0.0050	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		8.24	----	----	----	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		<0.020	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		0.042	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0032	mg/L		0.0420	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	----	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.195 DLHC	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		28.5	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WT	0.50	mg/L		2.22	----	----	----	----
Ion Balance										
Anion sum	----	EC101/WT	0.10	meq/L		1.14	----	----	----	----
Cation sum	----	EC101/WT	0.10	meq/L		1.14	----	----	----	----
Ion balance (cations/anions)	----	EC101/WT	0.010	%		100	----	----	----	----
Dissolved Metals										

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Drill Water	----	----	----	----
					Client sampling date / time	14-Dec-2023 09:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2301312-001	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0490	----	----	----	----
Antimony, dissolved	7440-36-0	E421/WT	0.00010	mg/L		<0.00010	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00022	----	----	----	----
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.00192	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/WT	0.000020	mg/L		<0.000020	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/WT	0.000050	mg/L		<0.000050	----	----	----	----
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		<0.010	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		0.0000067	----	----	----	----
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		12.0	----	----	----	----
Cesium, dissolved	7440-46-2	E421/WT	0.000010	mg/L		0.000012	----	----	----	----
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/WT	0.00010	mg/L		<0.00010	----	----	----	----
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00702	----	----	----	----
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		0.022	----	----	----	----
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		0.000820	----	----	----	----
Lithium, dissolved	7439-93-2	E421/WT	0.0010	mg/L		<0.0010	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		0.556	----	----	----	----
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00326	----	----	----	----
Mercury, dissolved	7439-97-6	E509/WT	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/WT	0.000050	mg/L		<0.000050	----	----	----	----
Nickel, dissolved	7440-02-0	E421/WT	0.00050	mg/L		0.00063	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/WT	0.050	mg/L		0.297	----	----	----	----
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		0.476	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/WT	0.00020	mg/L		0.00088	----	----	----	----
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000050	----	----	----	----
Silicon (as SiO2), dissolved	7440-21-3	EC421.SiO2/WT	0.15	mg/L		2.80	----	----	----	----
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		1.31	----	----	----	----
Silver, dissolved	7440-22-4	E421/WT	0.000010	mg/L		0.000011	----	----	----	----
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		10.8	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Drill Water	----	----	----	----
					Client sampling date / time	14-Dec-2023 09:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2301312-001	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
Strontium, dissolved	7440-24-6	E421/WT	0.00020	mg/L		0.0115	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/WT	0.50	mg/L		9.27	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/WT	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/WT	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, dissolved	7440-29-1	E421/WT	0.00010	mg/L		<0.00010	----	----	----	----
Tin, dissolved	7440-31-5	E421/WT	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/WT	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/WT	0.00010	mg/L		0.00099	----	----	----	----
Uranium, dissolved	7440-61-1	E421/WT	0.000010	mg/L		<0.000010	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/WT	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		0.121	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/WT	0.00020	mg/L		<0.00020	----	----	----	----
Dissolved mercury filtration location	----	EP509/WT	-	-		Field	----	----	----	----
Dissolved metals filtration location	----	EP421/WT	-	-		Field	----	----	----	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		100	----	----	----	----
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		<1	----	----	----	----
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Toluene	108-88-3	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Ethylbenzene	100-41-4	E611A/WT	0.00050	mg/L		<0.00050	----	----	----	----
Xylenes, total	1330-20-7	E611A/WT	0.00050	mg/L		<0.00052	----	----	----	----
Xylene, o-	95-47-6	E611A/WT	0.00030	mg/L		<0.00034 DLQ	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	0.00040	mg/L		<0.00040	----	----	----	----
VPH C6-C10	n/a	E581.VPH/WT	0.025	mg/L		0.027	----	----	----	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	0.025	mg/L		0.027	----	----	----	----
EPH >C10-C16	n/a	E601F/WT	0.050	mg/L		<0.050	----	----	----	----
EPH >C16-C21	n/a	E601F/WT	0.050	mg/L		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Drill Water	----	----	----	----
					Client sampling date / time	14-Dec-2023 09:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2301312-001	--------	--------	--------	--------
						Result	----	----	----	----
Hydrocarbons										
EPH >C21-C32	n/a	E601F/WT	0.050	mg/L		<0.050	----	----	----	----
EPH >C34-C50	n/a	E601F/WT	0.10	mg/L		<0.10	----	----	----	----
hydrocarbon resemblance	n/a	E601F/WT	-	none		N/A	----	----	----	----
mTPH (Tier I)	n/a	EC581D/WT	0.090	mg/L		<0.090	----	----	----	----
return to baseline at C32	n/a	E601F/WT	-	-		Yes	----	----	----	----
TEH >C10-C32	n/a	E601F/WT	0.100	mg/L		<0.100	----	----	----	----
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		67.8	----	----	----	----
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		70.8	----	----	----	----
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		112	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	1.0	%		92.9	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	1.0	%		104	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Acenaphthylene	208-96-8	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Anthracene	120-12-7	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Drill Water	----	----	----	----
					Client sampling date / time	14-Dec-2023 09:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2301312-001	--------	--------	--------	--------
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	µg/L		<0.015	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Perylene	198-55-0	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Pyrene	129-00-0	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.010	µg/L		<0.010	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		118	----	----	----	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		113	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		121	----	----	----	----

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

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

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **HA2301312**	Page	: 1 of 16
Client	: **Dillon Consulting Limited**	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 18-Dec-2023 12:00
PO	: ----	Issue Date	: 27-Dec-2023 14:59
C-O-C number	: ----		
Sampler	: ----		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Lump Sum Rate - Build NS (Mill Village)		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	Anonymous	Anonymous	Silver, dissolved	7440-22-4	E421	62.2 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
BH2 Composite (Limited Sample)	E601F	13-Dec-2023	21-Dec-2023	14 days	7 days	✓	22-Dec-2023	40 days	1 days	✓
Hydrocarbons : EPH in Soil/Solid by GC-FID (RBCA)										
Glass soil jar/Teflon lined cap										
BH3 SS2 (Limited Sample)	E601F	13-Dec-2023	21-Dec-2023	14 days	7 days	✓	22-Dec-2023	40 days	1 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
BH2 Composite (Limited Sample)	E581.VPH	13-Dec-2023	19-Dec-2023	40 days	6 days	✓	19-Dec-2023	40 days	6 days	✓
Hydrocarbons : VPH by Headspace GC-FID (Tier I RBCA)										
Glass soil methanol vial										
BH3 SS2 (Limited Sample)	E581.VPH	13-Dec-2023	19-Dec-2023	40 days	6 days	✓	19-Dec-2023	40 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH2 Composite (Limited Sample)	E510	13-Dec-2023	23-Dec-2023	28 days	10 days	✓	27-Dec-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH3 SS2 (Limited Sample)	E510	13-Dec-2023	23-Dec-2023	28 days	10 days	✓	27-Dec-2023	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH1 Composite	E510	14-Dec-2023	23-Dec-2023	28 days	9 days	✓	27-Dec-2023	28 days	13 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH2 Composite (Limited Sample)	E440	13-Dec-2023	23-Dec-2023	180 days	10 days	✓	27-Dec-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH3 SS2 (Limited Sample)	E440	13-Dec-2023	23-Dec-2023	180 days	10 days	✓	27-Dec-2023	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH1 Composite	E440	14-Dec-2023	23-Dec-2023	180 days	9 days	✓	27-Dec-2023	180 days	13 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 Composite	E144	14-Dec-2023	----	----	----		19-Dec-2023	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 Composite (Limited Sample)	E144	13-Dec-2023	----	----	----		19-Dec-2023	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS2 (Limited Sample)	E144	13-Dec-2023	----	----	----		19-Dec-2023	----	6 days	
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
BH1 Composite	E641A-L	14-Dec-2023	20-Dec-2023	14 days	6 days	✓	20-Dec-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
BH2 Composite (Limited Sample)	E641A-L	13-Dec-2023	20-Dec-2023	14 days	6 days	✓	20-Dec-2023	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
BH3 SS2 (Limited Sample)	E641A-L	13-Dec-2023	20-Dec-2023	14 days	6 days	✓	20-Dec-2023	40 days	0 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
BH2 Composite (Limited Sample)	E611A	13-Dec-2023	19-Dec-2023	40 days	6 days	✓	19-Dec-2023	40 days	6 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial										
BH3 SS2 (Limited Sample)	E611A	13-Dec-2023	19-Dec-2023	40 days	6 days	✓	19-Dec-2023	40 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Drill Water	E298	14-Dec-2023	21-Dec-2023	28 days	7 days	✓	22-Dec-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Drill Water	E235.Cl	14-Dec-2023	19-Dec-2023	28 days	5 days	✓	20-Dec-2023	28 days	6 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
Drill Water	E378-U	14-Dec-2023	19-Dec-2023	3 days	5 days	× EHTR	21-Dec-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Drill Water	E235.F	14-Dec-2023	19-Dec-2023	28 days	5 days	✓	20-Dec-2023	28 days	6 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
Drill Water	E235.NO3	14-Dec-2023	19-Dec-2023	3 days	5 days	× EHTR	20-Dec-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
Drill Water	E235.NO2	14-Dec-2023	19-Dec-2023	3 days	5 days	× EHTR	20-Dec-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE Drill Water	E235.SO4	14-Dec-2023	19-Dec-2023	28 days	5 days	✓	20-Dec-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) Drill Water	E509	14-Dec-2023	20-Dec-2023	28 days	6 days	✓	20-Dec-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) Drill Water	E421	14-Dec-2023	20-Dec-2023	180 days	6 days	✓	20-Dec-2023	180 days	6 days	✓
Hydrocarbons : EPH in Water by GC-FID (RBCA)										
Amber glass/Teflon lined cap (sodium bisulfate) Drill Water	E601F	14-Dec-2023	19-Dec-2023	14 days	5 days	✓	20-Dec-2023	40 days	1 days	✓
Hydrocarbons : VPH by Headspace GC-FID (RBCA)										
Glass vial (sodium bisulfate) Drill Water	E581.VPH	14-Dec-2023	20-Dec-2023	14 days	6 days	✓	20-Dec-2023	14 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) Drill Water	E355-L	14-Dec-2023	21-Dec-2023	28 days	7 days	✓	22-Dec-2023	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Drill Water	E290	14-Dec-2023	19-Dec-2023	14 days	5 days	✓	20-Dec-2023	14 days	6 days	✓
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE Drill Water	E330	14-Dec-2023	----	----	----		20-Dec-2023	48 hrs	152 hrs	× EHTR
Physical Tests : Conductivity in Water										
HDPE Drill Water	E100	14-Dec-2023	19-Dec-2023	28 days	5 days	✓	20-Dec-2023	28 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE										
Drill Water	E108	14-Dec-2023	19-Dec-2023	0.25 hrs	129 hrs	✗ EHTR-FM	20-Dec-2023	0.25 hrs	144 hrs	✗ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE										
Drill Water	E162	14-Dec-2023	----	----	----		20-Dec-2023	7 days	6 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
Drill Water	E121	14-Dec-2023	----	----	----		20-Dec-2023	3 days	6 days	✗ EHTR
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS (Low Level)										
Amber glass/Teflon lined cap (sodium bisulfate)										
Drill Water	E641A-L	14-Dec-2023	20-Dec-2023	14 days	6 days	✓	20-Dec-2023	40 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Drill Water	E611A	14-Dec-2023	20-Dec-2023	14 days	6 days	✓	20-Dec-2023	14 days	6 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
BTEX by Headspace GC-MS	E611A	1282702	1	3	33.3	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1283817	1	9	11.1	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1282432	1	8	12.5	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1282433	1	8	12.5	5.0	✓
Moisture Content by Gravimetry	E144	1282435	1	14	7.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1282426	1	8	12.5	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1282703	1	3	33.3	5.0	✓
Laboratory Control Samples (LCS)							
BTEX by Headspace GC-MS	E611A	1282702	1	3	33.3	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1283817	1	9	11.1	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1282432	2	8	25.0	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1282433	2	8	25.0	10.0	✓
Moisture Content by Gravimetry	E144	1282435	1	14	7.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1282426	1	8	12.5	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1282703	1	3	33.3	5.0	✓
Method Blanks (MB)							
BTEX by Headspace GC-MS	E611A	1282702	1	3	33.3	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1283817	1	9	11.1	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1282432	1	8	12.5	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1282433	1	8	12.5	5.0	✓
Moisture Content by Gravimetry	E144	1282435	1	14	7.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1282426	1	8	12.5	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1282703	1	3	33.3	5.0	✓
Matrix Spikes (MS)							
BTEX by Headspace GC-MS	E611A	1282702	1	3	33.3	5.0	✓
EPH in Soil/Solid by GC-FID (RBCA)	E601F	1283817	1	9	11.1	5.0	✓
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1282426	1	8	12.5	5.0	✓
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH	1282703	1	3	33.3	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1282801	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1285673	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1284148	1	9	11.1	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP) - Continued							
Chloride in Water by IC	E235.Cl	1282796	1	9	11.1	5.0	✓
Colour (Apparent) by Spectrometer	E330	1284418	1	15	6.6	5.0	✓
Conductivity in Water	E100	1282800	1	2	50.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1283483	1	11	9.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1283383	1	4	25.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1282802	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1282793	1	9	11.1	5.0	✓
Nitrate in Water by IC	E235.NO3	1282794	1	12	8.3	5.0	✓
Nitrite in Water by IC	E235.NO2	1282795	1	8	12.5	5.0	✓
pH by Meter	E108	1282799	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1282797	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1283714	1	11	9.0	5.2	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1285674	1	13	7.6	5.0	✓
Turbidity by Nephelometry	E121	1284119	1	17	5.8	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1284147	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1282801	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1285673	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1284148	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1282796	1	9	11.1	5.0	✓
Colour (Apparent) by Spectrometer	E330	1284418	1	15	6.6	5.0	✓
Conductivity in Water	E100	1282800	1	2	50.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1283483	1	11	9.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1283383	1	4	25.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1282802	1	7	14.2	5.0	✓
EPH in Water by GC-FID (RBCA)	E601F	1282842	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1282793	1	9	11.1	5.0	✓
Nitrate in Water by IC	E235.NO3	1282794	1	12	8.3	5.0	✓
Nitrite in Water by IC	E235.NO2	1282795	1	8	12.5	5.0	✓
PAHs by Hexane LVI GC-MS (Low Level)	E641A-L	1283244	1	1	100.0	5.0	✓
pH by Meter	E108	1282799	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1282797	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1283714	1	11	9.0	5.2	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1285674	1	13	7.6	5.0	✓
Turbidity by Nephelometry	E121	1284119	1	17	5.8	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1284147	1	9	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1282801	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1285673	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
BTEX by Headspace GC-MS	E611A	1284148	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1282796	1	9	11.1	5.0	✓
Colour (Apparent) by Spectrometer	E330	1284418	1	15	6.6	5.0	✓
Conductivity in Water	E100	1282800	1	2	50.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1283483	1	11	9.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1283383	1	4	25.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1282802	1	7	14.2	5.0	✓
EPH in Water by GC-FID (RBCA)	E601F	1282842	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1282793	1	9	11.1	5.0	✓
Nitrate in Water by IC	E235.NO3	1282794	1	12	8.3	5.0	✓
Nitrite in Water by IC	E235.NO2	1282795	1	8	12.5	5.0	✓
PAHs by Hexane LVI GC-MS (Low Level)	E641A-L	1283244	1	1	100.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1282797	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1283714	1	11	9.0	5.2	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1285674	1	13	7.6	5.0	✓
Turbidity by Nephelometry	E121	1284119	1	17	5.8	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1284147	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1285673	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	1284148	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1282796	1	9	11.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1283483	1	11	9.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1283383	1	4	25.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1282802	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1282793	1	9	11.1	5.0	✓
Nitrate in Water by IC	E235.NO3	1282794	1	12	8.3	5.0	✓
Nitrite in Water by IC	E235.NO2	1282795	1	8	12.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1282797	1	11	9.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1285674	1	13	7.6	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1284147	1	9	11.1	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
VPH by Headspace GC-FID (Tier I RBCA)	E581.VPH ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	VPH (Volatile Petroleum Hydrocarbons) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EPH in Soil/Solid by GC-FID (RBCA)	E601F ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	Sample Extracts are analyzed by GC-FID for RBCA Tier I hydrocarbon fractions C10-C16, C16-C21, C21-C32.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
VPH C6-C10 (less BTEX) [RBCA]	EC580C ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	VPH C6-C10 (less BTEX) is calculated as follows: VPH (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Modified TPH (RBCA) Tier I	EC581D ALS Environmental - Waterloo	Soil/Solid	Atlantic RBCA Version 3.1	Modified TPH (RBCA), Tier I is the sum of PIRI Fraction (C6 - C10 - BTEX) + (>C10 - C16) +(>C16 – C21) + (>C21 - C32).
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Waterloo	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 ALS Environmental - Halifax	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Colour (Apparent) by Spectrometer	E330 ALS Environmental - Waterloo	Water	APHA 2120 C (mod)	Colour (Apparent) is measured in an unfiltered sample spectrophotometrically using the single wavelength method. The colour contribution of settleable solids are not included in the result. This method is intended for potable waters. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VPH by Headspace GC-FID (RBCA)	E581.VPH ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	VPH (Volatile Petroleum Hydrocarbons) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EPH in Water by GC-FID (RBCA)	E601F ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	Sample Extracts are analyzed by GC-FID for RBCA Tier I hydrocarbon fractions C10-C16, C16-C21, C21-C32.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs by Hexane LVI GC-MS (Low Level)	E641A-L ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Waterloo	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Saturation Index using Laboratory pH (Ca-D)	EC105 ALS Environmental - Waterloo	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential. If available, Field pH measurements are recommended for best accuracy (test code EC104).
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Dissolved Silicon as Silica (Calculation)	EC421.SiO2 ALS Environmental - Waterloo	Water	N/A	Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).
VPH C6-C10 (less BTEX) [RBCA]	EC580C ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	VPH C6-C10 (less BTEX) is calculated as follows: VPH (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Modified TPH (RBCA) Tier I	EC581D ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	Modified TPH (PIRI), Tier I is the sum of PIRI Fraction (C6 - C10 - BTEX) + (>C10 - C16) + (>C16 – C21) + (>C21 - C32).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
PHCs Hexane-Acetone Tumbler Extraction (RBCA)	EP601F ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) are extracted with 1:1 hexane:acetone using a rotary extractor.
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Waterloo	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
PHCs Hexane Extraction (RBCA)	EP601F ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) are extracted using a hexane liquid-liquid extraction.

