REPORT

Chapter 3.0 Marine Sediment Quality

2024 Milne Port Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species/Aquatic Invasive Species (NIS/AIS) Monitoring Program

Submitted to:

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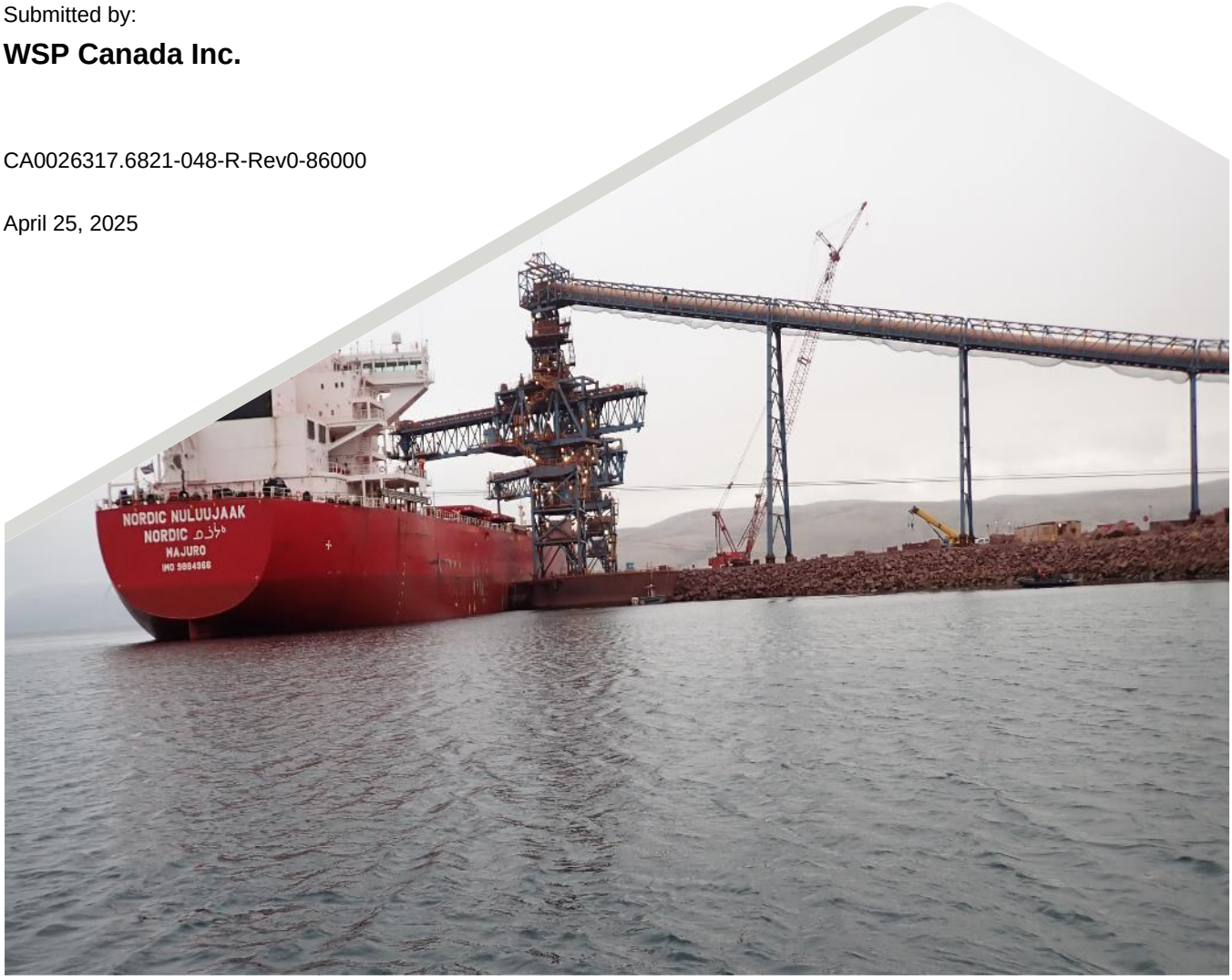

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ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definitions
AET	Apparent Effects Threshold
ALS	ALS Canada Ltd.
BC	British Columbia
BC MOE	BC Ministry of Environment and Climate Change Strategy
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CCME	Canadian Council of Ministers of the Environment
CD	Chart datum
COA	Certificate of Analysis
COPCs	Contaminants of potential concern
DL	Detection limit
DLQ	Detection Limit Qualifier
DQO	Data Quality Objective
e.g.	Exempli gratia
=	Equal
FCSAP	Federal Contaminated Sites Action Plan
FEIS	Final Environmental Impact Statement
>	Greater than
ISQG	Interim Sediment Quality Guideline
i.e.	In other words
<	Less than
m	Metre
mm	millimetre
m^2	Square metre
MDL	Method Detection Limit
MEEMP	Marine Environmental Effects Monitoring Program
mg/kg	Milligram per kilogram
MMP	Marine Monitoring Plan
Mtpa	Million tons per annum
NIRB	Nunavut Impact Review Board
NIS/AIS	Non-Indigenous Species and Aquatic Invasive Species

Acronym or Abbreviation	Definitions
No.	Number
NOAA	National Oceanic and Atmospheric Administration
PAH	Polycyclic aromatic hydrocarbon
PC	Project Certificate
PEL	Probable Effect Level
PHC	Petroleum Hydrocarbon
%	Percent
PSDL	Particle Size Detection Limit
QA/QC	Quality Assurance / Quality Control
QC	Quality Control
RPD	Relative Percent Difference
SEM	Sikumiut Environmental Management Ltd.
SNW	Northwest Transect
SOP	Sustainable Operations Proposal
SW	West Transect
TARP	Trigger Action Response Plan
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
WSP	WSP Canada Inc.
WSQG	Working Sediment Quality Guidelines

3.0 SEDIMENT QUALITY

3.1 Introduction

This chapter presents the results of the marine sediment quality monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted within the vicinity of Milne Port in Milne Inlet, during the 2024 open-water season. The 2024 MEEMP sediment sampling program was focused on the eight Capesize sampling stations established during the 2023 MEEMP to assess potential changes in marine sediment quality and benthic infaunal community indices associated with potential impacts of Baby Cape and Capesize ore carriers utilizing the Ore Dock. The 60-station joint radial transect benthic and sediment sampling program, with a monitoring frequency of every three years, was last conducted in 2023 and is scheduled for monitoring in 2026.

The Capesize sampling program was developed in consideration of the additional commitment for monitoring for potential effects of the increased use of larger ore carriers (i.e., Capesize and Baby Cape) in 2023 under Amendment 5 of Nunavut Impact Review Board (NIRB) Project Certificate (PC) 005. Conditions are described in Chapter 1.0, Table 1-2, and marine sediment monitoring is intended to address PC Conditions No. 76, 83(a), 84, 85, 87, and 99(a).

3.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 of Chapter 1.0 (Program Overview). The objectives specific to the 2024 sediment quality program are:

- Characterize and interpret marine sediment quality at eight stations established in Milne Port for the purpose of identifying Project-related effects due to the use of larger ore vessels (Baby Cape and Capesize) at Milne Port.
- Verify predictions made in the Final Environmental Impact Statement (FEIS; Baffinland 2012, 2013) and other submissions to NIRB regarding effects on sediment quality, as applicable.
- Recommend any necessary and appropriate changes to the sediment quality component of the MEEMP for future years.
- Involve Inuit in the marine sediment quality monitoring program and include protocols that are responsive to Inuit concerns.

3.2 Study Design

3.2.1 Background

In 2023, NIRB accepted the Sustaining Operations Proposal and issued Amendment 5 of Project Certificate 005. Under Amendment 5, Term and Condition 83(a) required Baffinland to update the marine sediment quality program to reflect the increased use of larger ore vessels at Milne Port. Baffinland committed that stations SW-1 through SW-4, SE18-1, SNW-1, and two new stations added in 2023 (SCV-1 and SCV-2) would be monitored for scouring effects on sediment and benthic infauna for three years after the initial use of large (Baby Cape and Capesize) ore carriers in fall 2023 (Commitment 10, SOP Technical Comment QIA ME-7(3); NIRB, 2023). Following this three-year period, Baffinland will consider a reduced frequency in sampling at these locations (once

every three years) if sediment and benthic conditions at these sites are shown to be stable and within the limits of impact predictions. As the initial Capesize ore carrier use in Milne Port was planned to take place in the late ice-free period of 2023, sampling for Capesize vessel effects monitoring commenced in August 2023 (4-19 August, 2023) with the intention of documenting existing conditions for sediment quality prior to the use of the larger ore carriers. The first Capesize vessel arrived at Milne Port on 29 August, 2023. In total, there were five Capesize (3 Newcastlemax and 2 Baby Cape) ore carrier arrivals to Milne Port during the 2023 shipping season. The MEEMP 2023 sediment samples taken to document existing conditions at the Capesize sampling stations were collected just prior to the arrival of the first Capesize vessel.

In 2024, sediment quality sampling was conducted at the eight Capesize sampling stations established in 2023 for the Capesize Vessel Existing Conditions Sampling Program (SW-1 through SW-4, SE18-1, SNW-1, SCV-1 and SCV-2). The MEEMP 2024 sediment samples were taken approximately one year after the arrival of the first Capesize vessel at Milne Port) and so the 2024 MEEMP represents Year 1 of the Capesize Vessel monitoring program.

The full radial transect joint sediment and benthic infauna sampling program was not conducted in 2024 based on the adjusted monitoring frequency of every three years, 2023 being the last year the full joint sediment and benthic program was implemented.

3.2.2 Sampling Parameters and Indicators

For marine sediment quality, parameters measured were pH, particle size, organic carbon, metals, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylene (BTEX), volatile organic compounds (VOCs), and petroleum hydrocarbons (PHCs). A subset of these parameters (i.e., percent fines, metals, and hydrocarbons) were identified as sediment quality indicators to assess the potential for environmental effects from the Project in the assessment and Baffinland's Trigger Action Response Plan (TARP; described below in Section 3.3.4). To provide early warning of environmental effects from the Project, applicable sediment quality guidelines were used as thresholds, where they exist (i.e., CCME sediment quality guidelines for the protection of aquatic life in marine environments [CCME 1999]). For indicators of particular concern for the Project, with no applicable sediment quality guideline (i.e., percent fines and iron), data were analyzed statistically to evaluate Project-related effects within the Milne Inlet study area. Overall patterns and trends in percent fines and iron are evaluated both spatially and temporally in the sediment assessment.

Along with several other components of the MEEMP, the marine sediment quality monitoring program has indicators, thresholds and risk categories that are part of the TARP, an adaptive management process. The TARP uses effect indicators that are measured against a series of tiered thresholds (i.e., low, moderate and high-risk thresholds) that are designed to guide short-term and long-term adaptive management strategies as outlined in Baffinland (2023). Baffinland has updated the TARP as part of the revised draft Marine Monitoring Plan (MMP) (Baffinland 2023). The pre-defined actions identified in the TARP describe the responses that Baffinland would implement should the corresponding threshold levels be exceeded and assuming there is some degree of certainty that the measured change is Project-related. As adaptive management is beyond the scope of the present report, only the indicators, risk categories and thresholds are presented here (Section 3.3.4).

3.3 Materials and Methods

3.3.1 Field Methodology

Sediments were sampled from eight stations in the “Capesize sampling” area along with co-located benthic infaunal samples (Section 4.0). The 8 sediment samples and one duplicate sample were collected from the stations listed in Table 3-1 (and shown on Figure 3-1) and submitted for analysis of the sediment quality parameter groups listed in Section 3.2.2.

Table 3-1: MEEMP Sediment Quality and Benthic Infauna Capesize Vessel Stations at Milne Port (2024)

Station Name	UTM Coordinates (Zone 17W)		Approximate Lateral Distance from Centre of Ore Dock (m)	Water Depth (-m below Chart Datum (m)[1]
	Easting	Northing		
Capesize Vessel Stations				
SCV-1	503120	7976660	148.1	34.2
SCV-2	503087	7976586	181.7	26.0
SE18-1	503433	7976699	183.8	15.7
SW-1	503162	7976554	125.2	9.6
SW-2	503052	7976533	231.8	16.9
SW-3	502970	7976468	334.1	14.5
SW-4	502867	7976434	441.3	15.6
SNW-1	503301	7976745	124.2	32.6

Notes:

m = metres; UTM = Universal Transverse Mercator.

[1]Sample depth was converted to meters chart datum (CD), estimated using tide table for Milne Inlet, Nunavut (https://tides.gc.ca/en/stations/05791 [accessed March 2025]). The negative (-) numbers indicate ‘below’ CD.

LEGEND

BATHYMETRIC CONTOUR (5 m INTERVAL)

BATHYMETRIC CONTOUR (25 m INTERVAL)

SEDIMENT AND BENTHIC INFAUNA STATIONS

CAPESIZE STATION

0 250 500

1:12,500 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20240718 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.

PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT

BAFFINLAND IRON MINES CORPORATION

PROJECT

MARY RIVER PROJECT

TITLE

CAPESIZE VESSEL SEDIMENT QUALITY AND BENTHIC INFAUNA SAMPLING STATIONS 2024

CONSULTANT

wsp

YYYY-MM-DD	2025-04-23
DESIGNED	TT
PREPARED	AA
REVIEWED	TT
APPROVED	TT

PROJECT NO.	CONTROL	REV.	FIGURE
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25mm

Sediment samples were collected using a standard Van Veen grab sampler (area of 0.1 m^2). Each grab sample was examined for acceptability based on the following criteria:

- The sampler was fully closed.
- There was adequate penetration depth (i.e., sediment volume greater than 25% full).
- The sample did not appear overfilled or disturbed, and the sample did not appear to have been collected at an angle.
- The sampler did not appear to be leaking sediment at a substantial rate (i.e., the top of the sediment profile did not appear to be sloping inwards).

Upon acceptance, the overlying water in the grab was removed using a siphon tube or turkey baster, taking care to minimize the loss of sediment from the surface of the grab contents. After decanting, the sample consisted of sediment with minimal overlying water visible. For each sample collected, two terra core samples were taken from the undisturbed sediments and placed into pre-labeled methanol preserved vials for VOCs and/or BTEX. A description of the sediment with respect to colour, particle size, depth of sediment horizon sampled, grab penetration depth and presence of non-sediment materials (e.g., shells, debris, biota) was recorded on the sediment collection log. Prior to the sample collection, a stainless-steel spoon and bowl were cleaned with laboratory-grade detergent and rinsed with de-ionized (analyte-free) water. The remaining top 5 centimetres (cm) of sediment from the grab sample was removed from the center of the grab using a stainless-steel spoon and transferred to a stainless-steel bowl. The sediment was then homogenized, and aliquots transferred to clean, laboratory supplied sampling containers.

Physical and chemical parameters were analyzed in sediment samples collected from a total of eight Capesize sampling stations near the Ore Dock in Milne Inlet, and one field duplicate quality control (QC) sample collected from one randomly selected station (approximately 12% of the total number of stations). Photographs were taken of each grab sample and each homogenized composite sample (Appendix 3A).

Sediment samples were sent to ALS Canada Ltd. (ALS) for analysis of the following parameters:

- Particle size distribution (Wentworth scale [Wentworth 1922]), moisture, and pH
- Organic and inorganic carbon
- VOCs and/or BTEX
- PHCs F1-F4 and PAHs
- Metals (including mercury)

3.3.2 Data Analysis

The physical composition of sediments from Capesize sampling stations was characterized and sediment quality parameters were screened against applicable sediment quality guidelines. Iron is of primary importance because of the potential for increased deposition of iron ore in the form of dust or in runoff from storage stockpiles generated from the Project. Given that the iron ore consists primarily of iron (>65%; FEIS; Baffinland 2012, 2013), monitoring for changes in the concentration of this element in marine sediments is an important indicator for the MEEMP sediment quality component. However, there is no iron marine sediment quality guideline in Canada.

To address the objectives outlined in Section 3.1.1 and according to the rationale below, further statistical evaluation of marine sediment quality focused on the spatial and temporal patterns in the distribution of fine sediments and iron concentrations at the eight Capesize sampling stations.

- The proportion of fine sediments was evaluated statistically because metals tend to accumulate to a greater degree in finer sediments as a result of both physical and chemical factors (e.g., increased surface area to volume ratio).
- Sediment iron concentrations were evaluated statistically because iron has been raised as a concern of local Inuit due to the potential for increased disposition of iron ore in the form of dust or in runoff from storage stockpiles because of the Project.

3.3.2.1 Comparison to Sediment Quality Guidelines

Analytical results were compiled, and concentrations of metals and hydrocarbons were compared to CCME ISQGs and Probable Effect Level (PELs) for the protection of aquatic life in the marine environment (CCME 1999), applicable within the Project jurisdiction. The CCME ISQGs are intended to represent concentrations below which adverse biological effects are rarely expected to occur. By comparison, the CCME PELs are intended to represent concentrations above which adverse effects are predicted to occur frequently, based on a concurrence data set with sediment chemical concentration and benthic invertebrate effects data from other sites. Notably, the Federal Contaminated Sites Action Plan (FCSAP) guidance for working harbours (FCSAP 2021) recommends use of PELs over ISQGs for screening primary contaminants of potential concern (COPCs), as screening with ISQGs is considered overly conservative and does not always correlate well with observed effects under field conditions (FCSAP 2021).

To provide a screening value to inform the sediment evaluation, in the absence of a CCME guideline, metals and hydrocarbons were compared to British Columbia (BC) Working Sediment Quality Guidelines (WSQG) (British Columbia Ministry of the Environment and Climate Change Strategy [BC MOE] 2021), and the National Oceanic and Atmospheric Administration (NOAA) sediment benchmarks (Buchman 2008).

3.3.2.2 Statistical Models of Fines and Iron Content at Capesize Sampling Stations

The change in percent fines between 2023 and 2024 was assessed using a mixed beta regression, accounting for the sampling station. The fixed variable was the categorical effect of year, and station was the random intercept. The change in iron content was assessed using a mixed-effects model, where the fixed variables were the effects of year (categorical) and effect of fines. Station was the random intercept. That is, the analysis accounted for the percent fines values at each station, as well as for the different processes between fines and iron observed at stations with and without Capesize Vessel scour. Statistical analyses were performed in the statistical environment R v.4.4.2 (R 2024).

3.3.3 Quality Management

Of primary importance to the sediment sampling program was the collection of reliable data, which was achieved through the consistent application of Quality Assurance / Quality Control (QA/QC) measures. These quality management procedures were applied to the field collection, data analysis, and reporting tasks for the sampling in 2024 to verify that the data presented are valid and of acceptable quality to meet the objectives outlined in Section 3.1.1.

3.3.3.1 Field QA/QC

Field staff were trained to be proficient in standardized sampling procedures, data recording using standard forms, and equipment operations applicable to the monitoring program. Field work was completed according to specified instructions and established technical procedures for standard sample collection, preservation, handling, storage, and shipping procedures.

General QA/QC tasks applicable to the sediment quality program included, but were not limited to, the following:

- Preparing geo-referenced field maps for use during the surveys to accurately document sampling locations and project-specific data collection forms to standardize the field data collection process.
- Maintaining regular communications between the Project Manager and field staff.
- Collecting and processing samples by qualified experienced personnel.
- Placing samples in appropriate clean containers in such a way that no foreign material was introduced to the sample and handled carefully so there would be no loss of material.
- Collecting QC (duplicate) samples in the field. Specifically, one field duplicate was collected to represent at least 10% of the total number of collected samples.
- Rinsing and filtering equipment including the Van Veen grab sampler, stainless steel bowls and spoons with seawater between stations. Visual inspection confirmed that materials were not retained on equipment before use on the next station.
- Checking and validating field survey data sheets before leaving the station.
- Selecting accredited laboratories for sample analysis. Performance quality of selected laboratories was verified through WSP's internal vendor approval and assessment procedures.
- Using chain-of-custody documentation to track sample shipments to the individual subcontractor laboratories.
- Packaging and shipping samples to the laboratory in accordance with required holding times and storage conditions.

3.3.3.2 Laboratory and Data Analysis QA/QC

Laboratory QA/QC reports were reviewed upon receipt to confirm adherence to sample hold times and laboratory data quality objectives (DQOs), and that the appropriate QA/QC information had been reported. Laboratory QA/QC included verification of recommended sample holding times and the analysis of laboratory control samples, laboratory duplicates, and spiked samples to assess precision and accuracy of analytical methods.

Field duplicates were sampled from one randomly selected sample (approximately 12% of total number of samples collected). The field duplicate was sampled as a 'split sample' from the same discrete homogenized grab sample as the 'original' sample and identified as Duplicate A (blind sample). To assess variability between field duplicates, the Relative Percent Difference (RPD) was calculated as follows:

$$RPD = \left(\frac{sample - duplicate}{(sample + duplicate)/2}\right) \times 100$$

In accordance with the BC Field Sampling Manual (BC ENV 2023) and CCME (2016), an RPD value of >50% was used to identify notable differences between original and duplicate samples. Values less than five times the Method Detection Limit (MDL) were not included in the RPD calculations because analytical variability near the MDL is higher and does not provide a reliable measure of variability associated with the collection of field samples.

3.3.4 TARP Assessment

As part of applying the Trigger Action Response Plan (TARP) sediment quality performance indicators were screened against condition status/thresholds in 2024, in order to assess risk levels for each performance indicator (Table 3-2).

Table 3-2: Marine Environment TARP Framework for Sediment Quality[1]

Component	Performance Indicators	Condition Status/Threshold		
		Low Risk	Moderate Risk	High Risk
Sediment Quality	• Particle Size • Nutrients • Metals • Hydrocarbons	Measured concentrations of a parameter at one or more stations are > the CCME[2] ISQG or another relevant lower bound guideline, and are higher than background concentrations. AND Spatial and temporal sediment trend analysis suggest a pattern indicative of Port-related effects beyond FEIS[3] predictions.	Measured concentrations of a parameter at one or more stations are > the CCME PEL or another relevant upper bound guideline[1]. AND Spatial and temporal sediment trend analysis suggest a pattern indicative of Port-related effects beyond FEIS[3] predictions. AND Sediment toxicity testing as a special study indicates a Port-related effect.	To be determined based on outcome of moderate response investigations.

[1] TARP criteria were applied for the Capesize Vessel Sampling Program however there is a 2-year limitation in the data available for analysis (2023 [existing conditions] vs 2024 [Year 1]).
[2] Canadian Council of Minsters of the Environment (CCME 1999) sediment quality guidelines for the protection of marine aquatic life. ISQG = Interim Sediment Quality Guideline; PEL = Probable Effect Level.
[3] Predictions made in the Final Environmental Impact Statement (FEIS; Baffinland 2012, 2013) and other submissions to the Nunavut Impact Review Board (NIRB) regarding effects on sediment quality, as applicable.

3.4 Results

Sediment quality samples were collected from eight stations located in close proximity to the Ore Dock at Milne Port to monitor potential impacts from the use of the larger Capesize vessels within the study area (Figure 3-1). Sampling of Capesize vessel stations occurred between 10 and 18 August 2024. Nine Capesize vessels (including Baby Cape) utilized the Ore Dock during the 2024 open water shipping season, with the first vessel arriving in the area on 01 August 2024 and the last vessel arriving on 24 September 2024. Three of the nine Capesize carriers arrived in Milne Port during the 2024 sediment sampling program and the remaining 5 vessels arrived once the program had been completed. Five Capesize vessels (including Baby Cape) had arrived in Milne Port during 2023 after completion of the 2023 baseline sampling.

Representative photographs and field data sheets from the field program are provided in Appendix 3A and Appendix 3B, respectively. Analytical laboratory reports are provided in Appendix 3C, and the compiled dataset for Capesize sampling stations screened to applicable sediment quality guidelines are provided in Appendix 3D, and the QA/QC results are provided in Appendix 3E.

3.4.1 Sediment Particle Size Composition

3.4.1.1 Capesize Sampling Stations (2023, 2024)

The physical composition of sediments differed among stations in 2024. Sediments from the Capesize sampling stations were comprised primarily of sand (86% to 94%) at stations SE18-1, SCV-2, SW-1, SW-2, and SW-3 (Figure 3-2) while stations SCV-1, SNW-1, and SW-4 were dominated by a mixture of sand and silt (i.e., silt fractions range from 27% at SW-4 to 38% at SCV-1).

Comparing the results of Capesize vessel sampling programs conducted in 2023 and 2024 (Figure 3-2), sediment substrate composition showed a noticeable difference between years from 2023 to 2024 at five of the eight stations.

- SE18-1: increase in sand (86% to 92%) combined with a decrease in the proportion of gravel (8% to 1.5%).
- SNW-1: increase in sand (46% to 65%) combined with a decrease in fines (47% to 27%).
- SW-1: decrease in sand (94% to 79%) and a smaller decrease in fines (3.7% to 2.2%) and an increase in gravel (from 3% to 20%).
- SW-2: increase in sand (86% to 96%) combined with smaller decreases in fines (5.8% to 3.5%) and gravel (7% to 1%).
- SW-4: decreases in fines (32% to 15%) and sand (66% to 55%) combined with an increase in gravel (2% to 30%).

The two new stations established in 2023 specifically for Capesize vessel impact monitoring (SCV-1 and SCV-2) appeared to be stable between the two years of monitoring in terms of substrate composition.

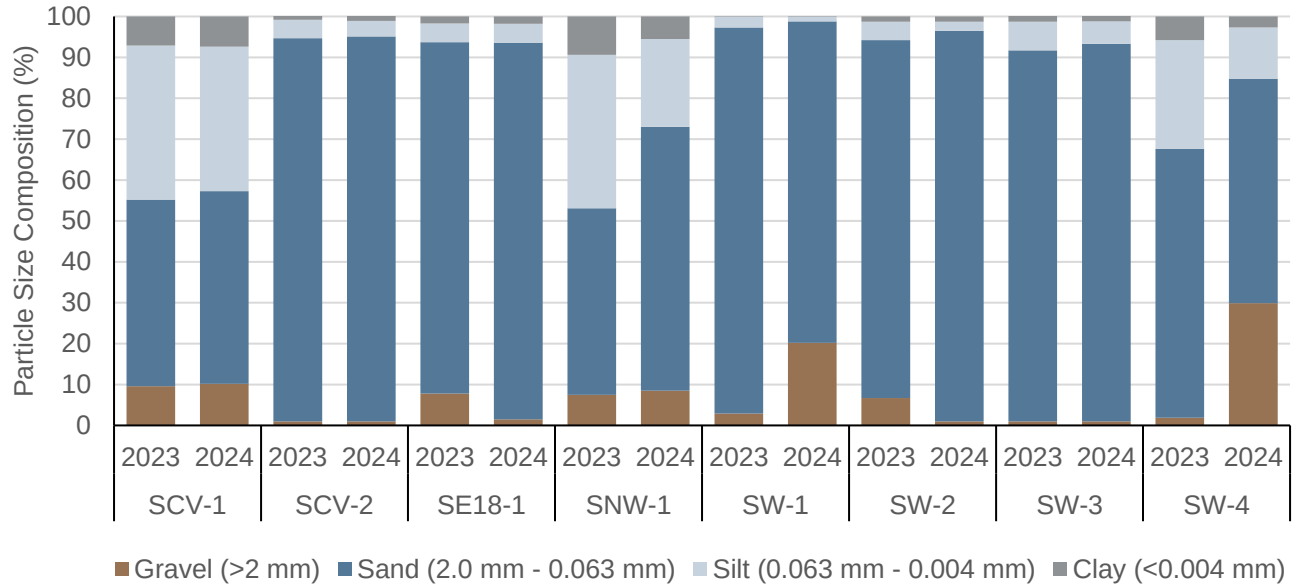


Figure 3-2: Sediment Particle Size Distribution for Capesize Vessel Stations, 2024.

3.4.1.2 Capesize Sampling Stations on the West Transect (2019 to 2024)

In 2022, the joint sediment and benthic program focused on targeted sampling at four stations along the West Transect (SW-1 to SW-4) due to the apparent anomalous results for sediment substrate and benthic infaunal indicators documented in 2020 at SW-2, relative to other stations along the West Transect. Results from the targeted sampling programs, at the time, indicated that the proportion of fines at SW-2 and other West Transect stations was varying, with a low proportion of fines over time and was expected to remain variable due to influence from propeller wash in combination with natural coastal processes. In 2023 and 2024, stations SW-1 (closest to the Ore Dock) to SW-4 (furthest from the Ore Dock) were sampled as part of the Capesize benthic and sediment monitoring program.

Particle size results for these four stations from 2019 to 2024 are presented in Figure 3-3 showing that while the sediments of stations along this transect are mostly comprised of sand to various extents since the data series commenced in 2019, percent fines have generally decreased over time at Stations SW-1, SW-2, and SW-3. Fines composition has been more stable annually at Station SW-4 except in 2024 when a decrease in fines was also observed at this station. The proportions of both sand and gravel have been variable over time but a general increase in these coarser sediments has been evident over time at these stations.

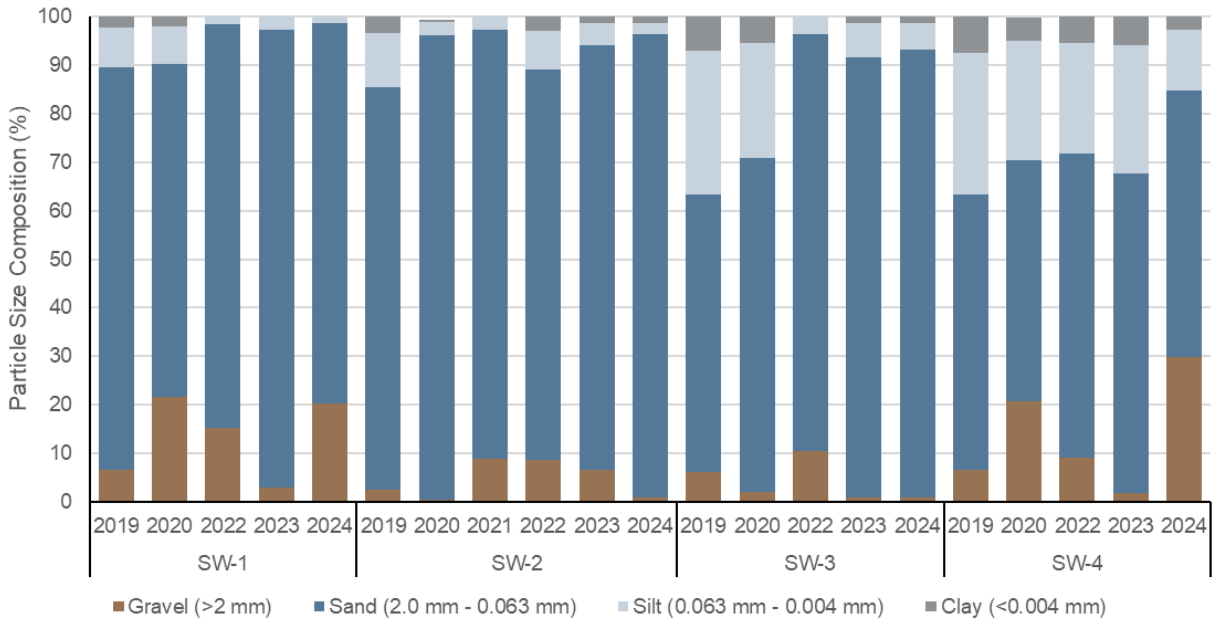


Figure 3-3: Sediment Particle Size Distribution for Stations SW-1 (closest to the Ore Dock) through SW-4 (furthest from the Ore Dock) Located along the West Transect, Milne Port 2019-2024.

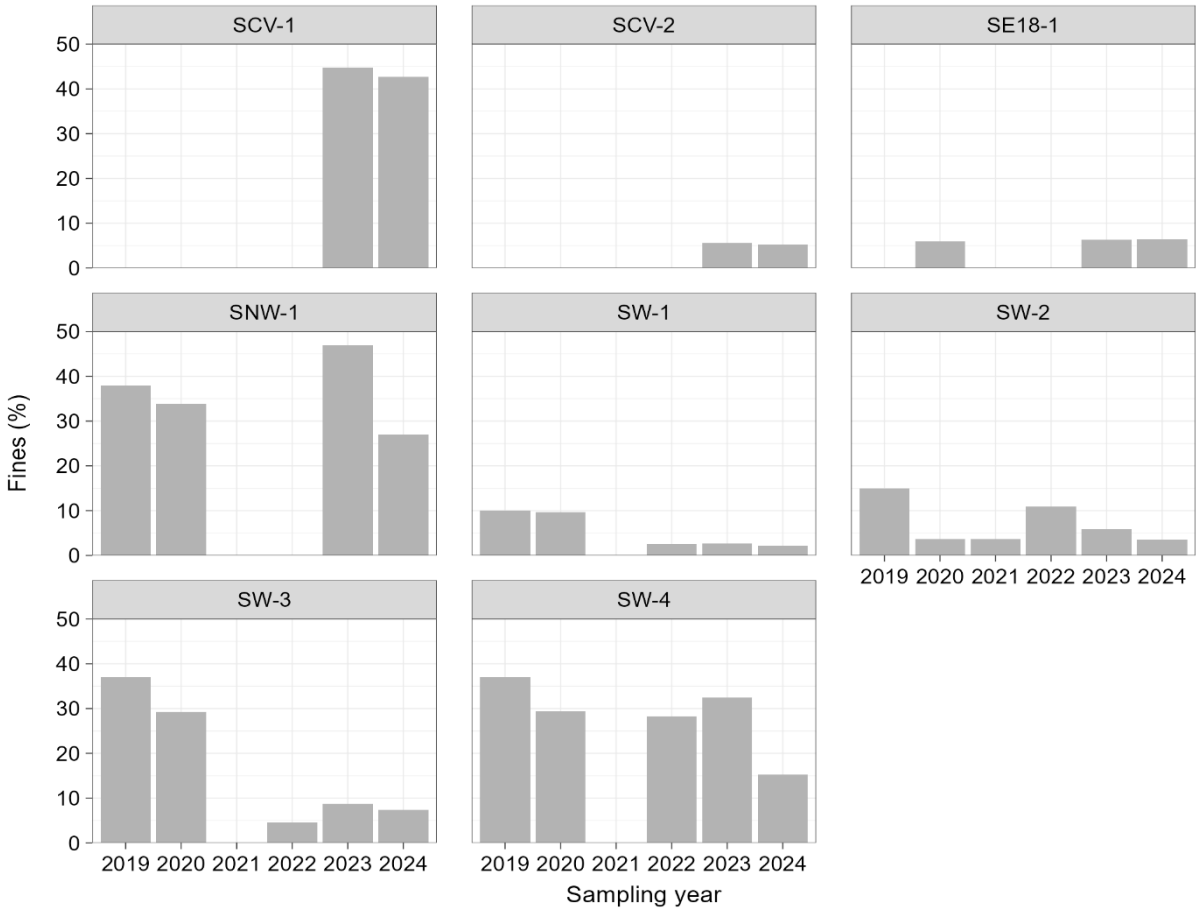
3.4.2 Comparison to Sediment Quality Guidelines

3.4.2.1 Sediment Metals and Organic Parameters

Sediment metal concentrations at the Capesize stations sampled in 2024 were lower than applicable sediment quality guidelines. Detection limits for the metal, tin were above the TEL NOAA sediment benchmark but below the AET sediment benchmark. Similar to the Capesize station sampling program included in the 2023 MEEMP, organic parameters (sediment BTEX, petroleum hydrocarbons, PAHs) were below applicable sediment quality guidelines, however, detection limits were above NOAA AET benchmarks (Appendix 3D).