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QUALITY CONTROL REPORT

Work Order	: **HA2301312**	Page	: 1 of 24
Client	: Dillon Consulting Limited	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	:	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 18-Dec-2023 12:00
PO	: ----	Date Analysis Commenced	: 19-Dec-2023
C-O-C number	: ----	Issue Date	: 27-Dec-2023 14:59
Sampler	: ---- 902.450.5015 ext. 5045		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Lump Sum Rate - Build NS (Mill Village)		
No. of samples received	: 4		
No. of samples analysed	: 4		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Andrea Armstrong	Department Manager - Air Quality and Volatiles	Waterloo VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
John Tang	Lab Analyst	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Metals, Waterloo, Ontario
Josphin Masihi	Analyst	Waterloo Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Robyn Edwards	Supervisor - Water Chemistry	Halifax Inorganics, Dartmouth, Nova Scotia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1282435)											
HA2301312-002	BH1 Composite	Moisture	----	E144	0.25	%	11.4	10.8	5.46%	20%	----
Metals (QC Lot: 1282432)											
HA2301312-002	BH1 Composite	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0200	0.0197	0.0002	Diff <2x LOR	----
Metals (QC Lot: 1282433)											
HA2301312-002	BH1 Composite	Aluminum	7429-90-5	E440	50	mg/kg	14100	14200	1.15%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.14	0.15	0.02	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	104	118	13.1%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	32.4	32.0	1.39%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.38	0.39	0.02	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.032	0.031	0.001	Diff <2x LOR	----
		Chromium	7440-47-3	E440	0.50	mg/kg	23.5	24.7	5.23%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	8.13	8.84	8.35%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	22.2	24.4	9.59%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	21400	21500	0.708%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	8.90	9.20	3.32%	40%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	315	330	4.45%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.59	0.76	26.1%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	21.8	22.6	3.67%	30%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.26	0.29	0.03	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	4.63	4.52	2.22%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.114	0.115	0.001	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.647	0.622	3.80%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	21.9	22.2	1.38%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	44.1	44.5	0.862%	30%	----
Volatile Organic Compounds (QC Lot: 1282702)											
HA2301314-001	Anonymous	Benzene	71-43-2	E611A	0.0056	mg/kg	0.0174	0.0174	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1282702) - continued											
HA2301314-001	Anonymous	Ethylbenzene	100-41-4	E611A	0.015	mg/kg	0.344	0.376	8.90%	40%	----
		Toluene	108-88-3	E611A	0.050	mg/kg	0.204	0.206	0.003	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	1.82	1.83	0.342%	40%	----
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	1.16	1.17	1.19%	40%	----
Hydrocarbons (QC Lot: 1282703)											
HA2301314-001	Anonymous	VPH C6-C10	n/a	E581.VPH	5.0	mg/kg	210	208	0.772%	30%	----
Hydrocarbons (QC Lot: 1283817)											
HA2301304-001	Anonymous	EPH >C10-C16	n/a	E601F	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		EPH >C16-C21	n/a	E601F	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		EPH >C21-C32	n/a	E601F	5.0	mg/kg	22.3	30.4	30.9%	40%	----
		EPH >C34-C50	n/a	E601F	20	mg/kg	36	60	24	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1282426)											
HA2301312-002	BH1 Composite	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0040	mg/kg	<0.0040	<0.0040	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Perylene	198-55-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1282799)											
HA2301312-001	Drill Water	pH	----	E108	0.10	pH units	7.23	7.23	0.00%	4%	----
Physical Tests (QC Lot: 1282800)											
HA2301312-001	Drill Water	Conductivity	----	E100	1.0	µS/cm	134	133	0.972%	10%	----
Physical Tests (QC Lot: 1282801)											
HA2301312-001	Drill Water	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	15.8	16.3	2.99%	20%	----
Physical Tests (QC Lot: 1283714)											
HA2301299-002	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	32	40	7	Diff <2x LOR	----
Physical Tests (QC Lot: 1284119)											
WT2341187-001	Anonymous	Turbidity	----	E121	0.10	NTU	13.1	12.9	1.53%	15%	----
Physical Tests (QC Lot: 1284418)											
HA2301312-001	Drill Water	Colour, apparent	----	E330	2.0	CU	2.4	2.7	0.2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1282793)											
WT2341079-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.062	0.061	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1282794)											
WT2341079-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	4.88	4.87	0.166%	20%	----
Anions and Nutrients (QC Lot: 1282795)											
WT2341079-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1282796)											
WT2341079-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	26.2	26.1	0.135%	20%	----
Anions and Nutrients (QC Lot: 1282797)											
WT2341079-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	18.2	18.2	0.00302%	20%	----
Anions and Nutrients (QC Lot: 1282802)											
WT2341035-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1285673)											
HA2301312-001	Drill Water	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1285674)											
HA2301312-001	Drill Water	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.22	2.28	0.05	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1283383)											
HA2301312-001	Drill Water	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0490	0.0492	0.525%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00022	0.00022	0.000004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00192	0.00193	0.228%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1283383) - continued											
HA2301312-001	Drill Water	Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000067	0.0000078	0.0000011	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	12.0	12.2	1.25%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000012	0.000012	0.0000002	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00702	0.00716	1.92%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.022	0.023	0.0007	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000820	0.000828	0.922%	20%	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	0.556	0.555	0.313%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00326	0.00315	3.30%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00063	0.00063	0.000003	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.297	0.310	0.013	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.476	0.480	0.004	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00088	0.00087	0.00001	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.31	1.36	3.46%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	0.000011	0.000011	0.0000004	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	10.8	10.8	0.0716%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0115	0.0117	1.91%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	9.27	9.43	1.63%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.00099	0.00099	0.0000008	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.121	0.121	0.514%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Laboratory Duplicate (DUP) Report						
					LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 1283483)											
HA2301297-012	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1284148)											
HA2301309-001	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.00040 mg/L	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.00030 mg/L	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1284147)											
HA2301309-001	Anonymous	VPH C6-C10	n/a	E581.VPH	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1282435)						
Moisture	----	E144	0.25	%	<0.25	----
Metals (QCLot: 1282432)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1282433)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Volatile Organic Compounds (QCLot: 1282702)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1282702) - continued						
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons (QCLot: 1282703)						
VPH C6-C10	n/a	E581.VPH	5	mg/kg	<5.0	----
Hydrocarbons (QCLot: 1283817)						
EPH >C10-C16	n/a	E601F	5	mg/kg	<5.0	----
EPH >C16-C21	n/a	E601F	5	mg/kg	<5.0	----
EPH >C21-C32	n/a	E601F	5	mg/kg	<5.0	----
EPH >C34-C50	n/a	E601F	20	mg/kg	<20	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1282426)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1282800)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1282800) - continued						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1282801)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.3	----
Physical Tests (QCLot: 1283714)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1284119)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1284418)						
Colour, apparent	----	E330	2	CU	<2.0	----
Anions and Nutrients (QCLot: 1282793)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1282794)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1282795)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1282796)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1282797)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1282802)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1285673)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1285674)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Dissolved Metals (QCLot: 1283383)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1283383) - continued						
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1283483)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1284148)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1284148) - continued						
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1282842)						
EPH >C10-C16	n/a	E601F	50	µg/L	<50	----
EPH >C16-C21	n/a	E601F	50	µg/L	<50	----
EPH >C21-C32	n/a	E601F	50	µg/L	<50	----
EPH >C34-C50	n/a	E601F	100	µg/L	<100	----
Hydrocarbons (QCLot: 1284147)						
VPH C6-C10	n/a	E581.VPH	25	µg/L	<25	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1283244)						
Acenaphthene	83-32-9	E641A-L	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A-L	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A-L	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A-L	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	µg/L	<0.010	----
Perylene	198-55-0	E641A-L	0.01	µg/L	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	µg/L	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	µg/L	<0.010	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1282435)									
Moisture	----	E144	0.25	%	50 %	98.3	90.0	110	----
Metals (QCLot: 1282432)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	110	80.0	120	----
Metals (QCLot: 1282433)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	96.8	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	106	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	109	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	100	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	104	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	99.0	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	102	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	98.4	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	104	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	101	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	103	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	98.8	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	101	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	105	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	95.9	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	100	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	95.4	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	99.0	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	97.9	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	103	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	102	80.0	120	----
Volatile Organic Compounds (QCLot: 1282702)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	86.4	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	97.4	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1282702) - continued									
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	95.2	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	94.7	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	98.6	70.0	130	----
Hydrocarbons (QCLot: 1282703)									
VPH C6-C10	n/a	E581.VPH	5	mg/kg	69.1875 mg/kg	99.5	80.0	120	----
Hydrocarbons (QCLot: 1283817)									
EPH >C10-C16	n/a	E601F	5	mg/kg	799.3688 mg/kg	73.0	70.0	130	----
EPH >C16-C21	n/a	E601F	5	mg/kg	437.2594 mg/kg	113	70.0	130	----
EPH >C21-C32	n/a	E601F	5	mg/kg	565.0313 mg/kg	80.8	70.0	130	----
EPH >C34-C50	n/a	E601F	20	mg/kg	576.6844 mg/kg	112	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1282426)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	93.2	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	94.4	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	82.0	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	90.1	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	85.8	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	96.7	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	95.2	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	97.0	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	82.4	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	95.6	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	94.5	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	98.3	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	88.0	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	93.5	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	87.6	60.0	130	----
Perylene	198-55-0	E641A-L	0.01	mg/kg	0.5 mg/kg	103	60.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	90.5	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	91.4	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	79.8	60.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1282799)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1282800)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	102	90.0	110	----
Physical Tests (QCLot: 1282801)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1283714)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	99.8	85.0	115	----
Physical Tests (QCLot: 1284119)									
Turbidity	----	E121	0.1	NTU	200 NTU	97.5	85.0	115	----
Physical Tests (QCLot: 1284418)									
Colour, apparent	----	E330	2	CU	25 CU	98.0	70.0	130	----
Anions and Nutrients (QCLot: 1282793)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1282794)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1282795)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1282796)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1282797)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1282802)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.0212 mg/L	106	80.0	120	----
Anions and Nutrients (QCLot: 1285673)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	105	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1285674)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	97.7	80.0	120	----
Dissolved Metals (QCLot: 1283383)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	97.4	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	102	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	99.3	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1283383) - continued									
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	101	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	98.3	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	100	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	101	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.0025 mg/L	104	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	102	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	99.9	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	99.9	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	99.8	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.0125 mg/L	100	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	108	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.0125 mg/L	98.6	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	99.7	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	100.0	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	106	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	98.5	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	99.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	96.4	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	103	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.0125 mg/L	104	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	95.2	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	97.8	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	102	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	99.5	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.0125 mg/L	96.2	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	106	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	107	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	100	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	99.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1284148)									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	110	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	112	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	110	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	123	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	129	70.0	130	----
Hydrocarbons (QCLot: 1282842)									
EPH >C10-C16	n/a	E601F	50	µg/L	4487.684 µg/L	73.1	70.0	130	----
EPH >C16-C21	n/a	E601F	50	µg/L	2454.789 µg/L	122	70.0	130	----
EPH >C21-C32	n/a	E601F	50	µg/L	3172.105 µg/L	77.9	70.0	130	----
EPH >C34-C50	n/a	E601F	100	µg/L	3237.526 µg/L	114	70.0	130	----
Hydrocarbons (QCLot: 1284147)									
VPH C6-C10	n/a	E581.VPH	25	µg/L	2000 µg/L	92.2	80.0	120	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1283244)									
Acenaphthene	83-32-9	E641A-L	0.01	µg/L	0.5263 µg/L	105	50.0	140	----
Acenaphthylene	208-96-8	E641A-L	0.01	µg/L	0.5263 µg/L	103	50.0	140	----
Acridine	260-94-6	E641A-L	0.01	µg/L	0.5263 µg/L	94.8	50.0	140	----
Anthracene	120-12-7	E641A-L	0.01	µg/L	0.5263 µg/L	113	50.0	140	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	µg/L	0.5263 µg/L	120	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A-L	0.005	µg/L	0.5263 µg/L	120	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	µg/L	0.5263 µg/L	96.8	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	µg/L	0.5263 µg/L	109	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	µg/L	0.5263 µg/L	106	50.0	140	----
Chrysene	218-01-9	E641A-L	0.01	µg/L	0.5263 µg/L	116	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	µg/L	0.5263 µg/L	108	50.0	140	----
Fluoranthene	206-44-0	E641A-L	0.01	µg/L	0.5263 µg/L	106	50.0	140	----
Fluorene	86-73-7	E641A-L	0.01	µg/L	0.5263 µg/L	115	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	µg/L	0.5263 µg/L	122	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	µg/L	0.5263 µg/L	98.0	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	µg/L	0.5263 µg/L	100	50.0	140	----
Naphthalene	91-20-3	E641A-L	0.01	µg/L	0.5263 µg/L	96.7	50.0	140	----
Perylene	198-55-0	E641A-L	0.01	µg/L	0.5263 µg/L	98.8	50.0	140	----
Phenanthrene	85-01-8	E641A-L	0.01	µg/L	0.5263 µg/L	107	50.0	140	----
Pyrene	129-00-0	E641A-L	0.01	µg/L	0.5263 µg/L	109	50.0	140	----
Quinoline	91-22-5	E641A-L	0.01	µg/L	0.5263 µg/L	114	50.0	140	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier

Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1282702)										
HA2301314-001	Anonymous	Benzene	71-43-2	E611A	2.23 mg/kg	3.125 mg/kg	89.4	60.0	140	----
		Ethylbenzene	100-41-4	E611A	2.60 mg/kg	3.125 mg/kg	104	60.0	140	----
		Toluene	108-88-3	E611A	2.84 mg/kg	3.125 mg/kg	114	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	4.39 mg/kg	6.25 mg/kg	87.8	60.0	140	----
		Xylene, o-	95-47-6	E611A	2.29 mg/kg	3.125 mg/kg	91.8	60.0	140	----
Hydrocarbons (QCLot: 1282703)										
HA2301314-001	Anonymous	VPH C6-C10	n/a	E581.VPH	ND mg/kg	62.5 mg/kg	ND	60.0	140	MS-B
Hydrocarbons (QCLot: 1283817)										
HA2301304-001	Anonymous	EPH >C10-C16	n/a	E601F	449 mg/kg	799.3688 mg/kg	70.8	60.0	140	----
		EPH >C16-C21	n/a	E601F	446 mg/kg	437.2594 mg/kg	128	60.0	140	----
		EPH >C21-C32	n/a	E601F	386 mg/kg	565.0313 mg/kg	86.2	60.0	140	----
		EPH >C34-C50	n/a	E601F	532 mg/kg	576.6844 mg/kg	116	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1282426)										
HA2301312-002	BH1 Composite	Acenaphthene	83-32-9	E641A-L	0.390 mg/kg	0.5 mg/kg	97.7	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.393 mg/kg	0.5 mg/kg	98.5	50.0	140	----
		Acridine	260-94-6	E641A-L	0.330 mg/kg	0.5 mg/kg	82.8	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.380 mg/kg	0.5 mg/kg	95.1	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.410 mg/kg	0.5 mg/kg	103	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.361 mg/kg	0.5 mg/kg	90.6	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.391 mg/kg	0.5 mg/kg	98.0	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.392 mg/kg	0.5 mg/kg	98.3	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.397 mg/kg	0.5 mg/kg	99.5	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.378 mg/kg	0.5 mg/kg	94.7	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.332 mg/kg	0.5 mg/kg	83.2	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.395 mg/kg	0.5 mg/kg	98.9	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.396 mg/kg	0.5 mg/kg	99.3	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.388 mg/kg	0.5 mg/kg	97.3	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.388 mg/kg	0.5 mg/kg	97.2	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.414 mg/kg	0.5 mg/kg	104	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.394 mg/kg	0.5 mg/kg	98.8	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1282426) - continued										
HA2301312-002	BH1 Composite	Perylene	198-55-0	E641A-L	0.422 mg/kg	0.5 mg/kg	106	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.378 mg/kg	0.5 mg/kg	94.7	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.382 mg/kg	0.5 mg/kg	95.8	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.350 mg/kg	0.5 mg/kg	87.6	50.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1282793)										
WT2341079-001	Anonymous	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1282794)										
WT2341079-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	ND mg/L	2.5 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1282795)										
WT2341079-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.499 mg/L	0.5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 1282796)										
WT2341079-001	Anonymous	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1282797)										
WT2341079-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1282802)										
WT2341035-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0207 mg/L	0.0196 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 1285673)										
HA2301312-001	Drill Water	Ammonia, total (as N)	7664-41-7	E298	0.108 mg/L	0.1 mg/L	108	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1285674)										
HA2301312-001	Drill Water	Carbon, total organic [TOC]	----	E355-L	5.44 mg/L	5 mg/L	109	70.0	130	----
Dissolved Metals (QCLot: 1283383)										
WT2341039-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.964 mg/L	1 mg/L	96.4	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.510 mg/L	0.5 mg/L	102	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.541 mg/L	0.5 mg/L	108	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.118 mg/L	0.125 mg/L	94.1	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0495 mg/L	0.05 mg/L	99.1	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.478 mg/L	0.5 mg/L	95.7	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	0.5 mg/L	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0528 mg/L	0.05 mg/L	106	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1283383) - continued										
WT2341039-001	Anonymous	Calcium, dissolved	7440-70-2	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0254 mg/L	0.025 mg/L	102	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.130 mg/L	0.125 mg/L	104	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.128 mg/L	0.125 mg/L	102	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.128 mg/L	0.125 mg/L	103	70.0	130	----
		Iron, dissolved	7439-89-6	E421	0.491 mg/L	0.5 mg/L	98.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.249 mg/L	0.25 mg/L	99.5	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.127 mg/L	0.125 mg/L	102	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.125 mg/L	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.117 mg/L	0.125 mg/L	93.6	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.251 mg/L	0.25 mg/L	100	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	5.63 mg/L	5 mg/L	112	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0503 mg/L	0.05 mg/L	101	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.528 mg/L	0.5 mg/L	106	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	4.51 mg/L	5 mg/L	90.2	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0311 mg/L	0.05 mg/L	62.2	70.0	130	MES
		Sodium, dissolved	7440-23-5	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.125 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	25 mg/L	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0519 mg/L	0.05 mg/L	104	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.500 mg/L	0.5 mg/L	100.0	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0474 mg/L	0.05 mg/L	94.9	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.244 mg/L	0.25 mg/L	97.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.121 mg/L	0.125 mg/L	97.0	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	ND mg/L	0.05 mg/L	ND	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00268 mg/L	0.0025 mg/L	107	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.263 mg/L	0.25 mg/L	105	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.270 mg/L	0.25 mg/L	108	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0492 mg/L	0.05 mg/L	98.5	70.0	130	----
Dissolved Metals (QCLot: 1283483)										
HA2301312-001	Drill Water	Mercury, dissolved	7439-97-6	E509	0.000105 mg/L	0.0001 mg/L	105	70.0	130	----
Volatile Organic Compounds (QCLot: 1284148)										
HA2301309-001	Anonymous	Benzene	71-43-2	E611A	95.0 µg/L	100 µg/L	95.0	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1284148) - continued										
HA2301309-001	Anonymous	Ethylbenzene	100-41-4	E611A	98.0 µg/L	100 µg/L	98.0	60.0	140	----
		Toluene	108-88-3	E611A	96.4 µg/L	100 µg/L	96.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	217 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	113 µg/L	100 µg/L	113	60.0	140	----
Hydrocarbons (QCLot: 1284147)										
HA2301309-001	Anonymous	VPH C6-C10	n/a	E581.VPH	1650 µg/L	2000 µg/L	82.3	60.0	140	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*
MS-B	*Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.*

Reference Material (RM) Report

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

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1282432)									
	RM	Mercury	7439-97-6	E510	0.0585 mg/kg	110	70.0	130	----
Metals (QCLot: 1282433)									
	RM	Aluminum	7429-90-5	E440	9817 mg/kg	98.3	70.0	130	----
	RM	Antimony	7440-36-0	E440	3.99 mg/kg	97.5	70.0	130	----
	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	107	70.0	130	----
	RM	Barium	7440-39-3	E440	105 mg/kg	110	70.0	130	----
	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	102	70.0	130	----
	RM	Boron	7440-42-8	E440	8.5 mg/kg	108	70.0	130	----
	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	110	70.0	130	----
	RM	Chromium	7440-47-3	E440	101 mg/kg	97.1	70.0	130	----
	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	----
	RM	Copper	7440-50-8	E440	123 mg/kg	112	70.0	130	----
	RM	Iron	7439-89-6	E440	23558 mg/kg	105	70.0	130	----
	RM	Lead	7439-92-1	E440	267 mg/kg	104	70.0	130	----
	RM	Manganese	7439-96-5	E440	269 mg/kg	108	70.0	130	----
	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	104	70.0	130	----
	RM	Nickel	7440-02-0	E440	26.7 mg/kg	106	70.0	130	----
	RM	Silver	7440-22-4	E440	4.06 mg/kg	89.6	70.0	130	----
	RM	Strontium	7440-24-6	E440	86.1 mg/kg	102	70.0	130	----
	RM	Thallium	7440-28-0	E440	0.0786 mg/kg	97.7	70.0	130	----
	RM	Tin	7440-31-5	E440	10.6 mg/kg	97.0	70.0	130	----
	RM	Uranium	7440-61-1	E440	0.52 mg/kg	97.6	70.0	130	----
	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	100	70.0	130	----
	RM	Zinc	7440-66-6	E440	297 mg/kg	105	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 1 of 1

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Environmental Division Halifax

Work Order Reference HA2301312

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Report To	Contact and company name below will appear on the final report
Company:	Dillon Consulting Limited
Contact:	Asia Reid
Phone:	902.450.5015 ext. 5045
	Company address below will appear on the final report
Street:	137 Chain Lake Drive Suite 100
City/Province:	Halifax / Nova Scotia
Postal Code:	B3S 1B3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
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Reports / Recipients

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Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax AReid@dillon.ca

Email 2 dillon@esdat.net

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax AReid@dillon.ca

Email 2 payables@dillon.ca

Turnaround Time (TAT) Requested

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

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

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

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

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

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

Additional fees may apply to rush requests on weekends, s

Date and Time Required for all E&P TATs:

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

Project Information

ALS Client Code / QUOTE #: DICL100 / HA23-DICL100-11

Job / Project #: Build NS - Mill Village

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Andrew Martin **Sampler:**

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX/TPH (RBCA) in Soil	Metals + Mercury in Soil	PAHs (RBCA) in Soil	Energetics in Soil		BTEX/TPH (RBCA) in Water	PAHs (RBCA) in Water		Gen. Chem. w/ Metals + Hg in Water	Alk,Anions,NH3,EC,TOC,Color,Turb.	pH,TDS,Metals,Mercury,Hardness	Arsenic			SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Drill Water	14-Dec-23	9:30	Water							R	R		R								
	BH1 Composite	14-Dec-23	9:00	Soil			R	R														
	BH2 Composite (limited sample)	13-Dec-23	12:30	Soil		R	R	R														
	BH3 SS2 (limited sample)	12-Dec-23	2:05	Soil		R	R	R														

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

Are samples taken from a Regulated DW System?