3.4.3 Spatio-temporal Distribution of Fines at Capesize Sampling Stations

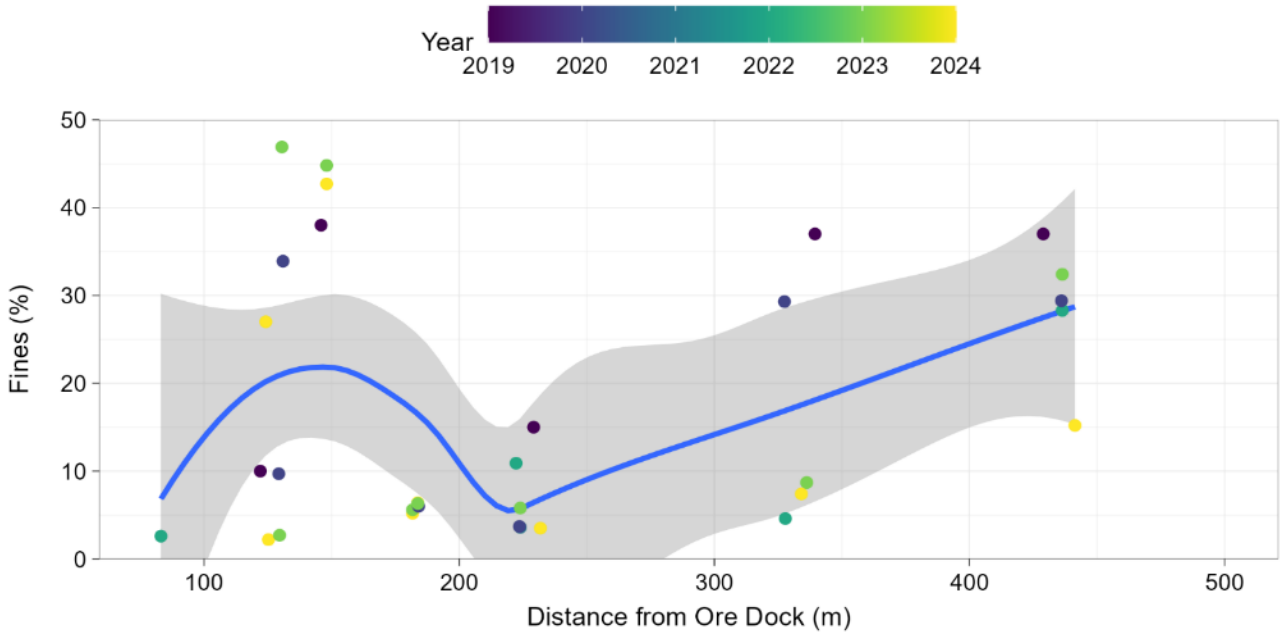
The temporal distribution of percent fines differed between stations (Figure 3-4). For some stations, percent fines had already decreased to <10% by 2023, before exposure to Capesize vessels in 2024 (Year 1). For others there appeared to be a reduction in percent fines between 2023 and 2024. At the three stations where there was a more limited time series (from 2020 or 2023 onwards instead of 2019), percent fines remained stable throughout the available time series, but for two of these stations percent fines was <10% throughout. Of the eight stations, SNW-1 and SW-4 showed the largest declines in percent fines between 2023 and 2024.



Note: Where there is no bar showing for a particular year, there was no sediment sample taken at that station during that MEEMP sampling year or the station had not been established in the monitoring program yet.

Figure 3-4: Observed Values of Percent Fines in Sediment at Capesize Sampling Stations, 2019–2024.

The spatial distribution of percent fines among the Capesize stations had large variation in percent fines at proximity to the Ore Dock (120–150 m from the Ore Dock), followed by a strong reduction in values at 175–225 m, and a gradual increase in fines with increasing distance (Figure 3-5). The high variability in fines in close proximity to the Ore Dock is the result of the observed lower fines at SCV-2, SE18-1, and SW-1, and higher fines observed at SCV-1 and SNW-1 (Figure 3-4). The gradual increase in fines away from the Ore Dock along the West transect was shallower in 2024 compared to 2023 due to the observed decrease in fines at SW4 more than 400 m from the Ore Dock.



Note: Trend line was added for visualization purposes only and does not represent statistical findings. Grey ribbon is 95% confidence interval.

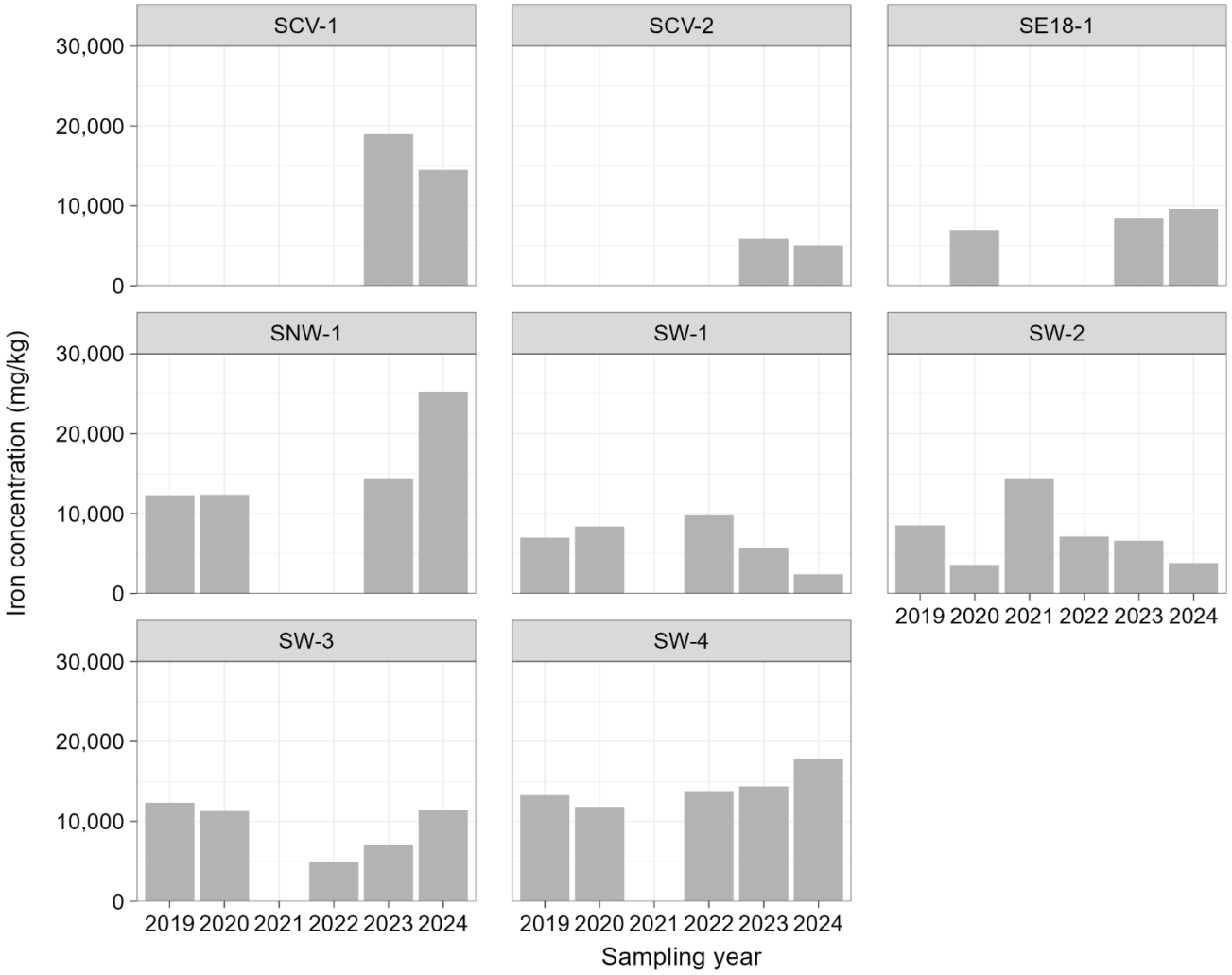
Figure 3-5: Observed Values of Percent Fines in Sediment in Capesize Sampling Stations, 2019–2024, Relative to Distance from Ore Dock and Sampling Year.

The change in percent fines between 2023 and 2024 was statistically significant (*P*=0.001), with an effect size of -37%; that is, overall for the Capesize stations fines were 37% lower in Year 1 (2024) when compared to existing conditions in 2023 prior to the use of Capesize vessels (on the odds scale as explained in Appendix 3F). The statistical power to detect the observed difference between 2023 and 2024 values was high (power = 0.93).

To assess the biological relevance of the overall significant decrease in fines between 2023 and 2024, this statistical result should be interpreted along with the percent fines time series data for the Capesize stations presented in Figure 3-4. Taken together, these results show that although most stations show some level of decrease in fines from 2023 to 2024 as reflected in the statistical result, for some stations the actual decrease is minimal and reflects a continuation of low fines content at that station since before 2024 (i.e., under existing conditions for this 2024 MEEMP assessment focussed on the introduction of the Capesize vessels). In contrast for Station SNW-1 (offshore from the ore dock at 33 m water depth) and Station SW-4 (furthest from the Ore Dock along the Western shoreline in 16 m depth and ~600 m east of Phillips Creek) the drop in fines was only evident in 2024 and was >10%, and so was more meaningful in terms of assessment of effects on sediment quality and the benthic infaunal community due to the use of the Capesize vessels in 2024.

3.4.4 Spatio-temporal Distribution of Iron Concentrations at Capesize Sampling Stations

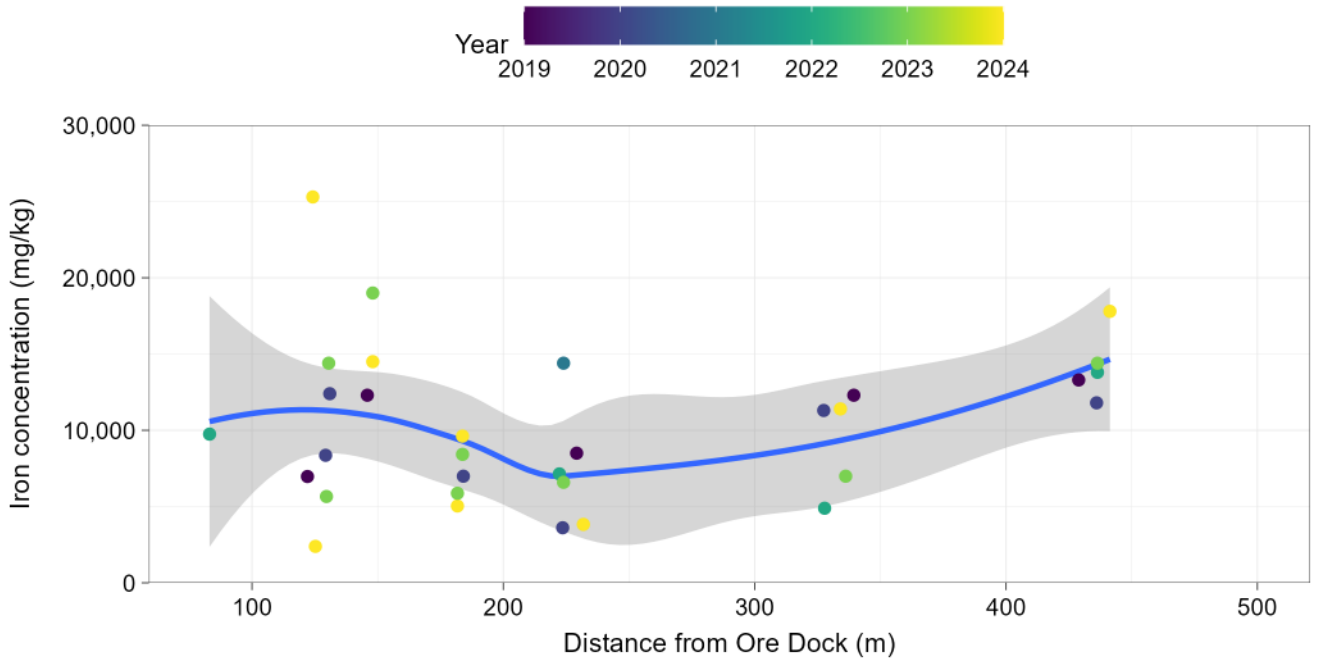
The temporal distribution of iron concentrations differed between stations (Figure 3-6). At most stations (SW-1, SW-2, SW-3), iron concentrations were variable, fluctuating to various extents between 2019 and 2024. At stations SNW-1, SW-4, and SE18-1 (to the north, west and east of the Ore Dock, respectively), iron concentrations generally increased between 2019 and 2024. At the remaining stations, iron concentrations decreased over time, likely following the recorded reduction in percent fines. Between 2023 and 2024, Figure 3-4 shows an increase in iron content to varying magnitudes at stations SNW-1, SE18-1, SW-3, and SW-4.



Note: Where there is no bar showing for a particular year, there was no sediment sample taken at that station during that MEEMP sampling year or the station had not been established in the monitoring program yet.

Figure 3-6: Observed Values of Iron Concentration in Sediment in Capesize Sampling Stations, 2019–2024.

Iron concentrations among the Capesize stations had higher variability at stations in close proximity to the Ore Dock (120–150 m from the Ore Dock), followed by a reduction in values at 175–225 m, and a gradual increase in iron with increasing distance from the Ore Dock (Figure 3-7). This trend generally reflects the spatial trend in percent fines (Figure 3-5), where high variability in fines was recorded in close proximity to the Ore Dock.

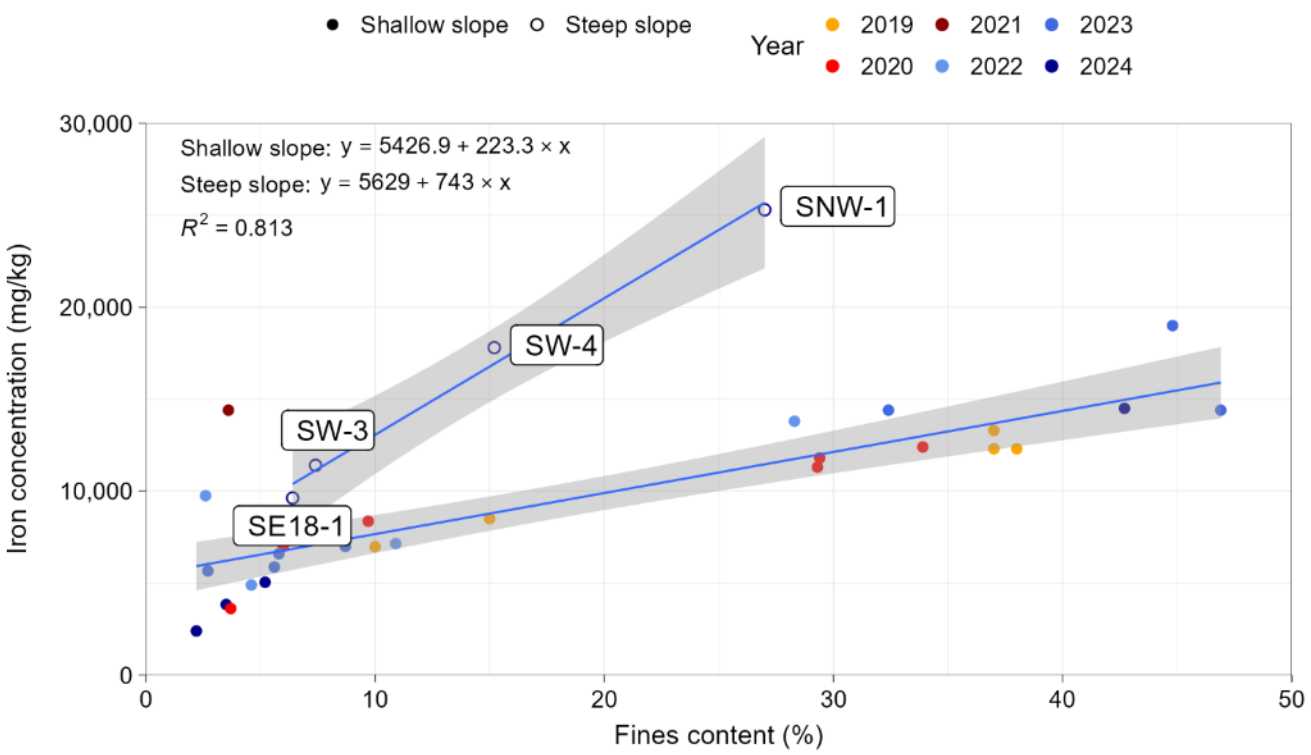


Note: Trend line was added for visualization purposes only and does not represent statistical findings. Grey ribbon is 95% confidence interval.

Figure 3-7: Observed Values of Iron Concentrations in Sediment in Capesize Sampling Stations, 2019–2024, Relative to Distance from Ore Dock and Sampling Year.

The relationship between iron concentration and fines content indicated two different processes (Figure 3-8) which were accounted for in the analysis of iron concentrations. For the majority of data (2019–2023 and some 2024 values), there was a linear relationship with a relatively shallow slope (value of 223.3 – i.e., an increase of 223.3 mg/kg in iron concentration per 1% increase in fines). However, four values sampled in 2024 in stations SNW-1, SW-3, SW-4, and SE18-1 fell along a much steeper line, with a slope of 743 (i.e., an increase of 743 mg/kg in iron concentration per 1% increase in fines). As shown in Figure 3-6, these were the four stations where a visual increase in iron was observed. At these and other stations, percent fines were either already low in 2023 or decreased in 2024 relative to 2023.

The change in iron concentration between 2023 and 2024 (accounting for percent fines) was statistically significant (P<0.001), with an effect size of -16%, which indicated there was an overall statistically significant decrease in iron concentration at the Capsize vessel stations between Year 1 (2024) and existing conditions in 2023 prior to the use of Capesize vessels. As also discussed in Section 3.4.3 for fines content, the visual change between 2023 and 2024 at individual stations for iron content varied, with some stations showing an increase, some stations staying approximately the same, and some showing a visual decrease (Figure 3-6).The statistical power to detect the observed difference between 2023 and 2024 values was close to sufficient (power = 0.76).



Note: Grey ribbon is 95% confidence interval.

Figure 3-8: Relationship Between Iron Concentration and Fines Content in Sediment, 2019–2024.