☐ YES ☑ NO

Are samples for human consumption/ use?

☐ YES ☑ NO

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

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				8.6			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
[signature]	23/12/18	12:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
[signature]	Dec 18 2023	12:03pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Your P.O. #: PENDING
Your Project #: 23-6446
Site Location: MILL VILLAGE
Your C.O.C. #: N/A

Attention: Asia Reid

Dillon Consulting Limited
137 Chain Lake Dr
Suite 100
Halifax , NS
CANADA B3S 1B3

Report Date: 2023/12/04
Report #: R7939988
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Z6081
Received: 2023/11/14, 10:13

Sample Matrix: Rock
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Subcontracted Analysis (1)	1	N/A	2023/12/04		

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 Research and Productivity Council,

Your P.O. #: PENDING
Your Project #: 23-6446
Site Location: MILL VILLAGE
Your C.O.C. #: N/A

Attention: Asia Reid

Dillon Consulting Limited
137 Chain Lake Dr
Suite 100
Halifax , NS
CANADA B3S 1B3

Report Date: 2023/12/04
Report #: R7939988
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Z6081
Received: 2023/11/14, 10:13

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Preeti Kapadia, Project Manager
Email: Preeti.Kapadia@bureauveritas.com
Phone# (902)420-0203 Ext:252

==========

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 Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

Bureau Veritas Job #: C3Z6081
Report Date: 2023/12/04

Dillon Consulting Limited
Client Project #: 23-6446
Site Location: MILL VILLAGE
Your P.O. #: PENDING
Sampler Initials: MK

SUBCONTRACTED ANALYSIS (ROCK)

Bureau Veritas ID		XOY803	
Sampling Date		2023/11/09 15:00	
COC Number		N/A	
	UNITS	**ROCK**	**QC Batch**
Subcontracted Analysis			
Subcontracted Test	N/A	ATTACHED	9089278
QC Batch = Quality Control Batch			

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C3Z6081
Report Date: 2023/12/04

Dillon Consulting Limited
Client Project #: 23-6446
Site Location: MILL VILLAGE
Your P.O. #: PENDING
Sampler Initials: MK

GENERAL COMMENTS

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

Package 1	19.0°C

Average temperature upon receipt > 10 degrees.

Results relate only to the items tested.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Bureau Veritas Job #: C3Z6081
Report Date: 2023/12/04

Dillon Consulting Limited
Client Project #: 23-6446
Site Location: MILL VILLAGE
Your P.O. #: PENDING
Sampler Initials: MK

VALIDATION SIGNATURE PAGE

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

Janah Rhyno, 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 Suzanne Rogers, General Manager responsible for Nova Scotia Environmental laboratory operations.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvna.com

Report ID: 506366-IAS
Report Date: 04-Dec-23
Date Received: 23-Nov-23

CERTIFICATE OF ANALYSIS

for

Bureau Veritas Canada Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc
921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

Attention: Preeti Kapadia
Project #: C3Z6081

Analysis of Samples

RPC Sample ID:			506366-1
Client Sample ID:			XOY803-01R/ROCK
Date Sampled:			9-Nov-23
Analytes	**Units**	**RL**	
Sulfide	%	0.005	0.023
Sulfur	%	0.005	0.023

This report relates only to the sample(s) and information provided to the laboratory.

RL = Reporting Limit

Peter Crowhurst, B.Sc., C.Chem.
Director
Inorganic Analytical Chemistry

CHEMISTRY

Brannen Burhoe
Supervisor
Inorganic Analytical Services

CERTIFICATE OF ANALYSIS

for

Bureau Veritas Canada Inc
200 Bluewater Road, Suite 105
Bedford, NS B4B 1G9

rpc
921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

General Report Comments

Total Sulfur was determined using a combustion/infrared method.
Sulfide was determined as the difference between Total Sulfur and acid soluble, non-volatile sulfur species.

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **HA2401059**	Page	: 1 of 12
Client	: **Dillon Consulting Limited**	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth NS Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 15-May-2024 14:56
PO	: ----	Date Analysis Commenced	: 17-May-2024
C-O-C number	: ----	Issue Date	: 27-May-2024 17:09
Sampler	: ----		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Build NS (Mill Village)		
No. of samples received	: 23		
No. of samples analysed	: 23		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Metals, Waterloo, Ontario
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Robyn Edwards	Supervisor - Water Chemistry	Inorganics, Dartmouth, Nova Scotia
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
none	none
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

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

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

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

Sample Comments

Sample	Client Id	*Comment*
HA2401059-001	MW23-1	N/A: Resemblance Not Applicable (mTPH < LOR)
HA2401059-002	MW23-2	N/A: Resemblance Not Applicable (mTPH < LOR)
HA2401059-002	MW23-2	RRR: Surrogate recovery is outside ALS DQO. Detection limits for affected compounds have been raised accordingly.
HA2401059-003	MW23-3	N/A: Resemblance Not Applicable (mTPH < LOR)
HA2401059-003	MW23-3	RRR: Surrogate recovery is outside ALS DQO. Detection limits for affected compounds have been raised accordingly.
HA2401059-004	DUP A	N/A: Resemblance Not Applicable (mTPH < LOR)

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
RRR	Refer to report comments for issues regarding this analysis.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BGSS-13 0-1	BGSS-14 0-1	BGSS-15 0-1	BGSS-15 1-2	BGSS-16 0-1
					Client sampling date / time	13-May-2024 11:23	13-May-2024 11:40	14-May-2024 11:05	14-May-2024 11:10	14-May-2024 11:25
						HA2401059-005	HA2401059-006	HA2401059-007	HA2401059-008	HA2401059-009
						Result	Result	Result	Result	Result
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		23400	14100	30600	----	31400
Antimony	7440-36-0	E440/WT	0.10	mg/kg		0.14	0.17	0.18	----	0.12
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		136	101	223	230	263
Barium	7440-39-3	E440/WT	0.50	mg/kg		19.5	14.6	25.9	----	25.1
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		0.26	0.12	0.35	----	0.34
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	<5.0	<5.0	----	<5.0
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.045	0.024	0.047	----	0.050
Chromium	7440-47-3	E440/WT	0.50	mg/kg		18.5	13.3	24.3	----	26.0
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		1.43	0.91	2.63	----	3.32
Copper	7440-50-8	E440/WT	0.50	mg/kg		5.60	4.18	10.4	----	9.46
Iron	7439-89-6	E440/WT	50	mg/kg		25900	23700	26800	----	25500
Lead	7439-92-1	E440/WT	0.50	mg/kg		11.0	8.83	12.8	----	13.7
Manganese	7439-96-5	E440/WT	1.0	mg/kg		125	91.8	170	----	177
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		0.0669	0.0347	0.0971	----	0.0940
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		0.32	0.28	0.35	----	0.39
Nickel	7440-02-0	E440/WT	0.50	mg/kg		6.54	3.93	9.50	----	10.6
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.88	0.58	1.31	----	1.95
Silver	7440-22-4	E440/WT	0.10	mg/kg		0.20	<0.10	0.21	----	0.22
Strontium	7440-24-6	E440/WT	0.50	mg/kg		2.29	2.15	4.10	----	4.64
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	<1000	<1000	----	<1000
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.123	0.150	0.137	----	0.104
Tin	7440-31-5	E440/WT	2.0	mg/kg		<2.0	<2.0	<2.0	----	<2.0
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.445	0.265	0.555	----	0.687
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		35.4	35.3	25.1	----	29.0
Zinc	7440-66-6	E440/WT	2.0	mg/kg		17.4	12.7	33.4	----	24.7

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BGSS-16 1-2	BGSS-17 0-1	BGSS-17 1-2	BGSS-18 0-1	BGSS-18 1-2
					Client sampling date / time	14-May-2024 11:20	14-May-2024 11:30	14-May-2024 11:35	14-May-2024 11:40	14-May-2024 11:45
						HA2401059-010	HA2401059-011	HA2401059-012	HA2401059-013	HA2401059-014
						Result	Result	Result	Result	Result
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		----	16700	----	19600	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg		----	0.17	----	0.15	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		225	145	125	60.0	61.3
Barium	7440-39-3	E440/WT	0.50	mg/kg		----	17.9	----	24.1	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		----	0.21	----	0.22	----
Boron	7440-42-8	E440/WT	5.0	mg/kg		----	<5.0	----	<5.0	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		----	0.033	----	0.049	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg		----	14.7	----	17.5	----
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		----	2.15	----	1.82	----
Copper	7440-50-8	E440/WT	0.50	mg/kg		----	6.98	----	7.72	----
Iron	7439-89-6	E440/WT	50	mg/kg		----	18500	----	21200	----
Lead	7439-92-1	E440/WT	0.50	mg/kg		----	11.2	----	9.84	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg		----	133	----	117	----
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		----	0.0551	----	0.0646	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		----	0.34	----	0.29	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg		----	8.43	----	6.67	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg		----	0.63	----	0.67	----
Silver	7440-22-4	E440/WT	0.10	mg/kg		----	<0.10	----	<0.10	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg		----	3.18	----	2.02	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg		----	<1000	----	<1000	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg		----	0.117	----	0.137	----
Tin	7440-31-5	E440/WT	2.0	mg/kg		----	<2.0	----	<2.0	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg		----	0.392	----	0.444	----
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		----	25.2	----	36.8	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg		----	18.4	----	15.7	----

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BGSS-19 0-1	BGSS-19 1-2	BGSS-20 0-1	BGSS-20 1-2	BGSS-21 0-1
					Client sampling date / time	14-May-2024 11:50	14-May-2024 11:55	14-May-2024 12:00	14-May-2024 12:05	14-May-2024 12:10
						HA2401059-015	HA2401059-016	HA2401059-017	HA2401059-018	HA2401059-019
						Result	Result	Result	Result	Result
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		1130	----	4640	----	18500
Antimony	7440-36-0	E440/WT	0.10	mg/kg		0.21	----	0.14	----	0.21
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		1.89	1.77	63.9	116	189
Barium	7440-39-3	E440/WT	0.50	mg/kg		47.7	----	12.5	----	21.1
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		<0.10	----	<0.10	----	0.23
Boron	7440-42-8	E440/WT	5.0	mg/kg		<5.0	----	<5.0	----	<5.0
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		0.535	----	0.044	----	0.056
Chromium	7440-47-3	E440/WT	0.50	mg/kg		2.27	----	4.83	----	17.8
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		0.29	----	0.34	----	2.32
Copper	7440-50-8	E440/WT	0.50	mg/kg		8.14	----	2.28	----	7.21
Iron	7439-89-6	E440/WT	50	mg/kg		579	----	6540	----	24000
Lead	7439-92-1	E440/WT	0.50	mg/kg		18.1	----	11.3	----	12.5
Manganese	7439-96-5	E440/WT	1.0	mg/kg		16.6	----	43.3	----	158
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		0.110	----	0.0401	----	0.0487
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		0.18	----	0.18	----	0.32
Nickel	7440-02-0	E440/WT	0.50	mg/kg		3.26	----	1.55	----	8.45
Selenium	7782-49-2	E440/WT	0.20	mg/kg		0.72	----	0.22	----	0.75
Silver	7440-22-4	E440/WT	0.10	mg/kg		<0.10	----	<0.10	----	0.14
Strontium	7440-24-6	E440/WT	0.50	mg/kg		42.9	----	2.42	----	4.28
Sulfur	7704-34-9	E440/WT	1000	mg/kg		<1000	----	<1000	----	<1000
Thallium	7440-28-0	E440/WT	0.050	mg/kg		0.050	----	0.072	----	0.124
Tin	7440-31-5	E440/WT	2.0	mg/kg		<2.0	----	<2.0	----	<2.0
Uranium	7440-61-1	E440/WT	0.050	mg/kg		0.093	----	0.179	----	0.396
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		3.51	----	14.1	----	28.9
Zinc	7440-66-6	E440/WT	2.0	mg/kg		17.4	----	6.1	----	22.4

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	BGSS-21 1-2	BGSS-22 0-1	BGSS-22 1-2	DUP A	----
					Client sampling date / time	14-May-2024 12:15	14-May-2024 12:20	14-May-2024 12:25	14-May-2024 00:00	----
						HA2401059-020	HA2401059-021	HA2401059-022	HA2401059-023	--------
						Result	Result	Result	Result	----
Metals										
Aluminum	7429-90-5	E440/WT	50	mg/kg		----	6910	----	17200	----
Antimony	7440-36-0	E440/WT	0.10	mg/kg		----	0.21	----	0.20	----
Arsenic	7440-38-2	E440/WT	0.10	mg/kg		197	156	281	164	----
Barium	7440-39-3	E440/WT	0.50	mg/kg		----	16.7	----	22.3	----
Beryllium	7440-41-7	E440/WT	0.10	mg/kg		----	<0.10	----	0.24	----
Boron	7440-42-8	E440/WT	5.0	mg/kg		----	<5.0	----	<5.0	----
Cadmium	7440-43-9	E440/WT	0.020	mg/kg		----	0.052	----	0.096	----
Chromium	7440-47-3	E440/WT	0.50	mg/kg		----	7.21	----	16.4	----
Cobalt	7440-48-4	E440/WT	0.10	mg/kg		----	0.65	----	2.14	----
Copper	7440-50-8	E440/WT	0.50	mg/kg		----	2.16	----	7.31	----
Iron	7439-89-6	E440/WT	50	mg/kg		----	11200	----	21600	----
Lead	7439-92-1	E440/WT	0.50	mg/kg		----	11.8	----	13.4	----
Manganese	7439-96-5	E440/WT	1.0	mg/kg		----	89.8	----	138	----
Mercury	7439-97-6	E510/WT	0.0050	mg/kg		----	0.0407	----	0.0655	----
Molybdenum	7439-98-7	E440/WT	0.10	mg/kg		----	0.28	----	0.31	----
Nickel	7440-02-0	E440/WT	0.50	mg/kg		----	2.11	----	7.92	----
Selenium	7782-49-2	E440/WT	0.20	mg/kg		----	0.45	----	0.76	----
Silver	7440-22-4	E440/WT	0.10	mg/kg		----	0.15	----	0.16	----
Strontium	7440-24-6	E440/WT	0.50	mg/kg		----	4.20	----	4.14	----
Sulfur	7704-34-9	E440/WT	1000	mg/kg		----	<1000	----	<1000	----
Thallium	7440-28-0	E440/WT	0.050	mg/kg		----	0.104	----	0.117	----
Tin	7440-31-5	E440/WT	2.0	mg/kg		----	<2.0	----	<2.0	----
Uranium	7440-61-1	E440/WT	0.050	mg/kg		----	0.213	----	0.394	----
Vanadium	7440-62-2	E440/WT	0.20	mg/kg		----	20.1	----	24.4	----
Zinc	7440-66-6	E440/WT	2.0	mg/kg		----	8.3	----	20.5	----

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

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

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW23-1	MW23-2	MW23-3	DUP A	----
					Client sampling date / time	14-May-2024 14:05	14-May-2024 12:35	14-May-2024 11:45	14-May-2024 12:00	----
						HA2401059-001	HA2401059-002	HA2401059-003	HA2401059-004	--------
						Result	Result	Result	Result	----
Physical Tests										
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/WT	1.0	mg/L		8.0	36.9	17.2	37.6	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		6.6	30.2	14.1	30.9	----
Colour, apparent	----	E330/WT	2.0	CU		20.9	42.0	116	42.0	----
Conductivity	----	E100/WT	1.0	µS/cm		36.0	87.0	56.9	87.8	----
Langelier index (@ 20°C)	----	EC105/WT	0.010	-		-4.26	-2.10	-3.11	-2.08	----
Langelier index (@ 4°C)	----	EC105/WT	0.010	-		-4.51	-2.35	-3.36	-2.34	----
pH	----	E108/WT	0.10	pH units		6.17	6.74	6.36	6.75	----
pH, saturation (@ 20°C)	----	EC105/WT	0.010	pH units		10.4	8.84	9.47	8.83	----
pH, saturation (@ 4°C)	----	EC105/WT	0.010	pH units		10.7	9.09	9.72	9.09	----
Solids, total dissolved [TDS]	----	E162/HA	10	mg/L		20	43 DLDS	28	44 DLDS	----
Turbidity	----	E121/WT	0.10	NTU		3.37	10.5	21.4	10.3	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		<0.0050	<0.0050	0.0186	0.0072	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		4.24	5.30	5.49	5.33	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		<0.020	0.025	<0.020	0.025	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.020	<0.020	<0.020	<0.020	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0032	mg/L		<0.0224	<0.0224	<0.0224	<0.0224	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		<0.0010	<0.0010	0.0013	<0.0010	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		1.66	3.23	2.64	3.20	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/WT	0.50	mg/L		10.4	0.74	0.67	0.81	----
Ion Balance										
Anion sum	----	EC101/WT	0.10	meq/L		0.29	0.82	0.49	0.84	----
Cation sum	----	EC101/WT	0.10	meq/L		0.31	0.74	0.47	0.75	----
Ion balance (cations/anions)	----	EC101/WT	0.010	%		107	90.2	95.9	89.3	----
Dissolved Metals										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW23-1	MW23-2	MW23-3	DUP A	----
					Client sampling date / time	14-May-2024 14:05	14-May-2024 12:35	14-May-2024 11:45	14-May-2024 12:00	----
						HA2401059-001	HA2401059-002	HA2401059-003	HA2401059-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0098	0.0027	0.0074	0.0030	----
Antimony, dissolved	7440-36-0	E421/WT	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00020	0.00721	0.00233	0.00682	----
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.00999	0.00416	0.00499	0.00395	----
Beryllium, dissolved	7440-41-7	E421/WT	0.000020	mg/L		0.000026	<0.000020	0.000028	<0.000020	----
Bismuth, dissolved	7440-69-9	E421/WT	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		0.0000179	0.0000113	0.0000198	0.0000095	----
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		1.07	9.60	4.67	9.58	----
Cesium, dissolved	7440-46-2	E421/WT	0.000010	mg/L		0.000016	0.000058	<0.000010	0.000057	----
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, dissolved	7440-48-4	E421/WT	0.00010	mg/L		0.00906	0.00083	0.00127	0.00097	----
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.109	0.00148	0.00354	0.00114	----
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		1.26	0.092	0.015	0.128	----
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Lithium, dissolved	7439-93-2	E421/WT	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		0.598	0.894	0.656	0.882	----
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.245	0.0411	0.0416	0.0471	----
Mercury, dissolved	7439-97-6	E509/WT	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E421/WT	0.000050	mg/L		0.000095	0.000195	0.000233	0.000133	----
Nickel, dissolved	7440-02-0	E421/WT	0.00050	mg/L		0.0330	0.00082	0.00350	0.00082	----
Phosphorus, dissolved	7723-14-0	E421/WT	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		0.771	0.676	0.533	0.678	----
Rubidium, dissolved	7440-17-7	E421/WT	0.00020	mg/L		0.00276	0.00117	0.00089	0.00121	----
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000050	0.000110	0.000065	0.000109	----
Silicon (as SiO2), dissolved	7440-21-3	EC421.SiO2/WT	0.15	mg/L		6.24	7.61	6.40	7.89	----
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		2.92	3.56	2.99	3.69	----
Silver, dissolved	7440-22-4	E421/WT	0.000010	mg/L		0.000058	<0.000010	0.000028	<0.000010	----
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		3.05	3.90	3.83	3.93	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW23-1	MW23-2	MW23-3	DUP A	----
					Client sampling date / time	14-May-2024 14:05	14-May-2024 12:35	14-May-2024 11:45	14-May-2024 12:00	----
						HA2401059-001	HA2401059-002	HA2401059-003	HA2401059-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Strontium, dissolved	7440-24-6	E421/WT	0.00020	mg/L		0.0148	0.0386	0.0234	0.0380	----
Sulfur, dissolved	7704-34-9	E421/WT	0.50	mg/L		<0.50	1.02	0.82	1.02	----
Tellurium, dissolved	13494-80-9	E421/WT	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, dissolved	7440-28-0	E421/WT	0.000010	mg/L		0.000013	<0.000010	<0.000010	<0.000010	----
Thorium, dissolved	7440-29-1	E421/WT	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, dissolved	7440-31-5	E421/WT	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/WT	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Tungsten, dissolved	7440-33-7	E421/WT	0.00010	mg/L		0.0195	0.00311	0.00371	0.00251	----
Uranium, dissolved	7440-61-1	E421/WT	0.000010	mg/L		<0.000010	0.000106	0.000080	0.000105	----
Vanadium, dissolved	7440-62-2	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		0.0152	0.0030	0.0036	0.0025	----
Zirconium, dissolved	7440-67-7	E421/WT	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved mercury filtration location	----	EP509/WT	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	----
Hydrocarbon Distribution of RBCA mTPH (Tier I) Fractions										
C6-C10 fraction of mTPH	n/a	EC581D/WT	1	%		<1	<1	<1	<1	----
>C10-C16 fraction of mTPH	n/a	EC581D/WT	1	%		<1	<1	<1	<1	----
>C16-C21 fraction of mTPH	n/a	EC581D/WT	1	%		<1	<1	<1	<1	----
>C21-C32 fraction of mTPH	n/a	EC581D/WT	1	%		<1	<1	<1	<1	----
Hydrocarbons										
Benzene	71-43-2	E611A/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Toluene	108-88-3	E611A/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Ethylbenzene	100-41-4	E611A/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Xylenes, total	1330-20-7	E611A/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Xylene, o-	95-47-6	E611A/WT	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Xylene, m+p-	179601-23-1	E611A/WT	0.00040	mg/L		<0.00040	<0.00040	<0.00040	<0.00040	----
VPH C6-C10	n/a	E581.VPH/WT	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	----
VPH C6-C10 (less BTEX)	n/a	EC580C/WT	0.025	mg/L		<0.025	<0.025	<0.025	<0.025	----
EPH >C10-C16	n/a	E601F/WT	0.050	mg/L		<0.050	<0.125 RRR	<0.125 RRR	<0.050	----
EPH >C16-C21	n/a	E601F/WT	0.050	mg/L		<0.050	<0.125 RRR	<0.125 RRR	<0.050	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW23-1	MW23-2	MW23-3	DUP A	----
					Client sampling date / time	14-May-2024 14:05	14-May-2024 12:35	14-May-2024 11:45	14-May-2024 12:00	----
						HA2401059-001	HA2401059-002	HA2401059-003	HA2401059-004	--------
						Result	Result	Result	Result	----
Hydrocarbons										
EPH >C21-C32	n/a	E601F/WT	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
EPH >C34-C50	n/a	E601F/WT	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	----
hydrocarbon resemblance	n/a	E601F/WT	-	none		N/A	N/A	N/A	N/A	----
mTPH (Tier I)	n/a	EC581D/WT	0.090	mg/L		<0.090	<0.184	<0.184	<0.090	----
return to baseline at C32	n/a	E601F/WT	-	-		Yes	Yes	Yes	Yes	----
TEH >C10-C32	n/a	E601F/WT	0.100	mg/L		<0.100	<0.184	<0.184	<0.100	----
Hydrocarbons Surrogates										
dotriacontane, n- (EPH)	n/a	E601F/WT	1.0	%		82.1	82.8	73.8	77.9	----
isobutylbenzene (EPH)	538-93-2	E601F/WT	1.0	%		62.2	33.6 RRR	30.1 RRR	62.4	----
isobutylbenzene (VPH)	538-93-2	E581.VPH/WT	1.0	%		96.9	97.1	93.2	95.9	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611A/WT	1.0	%		104	103	103	103	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	1.0	%		101	101	100	100	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Acenaphthylene	208-96-8	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Acridine	260-94-6	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Anthracene	120-12-7	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benz(a)anthracene	56-55-3	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L/WT	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/WT	0.015	µg/L		<0.015	<0.015	<0.015	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Chrysene	218-01-9	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/WT	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Fluoranthene	206-44-0	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Fluorene	86-73-7	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	MW23-1	MW23-2	MW23-3	DUP A	----
					Client sampling date / time	14-May-2024 14:05	14-May-2024 12:35	14-May-2024 11:45	14-May-2024 12:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		HA2401059-001	HA2401059-002	HA2401059-003	HA2401059-004	--------
						Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons										
Methylnaphthalene, 1+2-	----	E641A-L/WT	0.015	µg/L		<0.015	<0.015	<0.015	<0.015	----
Methylnaphthalene, 2-	91-57-6	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Naphthalene	91-20-3	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Perylene	198-55-0	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Phenanthrene	85-01-8	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Pyrene	129-00-0	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Quinoline	91-22-5	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/WT	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A-L/WT	0.1	%		117	121	115	119	----
Naphthalene-d8	1146-65-2	E641A-L/WT	0.1	%		119	121	116	121	----
Phenanthrene-d10	1517-22-2	E641A-L/WT	0.1	%		126	131	124	129	----

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

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

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **HA2401059**	Page	: 1 of 23
Client	: **Dillon Consulting Limited**	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 15-May-2024 14:56
PO	: ----	Issue Date	: 27-May-2024 17:09
C-O-C number	: ----		
Sampler	: ----		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Build NS (Mill Village)		
No. of samples received	: 23		
No. of samples analysed	: 23		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Organic / Inorganic Carbon	QC-1449111-001	----	Carbon, total organic [TOC]	----	E355-L	0.67 B mg/L	0.5 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Regular Sample Surrogates

Sub-Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Hydrocarbons Surrogates	HA2401059-002	MW23-2	isobutylbenzene (EPH)	538-93-2	33.6 %	60.0-140 %	Recovery less than lower data quality objective
Hydrocarbons Surrogates	HA2401059-003	MW23-3	isobutylbenzene (EPH)	538-93-2	30.1 %	60.0-140 %	Recovery less than lower data quality objective

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-15 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-16 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-17 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-18 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-19 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-20 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-21 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-22 0-1	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP A	E510	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-13 0-1	E510	13-May-2024	22-May-2024	28 days	9 days	✓	23-May-2024	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BGSS-14 0-1	E510	13-May-2024	22-May-2024	28 days	9 days	✓	23-May-2024	28 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-15 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-15 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-16 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-16 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-17 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-17 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-18 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-18 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-19 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-19 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-20 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-20 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-21 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-21 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-22 0-1	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-22 1-2	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP A	E440	14-May-2024	22-May-2024	180 days	8 days	✓	22-May-2024	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-13 0-1	E440	13-May-2024	22-May-2024	180 days	9 days	✓	22-May-2024	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BGSS-14 0-1	E440	13-May-2024	22-May-2024	180 days	9 days	✓	22-May-2024	180 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
DUP A	E298	14-May-2024	17-May-2024	28 days	3 days	✓	21-May-2024	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW23-1	E298	14-May-2024	17-May-2024	28 days	3 days	✓	21-May-2024	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW23-2	E298	14-May-2024	17-May-2024	28 days	3 days	✓	21-May-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW23-3	E298	14-May-2024	17-May-2024	28 days	3 days	✓	21-May-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
DUP A	E235.Cl	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW23-1	E235.Cl	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW23-2	E235.Cl	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW23-3	E235.Cl	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
DUP A	E378-U	14-May-2024	18-May-2024	3 days	4 days	× EHT	21-May-2024	3 days	7 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW23-1	E378-U	14-May-2024	18-May-2024	3 days	4 days	× EHT	21-May-2024	3 days	7 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW23-2	E378-U	14-May-2024	18-May-2024	3 days	4 days	× EHT	21-May-2024	3 days	7 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW23-3	E378-U	14-May-2024	18-May-2024	3 days	4 days	× EHT	21-May-2024	3 days	7 days	× EHT