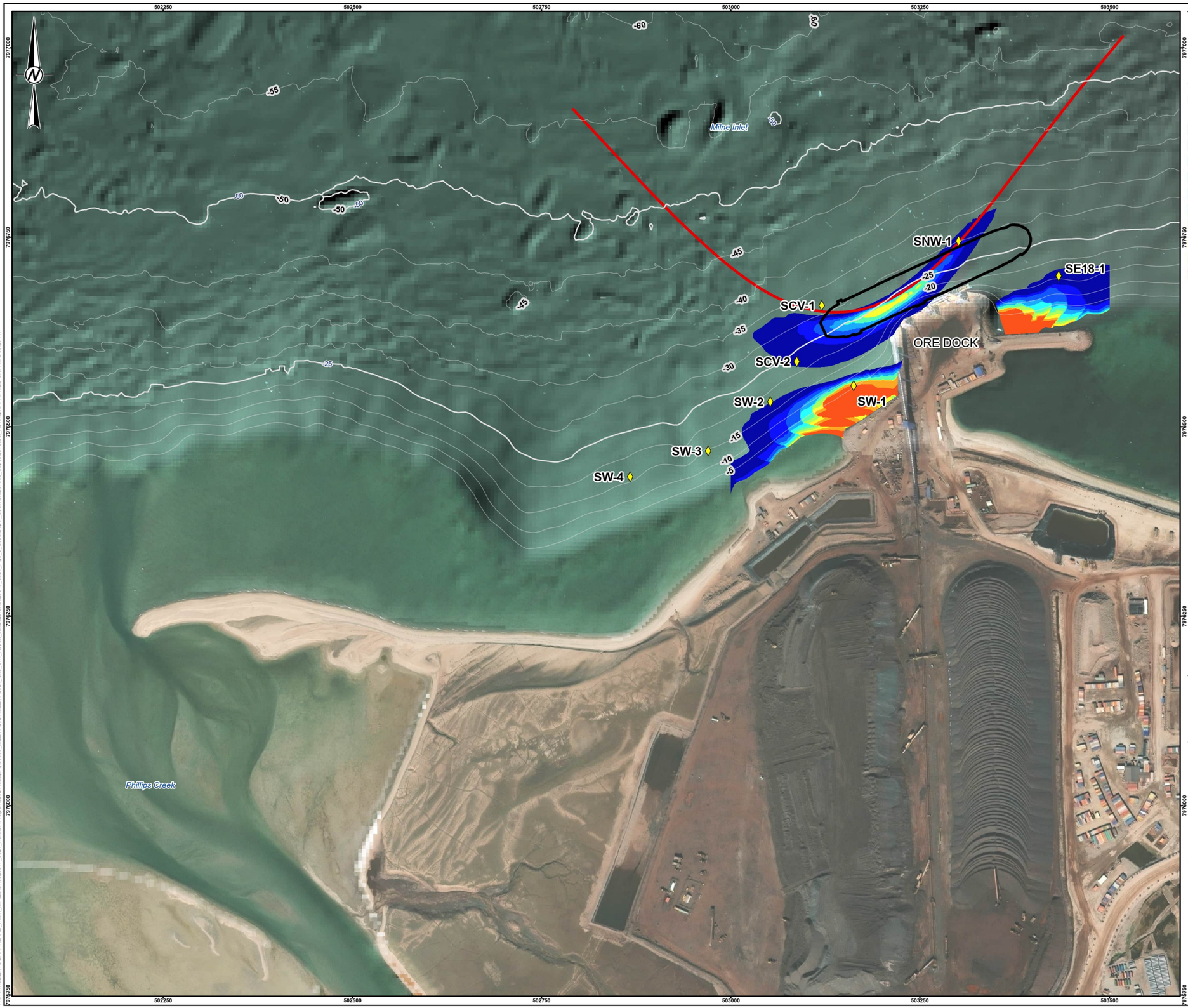
3.4.5 Comparison of the 2024 MEEMP Results to Capesize Vessel Scour Predictions

As outlined in Section 3.2.1, in 2023, the NIRB approved the continued transportation and shipping of 6 million tonnes per annum (Mtpa) of iron ore via the Tote Road and Northern Shipping Route from Milne Port during the ice-free period between 1 July and 31 October. As part of the approval, it was understood that vessel traffic would remain the same as that experienced since 2018 (maximum of 84 ore carriers), and that the introduction of larger vessels (Capesize) would further offset overall ship traffic requirements. To assess potential effects of the Sustaining Operations Proposal (SOP) on the marine environment, WSP conducted a Ship Wake and Propeller Wash Assessment to address possible project effects on the marine physical environment related to shipping activities associated with increased large vessel traffic (WSP 2023).

To develop a baseline condition for sediment quality within the vicinity of the Ore Dock area, eight sampling stations were established in 2023 to monitor Capesize vessel effects over time. Figure 3-9 shows the location of the eight Capesize vessel sediment sampling stations in relation to scour depths for Capesize vessel operations predicted by the Ship Wake and Propeller Wash Assessment for the Capesize vessels (WSP 2023) based on the assumed vessel track path. WSP (2023) estimated that propeller-generated wash velocities of all vessels, including the Supramax to Capesize, have the potential to cause scour and turbidity in the berthing area.

WSP (2023) predicted some scour to occur over most of the berthing area for Capesize vessels, with depth of scour ranging from 5 cm over the broader berthing area to 50 cm in a more localized area adjacent to the Ore dock. In 2023, Baffinland committed that stations SW-1 through SW-4, SE18-1, SNW-1, and two new sites (SCV-1 and SCV-2) would be monitored for scouring effects on sediment and benthic infauna for three years after the initial use of large (Baby Cape and Capesize) ore carriers in fall 2023. Following this three-year period, Baffinland would consider a reduced frequency in sampling at these locations (once every three years) if sediment and benthic conditions at these sites are shown to be stable and within the limits of impact predictions. Consistent with the MEEMP and 2023 sampling at Capesize stations, sediment substrates were sampled and characterized down to a depth of 5 cm in 2024.

By 2023 which represented existing conditions for this assessment, some of the stations had already experienced scouring prior to the introduction of the Capesize vessels either through a combination of the existing influence of scouring due to propeller wash from the smaller carriers, natural coastal processes and variations in morphology. Exceptions were SW4 which was the station furthest away from the Ore Dock (of the eight Capesize stations), and two stations (SCV-1 and SNW-1) offshore from the Ore Dock in deeper waters (30 to 35 m water depth). Based on the vessel track assumed for the modelling study, WSP (2023) predicted a scouring impact at five of the eight Capesize sampling stations and the 2024 assessment found that fines either continued to be low or were reduced in 2024 at all five stations. For the stations not predicted to be impacted by scouring by WSP (2023), SCV-1 offshore from the Ore Dock in deeper water did not appear to show signs of scouring in 2024; whereas, nearshore stations in shallower water out along the Western Transect towards Phillips Creek either remained low in fines (SW-3) or showed a decrease in fines in 2024 relative to 2023.



LEGEND

- CAPESIZE STATION
- BATHYMETRIC CONTOUR (5 m INTERVAL)
- BATHYMETRIC CONTOUR (25 m INTERVAL)
- VESSEL TRACK
- CAPESIZE VESSEL APPROXIMATE FOOTPRINT

SCOUR DEPTH (m)

- 0 - ≤0.05
- >0.05 - ≤0.10
- >0.10 - ≤0.15
- >0.15 - ≤0.20
- >0.20 - ≤0.25
- >0.25 - ≤0.30
- >0.30 - ≤0.35
- >0.035 - ≤0.40
- >0.40 - ≤0.45
- >0.045 - ≤0.50

0 100 200

1:5,000 METRES

REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20240718 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT
BAFFINLAND IRON MINES CORPORATION

PROJECT
MARY RIVER PROJECT

TITLE
SEDIMENT QUALITY SAMPLING STATIONS AND ESTIMATED SCOUR DEPTH FOR A CAPESIZE ORE CARRIER TRANSIT ON A REFERENCE SHIP TRACK IN THE BERTH AREA INCLUDING TUG EFFECTS

CONSULTANT

YYYY-MM-DD	2025-04-23
DESIGNED	TT
PREPARED	AA
REVIEWED	TT
APPROVED	TT

PROJECT NO.	CONTROL	REV.	FIGURE
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3.4.6 QA/QC Results

The 2024 sediment quality data were considered valid based on the results of the QA/QC assessment provided in Appendix 3E. Briefly,

- The Relative Percent Difference (RPD) was below the Data Quality Objective (DQO) of 50% in the parent/duplicate pair collected during the 2024 program. The QA/QC results suggest there was low variability and high precision between duplicates consistent with sediment quality (Table 1, Appendix 3E).
- Chemical analyses on all sediment samples were completed within the sample hold time requirements[1] (Table 2, Appendix 3E).
- Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment. Two data qualifiers were noted on the Certificate of Analysis (COA):
  - Detection Limit Qualifier (DLQ) – Detection limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptable criteria for Dichloroethylene, 1,1; however, all results were below the detection limit.
  - Particle Size Duplicate Limit (PSDL) – Particle size duplicate results exceed ALS RPD DQO but are within 5% absolute difference and are considered reliable.

Overall, the QA/QC results indicate that the sediment quality data collected during the 2024 sampling program are of acceptable quality to address the objectives stated in Section 3.1.1.

3.4.7 TARP Assessment

Results of the sediment quality assessment above were screened against the TARP criteria (Table 3-2). The ‘Low Risk’ threshold was not triggered for sediment quality for the 2024 MEEMP focussed on comparing the Year 1 Capsize Sampling Station results with the existing 2023 results for these stations.

Sediment quality indicators were at concentrations lower than available CCME ISQGs for the protection of aquatic life. Although there were statistically significantly fewer fines in 2024 compared to 2023, at the stations where a reduction in the proportion of fines was observed between these years, scouring of sediments was predicted down to depths of 5 cm through to 50 cm by the Ship Wake and Propeller Wash Assessment for the Capesize vessels (WSP 2023) as shown in Figure 3-9.

By 2023 which represented existing conditions for this assessment, some of the stations had already experienced scouring prior to the introduction of the Capesize vessels either through a combination of the existing influence of scouring due to propeller wash from the smaller ore carriers, natural coastal processes and variations in morphology. Exceptions were SW-4 which was the station furthest away from the Ore Dock, and two stations (SCV-1 and SNW-1) offshore from the Ore Dock in deeper waters (30 to 35 m water depth). Based on the vessel track assumed for the modelling study, WSP (2023) predicted a scouring impact at five of the eight Capesize sampling stations and the 2024 assessment found that fines either continued to be low or were reduced in 2024 at

[1] Extraction hold times for PHC F2-F4 and PAHs on the SW-3 sample were exceeded by two days because the sample collected on 10 August 2024 was not received at the lab until 22 August 2024, with analyses proceeding on 26 August 2024 (after the weekend once the samples were logged into the system at ALS). Hold time exceedances are not expected to affect the integrity of the sediment quality results.

all five stations. For the stations not predicted to be impacted by scouring by WSP (2023), SCV-1 offshore from the Ore Dock in deeper water did not appear to show signs of scouring in 2024; whereas, nearshore stations in shallower water out along the Western Transect towards Phillips Creek either remained low in fines (SW-3) or showed a decrease in fines in 2024 relative to 2023 (SW-4).

With respect to sediment iron content, there was a statistically significant overall decrease in Year 1 (2024) compared to existing conditions in 2023. As found in previous MEEMP years, variability was observed for iron content among the Capesize sampling stations.

Given that sediment concentrations were below CCME guidelines for the protection of aquatic life and the 2024 results do not suggest a clear pattern indicative of Port-related effects beyond FEIS predictions and subsequent addenda, a ‘Low Risk’ threshold was not triggered in 2024 for the Capesize assessment.

3.5 Discussion

The 2024 MEEMP sediment sampling program was focused on eight Capesize stations sampled to assess potential changes in marine sediment and benthic infaunal community indices associated with potential impacts of Baby Cape and Capesize ore carriers utilizing the Ore Dock.

As discussed below, the 2024 program provided a characterization of sediment quality at the Capesize sampling stations located within the nearshore area (<30 m bathymetry line) and offshore from the Ore Dock (just beyond the 30 m bathymetry line. Nearshore stations closer to the Ore Dock in previous monitoring years up to and including 2023 have shown signs of localized disturbance that mobilized the fine sediment fraction or have been low in fines over the sampling record. These nearshore stations are more likely to be influenced by natural coastal processes and variations in morphology which can confound an assessment of Project-related scouring effects. In addition, Phillips Creek enters the inlet ~600 m west of SW-4, the station furthest from the Ore Dock.

WSP conducted a Ship Wake and Propeller Wash Assessment to address possible project effects on the marine physical environment related to shipping activities associated with increased large vessel traffic (WSP 2023). This assessment predicted some scour to occur over most of the berthing area for Capesize vessels with scouring depths ranging from 5 cm over the broader berthing area to 50 cm in a more localized area adjacent to the Ore dock. The 2024 sediment quality assessment evaluated sediment quality down to 5 cm sediment depth consistent with the MEEMP and sampling at the Capesize stations in 2023. This sediment depth is also the most relevant to the assessment of benthic infauna communities (Chapter 4.0).

3.5.1 Percent Fines and Substrate Composition

The physical composition of sediments differed among stations in 2024, with both sand and fines present in differing proportions depending on the station location. Nearshore stations SE18-1, SCV-2, SW-1, SW-2, and SW-3 were comprised primarily of sand while the two stations just offshore from the Ore Dock in 30 to 35 m of water (SCV-1 and SNW-1) were dominated by sand with silt, as was nearshore station SW-4 which was furthest from the Ore Dock. For some stations the percentage of sand increased between 2023 and 2024 (SE 18-1, SNW-1, SW-2) while at other stations the percentage of sand decreased (SW-1, SW-4). Both SW-1 and SW4, located west of the Ore Dock, had higher proportions of gravel in 2024 relative to 2023.

There was a statistically significant reduction in fine sediments at the Capesize stations between 2023 and 2024. To assess the biological relevance of the overall significant decrease in fines between 2023 and 2024, this statistical result should be interpreted along with the time series data for percent fines at the Capesize stations. Taken together, these results show that although most stations showed some level of decrease in fines between 2023 and 2024 (as reflected in the statistical result), for some stations the actual decrease in percent fines is minimal and reflects a continuing trend of low fines content evident since before 2024 which represent existing conditions for this 2024 assessment. In contrast, for Station SNW-1 (offshore from the ore dock at 33 m water depth) and Station SW-4 (furthest from the Ore Dock in 16 m water depth) the reduction in fines was only evident in 2024 and the difference in fines was >10%. These observed changes in fines at SNW-1 and SW-4 between 2023 and 2024 were most relevant to assessing effects of the use of the Capesize vessels in Year 1 (2024) on sediment quality relative to existing conditions in 2023, which is required to address the 2024 MEEMP study objectives.

Based on the Capesize vessel track assumed for the Ship Wake and Propeller Wash Assessment, this study predicted a scouring impact at five of the eight Capesize sampling stations. The 2024 MEEMP assessment found that fines either continued to be low or were reduced in 2024 at all five stations. For the stations not predicted to be impacted by scouring by the modelling study, a station offshore from the Ore Dock in deeper water (SCV-1) did not appear to show signs of scouring in 2024; whereas, nearshore stations in shallower water out along the Western Transect towards Phillips Creek either remained low in fines (SW-3) or showed a decrease in fines in 2024 relative to 2023 (SW-4).

Since 2019, the spatial distribution of percent fines among the Capesize stations had been more variable closer to the Ore Dock, followed by a strong reduction in values at 175–225 m, and a gradual increase in fines with increasing distance. The gradual increase in fines away from the Ore Dock along the West transect was shallower in 2024 compared to 2023 due to the observed decrease in fines at SW-4 located more than 400 m from the Ore Dock. Reduced percent fines at Station SW-4 (in 2024) and Station SW-3 (in 2023 and remained low in 2024) go beyond what was predicted in the Ship Wake and Propeller Wash Assessment (WSP 2023). It is however recognised that these nearshore stations could be subject to the ongoing influence of natural coastal processes and variations in morphology, and/or sediment transport to the inlet via Phillips Creek to some extent, as well as the potential influence of propeller wash from vessel traffic. Moreover, it is important to note, that regardless of potential propeller wash influence, benthic infauna densities at SW-3 and SW-4 were not significantly different in 2024 and 2023, and both stations continue to support diverse benthic invertebrate communities, as discussed in Chapter 4.0.

3.5.2 Sediment Quality and Iron

In 2024, concentrations of metals in sediments sampled at the Capesize stations were below applicable CCME guidelines for the protection of aquatic life (CCME 1999) and NOAA sediment benchmarks (Buchman 2008). As found in previous MEEMP years, PAHs and hydrocarbons were not detected in sediments sampled from Milne Port in 2024.

Iron concentrations in Milne Inlet have been flagged by Inuit to be of concern due to the potential for increased deposition of iron ore in the form of dust or in runoff from storage stockpiles. Marine sediment guidelines for iron are not currently available and, as such, the Capesize station sediment data for iron were evaluated using a similar statistical approach used to evaluate the proportion of fine sediments at the eight Capesize stations,

consistent with previous MEEMP reports. There was an overall statistically significant decrease in iron concentration at the Capesize vessel stations between 2024 and existing conditions in 2023 prior to the use of Capesize vessels. As discussed for fines content above, the visual change in iron between 2023 and 2024 at individual stations varied, with some stations showing an increase, some stations staying approximately the same, and some showing a decrease. Iron concentrations were also most variable at stations closer to the Ore Dock, followed by a reduction in concentrations at stations SE18-1, SVC-2, and SW-2, and a gradual increase in concentration with increasing distance from the Ore Dock.

3.6 Conclusions and Recommendations

The 2024 sediment program results largely remained within original FEIS predictions and subsequent addenda (Baffinland 2012, 2013). These predictions forecasted no significant residual effects on sediment quality but indicated the potential for minor localized sediment disturbance associated with propeller wash, which is expected to stabilize over time, as well as the potential for minor localized increases in nutrients, metal, or hydrocarbon concentrations.

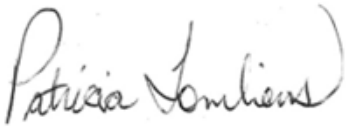
Sediment concentrations at the Capesize sampling stations were below CCME guidelines for the protection of aquatic life in 2024 for parameters analyzed and hydrocarbons were not detected in the sediment sampled. Additionally, comparison of sediment quality in 2024 (after the use of Capesize vessels) with existing conditions in 2023 (prior to use of these larger vessels) and comparison to estimated scour predictions for the Capesize vessels, did not suggest a clear pattern indicative of Port-related effects beyond FEIS predictions and subsequent addenda. Reduced fines at two stations along the Western Transect and outside the zone of influence for potential scouring predicted by WSP (2023) should be confirmed by monitoring in 2025 as these stations are also predisposed to influence from natural factors (such as ice movement, coastal sediment processes, and potential influence from the entry of Phillips Creek to the inlet). It is important to note that, regardless of potential propeller wash influence, benthic infauna densities at these two stations were not significantly different in 2024 and 2023 and both stations continue to support diverse benthic invertebrate communities.

A consideration in order to gain a better understanding of potential scouring effects outside of the predicted zone of influence for the Capesize vessels versus influence from natural coastal processes, would be to extend the 2025 Capesize Vessel sampling program along the West Transect to include SW-5 and SW-6, for a total of ten stations for sediment quality and benthic infauna sampling.

3.7 Closure

We trust this information is sufficient for your needs at this time. Should you have any questions or concerns, please do not hesitate to contact Phil Rouget, on behalf of the undersigned, at +1 250 419 4945.

WSP Canada Inc.



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APPENDIX 3A

Site Photographs

Photo 1 – **Sediment sampling location SW-1 on 18 August 2024.**

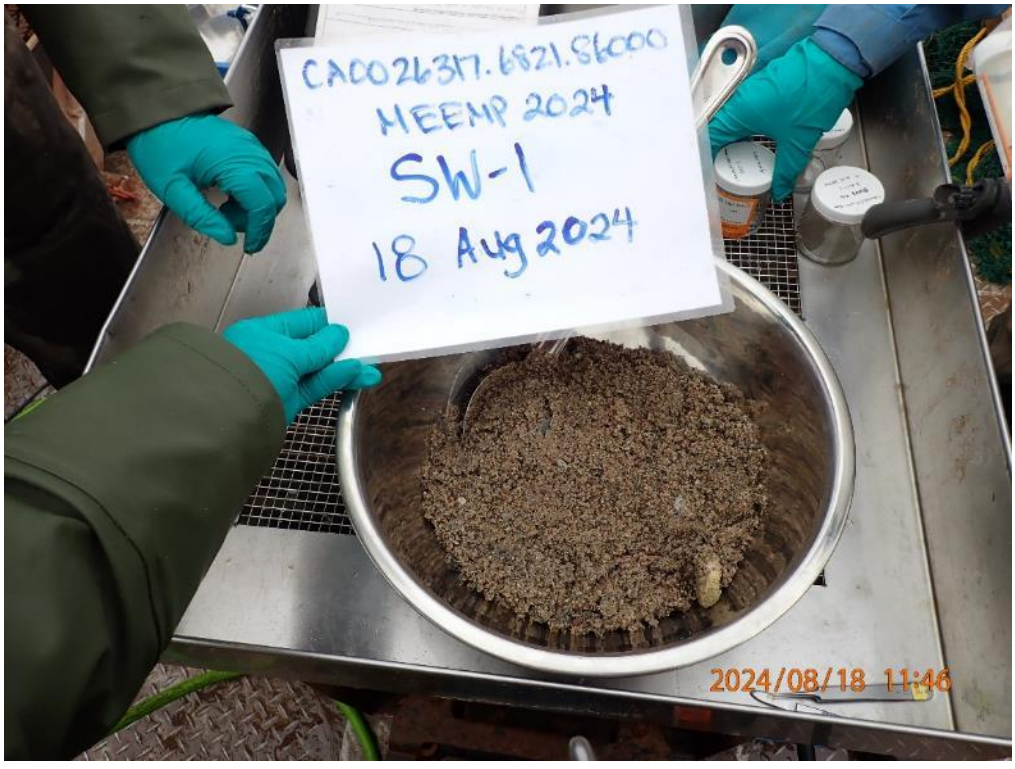

Photo 2 – Homogenized sediment sample collected from station SW-1 on 18 August 2024.

Photo 3 – Sediment sampling location SW-2 on 12 August 2024.

Photo 4 – Decanted sediment sample collected from station SW-2 on 12 August 2024.

Photo 5 – Sediment sampling location SW-3 on 10 August 2024.

Photo 6 – Homogenized sediment sample collected from station SW-3 on 10 August 2024.

Photo 7 – Sediment sampling location SW-4 on 18 August 2024 looking southwest.

Photo 8 – Homogenized sediment sample collected from station SW-4 on 18 August 2024.

Photo 9 – Sediment sampling location SCV-1 on 12 August 2024 looking southwest.

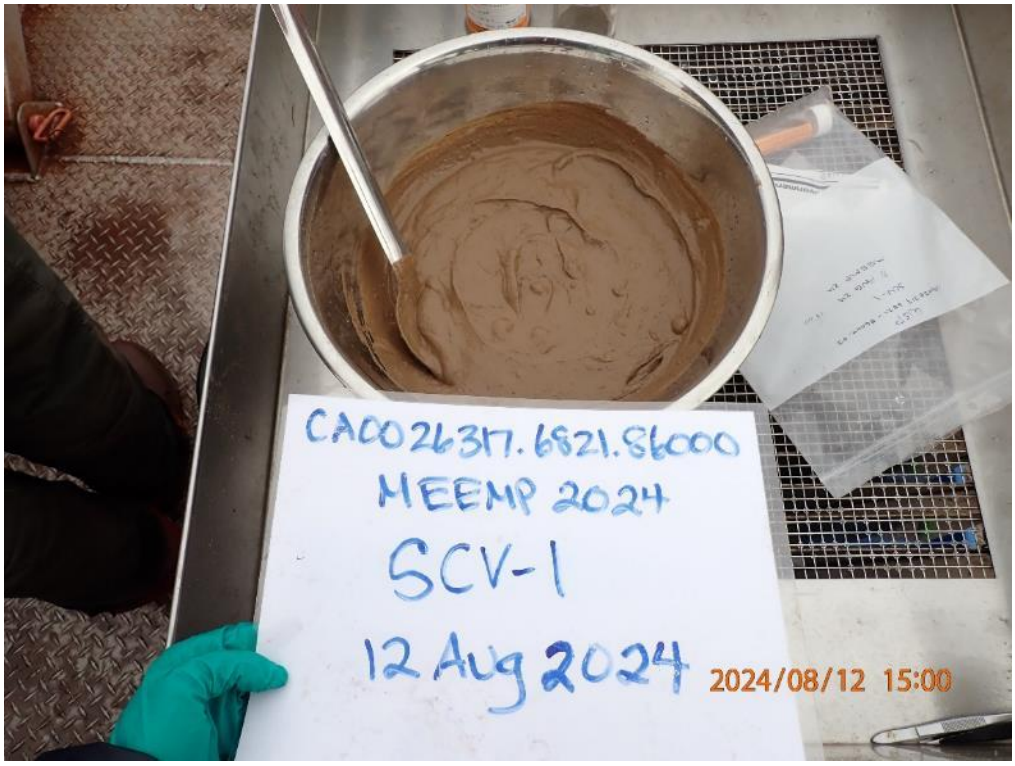

Photo 10 – Homogenized sediment sample collected from station SCV-1 on 12 August 2024.

Photo 11 – Decanted sediment sample collected from station SCV-2 on 13 August 2024.

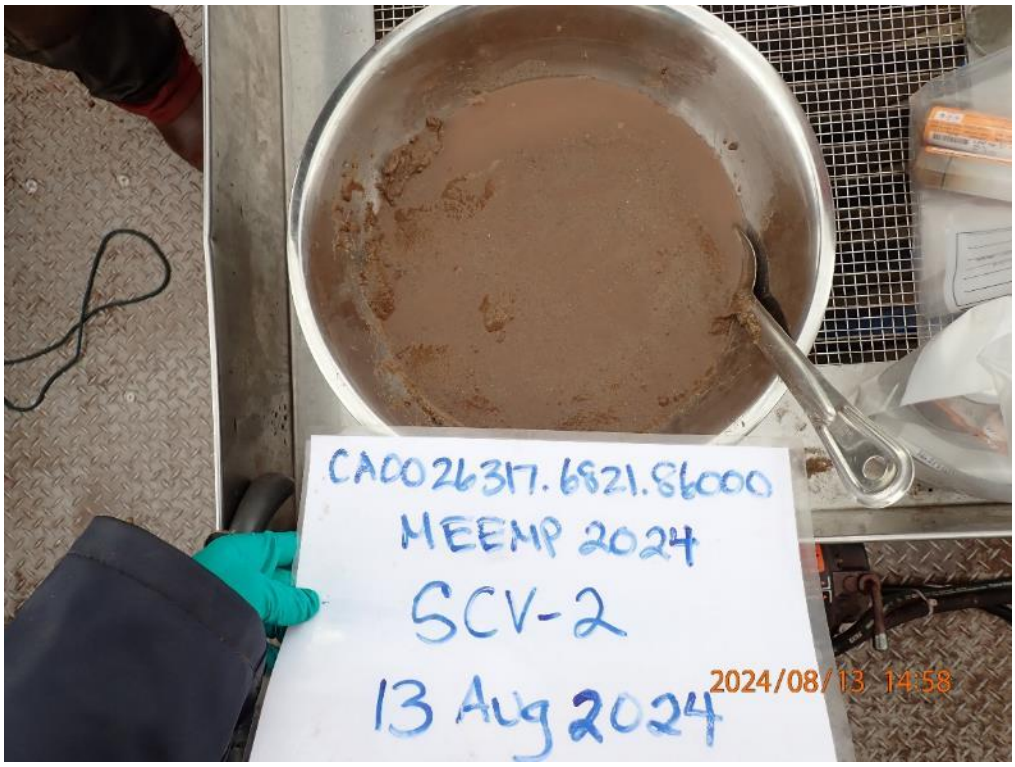

Photo 12 – Homogenized sediment sample collected from station SCV-2 on 13 August 2024.

Photo 13 – Sediment sampling location SE18-1 on 17 August 2024 looking south.

Photo 14 – Homogenized sediment sample collected from station SE18-1 on 17 August 2024.

Photo 15 – Decanted sediment sample collected from station SNW-1 on 17 August 2024.

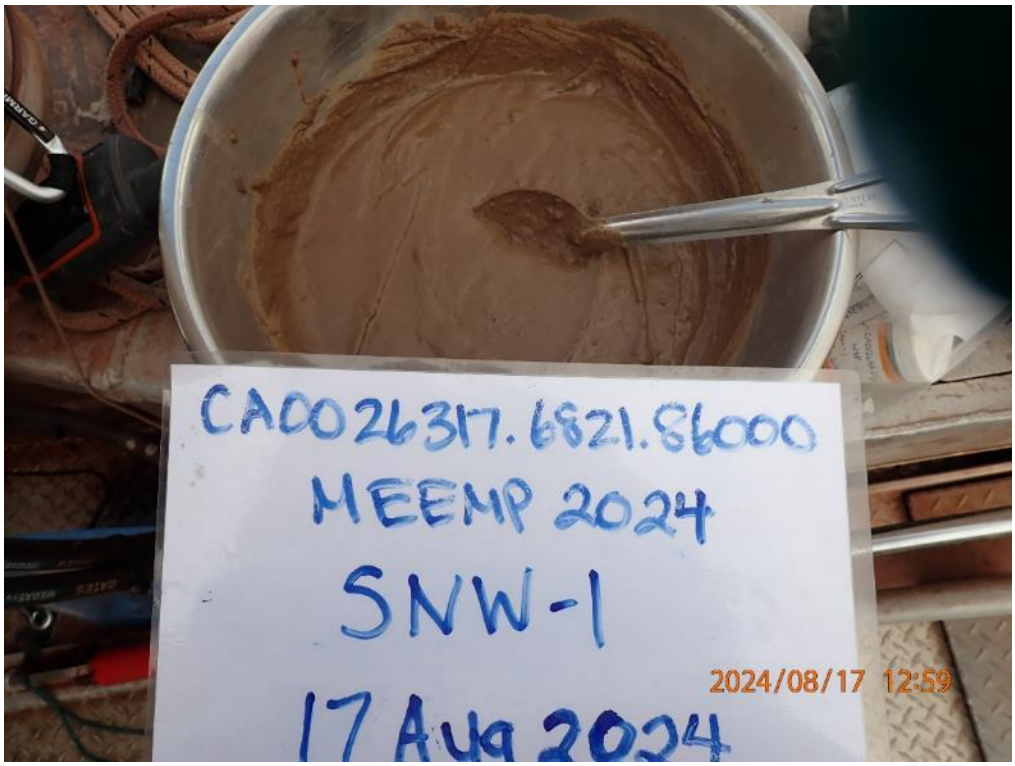

Photo 16 – Homogenized sediment sample collected from station SNW-1 on 17 August 2024.

APPENDIX 3B

Sediment Field Datasheets

SEDIMENT SAMPLING LOG

Project No: [redacted] CA0026317.6821.
Project Title: Baffinland MEEMP [redacted] 2024
Date: 86000 10 Aug 2024
Inspected by: TT
Station Number (ID): SW-3
Sampling Method: Van Veen
Weather: Clear some cloud cover, 8-10°C 8-11 KTS NE
Lat/Longitude: WP 263
Sampling Depth: 5.16.1m
# of Attempts to Obtain Sample: 11
Time of Collection: 15:30 - 16:10 sample collin 15:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Sand, wet, Brown, loose, 100% f-c sand, low plasticity contains hyatella, cockle, mya, pectanarid, some algae (desmeresdia), brittle star, no sheen, no odour.

Approx % collected in grab sample 5.5cm, 15-20% - collected top 5cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab and homogenized

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☐ ~~Grain Size~~
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] CA00 26317.6821
Project Title: Baffinland MEEMP [redacted] 2024
Date: 12 Aug 2024
Inspected by: TT
Station Number (ID): SW-2
Sampling Method: VV
Weather: Overcast, low light, 5-7°C, 10-12 kts SE
Lat/Longitude: WP 267 17W 503052mE 7976533mN
Sampling Depth: 17.5m
# of Attempts to Obtain Sample: 11
Time of Collection: 10:20 - 10:53
Sample coll'n 10:40

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - rock in grab jaws
Grab 2 - surface intact, overlying water, jaws of grab closed
Appears to be an iron layer below 1-2 mm of sediment,
SAND, moist, loose, brown, 100% f-c sand contains trace fine gravel, polychaetes, no sheen and no odour noted

Approx % collected in grab sample 55-60% (7.5 cm depth) collected top 5cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):
Photo of sample in grab, site photos, homogenized sample

Sample Control Number (SCN):

Analysis for:
- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, moisture

AEC:
# of Grabs for Analysis:
Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] CA0026317.6821 Project Title: Baffinland MEEMP [redacted] 2024

Date: 12 Aug 2024 Inspected by: TT

Station Number (ID): SCV-1 Sampling Method: VV

Weather: Overcast, 7-9°C, 10-12kts SE Lat/Longitude: ~~WP270~~ WP location

Sampling Depth: 35.4m

# of Attempts to Obtain Sample: 1 Time of Collection: ~~14:05~~ 14:50-15:15
Sample Collected 15:00

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

1-2 mm brown SILTY SAND layer overtop of a greyish brown SAND and SILT layer.

SAND and SILT, moist, loose, brown, 60% f-c sand, 40% fines, low plasticity, contains brittlestars, amphipods, trace shell debris, trace gravel (subrounded and subangular, Ophelina, greenland scallop

Approx % collected in grab sample _____ %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Site photos, sample in grab and homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, moisture

AEC: _____ # of Grabs for Analysis: _____

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] CA0026317.6821 Project Title: Baffinland MEEMP [redacted] 2024

Date: 13 August 2024 Inspected by: TT

Station Number (ID): SCV-2 / DUP-B Sampling Method: VV

Weather: Overcast, low lying fog, 8-10kts SW, 9-11°C Lat/Longitude: WP 273 17W 503087mE 7976586mN

Sampling Depth: 25.0m

# of Attempts to Obtain Sample: III Time of Collection: 14:20 - 15:05
14:45 - sample collected

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grabs 1+2 - clam and gravel caught in jaws of grab

2-3 mm reddish brown SAND overtop a grey SAND

SAND, wet, loose, reddish brown, 100% f-coarse sand, low plasticity, contains Hiatella, Pectinaria, trace gravel (subangular, subrounded), Macoma, some shell debris, no odour and no sheen noted.