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
DUP A	E235.F	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW23-1	E235.F	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW23-2	E235.F	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW23-3	E235.F	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
DUP A	E235.NO3	14-May-2024	18-May-2024	3 days	4 days	× EHT	19-May-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
MW23-1	E235.NO3	14-May-2024	18-May-2024	3 days	4 days	× EHT	19-May-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
MW23-2	E235.NO3	14-May-2024	18-May-2024	3 days	4 days	× EHT	19-May-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
MW23-3	E235.NO3	14-May-2024	18-May-2024	3 days	4 days	× EHT	19-May-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
DUP A	E235.NO2	14-May-2024	18-May-2024	3 days	4 days	× EHT	19-May-2024	3 days	5 days	× EHT

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
MW23-1	E235.NO2	14-May-2024	18-May-2024	3 days	4 days	✗ EHT	19-May-2024	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
MW23-2	E235.NO2	14-May-2024	18-May-2024	3 days	4 days	✗ EHT	19-May-2024	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
MW23-3	E235.NO2	14-May-2024	18-May-2024	3 days	4 days	✗ EHT	19-May-2024	3 days	5 days	✗ EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
DUP A	E235.SO4	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW23-1	E235.SO4	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW23-2	E235.SO4	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW23-3	E235.SO4	14-May-2024	18-May-2024	28 days	4 days	✓	19-May-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
DUP A	E509	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MW23-1	E509	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW23-2	E509	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW23-3	E509	14-May-2024	22-May-2024	28 days	8 days	✓	23-May-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) DUP A	E421	14-May-2024	17-May-2024	180 days	3 days	✓	17-May-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW23-1	E421	14-May-2024	17-May-2024	180 days	3 days	✓	17-May-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW23-2	E421	14-May-2024	17-May-2024	180 days	3 days	✓	17-May-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW23-3	E421	14-May-2024	17-May-2024	180 days	3 days	✓	17-May-2024	180 days	3 days	✓
Hydrocarbons : EPH in Water by GC-FID (RBCA)										
Amber glass/Teflon lined cap (sodium bisulfate) DUP A	E601F	14-May-2024	21-May-2024	14 days	7 days	✓	22-May-2024	40 days	1 days	✓
Hydrocarbons : EPH in Water by GC-FID (RBCA)										
Amber glass/Teflon lined cap (sodium bisulfate) MW23-1	E601F	14-May-2024	21-May-2024	14 days	7 days	✓	22-May-2024	40 days	1 days	✓
Hydrocarbons : EPH in Water by GC-FID (RBCA)										
Amber glass/Teflon lined cap (sodium bisulfate) MW23-2	E601F	14-May-2024	21-May-2024	14 days	7 days	✓	22-May-2024	40 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : EPH in Water by GC-FID (RBCA)										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW23-3	E601F	14-May-2024	21-May-2024	14 days	7 days	✓	22-May-2024	40 days	1 days	✓
Hydrocarbons : VPH by Headspace GC-FID (RBCA)										
Glass vial (sodium bisulfate)										
DUP A	E581.VPH	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Hydrocarbons : VPH by Headspace GC-FID (RBCA)										
Glass vial (sodium bisulfate)										
MW23-1	E581.VPH	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Hydrocarbons : VPH by Headspace GC-FID (RBCA)										
Glass vial (sodium bisulfate)										
MW23-2	E581.VPH	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Hydrocarbons : VPH by Headspace GC-FID (RBCA)										
Glass vial (sodium bisulfate)										
MW23-3	E581.VPH	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP A	E355-L	14-May-2024	17-May-2024	28 days	3 days	✓	24-May-2024	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW23-1	E355-L	14-May-2024	17-May-2024	28 days	3 days	✓	24-May-2024	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW23-2	E355-L	14-May-2024	17-May-2024	28 days	3 days	✓	24-May-2024	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW23-3	E355-L	14-May-2024	17-May-2024	28 days	3 days	✓	24-May-2024	28 days	10 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE DUP A	E290	14-May-2024	18-May-2024	14 days	4 days	✓	18-May-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW23-1	E290	14-May-2024	18-May-2024	14 days	4 days	✓	18-May-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW23-2	E290	14-May-2024	18-May-2024	14 days	4 days	✓	18-May-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW23-3	E290	14-May-2024	18-May-2024	14 days	4 days	✓	18-May-2024	14 days	4 days	✓
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW23-1	E330	14-May-2024	----	----	----		21-May-2024	48 hrs	170 hrs	× EHT
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW23-2	E330	14-May-2024	----	----	----		21-May-2024	48 hrs	171 hrs	× EHTL
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE DUP A	E330	14-May-2024	----	----	----		21-May-2024	48 hrs	172 hrs	× EHTL
Physical Tests : Colour (Apparent) by Spectrometer										
HDPE MW23-3	E330	14-May-2024	----	----	----		21-May-2024	48 hrs	172 hrs	× EHTL
Physical Tests : Conductivity in Water										
HDPE DUP A	E100	14-May-2024	18-May-2024	28 days	4 days	✓	18-May-2024	28 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE MW23-1	E100	14-May-2024	18-May-2024	28 days	4 days	✓	18-May-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MW23-2	E100	14-May-2024	18-May-2024	28 days	4 days	✓	18-May-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MW23-3	E100	14-May-2024	18-May-2024	28 days	4 days	✓	18-May-2024	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE DUP A	E108	14-May-2024	18-May-2024	0.25 hrs	101 hrs	× EHTR-FM	18-May-2024	0.25 hrs	101 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW23-2	E108	14-May-2024	18-May-2024	0.25 hrs	101 hrs	× EHTR-FM	18-May-2024	0.25 hrs	101 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW23-3	E108	14-May-2024	18-May-2024	0.25 hrs	101 hrs	× EHTR-FM	18-May-2024	0.25 hrs	102 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW23-1	E108	14-May-2024	18-May-2024	0.25 hrs	99 hrs	× EHTR-FM	18-May-2024	0.25 hrs	99 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE DUP A	E162	14-May-2024	----	----	----		21-May-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW23-1	E162	14-May-2024	----	----	----		21-May-2024	7 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE										
MW23-2	E162	14-May-2024	----	----	----		21-May-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW23-3	E162	14-May-2024	----	----	----		21-May-2024	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
DUP A	E121	14-May-2024	----	----	----		17-May-2024	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
MW23-1	E121	14-May-2024	----	----	----		17-May-2024	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
MW23-2	E121	14-May-2024	----	----	----		17-May-2024	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE										
MW23-3	E121	14-May-2024	----	----	----		17-May-2024	3 days	3 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS (Low Level)										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP A	E641A-L	14-May-2024	21-May-2024	14 days	7 days	✓	23-May-2024	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS (Low Level)										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW23-1	E641A-L	14-May-2024	21-May-2024	14 days	7 days	✓	23-May-2024	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS (Low Level)										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW23-2	E641A-L	14-May-2024	21-May-2024	14 days	7 days	✓	23-May-2024	40 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS (Low Level)										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW23-3	E641A-L	14-May-2024	21-May-2024	14 days	7 days	✓	23-May-2024	40 days	2 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
DUP A	E611A	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW23-1	E611A	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW23-2	E611A	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW23-3	E611A	14-May-2024	22-May-2024	14 days	8 days	✓	22-May-2024	14 days	8 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

EHT: Exceeded ALS recommended hold time prior to analysis.

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Mercury in Soil/Solid by CVAAS	E510	1449427	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1449428	1	19	5.2	5.0	✓
Laboratory Control Samples (LCS)							
Mercury in Soil/Solid by CVAAS	E510	1449427	2	11	18.1	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1449428	2	19	10.5	10.0	✓
Method Blanks (MB)							
Mercury in Soil/Solid by CVAAS	E510	1449427	1	11	9.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1449428	1	19	5.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1449725	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1449110	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	1453410	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1449721	1	20	5.0	5.0	✓
Colour (Apparent) by Spectrometer	E330	1451694	1	20	5.0	5.0	✓
Conductivity in Water	E100	1449724	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1452609	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1449041	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1449726	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1449718	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1449719	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1449720	1	20	5.0	5.0	✓
pH by Meter	E108	1449723	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1449722	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1451001	1	19	5.2	5.2	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1449111	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	1448771	1	16	6.2	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1453409	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1449725	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1449110	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	1453410	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1449721	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Colour (Apparent) by Spectrometer	E330	1451694	1	20	5.0	5.0	✓
Conductivity in Water	E100	1449724	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1452609	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1449041	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1449726	1	19	5.2	5.0	✓
EPH in Water by GC-FID (RBCA)	E601F	1450889	2	10	20.0	5.0	✓
Fluoride in Water by IC	E235.F	1449718	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1449719	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1449720	1	20	5.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS (Low Level)	E641A-L	1450885	1	4	25.0	5.0	✓
pH by Meter	E108	1449723	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1449722	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1451001	1	19	5.2	5.2	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1449111	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	1448771	1	16	6.2	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1453409	1	9	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1449725	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1449110	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	1453410	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1449721	1	20	5.0	5.0	✓
Colour (Apparent) by Spectrometer	E330	1451694	1	20	5.0	5.0	✓
Conductivity in Water	E100	1449724	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1452609	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1449041	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1449726	1	19	5.2	5.0	✓
EPH in Water by GC-FID (RBCA)	E601F	1450889	2	10	20.0	5.0	✓
Fluoride in Water by IC	E235.F	1449718	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1449719	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1449720	1	20	5.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS (Low Level)	E641A-L	1450885	1	4	25.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1449722	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1451001	1	19	5.2	5.2	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1449111	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	1448771	1	16	6.2	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1453409	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1449110	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	1453410	1	9	11.1	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Chloride in Water by IC	E235.Cl	1449721	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1452609	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1449041	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1449726	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1449718	1	20	5.0	5.0	✓
Nitrate in Water by IC	E235.NO3	1449719	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1449720	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1449722	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1449111	1	18	5.5	5.0	✓
VPH by Headspace GC-FID (RBCA)	E581.VPH	1453409	1	9	11.1	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Waterloo	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 ALS Environmental - Halifax	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Colour (Apparent) by Spectrometer	E330 ALS Environmental - Waterloo	Water	APHA 2120 C (mod)	Colour (Apparent) is measured in an unfiltered sample spectrophotometrically using the single wavelength method. The colour contribution of settleable solids are not included in the result. This method is intended for potable waters. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VPH by Headspace GC-FID (RBCA)	E581.VPH ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	VPH (Volatile Petroleum Hydrocarbons) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EPH in Water by GC-FID (RBCA)	E601F ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	Sample Extracts are analyzed by GC-FID for RBCA Tier I hydrocarbon fractions C10-C16, C16-C21, C21-C32.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Water by Hexane LVI GC-MS (Low Level)	E641A-L ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Waterloo	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Saturation Index using Laboratory pH (Ca-D)	EC105 ALS Environmental - Waterloo	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential. If available, Field pH measurements are recommended for best accuracy (test code EC104).
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Dissolved Silicon as Silica (Calculation)	EC421.SiO2 ALS Environmental - Waterloo	Water	N/A	Dissolved Silicon (as SiO2) is a calculated parameter. Dissolved Silicon (as SiO2 mg/L) = 2.139 x Dissolved Silicon (mg/L).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VPH C6-C10 (less BTEX) [RBCA]	EC580C ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	VPH C6-C10 (less BTEX) is calculated as follows: VPH (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Modified TPH (RBCA) Tier I	EC581D ALS Environmental - Waterloo	Water	Atlantic RBCA Version 3.1	Modified TPH (PIRI), Tier I is the sum of PIRI Fraction (C6 - C10 - BTEX) + (>C10 - C16) + (>C16 – C21) + (>C21 - C32).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury	EP440 ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Waterloo	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
PHCs Hexane Extraction (RBCA)	EP601F ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) are extracted using a hexane liquid-liquid extraction.