Approx % collected in grab sample Grabs 3 (40-45%, 5.5cm depth) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample in grab, homogenized sample, s

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC

AEC: # of Grabs for Analysis:

Other Notes:

(3 jars + 2 vials + 1 bag) x 2

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] CA0026317.6821 Project Title: Baffinland MEEMP [redacted] 2024

Date: 86000 17 Aug 2024 Inspected by: TT

Station Number (ID): SNW-1 Sampling Method: VV

Weather: Overcast, 3-4kts NW, 7-10°C Lat/Longitude: WP282 17W 503301mE 7976745mN

Sampling Depth: 33.8m

# of Attempts to Obtain Sample: 1 Time of Collection: 12:25 - 13:10 sample time 12:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 - surface intact, overlying water, jaws closed
2-3 mm reddish brown SILTY SAND layer overtop of a grey SILT with SAND layer

GRAVELLY SILT and SAND, moist, brown, loose, 50% fines, 35% f-c sand, 15% f-c gravel (subangular, subrounded), contains brittlestars, polys, greenland scallop, no sheen and no odour noted

15%
55%
30%

Approx % collected in grab sample Grab 1 (55-60%, 7cm) - collected top 5cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- [x] Full Metals
- [x] PAH
- [ ] TBT
- [x] Grain Size
- [ ] Benthic
- [ ] AVS CEM
- [ ] PCB
- [ ] Dioxins and Furans
- [ ] PFOA/PFOS
- [x] Other TOC, TIC, moisture

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] CA0026317.6821.86000.03

Project Title: Baffinland MEEMP [redacted] 2024

Date: 17 Aug 24

Inspected by: TT

Station Number (ID): SE18-1

Sampling Method: VV

Weather: Overcast, 4-5kts NW, 7-10°C

Lat/Longitude: on WP location

Sampling Depth: 17.1 m

# of Attempts to Obtain Sample: 1

Time of Collection: 10:50 - 11:20
Sample collected 11:00

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab - surface intact, overlying water

SAND, wet, greyish brown, loose, 100% f-c sand, low plasticity contains amphipods, whole shell debris, trace f-c gravel (subangular, subrounded), Pectinarid, Hiatella, Astarte, polys, no sheen and no odour noted

Approx % collected in grab sample Grab 1 - 30-35% (5.5cm) - sampled 5cm %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample,

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, moisture

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted] CA0026317.6821.86000

Project Title: Baffinland MEEMP [redacted] 2024

Date: 18 Aug 24

Inspected by: TT

Station Number (ID): SW-1

Sampling Method: VV

Weather: Overcast, 5-7kts SW, 7-9°C

Lat/Longitude: on WP 288 17W 503162mE 7976554 mN

Sampling Depth: 11.0m

# of Attempts to Obtain Sample: 111

Time of Collection: 11:20 - 11:48
Sample Colln 11:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1,2 - rock caught in jaws of grab
Grab 3, surface intact, overlying water, jaws sealed

SAND with GRAVEL, moist, loose, brownish grey, 70% f-c sand, 30% f-c gravel (subangular, subrounded), low plasticity, contains trace shell debris, no odour and no sheen noted

Approx % collected in grab sample Grab 3 (70-75%, 11cm) 5cm collected %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, moisture

AEC:

# of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

SEDIMENT SAMPLING LOG

Project No: [redacted]-CA00 26317.6821.86000 Project Title: Baffinland [redacted] MEE MP 2024

Date: 18 Aug 2024 Inspected by: TT

Station Number (ID): SW-4 Sampling Method: VV

Weather: Overcast, 2-3kts SW, 6-8°C Lat/Longitude: WP 284 17W 502867mE 7976434mN

Sampling Depth: 16.4m

# of Attempts to Obtain Sample: 111 Time of Collection: 9:10 - 10:05 sample coll'n 9:30

Sediment Description (including colour, type/grain size, anthropogenic debris, organic material, shell, wood, odour, HC sheen, staining, organisms/biota etc.):

Grab 1 (10-15'l.), Grab 2 - surface intact, overlying water, jaws closed
1-2mm reddish brown layer overtop of a grey layer
GRAVELLY SAND with SILT, wet, loose, brown, 15'l. gravel f-c (subrounded, subangular) 15'l. gravel
50'l. f-sand, 35'l. fines, low plasticity contains some whole shell debris, tube worms, amphipods, brittlestars, Hiatella, Astarte, Pectinarid,
Cool noted sheen or odour

Approx % collected in grab sample Grab 2 (25-30'l., 5cm depth) %

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Site photos, photo of sample in grab, homogenized sample

Sample Control Number (SCN):

Analysis for:

- ☑ Full Metals
- ☑ PAH
- ☐ TBT
- ☑ Grain Size
- ☐ Benthic
- ☐ AVS CEM
- ☐ PCB
- ☐ Dioxins and Furans
- ☐ PFOA/PFOS
- ☑ Other TOC, TIC, moisture

AEC: # of Grabs for Analysis:

Other Notes:

3 jars + 1 bag + 2 vials

SAMPLE NUMBER: _____

APPENDIX 3C

Sediment Quality Laboratory Data

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C1763**	Page	: 1 of 16
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Adrienne Ducharme	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: CA0026317.6821/86000/03	Date Samples Received	: 22-Aug-2024 08:35
PO	: ----	Date Analysis Commenced	: 26-Aug-2024
C-O-C number	: ----	Issue Date	: 30-Aug-2024 16:24
Sampler	: ----		
Site	: Baffinland Milne Port		
Quote number	: VA24-GOLD100-011		
No. of samples received	: 12		
No. of samples analysed	: 12		

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*
Colby Bingham	Laboratory Supervisor	Inorganics, Saskatoon, Saskatchewan
Ghazaleh Khanmirzaei	Analyst	Metals, Burnaby, British Columbia
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia

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
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	*Description*
DLQ	*Detection Limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptance criteria.*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SW-2	SCV-1	SCV-2	SNW-1
					Client sampling date / time	10-Aug-2024 15:30	12-Aug-2024 10:40	12-Aug-2024 15:00	13-Aug-2024 14:45	17-Aug-2024 12:30
						VA24C1763-001	VA24C1763-002	VA24C1763-003	VA24C1763-004	VA24C1763-005
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		21.1	17.0	23.2	16.8	19.8
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.59	8.81	8.34	8.58	8.37
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		<1.0	1.0	10.2	<1.0	8.5
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		92.3	95.5	47.1	94.1	64.5
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		5.5	2.2	35.3	3.8	21.5
Clay (<0.004mm)	----	EC184E/SK	1.0	%		1.9	1.3	7.4	1.4	5.5
Percent Passing										
Passing (0.002mm)	----	E184/SK	1.0	%		1.6	1.2	5.6	1.2	4.2
Passing (0.004mm)	----	E184/SK	1.0	%		1.9	1.3	7.4	1.4	5.5
Passing (0.005mm)	----	E184/SK	1.0	%		2.0	1.3	8.4	1.5	6.1
Passing (0.020mm)	----	E184/SK	1.0	%		3.5	1.9	20.3	2.6	13.9
Passing (0.0312mm)	----	E184/SK	1.0	%		4.4	2.4	27.5	3.3	18.1
Passing (0.05mm)	----	E182/SK	1.0	%		5.9	3.0	39.6	4.5	25.3
Passing (0.063mm)	----	E182/SK	1.0	%		7.4	3.5	42.7	5.2	27.0
Passing (0.075mm)	----	E182/SK	1.0	%		8.8	4.0	45.5	5.8	28.5
Passing (0.125mm)	----	E182/SK	1.0	%		14.6	5.8	57.2	8.4	34.9
Passing (0.149mm)	----	E182/SK	1.0	%		27.1	12.8	60.1	14.7	40.0
Passing (0.250mm)	----	E182/SK	1.0	%		79.8	42.0	72.2	41.5	61.3
Passing (0.420mm)	----	E182/SK	1.0	%		92.9	73.9	79.7	70.5	76.0
Passing (0.50mm)	----	E182/SK	1.0	%		99.0	88.8	83.2	84.1	82.9
Passing (0.841mm)	----	E182/SK	1.0	%		99.4	94.4	86.1	91.8	86.7
Passing (1.0mm)	----	E182/SK	1.0	%		99.6	97.1	87.5	95.4	88.4
Passing (19mm)	----	E181/SK	1.0	%		100	100	100	100	100
Passing (2.0mm)	----	E181/SK	1.0	%		99.7	99.0	89.8	99.3	91.5
Passing (25.4mm)	----	E181/SK	1.0	%		100	100	100	100	100
Passing (38.1mm)	----	E181/SK	1.0	%		100	100	100	100	100
Passing (4.75mm)	----	E181/SK	1.0	%		99.8	99.5	91.9	99.8	95.5
Passing (50.8mm)	----	E181/SK	1.0	%		100	100	100	100	100

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SW-2	SCV-1	SCV-2	SNW-1
					Client sampling date / time	10-Aug-2024 15:30	12-Aug-2024 10:40	12-Aug-2024 15:00	13-Aug-2024 14:45	17-Aug-2024 12:30
						VA24C1763-001	VA24C1763-002	VA24C1763-003	VA24C1763-004	VA24C1763-005
						Result	Result	Result	Result	Result
Percent Passing										
Passing (76.2mm)	----	E181/SK	1.0	%		100	100	100	100	100
Passing (9.5mm)	----	E181/SK	1.0	%		99.8	100	94.6	100	100
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		1.59	1.09	4.33	1.14	3.04
Carbon, inorganic [IC]	----	E354/SK	0.050	%		0.868	0.772	1.70	0.694	1.40
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		7.24	6.43	14.2	5.79	11.7
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		0.722	0.318	2.63	0.446	1.64
Organic matter	----	EC356/SK	0.10	%		1.24	0.55	4.53	0.77	2.83
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		2450	1180	5210	1530	4550
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		1.48	0.51	3.61	1.17	3.74
Barium	7440-39-3	E440/VA	0.50	mg/kg		9.24	4.32	14.9	4.25	12.4
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.14	<0.10	0.32	0.10	0.28
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		13.8	8.4	36.1	10.9	31.1
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		<0.020	<0.020	0.049	<0.020	0.035
Calcium	7440-70-2	E440/VA	50	mg/kg		26400	18400	70000	18700	51900
Chromium	7440-47-3	E440/VA	0.50	mg/kg		9.51	4.50	17.6	5.28	14.7
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		1.95	0.84	3.16	0.98	3.04
Copper	7440-50-8	E440/VA	0.50	mg/kg		2.40	1.36	6.46	1.48	6.12
Iron	7439-89-6	E440/VA	50	mg/kg		11400	3830	14500	5040	25300
Lead	7439-92-1	E440/VA	0.50	mg/kg		1.93	1.04	4.52	1.58	3.86
Lithium	7439-93-2	E440/VA	2.0	mg/kg		10.5	5.5	23.5	6.9	20.0
Magnesium	7439-95-4	E440/VA	20	mg/kg		14400	10100	38100	10400	27500
Manganese	7439-96-5	E440/VA	1.0	mg/kg		78.5	34.0	136	39.8	138
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		<0.0050	<0.0050	0.0090	<0.0050	0.0075
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.24	0.12	0.36	0.12	0.47
Nickel	7440-02-0	E440/VA	0.50	mg/kg		5.47	2.38	9.60	2.72	8.41
Phosphorus	7723-14-0	E440/VA	50	mg/kg		253	143	424	146	365

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SW-2	SCV-1	SCV-2	SNW-1
					Client sampling date / time	10-Aug-2024 15:30	12-Aug-2024 10:40	12-Aug-2024 15:00	13-Aug-2024 14:45	17-Aug-2024 12:30
						VA24C1763-001	VA24C1763-002	VA24C1763-003	VA24C1763-004	VA24C1763-005
						Result	Result	Result	Result	Result
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg		1190	560	2240	740	1880
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		2090	2050	4010	1970	3330
Strontium	7440-24-6	E440/VA	0.50	mg/kg		19.6	12.6	46.7	14.1	36.1
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.063	<0.050	0.092	<0.050	0.075
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		197	76.0	234	92.8	196
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.387	0.180	0.784	0.229	0.718
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		8.88	4.66	18.9	5.33	16.0
Zinc	7440-66-6	E440/VA	2.0	mg/kg		8.1	3.9	14.8	4.4	13.2
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.6	1.6	5.9	2.0	5.2
Volatile Organic Compounds										
Benzene	71-43-2	E611C/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromodichloromethane	75-27-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	75-25-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	56-23-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	108-90-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane	75-00-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	67-66-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chloromethane	74-87-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	124-48-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.050	mg/kg		<0.140 DLQ	<0.050	<0.210 DLQ	<0.110 DLQ	<0.115 DLQ

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SW-2	SCV-1	SCV-2	SNW-1
					Client sampling date / time	10-Aug-2024 15:30	12-Aug-2024 10:40	12-Aug-2024 15:00	13-Aug-2024 14:45	17-Aug-2024 12:30
						VA24C1763-001	VA24C1763-002	VA24C1763-003	VA24C1763-004	VA24C1763-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloromethane	75-09-2	E611C/VA	0.045	mg/kg		<0.045	<0.045	<0.045	<0.045	<0.045
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	100-41-4	E611C/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Styrene	100-42-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	127-18-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	108-88-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	79-01-6	E611C/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	75-69-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	75-01-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611C/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	Yes	Yes	Yes
EPH (C10-C19)	----	E601A/VA	200	mg/kg		<200	<200	<200	<200	<200
EPH (C19-C32)	----	E601A/VA	200	mg/kg		<200	<200	<200	<200	<200
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	25	mg/kg		<25	<25	<25	<25	<25
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SW-2	SCV-1	SCV-2	SNW-1
					Client sampling date / time	10-Aug-2024 15:30	12-Aug-2024 10:40	12-Aug-2024 15:00	13-Aug-2024 14:45	17-Aug-2024 12:30
						VA24C1763-001	VA24C1763-002	VA24C1763-003	VA24C1763-004	VA24C1763-005
						Result	Result	Result	Result	Result
Hydrocarbons										
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	<50
TEH (C10-C50)	n/a	E601.SG/VA	75	mg/kg		<75	<75	<75	<75	<75
TEH (C16-C50)	----	E601.SG/VA	75	mg/kg		<75	<75	<75	<75	<75
VHs (C6-C10)	----	E581.VH+F1/VA	10	mg/kg		<10	<10	<10	<10	<10
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
HEPHs	----	EC600A/VA	200	mg/kg		<200	<200	<200	<200	<200
LEPHs	----	EC600A/VA	200	mg/kg		<200	<200	<200	<200	<200
VPHs	----	EC580A/VA	10	mg/kg		<10	<10	<10	<10	<10
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		88.4	84.2	74.6	83.3	83.1
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		74.6	66.0	61.5	72.4	67.6
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		93.1	75.5	87.2	88.6	83.8
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	0.10	%		82.9	84.8	75.4	83.6	85.7
Difluorobenzene, 1,4-	540-36-3	E611C/VA	0.10	%		86.0	89.1	78.2	86.4	91.7
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW-3	SW-2	SCV-1	SCV-2	SNW-1
					Client sampling date / time	10-Aug-2024 15:30	12-Aug-2024 10:40	12-Aug-2024 15:00	13-Aug-2024 14:45	17-Aug-2024 12:30
						VA24C1763-001	VA24C1763-002	VA24C1763-003	VA24C1763-004	VA24C1763-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	<0.150
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		89.3	84.1	86.4	87.4	83.9
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		95.5	91.8	90.4	87.0	88.2
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		95.8	91.1	89.6	89.2	92.1
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		102	99.5	97.4	97.8	97.9

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: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-1	SW-1	SW-4	DupB-SG	TGT-Ref-1-SG
					Client sampling date / time	17-Aug-2024 11:00	18-Aug-2024 11:30	18-Aug-2024 09:30	13-Aug-2024 00:00	09-Aug-2024 12:00
						VA24C1763-006	VA24C1763-007	VA24C1763-008	VA24C1763-009	VA24C1763-010
						Result	Result	Result	Result	Result
Physical Tests										
Moisture	----	E144/VA	0.25	%		----	----	----	----	27.7
Moisture	----	E144/VA	0.25	%		19.6	12.1	23.1	19.7	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.49	9.03	8.47	8.57	----
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		1.5	20.2	29.9	1.1	----
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		92.1	78.6	54.9	94.2	----
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		4.6	1.2	12.5	3.3	----
Clay (<0.004mm)	----	EC184E/SK	1.0	%		1.8	<1.0	2.7	1.4	----
Percent Passing										
Passing (0.002mm)	----	E184/SK	1.0	%		1.5	<1.0	2.2	1.2	----
Passing (0.004mm)	----	E184/SK	1.0	%		1.8	<1.0	2.7	1.4	----
Passing (0.005mm)	----	E184/SK	1.0	%		1.9	<1.0	3.0	1.4	----
Passing (0.020mm)	----	E184/SK	1.0	%		3.5	<1.0	6.5	2.6	----
Passing (0.0312mm)	----	E184/SK	1.0	%		4.3	<1.0	8.8	3.2	----
Passing (0.05mm)	----	E182/SK	1.0	%		5.6	1.1	12.6	4.1	----
Passing (0.063mm)	----	E182/SK	1.0	%		6.4	1.2	15.2	4.7	----
Passing (0.075mm)	----	E182/SK	1.0	%		7.1	1.2	17.6	5.3	----
Passing (0.125mm)	----	E182/SK	1.0	%		10.1	1.4	27.5	7.6	----
Passing (0.149mm)	----	E182/SK	1.0	%		15.8	2.4	33.6	14.2	----
Passing (0.250mm)	----	E182/SK	1.0	%		39.8	6.8	59.3	41.9	----
Passing (0.420mm)	----	E182/SK	1.0	%		68.0	23.5	62.8	72.1	----
Passing (0.50mm)	----	E182/SK	1.0	%		81.3	31.3	64.5	86.2	----
Passing (0.841mm)	----	E182/SK	1.0	%		91.2	48.8	66.3	93.2	----
Passing (1.0mm)	----	E182/SK	1.0	%		95.8	56.9	67.2	96.5	----
Passing (19mm)	----	E181/SK	1.0	%		100	96.0	92.7	100	----
Passing (2.0mm)	----	E181/SK	1.0	%		98.5	79.8	70.1	98.9	----
Passing (25.4mm)	----	E181/SK	1.0	%		100	96.0	100	100	----
Passing (38.1mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (4.75mm)	----	E181/SK	1.0	%		99.1	90.0	75.4	99.4	----
Passing (50.8mm)	----	E181/SK	1.0	%		100	100	100	100	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-1	SW-1	SW-4	DupB-SG	TGT-Ref-1-SG
					Client sampling date / time	17-Aug-2024 11:00	18-Aug-2024 11:30	18-Aug-2024 09:30	13-Aug-2024 00:00	09-Aug-2024 12:00
						VA24C1763-006	VA24C1763-007	VA24C1763-008	VA24C1763-009	VA24C1763-010
						Result	Result	Result	Result	Result
Percent Passing										
Passing (76.2mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (9.5mm)	----	E181/SK	1.0	%		99.3	93.8	85.5	99.5	----
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		1.35	1.39	2.56	1.13	----
Carbon, inorganic [IC]	----	E354/SK	0.050	%		0.800	1.11	1.10	0.838	----
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		6.66	9.24	9.14	6.98	----
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		0.550	0.280	1.46	0.292	----
Organic matter	----	EC356/SK	0.10	%		0.95	0.48	2.52	0.50	----
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		1690	1020	4000	1280	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		1.35	0.36	3.59	0.93	----
Barium	7440-39-3	E440/VA	0.50	mg/kg		4.59	3.10	13.1	3.90	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.11	<0.10	0.23	<0.10	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	----
Boron	7440-42-8	E440/VA	5.0	mg/kg		12.3	7.6	25.3	8.7	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		<0.020	<0.020	0.059	<0.020	----
Calcium	7440-70-2	E440/VA	50	mg/kg		20500	23200	49800	18100	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg		6.19	3.05	14.8	5.52	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		1.14	0.64	2.67	0.93	----
Copper	7440-50-8	E440/VA	0.50	mg/kg		2.14	1.15	4.27	1.36	----
Iron	7439-89-6	E440/VA	50	mg/kg		9620	2390	17800	3810	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		1.56	0.85	2.93	1.08	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		7.4	4.9	17.7	6.3	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		11300	10400	25600	9700	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		49.8	33.2	108	37.4	----
Mercury	7439-97-6	E510/VA	0.0050	mg/kg		<0.0050	<0.0050	0.0055	<0.0050	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.20	0.10	0.57	0.10	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		3.15	1.57	8.08	2.71	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		166	133	388	116	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-1	SW-1	SW-4	DupB-SG	TGT-Ref-1-SG
					Client sampling date / time	17-Aug-2024 11:00	18-Aug-2024 11:30	18-Aug-2024 09:30	13-Aug-2024 00:00	09-Aug-2024 12:00
						VA24C1763-006	VA24C1763-007	VA24C1763-008	VA24C1763-009	VA24C1763-010
						Result	Result	Result	Result	Result
Metals										
Potassium	7440-09-7	E440/VA	100	mg/kg		770	480	1800	650	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	----
Sodium	7440-23-5	E440/VA	50	mg/kg		2670	1330	3010	2540	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		15.4	16.0	46.2	12.7	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	0.081	<0.050	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		101	53.2	256	87.4	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.288	0.244	0.531	0.186	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		6.29	3.17	14.5	4.83	----
Zinc	7440-66-6	E440/VA	2.0	mg/kg		5.3	3.1	12.5	4.8	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.0	1.4	3.6	1.4	----
Volatile Organic Compounds										
Benzene	71-43-2	E611C/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Bromodichloromethane	75-27-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	75-25-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	56-23-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	108-90-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane	75-00-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	67-66-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Chloromethane	74-87-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	124-48-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.050	mg/kg		<0.115 DLQ	<0.050	<0.050	<0.060 DLQ	<0.085 DLQ

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-1	SW-1	SW-4	DupB-SG	TGT-Ref-1-SG
					Client sampling date / time	17-Aug-2024 11:00	18-Aug-2024 11:30	18-Aug-2024 09:30	13-Aug-2024 00:00	09-Aug-2024 12:00
						VA24C1763-006	VA24C1763-007	VA24C1763-008	VA24C1763-009	VA24C1763-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloromethane	75-09-2	E611C/VA	0.045	mg/kg		<0.045	<0.045	<0.045	<0.045	<0.045
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	100-41-4	E611C/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	<0.015
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.040	mg/kg		<0.040	<0.040	<0.040	<0.040	<0.040
Styrene	100-42-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	127-18-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	108-88-3	E611C/VA	0.050	mg/kg		<0.050	0.057	<0.050	<0.050	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	79-01-6	E611C/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	75-69-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	75-01-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	179601-23-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	95-47-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	1330-20-7	E611C/VA	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	<0.075
Hydrocarbons										
Chromatogram to baseline at nC50	n/a	E601.SG/VA	-	-		Yes	Yes	No	Yes	----
EPH (C10-C19)	----	E601A/VA	200	mg/kg		<200	<200	<200	<200	----
EPH (C19-C32)	----	E601A/VA	200	mg/kg		<200	<200	<200	<200	----
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	----	E601.SG/VA	25	mg/kg		<25	<25	<25	<25	----
F3 (C16-C34)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-1	SW-1	SW-4	DupB-SG	TGT-Ref-1-SG
					Client sampling date / time	17-Aug-2024 11:00	18-Aug-2024 11:30	18-Aug-2024 09:30	13-Aug-2024 00:00	09-Aug-2024 12:00
						VA24C1763-006	VA24C1763-007	VA24C1763-008	VA24C1763-009	VA24C1763-010
						Result	Result	Result	Result	Result
Hydrocarbons										
F4 (C34-C50)	----	E601.SG/VA	50	mg/kg		<50	<50	<50	<50	----
TEH (C10-C50)	n/a	E601.SG/VA	75	mg/kg		<75	<75	<75	<75	----
TEH (C16-C50)	----	E601.SG/VA	75	mg/kg		<75	<75	<75	<75	----
VHs (C6-C10)	----	E581.VH+F1/VA	10	mg/kg		<10	<10	<10	<10	<10
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
HEPHs	----	EC600A/VA	200	mg/kg		<200	<200	<200	<200	----
LEPHs	----	EC600A/VA	200	mg/kg		<200	<200	<200	<200	----
VPHs	----	EC580A/VA	10	mg/kg		<10	<10	<10	<10	<10
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		80.9	78.9	81.3	80.7	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG/VA	1.0	%		70.3	68.6	67.9	67.3	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		96.6	93.7	106	104	116
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	0.10	%		84.9	101	86.6	85.0	97.7
Difluorobenzene, 1,4-	540-36-3	E611C/VA	0.10	%		89.7	110	92.2	88.8	102
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	----
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	----
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		<0.0040	<0.0040	<0.0040	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		<0.015	<0.015	<0.015	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SE18-1	SW-1	SW-4	DupB-SG	TGT-Ref-1-SG
					Client sampling date / time	17-Aug-2024 11:00	18-Aug-2024 11:30	18-Aug-2024 09:30	13-Aug-2024 00:00	09-Aug-2024 12:00
						VA24C1763-006	VA24C1763-007	VA24C1763-008	VA24C1763-009	VA24C1763-010
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	----
IACR (CCME)	----	E641A-L/VA	0.150	-		<0.150	<0.150	<0.150	<0.150	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		80.5	86.3	77.9	77.6	----
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		83.4	86.2	82.1	83.4	----
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		88.4	89.1	86.8	87.3	----
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		91.3	99.1	93.0	94.9	----

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: **Sediment**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	KLK-Ref-1-SG	DupA-SG	----	----	----
					Client sampling date / time	09-Aug-2024 10:00	09-Aug-2024 00:00	----	----	----
						VA24C1763-011	VA24C1763-012	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Moisture	----	E144/VA	0.25	%		28.0	21.8	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611C/VA	0.0050	mg/kg		<0.0050	<0.0050	----	----	----
Bromodichloromethane	75-27-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Bromoform	75-25-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Carbon tetrachloride	56-23-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Chlorobenzene	108-90-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Chloroethane	75-00-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Chloroform	67-66-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Chloromethane	74-87-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.050	mg/kg		<0.430 DLQ	<0.305 DLQ	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloromethane	75-09-2	E611C/VA	0.045	mg/kg		<0.045	<0.045	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.075	mg/kg		<0.075	<0.075	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.015	mg/kg		<0.015	<0.015	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.040	mg/kg		<0.040	<0.040	----	----	----
Styrene	100-42-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: Sediment (Matrix: Soil/Solid)					Client sample ID	KLK-Ref-1-SG	DupA-SG	----	----	----
					Client sampling date / time	09-Aug-2024 10:00	09-Aug-2024 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C1763-011	VA24C1763-012	--------	--------	--------
						Result	Result	----	----	----
Volatile Organic Compounds										
Toluene	108-88-3	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.010	mg/kg		<0.010	<0.010	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Xylene, m+p-	179601-23-1	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Xylene, o-	95-47-6	E611C/VA	0.050	mg/kg		<0.050	<0.050	----	----	----
Xylenes, total	1330-20-7	E611C/VA	0.075	mg/kg		<0.075	<0.075	----	----	----
Hydrocarbons										
F1 (C6-C10)	----	E581.VH+F1/VA	5.0	mg/kg		<5.0	<5.0	----	----	----
VHs (C6-C10)	----	E581.VH+F1/VA	10	mg/kg		<10	<10	----	----	----
F1-BTEX	----	EC580/VA	5.0	mg/kg		<5.0	<5.0	----	----	----
VPHs	----	EC580A/VA	10	mg/kg		<10	<10	----	----	----
Hydrocarbons Surrogates										
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		109	102	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	0.10	%		93.5	91.0	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	0.10	%		99.0	96.1	----	----	----

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

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

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C1763**	Page	: 1 of 25
Client	: **WSP Canada Inc.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Adrienne Ducharme	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: CA0026317.6821/86000/03	Date Samples Received	: 22-Aug-2024 08:35
PO	: ----	Issue Date	: 30-Aug-2024 16:22
C-O-C number	: ----		
Sampler	: ----		
Site	: Baffinland Milne Port		
Quote number	: VA24-GOLD100-011		
No. of samples received	: 12		
No. of samples analysed	: 12		

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 Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate 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: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Percent Passing	VA24C1763-001	SW-3	Passing (0.125mm)	----	E182	16.1 % PSDL	15%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	*Description*
PSDL	*Particle size duplicate results exceed ALS RPD DQO, but are within 5% absolute difference and are considered reliable.*

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 : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
DupB-SG	E601A	13-Aug-2024	26-Aug-2024	14 days	13 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SCV-2	E601A	13-Aug-2024	26-Aug-2024	14 days	13 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SCV-1	E601A	12-Aug-2024	26-Aug-2024	14 days	14 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SW-2	E601A	12-Aug-2024	26-Aug-2024	14 days	14 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SW-3	E601A	10-Aug-2024	26-Aug-2024	14 days	16 days	× EHT	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SW-1	E601A	18-Aug-2024	26-Aug-2024	14 days	8 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SW-4	E601A	18-Aug-2024	26-Aug-2024	14 days	8 days	✓	27-Aug-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SE18-1	E601A	17-Aug-2024	26-Aug-2024	14 days	9 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-1	E601A	17-Aug-2024	26-Aug-2024	14 days	9 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
DupB-SG	E601.SG	13-Aug-2024	26-Aug-2024	14 days	13 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SCV-2	E601.SG	13-Aug-2024	26-Aug-2024	14 days	13 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SCV-1	E601.SG	12-Aug-2024	26-Aug-2024	14 days	14 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-2	E601.SG	12-Aug-2024	26-Aug-2024	14 days	14 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-3	E601.SG	10-Aug-2024	26-Aug-2024	14 days	16 days	× EHT	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-1	E601.SG	18-Aug-2024	26-Aug-2024	14 days	8 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SW-4	E601.SG	18-Aug-2024	26-Aug-2024	14 days	8 days	✓	27-Aug-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SE18-1	E601.SG	17-Aug-2024	26-Aug-2024	14 days	9 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID										
Glass soil jar/Teflon lined cap										
SNW-1	E601.SG	17-Aug-2024	26-Aug-2024	14 days	9 days	✓	27-Aug-2024	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-1	E581.VH+F1	18-Aug-2024	28-Aug-2024	40 days	10 days	✓	29-Aug-2024	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-4	E581.VH+F1	18-Aug-2024	28-Aug-2024	40 days	10 days	✓	29-Aug-2024	40 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SE18-1	E581.VH+F1	17-Aug-2024	28-Aug-2024	40 days	11 days	✓	29-Aug-2024	40 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SNW-1	E581.VH+F1	17-Aug-2024	28-Aug-2024	40 days	11 days	✓	29-Aug-2024	40 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
DupB-SG	E581.VH+F1	13-Aug-2024	28-Aug-2024	40 days	15 days	✓	29-Aug-2024	40 days	15 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SCV-2	E581.VH+F1	13-Aug-2024	28-Aug-2024	40 days	15 days	✓	29-Aug-2024	40 days	15 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SCV-1	E581.VH+F1	12-Aug-2024	28-Aug-2024	40 days	16 days	✓	29-Aug-2024	40 days	16 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 : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-2	E581.VH+F1	12-Aug-2024	28-Aug-2024	40 days	16 days	✓	29-Aug-2024	40 days	17 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
SW-3	E581.VH+F1	10-Aug-2024	28-Aug-2024	40 days	18 days	✓	29-Aug-2024	40 days	18 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
DupA-SG	E581.VH+F1	09-Aug-2024	28-Aug-2024	40 days	19 days	✓	29-Aug-2024	40 days	19 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
KLK-Ref-1-SG	E581.VH+F1	09-Aug-2024	28-Aug-2024	40 days	19 days	✓	29-Aug-2024	40 days	20 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass soil methanol vial										
TGT-Ref-1-SG	E581.VH+F1	09-Aug-2024	28-Aug-2024	40 days	19 days	✓	29-Aug-2024	40 days	20 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SE18-1	E510	17-Aug-2024	27-Aug-2024	28 days	10 days	✓	27-Aug-2024	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SNW-1	E510	17-Aug-2024	27-Aug-2024	28 days	10 days	✓	27-Aug-2024	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DupB-SG	E510	13-Aug-2024	27-Aug-2024	28 days	13 days	✓	27-Aug-2024	28 days	14 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SCV-2	E510	13-Aug-2024	27-Aug-2024	28 days	13 days	✓	27-Aug-2024	28 days	14 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										
SCV-1	E510	12-Aug-2024	27-Aug-2024	28 days	14 days	✓	27-Aug-2024	28 days	15 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-2	E510	12-Aug-2024	27-Aug-2024	28 days	15 days	✓	27-Aug-2024	28 days	15 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-3	E510	10-Aug-2024	27-Aug-2024	28 days	16 days	✓	27-Aug-2024	28 days	17 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-1	E510	18-Aug-2024	27-Aug-2024	28 days	9 days	✓	27-Aug-2024	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
SW-4	E510	18-Aug-2024	27-Aug-2024	28 days	9 days	✓	27-Aug-2024	28 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SE18-1	E440	17-Aug-2024	27-Aug-2024	180 days	10 days	✓	27-Aug-2024	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SNW-1	E440	17-Aug-2024	27-Aug-2024	180 days	10 days	✓	27-Aug-2024	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DupB-SG	E440	13-Aug-2024	27-Aug-2024	180 days	13 days	✓	27-Aug-2024	180 days	14 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SCV-2	E440	13-Aug-2024	27-Aug-2024	180 days	13 days	✓	27-Aug-2024	180 days	14 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										
SCV-1	E440	12-Aug-2024	27-Aug-2024	180 days	14 days	✓	27-Aug-2024	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-2	E440	12-Aug-2024	27-Aug-2024	180 days	15 days	✓	27-Aug-2024	180 days	15 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-3	E440	10-Aug-2024	27-Aug-2024	180 days	16 days	✓	27-Aug-2024	180 days	17 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-1	E440	18-Aug-2024	27-Aug-2024	180 days	9 days	✓	27-Aug-2024	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
SW-4	E440	18-Aug-2024	27-Aug-2024	180 days	9 days	✓	27-Aug-2024	180 days	9 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
DupB-SG	E351	13-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SCV-1	E351	12-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SCV-2	E351	13-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
SE18-1	E351	17-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 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
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SNW-1	E351	17-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-1	E351	18-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-2	E351	12-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-3	E351	10-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SW-4	E351	18-Aug-2024	29-Aug-2024	----	----		29-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-1	E354	18-Aug-2024	----	----	----		29-Aug-2024	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-4	E354	18-Aug-2024	----	----	----		29-Aug-2024	----	11 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SE18-1	E354	17-Aug-2024	----	----	----		29-Aug-2024	----	12 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SNW-1	E354	17-Aug-2024	----	----	----		29-Aug-2024	----	12 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
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag DupB-SG	E354	13-Aug-2024	----	----	----		29-Aug-2024	----	16 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SCV-2	E354	13-Aug-2024	----	----	----		29-Aug-2024	----	16 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SCV-1	E354	12-Aug-2024	----	----	----		29-Aug-2024	----	17 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-2	E354	12-Aug-2024	----	----	----		29-Aug-2024	----	17 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SW-3	E354	10-Aug-2024	----	----	----		29-Aug-2024	----	19 days	
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SW-1	E184	18-Aug-2024	28-Aug-2024	365 days	10 days	✓	28-Aug-2024	365 days	10 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SW-4	E184	18-Aug-2024	28-Aug-2024	365 days	10 days	✓	28-Aug-2024	365 days	10 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SE18-1	E184	17-Aug-2024	28-Aug-2024	365 days	11 days	✓	28-Aug-2024	365 days	11 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SNW-1	E184	17-Aug-2024	28-Aug-2024	365 days	11 days	✓	28-Aug-2024	365 days	11 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag DupB-SG	E184	13-Aug-2024	28-Aug-2024	365 days	15 days	✓	28-Aug-2024	365 days	15 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SCV-2	E184	13-Aug-2024	28-Aug-2024	365 days	15 days	✓	28-Aug-2024	365 days	15 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SCV-1	E184	12-Aug-2024	28-Aug-2024	365 days	16 days	✓	28-Aug-2024	365 days	16 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SW-2	E184	12-Aug-2024	28-Aug-2024	365 days	16 days	✓	28-Aug-2024	365 days	16 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag SW-3	E184	10-Aug-2024	28-Aug-2024	365 days	18 days	✓	28-Aug-2024	365 days	18 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SW-1	E182	18-Aug-2024	28-Aug-2024	365 days	10 days	✓	28-Aug-2024	365 days	10 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SW-4	E182	18-Aug-2024	28-Aug-2024	365 days	10 days	✓	28-Aug-2024	365 days	10 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SE18-1	E182	17-Aug-2024	28-Aug-2024	365 days	11 days	✓	28-Aug-2024	365 days	11 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SNW-1	E182	17-Aug-2024	28-Aug-2024	365 days	11 days	✓	28-Aug-2024	365 days	11 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag DupB-SG	E182	13-Aug-2024	28-Aug-2024	365 days	15 days	✓	28-Aug-2024	365 days	15 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SCV-2	E182	13-Aug-2024	28-Aug-2024	365 days	15 days	✓	28-Aug-2024	365 days	15 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SCV-1	E182	12-Aug-2024	28-Aug-2024	365 days	16 days	✓	28-Aug-2024	365 days	16 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SW-2	E182	12-Aug-2024	28-Aug-2024	365 days	16 days	✓	28-Aug-2024	365 days	16 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag SW-3	E182	10-Aug-2024	28-Aug-2024	365 days	18 days	✓	28-Aug-2024	365 days	18 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SW-1	E181	18-Aug-2024	28-Aug-2024	365 days	10 days	✓	28-Aug-2024	365 days	10 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SW-4	E181	18-Aug-2024	28-Aug-2024	365 days	10 days	✓	28-Aug-2024	365 days	10 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SE18-1	E181	17-Aug-2024	28-Aug-2024	365 days	11 days	✓	28-Aug-2024	365 days	11 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SNW-1	E181	17-Aug-2024	28-Aug-2024	365 days	11 days	✓	28-Aug-2024	365 days	11 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag DupB-SG	E181	13-Aug-2024	28-Aug-2024	365 days	15 days	✓	28-Aug-2024	365 days	15 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SCV-2	E181	13-Aug-2024	28-Aug-2024	365 days	15 days	✓	28-Aug-2024	365 days	15 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SCV-1	E181	12-Aug-2024	28-Aug-2024	365 days	16 days	✓	28-Aug-2024	365 days	16 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SW-2	E181	12-Aug-2024	28-Aug-2024	365 days	16 days	✓	28-Aug-2024	365 days	16 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag SW-3	E181	10-Aug-2024	28-Aug-2024	365 days	18 days	✓	28-Aug-2024	365 days	18 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap DupB-SG	E144	13-Aug-2024	----	----	----		26-Aug-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SCV-2	E144	13-Aug-2024	----	----	----		26-Aug-2024	----	13 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SCV-1	E144	12-Aug-2024	----	----	----		26-Aug-2024	----	14 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap SW-2	E144	12-Aug-2024	----	----	----		26-Aug-2024	----	14 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										
SW-3	E144	10-Aug-2024	----	----	----		26-Aug-2024	----	16 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil methanol vial										
DupA-SG	E144	09-Aug-2024	----	----	----		27-Aug-2024	----	18 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil methanol vial										
KLK-Ref-1-SG	E144	09-Aug-2024	----	----	----		27-Aug-2024	----	18 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil methanol vial										
TGT-Ref-1-SG	E144	09-Aug-2024	----	----	----		27-Aug-2024	----	18 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-1	E144	18-Aug-2024	----	----	----		26-Aug-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SW-4	E144	18-Aug-2024	----	----	----		26-Aug-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SE18-1	E144	17-Aug-2024	----	----	----		26-Aug-2024	----	9 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
SNW-1	E144	17-Aug-2024	----	----	----		26-Aug-2024	----	9 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SE18-1	E108	17-Aug-2024	27-Aug-2024	30 days	10 days	✓	27-Aug-2024	30 days	10 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SNW-1	E108	17-Aug-2024	27-Aug-2024	30 days	10 days	✓	27-Aug-2024	30 days	10 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
DupB-SG	E108	13-Aug-2024	27-Aug-2024	30 days	13 days	✓	27-Aug-2024	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SCV-2	E108	13-Aug-2024	27-Aug-2024	30 days	13 days	✓	27-Aug-2024	30 days	14 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SCV-1	E108	12-Aug-2024	27-Aug-2024	30 days	14 days	✓	27-Aug-2024	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-2	E108	12-Aug-2024	27-Aug-2024	30 days	15 days	✓	27-Aug-2024	30 days	15 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-3	E108	10-Aug-2024	27-Aug-2024	30 days	16 days	✓	27-Aug-2024	30 days	17 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-1	E108	18-Aug-2024	27-Aug-2024	30 days	9 days	✓	27-Aug-2024	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
SW-4	E108	18-Aug-2024	27-Aug-2024	30 days	9 days	✓	27-Aug-2024	30 days	9 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
DupB-SG	E641A-L	13-Aug-2024	26-Aug-2024	14 days	13 days	✓	27-Aug-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SCV-2	E641A-L	13-Aug-2024	26-Aug-2024	14 days	13 days	✓	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SCV-1	E641A-L	12-Aug-2024	26-Aug-2024	14 days	14 days	✓	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-2	E641A-L	12-Aug-2024	26-Aug-2024	14 days	14 days	✓	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-3	E641A-L	10-Aug-2024	26-Aug-2024	14 days	16 days	× EHT	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-1	E641A-L	18-Aug-2024	26-Aug-2024	14 days	8 days	✓	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SW-4	E641A-L	18-Aug-2024	26-Aug-2024	14 days	8 days	✓	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SE18-1	E641A-L	17-Aug-2024	26-Aug-2024	14 days	9 days	✓	27-Aug-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
SNW-1	E641A-L	17-Aug-2024	26-Aug-2024	14 days	9 days	✓	27-Aug-2024	40 days	1 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
SW-1	E611C	18-Aug-2024	28-Aug-2024	40 days	10 days	✓	29-Aug-2024	40 days	11 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SW-4	E611C	18-Aug-2024	28-Aug-2024	40 days	10 days	✓	29-Aug-2024	40 days	11 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SE18-1	E611C	17-Aug-2024	28-Aug-2024	40 days	11 days	✓	29-Aug-2024	40 days	12 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SNW-1	E611C	17-Aug-2024	28-Aug-2024	40 days	11 days	✓	29-Aug-2024	40 days	12 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial DupB-SG	E611C	13-Aug-2024	28-Aug-2024	40 days	15 days	✓	29-Aug-2024	40 days	15 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SCV-2	E611C	13-Aug-2024	28-Aug-2024	40 days	15 days	✓	29-Aug-2024	40 days	15 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SCV-1	E611C	12-Aug-2024	28-Aug-2024	40 days	16 days	✓	29-Aug-2024	40 days	16 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SW-2	E611C	12-Aug-2024	28-Aug-2024	40 days	16 days	✓	29-Aug-2024	40 days	17 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial SW-3	E611C	10-Aug-2024	28-Aug-2024	40 days	18 days	✓	29-Aug-2024	40 days	18 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial DupA-SG	E611C	09-Aug-2024	28-Aug-2024	40 days	19 days	✓	29-Aug-2024	40 days	19 days	✓