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QUALITY CONTROL REPORT

Work Order	: **HA2401059**	Page	: 1 of 19
Client	: Dillon Consulting Limited	Laboratory	: ALS Environmental - Halifax
Contact	: Asia Reid	Account Manager	: Andrew Martin
Address	: 137 Chain Lake Drive Halifax NS Canada B3S 1B3	Address	: 13-100 Wright Ave Dartmouth, Nova Scotia Canada B3B 1L2
Telephone	: 902.450.5015 ext. 5045	Telephone	: +1 902 707 4888
Project	: Build NS - Mill Village	Date Samples Received	: 15-May-2024 14:56
PO	: ----	Date Analysis Commenced	: 17-May-2024
C-O-C number	: ----	Issue Date	: 27-May-2024 17:09
Sampler	: ----		
Site	: Build NS (Mill Village)		
Quote number	: HA23-DICL100-11 - Build NS (Mill Village)		
No. of samples received	: 23		
No. of samples analysed	: 23		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Waterloo Metals, Waterloo, Ontario
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Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1449427)											
HA2401059-005	BGSS-13 0-1	Mercury	7439-97-6	E510	0.0050	mg/kg	0.0669	0.0778	15.1%	40%	----
Metals (QC Lot: 1449428)											
HA2401059-005	BGSS-13 0-1	Aluminum	7429-90-5	E440	50	mg/kg	23400	22100	5.82%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	0.14	0.13	0.004	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	136	127	6.96%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	19.5	21.8	11.0%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.26	0.25	0.007	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.045	0.044	0.0003	Diff <2x LOR	----
		Chromium	7440-47-3	E440	0.50	mg/kg	18.5	17.7	4.46%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	1.43	1.34	6.66%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	5.60	4.86	14.3%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	25900	23700	8.81%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	11.0	10.9	0.167%	40%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	125	114	9.60%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.32	0.34	0.02	Diff <2x LOR	----
		Nickel	7440-02-0	E440	0.50	mg/kg	6.54	6.23	4.76%	30%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.88	0.87	0.02	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.20	0.19	0.003	Diff <2x LOR	----
		Strontium	7440-24-6	E440	0.50	mg/kg	2.29	2.49	0.20	Diff <2x LOR	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.123	0.121	0.002	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.445	0.387	14.1%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	35.4	34.4	3.03%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	17.4	16.8	3.45%	30%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1448771)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1448771) - continued											
HA2401047-001	Anonymous	Turbidity	----	E121	0.10	NTU	>4000	>4000	0.00%	15%	----
Physical Tests (QC Lot: 1449723)											
HA2401047-002	Anonymous	pH	----	E108	0.10	pH units	6.51	6.53	0.307%	4%	----
Physical Tests (QC Lot: 1449724)											
HA2401047-002	Anonymous	Conductivity	----	E100	1.0	µS/cm	72.2	72.8	0.828%	10%	----
Physical Tests (QC Lot: 1449725)											
HA2401047-002	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	14.7	15.0	1.89%	20%	----
Physical Tests (QC Lot: 1451001)											
HA2401048-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	61	68	7	Diff <2x LOR	----
Physical Tests (QC Lot: 1451694)											
WT2412483-001	Anonymous	Colour, apparent	----	E330	2.0	CU	<2.0	<2.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1449110)											
HA2401036-018	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.214	0.218	1.71%	20%	----
Anions and Nutrients (QC Lot: 1449718)											
HA2401047-002	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1449719)											
HA2401047-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1449720)											
HA2401047-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1449721)											
HA2401047-002	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	9.81	9.76	0.458%	20%	----
Anions and Nutrients (QC Lot: 1449722)											
HA2401047-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.43	2.38	0.05	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1449726)											
HA2401047-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0020	mg/L	0.0430	0.0429	0.256%	20%	----
Organic / Inorganic Carbon (QC Lot: 1449111)											
HA2401036-018	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	3.94	3.94	0.006	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1449041)											
HA2401047-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0182	0.0212	15.6%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00015	0.00019	0.00004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0300	0.0297	0.749%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1449041) - continued											
HA2401047-001	Anonymous	Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	12.8	12.6	1.14%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000011	<0.000010	0.0000007	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00153	0.00157	0.00003	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	0.011	0.0008	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.61	1.61	0.180%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00120	0.00121	1.46%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.08	1.09	0.564%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00069	0.00071	0.00002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.51	4.55	0.799%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	9.88	9.59	3.00%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0254	0.0251	1.14%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.35	1.34	0.01	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00044	0.00040	0.00004	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1452609)											
HA2401059-001	MW23-1	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1452610)											
HA2401059-003	MW23-3	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1453410)											
HA2401036-020	Anonymous	Benzene	71-43-2	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611A	0.50	µg/L	<0.00050 mg/L	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.00040 mg/L	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611A	0.30	µg/L	<0.00030 mg/L	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1453409)											
HA2401036-020	Anonymous	VPH C6-C10	n/a	E581.VPH	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1449427)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1449428)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1448771)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1449724)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1449724) - continued						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1449725)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1451001)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1451694)						
Colour, apparent	----	E330	2	CU	<2.0	----
Anions and Nutrients (QCLot: 1449110)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1449718)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1449719)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1449720)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1449721)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1449722)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1449726)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1449111)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	# 0.67	B
Dissolved Metals (QCLot: 1449041)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1449041) - continued						
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1452609)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1452610)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1453410)						
Benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1453410) - continued						
Toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1450889)						
EPH >C10-C16	n/a	E601F	50	µg/L	<50	----
EPH >C16-C21	n/a	E601F	50	µg/L	<50	----
EPH >C21-C32	n/a	E601F	50	µg/L	<50	----
EPH >C34-C50	n/a	E601F	100	µg/L	<100	----
Hydrocarbons (QCLot: 1453409)						
VPH C6-C10	n/a	E581.VPH	25	µg/L	<25	----
Hydrocarbons (QCLot: 1454297)						
EPH >C10-C16	n/a	E601F	50	µg/L	<50	----
EPH >C16-C21	n/a	E601F	50	µg/L	<50	----
EPH >C21-C32	n/a	E601F	50	µg/L	<50	----
EPH >C34-C50	n/a	E601F	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1450885)						
Acenaphthene	83-32-9	E641A-L	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A-L	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A-L	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A-L	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	µg/L	<0.010	----
Perylene	198-55-0	E641A-L	0.01	µg/L	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1450885) - continued						
Pyrene	129-00-0	E641A-L	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	µg/L	<0.010	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1449427)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	115	80.0	120	----
Metals (QCLot: 1449428)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	100.0	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	100	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	103	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	99.8	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	93.0	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	97.2	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	96.9	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	95.4	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	94.5	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	93.5	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	99.0	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	97.0	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	95.1	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	94.2	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	94.2	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	99.2	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	89.8	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	98.6	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	92.9	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	96.4	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	99.7	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	98.3	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	97.7	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	94.8	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1448771)									
Turbidity	----	E121	0.1	NTU	200 NTU	97.5	85.0	115	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1449723)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1449724)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	106	90.0	110	----
Physical Tests (QCLot: 1449725)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1451001)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	98.1	85.0	115	----
Physical Tests (QCLot: 1451694)									
Colour, apparent	----	E330	2	CU	25 CU	109	70.0	130	----
Anions and Nutrients (QCLot: 1449110)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 1449718)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.1	90.0	110	----
Anions and Nutrients (QCLot: 1449719)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	96.8	90.0	110	----
Anions and Nutrients (QCLot: 1449720)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	95.8	90.0	110	----
Anions and Nutrients (QCLot: 1449721)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1449722)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 1449726)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.031 mg/L	107	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1449111)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Dissolved Metals (QCLot: 1449041)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	99.6	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	102	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	103	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	92.2	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1449041) - continued									
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	99.4	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	100.0	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.002 mg/L	103	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	99.1	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.012 mg/L	97.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	98.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	99.0	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.012 mg/L	102	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	107	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.012 mg/L	97.9	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.012 mg/L	99.5	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	96.8	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	96.5	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	99.2	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	105	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	97.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	100.0	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	94.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	103	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.012 mg/L	105	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	99.6	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	94.1	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	106	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	101	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.012 mg/L	94.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	105	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0 mg/L	104	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	98.7	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	98.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	98.8	80.0	120	----
Volatile Organic Compounds (QCLot: 1453410)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1453410) - continued									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	107	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	109	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	110	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	113	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	112	70.0	130	----
Hydrocarbons (QCLot: 1450889)									
EPH >C10-C16	n/a	E601F	50	µg/L	3550 µg/L	94.4	70.0	130	----
EPH >C16-C21	n/a	E601F	50	µg/L	3090 µg/L	103	70.0	130	----
EPH >C21-C32	n/a	E601F	50	µg/L	2570 µg/L	99.0	70.0	130	----
EPH >C34-C50	n/a	E601F	100	µg/L	3770 µg/L	90.0	70.0	130	----
Hydrocarbons (QCLot: 1453409)									
VPH C6-C10	n/a	E581.VPH	25	µg/L	2000 µg/L	89.5	80.0	120	----
Hydrocarbons (QCLot: 1454297)									
EPH >C10-C16	n/a	E601F	50	µg/L	4250 µg/L	82.0	70.0	130	----
EPH >C16-C21	n/a	E601F	50	µg/L	3680 µg/L	85.8	70.0	130	----
EPH >C21-C32	n/a	E601F	50	µg/L	3010 µg/L	95.8	70.0	130	----
EPH >C34-C50	n/a	E601F	100	µg/L	4320 µg/L	87.5	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1450885)									
Acenaphthene	83-32-9	E641A-L	0.01	µg/L	0.526 µg/L	93.6	50.0	140	----
Acenaphthylene	208-96-8	E641A-L	0.01	µg/L	0.526 µg/L	90.5	50.0	140	----
Acridine	260-94-6	E641A-L	0.01	µg/L	0.526 µg/L	76.9	50.0	140	----
Anthracene	120-12-7	E641A-L	0.01	µg/L	0.526 µg/L	86.5	50.0	140	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	µg/L	0.526 µg/L	98.8	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A-L	0.005	µg/L	0.526 µg/L	93.4	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	µg/L	0.526 µg/L	93.1	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	µg/L	0.526 µg/L	92.4	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	µg/L	0.526 µg/L	93.5	50.0	140	----
Chrysene	218-01-9	E641A-L	0.01	µg/L	0.526 µg/L	96.0	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	µg/L	0.526 µg/L	95.3	50.0	140	----
Fluoranthene	206-44-0	E641A-L	0.01	µg/L	0.526 µg/L	97.5	50.0	140	----
Fluorene	86-73-7	E641A-L	0.01	µg/L	0.526 µg/L	95.4	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	µg/L	0.526 µg/L	108	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	µg/L	0.526 µg/L	87.0	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	µg/L	0.526 µg/L	89.1	50.0	140	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1450885) - continued									
Naphthalene	91-20-3	E641A-L	0.01	µg/L	0.526 µg/L	88.1	50.0	140	----
Perylene	198-55-0	E641A-L	0.01	µg/L	0.526 µg/L	94.2	50.0	140	----
Phenanthrene	85-01-8	E641A-L	0.01	µg/L	0.526 µg/L	98.7	50.0	140	----
Pyrene	129-00-0	E641A-L	0.01	µg/L	0.526 µg/L	97.2	50.0	140	----
Quinoline	91-22-5	E641A-L	0.01	µg/L	0.526 µg/L	98.8	50.0	140	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1449110)										
HA2401036-018	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1449718)										
HA2401047-002	Anonymous	Fluoride	16984-48-8	E235.F	0.976 mg/L	1 mg/L	97.6	75.0	125	----
Anions and Nutrients (QCLot: 1449719)										
HA2401047-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.38 mg/L	2.5 mg/L	95.2	75.0	125	----
Anions and Nutrients (QCLot: 1449720)										
HA2401047-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.466 mg/L	0.5 mg/L	93.2	75.0	125	----
Anions and Nutrients (QCLot: 1449721)										
HA2401047-002	Anonymous	Chloride	16887-00-6	E235.Cl	98.8 mg/L	100 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 1449722)										
HA2401047-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	97.1 mg/L	100 mg/L	97.1	75.0	125	----
Anions and Nutrients (QCLot: 1449726)										
HA2401047-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	ND mg/L	----	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1449111)										
HA2401036-018	Anonymous	Carbon, total organic [TOC]	----	E355-L	6.47 mg/L	5 mg/L	129	70.0	130	----
Dissolved Metals (QCLot: 1449041)										
HA2401047-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0520 mg/L	0.05 mg/L	104	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0574 mg/L	0.05 mg/L	115	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00542 mg/L	0.005 mg/L	108	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0472 mg/L	0.05 mg/L	94.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.046 mg/L	0.05 mg/L	92.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00536 mg/L	0.005 mg/L	107	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00278 mg/L	0.002 mg/L	111	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0129 mg/L	0.012 mg/L	103	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0125 mg/L	0.012 mg/L	100.0	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0128 mg/L	0.012 mg/L	102	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0265 mg/L	0.025 mg/L	106	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0128 mg/L	0.012 mg/L	103	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	2.70 mg/L	2.5 mg/L	108	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0130 mg/L	0.012 mg/L	104	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1449041) - continued										
HA2401047-002	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0248 mg/L	0.025 mg/L	99.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	0.544 mg/L	0.5 mg/L	109	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	2.49 mg/L	2.5 mg/L	99.5	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.00525 mg/L	0.005 mg/L	105	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0611 mg/L	0.05 mg/L	122	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00442 mg/L	0.005 mg/L	88.4	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	2.51 mg/L	2.5 mg/L	100	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.00483 mg/L	0.005 mg/L	96.5	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0520 mg/L	0.05 mg/L	104	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.00524 mg/L	0.005 mg/L	105	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0261 mg/L	0.025 mg/L	104	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0118 mg/L	0.012 mg/L	94.8	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.00520 mg/L	0.005 mg/L	104	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.000258 mg/L	0 mg/L	103	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0261 mg/L	0.025 mg/L	104	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0281 mg/L	0.025 mg/L	112	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.00524 mg/L	0.005 mg/L	105	70.0	130	----
Dissolved Metals (QCLot: 1452609)										
HA2401059-002	MW23-2	Mercury, dissolved	7439-97-6	E509	0.0000961 mg/L	0 mg/L	96.1	70.0	130	----
Dissolved Metals (QCLot: 1452610)										
HA2401059-004	DUP A	Mercury, dissolved	7439-97-6	E509	0.000100 mg/L	0 mg/L	100	70.0	130	----
Volatile Organic Compounds (QCLot: 1453410)										
HA2401036-020	Anonymous	Benzene	71-43-2	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Ethylbenzene	100-41-4	E611A	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Toluene	108-88-3	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	208 µg/L	200 µg/L	104	60.0	140	----
		Xylene, o-	95-47-6	E611A	106 µg/L	100 µg/L	106	60.0	140	----
Hydrocarbons (QCLot: 1453409)										
HA2401036-020	Anonymous	VPH C6-C10	n/a	E581.VPH	1740 µg/L	2000 µg/L	87.0	60.0	140	----

Reference Material (RM) Report

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

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 1449427)									
QC-1449427-003	RM	Mercury	7439-97-6	E510	0.058 mg/kg	118	70.0	130	----
Metals (QCLot: 1449428)									
QC-1449428-003	RM	Aluminum	7429-90-5	E440	9820 mg/kg	112	70.0	130	----
QC-1449428-003	RM	Antimony	7440-36-0	E440	3.99 mg/kg	93.2	70.0	130	----
QC-1449428-003	RM	Arsenic	7440-38-2	E440	3.73 mg/kg	105	70.0	130	----
QC-1449428-003	RM	Barium	7440-39-3	E440	105 mg/kg	106	70.0	130	----
QC-1449428-003	RM	Beryllium	7440-41-7	E440	0.349 mg/kg	102	70.0	130	----
QC-1449428-003	RM	Boron	7440-42-8	E440	8.5 mg/kg	111	70.0	130	----
QC-1449428-003	RM	Cadmium	7440-43-9	E440	0.91 mg/kg	90.9	70.0	130	----
QC-1449428-003	RM	Chromium	7440-47-3	E440	101 mg/kg	108	70.0	130	----
QC-1449428-003	RM	Cobalt	7440-48-4	E440	6.9 mg/kg	99.5	70.0	130	----
QC-1449428-003	RM	Copper	7440-50-8	E440	123 mg/kg	97.2	70.0	130	----
QC-1449428-003	RM	Iron	7439-89-6	E440	23600 mg/kg	101	70.0	130	----
QC-1449428-003	RM	Lead	7439-92-1	E440	267 mg/kg	99.2	70.0	130	----
QC-1449428-003	RM	Manganese	7439-96-5	E440	269 mg/kg	112	70.0	130	----
QC-1449428-003	RM	Molybdenum	7439-98-7	E440	1.03 mg/kg	96.2	70.0	130	----
QC-1449428-003	RM	Nickel	7440-02-0	E440	26.7 mg/kg	99.6	70.0	130	----
QC-1449428-003	RM	Silver	7440-22-4	E440	4.06 mg/kg	95.2	70.0	130	----
QC-1449428-003	RM	Strontium	7440-24-6	E440	86.1 mg/kg	98.4	70.0	130	----
QC-1449428-003	RM	Thallium	7440-28-0	E440	0.079 mg/kg	96.2	70.0	130	----
QC-1449428-003	RM	Tin	7440-31-5	E440	10.6 mg/kg	97.1	70.0	130	----
QC-1449428-003	RM	Uranium	7440-61-1	E440	0.52 mg/kg	106	70.0	130	----
QC-1449428-003	RM	Vanadium	7440-62-2	E440	32.7 mg/kg	103	70.0	130	----
QC-1449428-003	RM	Zinc	7440-66-6	E440	297 mg/kg	96.4	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 22 -

Page 1 of 2

Environmental Division Halifax

Work Order Reference HA2401059

Telephone : +1 902 707 4888

Report To	Contact and company name below will appear on the final report
Company:	Dillon Consulting Limited
Contact:	Asia Reid
Phone:	902.450.5015 ext. 5045
	Company address below will appear on the final report
Street:	137 Chain Lake Drive Suite 100
City/Province:	Halifax / Nova Scotia
Postal Code:	B3S 1B3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax AReid@dillon.ca

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax AReid@dillon.ca

Email 2 payables@dillon.ca

Turnaround Time (TAT) Requested

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

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

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

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

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

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

Additional fees may apply to rush requests on weekend

Date and Time Required for all E&P TATs:

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

Project Information

ALS Client Code / QUOTE #: DICL100 / HA23-DICL100-11

Job / Project #: Build NS - Mill Village

PO / AFE:

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): HA2401059

ALS Contact: Andrew Martin Sampler:

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX/TPH (RBCA) in Soil	Metals + Mercury in Soil	PAHs (RBCA) in Soil	Energetics in Soil	Arsenic	BTEX/TPH (RBCA) in Water	PAHs (RBCA) in Water	Gen. Chem. w/ Metals + Hg in Water	Alk,Anions,NH3,EC,TOC,Color,Turb,	pH,TDS,Metals,Mercury,Hardness	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW23-1	14-05-24	14:05	H_2O	11							X	X					
	MW23-2	"	12:35	"	11						X	X	X					
	MW23-3	"	11:45	"	11						X	X	X					
	Dup A	"	12:00	"	11													
	Trip blank	"		"	1						X							
	BGSS-13 0-1	13-05-24	11:23	Soil	1		X											
	BGSS-14 0-1	13-05-24	11:40	"	1		X											
	BGSS-15 0-1	14-05-24	11:05	"	1		X											
	BGSS-15 1-2	"	11:10	"	1					X								
	BGSS-16 0-1	"	11:25	"	1		X											
	BGSS-16 1-2	"	11:20	"	1					X								
	BGSS-17 0-1	"	11:30	"	1		X											

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

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

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

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

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
8.4	8.7						

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Bailey Miles	May 15, 2024	14:50

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
Shane	15 May 2024	2:56

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 2 of 2

Canada Toll Free: 1 800 668 9878

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Report To	Contact and company name below will appear on the final report
Company:	Dillon Consulting Limited
Contact:	Asia Reid
Phone:	902.450.5015 ext. 5045
	Company address below will appear on the final report
Street:	137 Chain Lake Drive Suite 100
City/Province:	Halifax / Nova Scotia
Postal Code:	B3S 1B3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Project Information

ALS Client Code / QUOTE #:	DICL100 / HA23-DICL100-11
Job / Project #:	Build NS - Mill Village
PO / AFE:	
LSD:	
ALS Lab Work Order # (ALS use only):	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: AReid@dillon.ca

Email 2:

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: AReid@dillon.ca

Email 2: payables@dillon.ca

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Contact: Andrew Martin Sampler:

Turnaround Time (TAT) Requested

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

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

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

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

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

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

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs:

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

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	BTEX/TPH (RBCA) in Soil	Metals + Mercury in Soil	PAHs (RBCA) in Soil	Energetics in Soil	Arsenic	BTEX/TPH (RBCA) in Water	PAHs (RBCA) in Water	Gen. Chem. w/ Metals + Hg in Water	Alk,Anions,NH3,E.C.,TOC,Color,Turb.	pH,TDS,Metals Mercury,Hardness	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BGSS-17 1-2	14-05-24	11:35	Soil	1					X								
	BGSS-18 0-1		11:40		1		X											
	BGSS-18 1-2		11:45		1					X								
	BGSS-19 0-1		11:50		1		X											
	BGSS-19 1-2		11:55		1					X								
	BGSS-20 0-1		12:00		1		X											
	BGSS-20 1-2		12:05		1					X								
	BGSS-21 0-1		12:10		1		X											
	BGSS-21 1-2		12:15		1					X								
	BGSS-22 0-1		12:20		1		X											
	BGSS-22 1-2		12:25		1					X								
	DUP A				1		X											

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

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

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

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

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
8.4	8.7						

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Bailey Miles	May 15, 2024	14:50

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	15 May 2024	2:58

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

MAY 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Appendix E

NSECC Notification of Contamination Form

Notification of Free Product or Contamination

This form is for all sites with contamination or free product requiring written notification.

NOVA SCOTIA

☑ New submission ☐ Updated form NSE file number (mandatory for updated form) **33000-** _____

Instructions for completing this form

- All relevant sections of this form are to be completed.
- Signatures on this form are required from the managing site professional or any other person providing the notice.
- All regulatory protocols must be followed, and all forms/checklists must be completed separately for each property. This means that a source property and an impacted third-party property must have all documents filed separately. Once the source property or impacted third-party property is identified by the check box below, all subsequent reference on this form/checklist are to that site owner.
- If cleanup is being completed following the 30-day verification exemption, this form will not be required.
- Forms/checklists must be complete before filing.

1 - Site Location and Contact Information

Details provided on this form are applicable to ☑ Source Property **or** ☐ Impacted Third Party Property

Site Location
Mandatory must be completed.

Site Address: Medway River Road, Charleston
City: Mill Village
Parcel Identification Number (PID): 70169214
Postal Code: B3J2T9
GPS (NAD83 UTM coordinates, source central point) Easting: 364376.00
Northing: 4891160.00
Zone (select one) ☐ 19 ☑ 20 ☐ 21
Description (optional): Former Mill Village Mine Site, accessed off Zwicker Road

Property Owner
Mandatory must be completed.

Name: Karen Gatien Deputy Minister, Dept of Natural Resources&Renewable
Phone: (902) 424-4450
Email: Karen.Gatien@novascotia.ca
Fax: (902) 564-6137
Recognized Agent (if applicable): Donnie Burke, Executive Director (donnie.burke@novascotia.ca)
Company Name (if applicable): Build Nova Scotia Inc
City: Sydney, NS
Mailing Address: 45 Wabana Court, P.O. Box 430, Station A
Postal Code: B1P 6H2
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Contact for Correspondence
If different than above.

Name: Peter Geddes, Executive Director
Phone: (902) 424-4988
Email: Peter.Geddes@novascotia.ca
Fax:
Recognized Agent (if applicable):
Company Name (if applicable): Dept of Natural Resources & Renewables
City: Halifax, NS
Mailing Address: 1701 Hollis Street, P.O. Box 698
Postal Code: B1P0B9
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Site Professional
Mandatory must be completed.

Name: Susan Barfoot
Phone: (902) 450-5015
Email: sbarfoot@dillon.ca
Fax: (902) 450-2008
Company Name: Dillon Consulting Limited
City: Halifax, NS
Mailing Address: 137 Chain Lake Drive
Postal Code: B3S1B3
Professional Registration Number: 20230791
Preferred method of correspondence (select one) ☐ Letter **or** ☑ Email

Notification of Free Product or Contamination

This form is for all sites with contamination or free product requiring written notification.

NOVA SCOTIA

Person Providing Notice If different than above.

Name _____ Phone _____

Email _____ Fax _____

Recognized Agent (if applicable) _____

Company Name (if applicable) _____ City _____

Mailing Address _____ Postal Code _____

Preferred method of correspondence (select one) ☐ Letter **or** ☐ Email

Are there any impacted third-party properties? ☐ Yes ☐ No

Impacted Third-Party Property Information

Applicable to Source Property Notifications only.

Site Location Mandatory must be completed.

Site Address _____ City _____

Parcel Identification Number (PID) _____ Postal Code _____

GPS (NAD83 UTM coordinates, source central point) Easting _____ Northing _____

Zone (select one) ☐ 19 ☐ 20 ☐ 21

Description (optional) _____

Source Property Information

Applicable to Third-Party Property Notifications

Site Location Mandatory must be completed.

Site Address _____ City _____

Parcel Identification Number (PID) _____ Postal Code _____

NSE Source File Number 33000- _____ ☐ Unknown Source Property

GPS (NAD83 UTM coordinates, source central point) Easting _____ Northing _____

Zone (select one) ☐ 19 ☐ 20 ☐ 21

Description (optional) _____

2 - Notification of Free Product in Soil or Groundwater

This section is not applicable if no Free Product has been identified as defined in PRO-100, Notification of Contamination Protocol.

Type of free product Check all applicable.	**Observed in Soil**	**Measured in Groundwater**
Gasoline	☐	☐
Fuel Oil (No. 2)	☐	☐
Lube Oil	☐	☐
Hydrocarbon mixture	☐	☐
Mineral oil	☐	☐
Glycols	☐	☐
DNAPL and Chlorinated Solvent	☐	☐
Other (describe)	☐	☐

3 - Type of Contamination in Soil, Sediment, Surface Water or Groundwater

Type of Contamination Check all applicable.	**Soil**	**Sediment**	**Surface Water**	**Groundwater**	**Volume of release** (not vol. of media impacted)
Inorganic Parameters (metals)	☑	☐	☐	☐	Unknown
Petroleum Hydrocarbon Parameters	☐	☐	☐	☐	
Polycyclic Aromatic Hydrocarbon (PAH) Parameters	☐	☐	☐	☐	
Volatile Organic Compound (VOC) Parameters	☐	☐	☐	☐	
Pesticides	☐	☐	☐	☐	
PCBs	☐	☐	☐	☐	
Dioxins and Furans	☐	☐	☐	☐	
Pentachlorophenol	☐	☐	☐	☐	
Organotins	☐	☐	☐	☐	
Glycols	☐	☐	☐	☐	
Phenol	☐	☐	☐	☐	
PFAS compounds	☐	☐	☐	☐	
Other (describe)	☐	☐	☐	☐	

Add Row Delete Row

4 - Site Characterization

Cause of Release: Other (discharge, historical, unknown)

Most Sensitive land use

☐ Agricultural ☑ Commercial
☐ Residential/Parkland ☐ Industrial

Groundwater potability of site (potable or non-potable according to Appendix 1, Figure 3 of Notification Protocol)

☑ Potable ☐ Non-potable

Check all that apply.

☐ Yes ☑ No Property is a Registered Public Drinking Water Supply
☐ Yes ☑ No Property is within Municipal drinking water source protection area
☐ Yes ☑ No Is contamination known or suspected to directly impact surface water or sediment?
☐ Yes ☑ No Is contamination known or suspected to directly impact a drinking water supply on or off the site?
☐ Yes ☑ No Are volatile contaminants known or suspected to affect indoor building spaces requiring immediate or short-term actions for the protection of health or safety on or off the site?
☑ Yes ☐ No Is contaminated soil at ground surface in an area where receptors could be exposed?
☐ Yes ☑ No Are immediate actions necessary to protect people or the environment from known contamination at the site?
- ☐ Yes ☑ No If yes, are maintenance of any exposure management controls required?
- ☐ Yes ☐ No If yes, conditions associated with the maintenance of any exposure management controls and monitoring have been documented, provided and explained to the applicable site owner, and are attached to this form.

5 - Signatures

Confirmation that notifications have been made in accordance with Section 8 and 9 of the Contaminated Sites Regulations.

☑ All known impacted property owners (source and third party)

Name (print) Susan Barfoot — Professional Registration Number/Stamp 20230791
Site Professional

Signature _____ Date 2024/08/09
Site Professional — YYYY/MM/DD

Name of Person Providing Notice (if different than above) (print) _____

Signature _____ Date _____
YYYY/MM/DD

Return completed form and associated documents to your local Nova Scotia Environment Office.
Find office locations online novascotia.ca/nse/dept/regional-office-locations.asp or call 1-877-936-8476

References

Environmental Site Assessment for Limited Remediation Protocol, Adopted by the Minister of Environment Pursuant to the Contaminated Sites Regulations, September 2021, Updated October 2022.

Nova Scotia Maximum Concentration Background Levels for the Highlands Soil Zone as presented in the Environment Canada's (EC) Background Soil Database (Version No. 1) (March 2011).

Stea, R.R., Conley, H., and Brown, Y. (compilers) 1992: Surficial Geology of the Province of Nova Scotia; Nova Scotia Department of Natural Resources, Map 92-3, Scale 1:500,000.

S.M. Barr, C.E. White (compilers) 2017: Bedrock Geology Map of the Grand Narrows Area, NTS 11F/15, Cape Breton, Inverness, Richmond and Victoria Counties, Nova Scotia; Nova Scotia Department of Natural Resources, Map ME 2017-014, Scale 1:50,000.

The Canadian Standard Association (CSA) Standard Z769-00 for Phase II ESAs CSA, (reaffirmed in 2018).