Matrix: **Soil/Solid**

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

Analyte Group : Analytical Method / **Container / Client Sample ID(s)**	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
KLK-Ref-1-SG	E611C	09-Aug-2024	28-Aug-2024	40 days	19 days	✓	29-Aug-2024	40 days	20 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
TGT-Ref-1-SG	E611C	09-Aug-2024	28-Aug-2024	40 days	19 days	✓	29-Aug-2024	40 days	20 days	✓

Legend & Qualifier Definitions

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)							
BC PHCs - EPH by GC-FID	E601A	1617250	1	11	9.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1617251	1	9	11.1	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1617252	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1617253	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	1617255	1	14	7.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1617249	1	11	9.0	5.0	✓
Particle Size Analysis - Pipette Method	E184	1621937	1	9	11.1	5.0	✓
Particle Size Analysis - Sieve <2mm	E182	1621939	1	9	11.1	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1617254	1	12	8.3	5.0	✓
Total Carbon by Combustion	E351	1623604	2	40	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1623184	1	9	11.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1620885	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1620886	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
BC PHCs - EPH by GC-FID	E601A	1617250	1	11	9.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1617251	1	9	11.1	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1617252	2	12	16.6	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1617253	2	12	16.6	10.0	✓
Moisture Content by Gravimetry	E144	1617255	1	14	7.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1617249	1	11	9.0	5.0	✓
Particle Size Analysis - Pipette Method	E184	1621937	1	9	11.1	5.0	✓
Particle Size Analysis - Sieve <2mm	E182	1621939	1	9	11.1	5.0	✓
Particle Size Analysis - Sieve >2mm	E181	1621938	1	9	11.1	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1617254	1	12	8.3	5.0	✓
Total Carbon by Combustion	E351	1623604	4	40	10.0	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1623184	2	9	22.2	10.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1620885	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1620886	1	15	6.6	5.0	✓
Method Blanks (MB)							
BC PHCs - EPH by GC-FID	E601A	1617250	1	11	9.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1617251	1	9	11.1	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	1617252	1	12	8.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1617253	1	12	8.3	5.0	✓
Moisture Content by Gravimetry	E144	1617255	1	14	7.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1617249	1	11	9.0	5.0	✓

Matrix: **Soil/Solid**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Carbon by Combustion	E351	1623604	2	40	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1623184	1	9	11.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1620885	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1620886	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
BC PHCs - EPH by GC-FID	E601A	1617250	1	11	9.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601.SG	1617251	1	9	11.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1617249	1	11	9.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1620885	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1620886	1	15	6.6	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
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Particle Size Analysis - Sieve >2mm	E181 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913-17 (mod)	Soil samples are disaggregated and sieved through a 2mm sieve. Material retained on the sieve is then further sieved through a series of sieves. The amount passing through the sieves is measured gravimetrically.
Particle Size Analysis - Sieve <2mm	E182 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913-17 (mod)	Soil samples are disaggregated and sieved through a 2mm sieve. Material passed through the sieve is then further disaggregated using calgon solution and passed through a series of sieves. The amount passing through the sieves is measured gravimetrically.
Particle Size Analysis - Pipette Method	E184 ALS Environmental - Saskatoon	Soil/Solid	SSIR-51 Method 3.2.1	Soil material is separated from coarse material (>2mm). A specimen is then disaggregated through mixing with Calgon solution. The material is then suspended in solution wherein regular aliquots are taken using a mechanical pipette at specific time intervals. The aliquots are dried and material in suspension determined gravimetrically. The principles of Stokes' Law are applied to determine the amount of material remaining in solution as well as the maximum particle size remaining in solution at the specified time.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	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 - Vancouver	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.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601.SG ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual (EPH in Solids by GC/FID) (mod)	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Vancouver	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. Total Xylenes is the sum of m,p-Xylene & o-Xylene. Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, & Total Xylenes. Total BTEX+Styrene is the sum of Total BTEX & Styrene. Total Trihalomethanes [THMs] is the sum of Bromodichloromethane, Bromoform, Chloroform, & Dibromochloromethane.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Vancouver	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.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
F1-BTEX	EC580 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHs = Volatile Hydrocarbons (VH C6-C10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	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 - Vancouver	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 - Vancouver	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.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Saskatoon	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **VA24C1763**	Page	: 1 of 19
Client	: WSP Canada Inc.	Laboratory	: ALS Environmental - Vancouver
Contact	: Adrienne Ducharme	Account Manager	: Amber Springer
Address	: 840 Howe St, 10th Floor Vancouver BC Canada V6Z 2S9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: CA0026317.6821/86000/03	Date Samples Received	: 22-Aug-2024 08:35
PO	: ----	Date Analysis Commenced	: 26-Aug-2024
C-O-C number	: ----	Issue Date	: 30-Aug-2024 16:23
Sampler	: ----		
Site	: Baffinland Milne Port		
Quote number	: VA24-GOLD100-011		
No. of samples received	: 12		
No. of samples analysed	: 12		

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*
Colby Bingham	Laboratory Supervisor	Saskatoon Inorganics, Saskatoon, Saskatchewan
Ghazaleh Khanmirzaei	Analyst	Vancouver Metals, Burnaby, British Columbia
Hedy Lai	Team Leader - Inorganics	Saskatoon Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Saskatoon Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Vancouver Organics, Burnaby, British Columbia

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: 1617254)											
VA24C1754-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.55	7.57	0.3%	5%	----
Physical Tests (QC Lot: 1617255)											
VA24C1754-001	Anonymous	Moisture	----	E144	0.25	%	34.4	30.8	11.1%	20%	----
Percent Passing (QC Lot: 1621937)											
VA24C1763-001	SW-3	Passing (0.002mm)	----	E184	1.0	%	1.6	1.7	0.1	Diff <2x LOR	----
		Passing (0.004mm)	----	E184	1.0	%	1.9	2.0	0.07	Diff <2x LOR	----
		Passing (0.005mm)	----	E184	1.0	%	2.0	2.0	0.06	Diff <2x LOR	----
		Passing (0.020mm)	----	E184	1.0	%	3.5	3.5	0.005	Diff <2x LOR	----
		Passing (0.0312mm)	----	E184	1.0	%	4.4	4.5	0.1	Diff <2x LOR	----
Percent Passing (QC Lot: 1621939)											
VA24C1763-001	SW-3	Passing (0.05mm)	----	E182	1.0	%	5.9	6.2	0.3	Diff <2x LOR	----
		Passing (0.063mm)	----	E182	1.0	%	7.4	8.1	0.7	Diff <2x LOR	----
		Passing (0.075mm)	----	E182	1.0	%	8.8	9.9	1.1	Diff <2x LOR	----
		Passing (0.125mm)	----	E182	1.0	%	14.6	17.2	16.1%	15%	PSDL
		Passing (0.149mm)	----	E182	1.0	%	27.1	29.6	8.86%	15%	----
		Passing (0.250mm)	----	E182	1.0	%	79.8	82.1	2.84%	15%	----
		Passing (0.420mm)	----	E182	1.0	%	92.9	93.7	0.903%	15%	----
		Passing (0.50mm)	----	E182	1.0	%	99.0	99.2	0.160%	15%	----
		Passing (0.841mm)	----	E182	1.0	%	99.4	99.5	0.0950%	15%	----
		Passing (1.0mm)	----	E182	1.0	%	99.6	99.7	0.0649%	15%	----
Organic / Inorganic Carbon (QC Lot: 1623184)											
VA24C1763-001	SW-3	Carbon, inorganic [IC]	----	E354	0.050	%	0.868	0.884	1.73%	20%	----
Organic / Inorganic Carbon (QC Lot: 1623604)											
VA24C1223-016	Anonymous	Carbon, total [TC]	----	E351	0.050	%	38.9	39.0	0.363%	20%	----
Organic / Inorganic Carbon (QC Lot: 1623734)											
CG2412030-025	Anonymous	Carbon, total [TC]	----	E351	0.050	%	6.82	7.58	10.6%	20%	----
Metals (QC Lot: 1617252)											
VA24C1754-001	Anonymous	Mercury	7439-97-6	E510	0.0500	mg/kg	0.120	0.124	0.0038	Diff <2x LOR	----
Metals (QC Lot: 1617253)											
VA24C1754-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	21900	19200	13.5%	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: 1617253) - continued											
VA24C1754-001	Anonymous	Antimony	7440-36-0	E440	0.10	mg/kg	0.59	0.68	0.09	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	6.06	5.71	5.98%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	879	740	17.2%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.60	0.56	0.04	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	0.64	0.68	0.03	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	121	110	10.0%	30%	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.351	0.382	8.42%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	38000	37000	2.69%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	26.7	26.6	0.310%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	9.72	9.33	4.08%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	109	103	5.11%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	20100	18900	6.17%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	56.5	61.5	8.45%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	17.6	16.0	9.68%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	6930	6030	13.9%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	311	294	5.58%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	1.83	1.69	7.56%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	39.3	37.5	4.75%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	2100	1860	12.2%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	980	920	5.45%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.28	0.30	0.02	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.18	0.16	0.02	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	1090	955	13.2%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	1030	886	15.2%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	4100	4800	600	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	2.1	2.3	0.2	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	1060	1040	2.51%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.988	0.913	7.82%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	71.2	67.7	5.08%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	149	153	2.32%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	7.1	6.5	9.68%	30%	----
Volatile Organic Compounds (QC Lot: 1620886)											

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: 1620886) - continued											
VA24C1043-004	Anonymous	Benzene	71-43-2	E611C	0.0058	mg/kg	<0.0058	<0.0058	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611C	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1620886) - continued											
VA24C1043-004	Anonymous	Xylene, o-	95-47-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1617250)											
VA24C1763-001	SW-3	EPH (C10-C19)	----	E601A	200	mg/kg	<200	<200	0	Diff <2x LOR	----
		EPH (C19-C32)	----	E601A	200	mg/kg	<200	<200	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1617251)											
VA24C1763-001	SW-3	F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	<25	0	Diff <2x LOR	----
		F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
		F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	<50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1620885)											
VA24C1043-004	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		VHs (C6-C10)	----	E581.VH+F1	10	mg/kg	<10	<10	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1617249)											
VA24C1763-001	SW-3	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	----
		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	----

Qualifiers

Qualifier	Description
PSDL	Particle size duplicate results exceed ALS RPD DQO, but are within 5% absolute difference and are considered reliable.

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: 1617255)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1623184)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1623604)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1623734)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1617252)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1617253)						
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	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
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	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
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	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1617253) - continued						
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
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	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
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	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1620886)						
Benzene	71-43-2	E611C	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611C	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	<0.050	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611C	0.05	mg/kg	<0.050	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	<0.050	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1620886) - continued						
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	<0.050	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	<0.050	----
Hydrocarbons (QCLot: 1617250)						
EPH (C10-C19)	----	E601A	200	mg/kg	<200	----
EPH (C19-C32)	----	E601A	200	mg/kg	<200	----
Hydrocarbons (QCLot: 1617251)						
F2 (C10-C16)	----	E601.SG	25	mg/kg	<25	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	<50	----
Hydrocarbons (QCLot: 1620885)						
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	<5.0	----
VHs (C6-C10)	----	E581.VH+F1	10	mg/kg	<10	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1617249)						
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	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1617249) - continued						
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	----
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	----

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
Physical Tests (QCLot: 1617254)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	99.8	95.0	105	----
Physical Tests (QCLot: 1617255)									
Moisture	----	E144	0.25	%	50 %	99.5	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1623184)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	98.4	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1623604)									
Carbon, total [TC]	----	E351	0.05	%	48 %	101	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1623734)									
Carbon, total [TC]	----	E351	0.05	%	48 %	101	90.0	110	----
Metals (QCLot: 1617252)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	87.2	80.0	120	----
Metals (QCLot: 1617253)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	105	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	97.4	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	103	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	99.7	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	98.1	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	101	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	102	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	99.0	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	102	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	109	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 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	98.0	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	99.8	80.0	120	----

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: 1617253) - continued									
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	109	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	104	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	93.7	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	105	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	104	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	98.5	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	100	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	97.5	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	97.4	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	106	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	104	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	101	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	98.2	80.0	120	----
Volatile Organic Compounds (QCLot: 1620886)									
Benzene	71-43-2	E611C	0.005	mg/kg	2.5 mg/kg	114	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Bromoform	75-25-2	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	2.5 mg/kg	119	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	2.5 mg/kg	116	70.0	130	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	2.5 mg/kg	134	60.0	140	----
Chloroform	67-66-3	E611C	0.05	mg/kg	2.5 mg/kg	114	70.0	130	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	2.5 mg/kg	109	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	2.5 mg/kg	108	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	2.5 mg/kg	114	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	2.5 mg/kg	120	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	2.5 mg/kg	118	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	2.5 mg/kg	130	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	2.5 mg/kg	109	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	2.5 mg/kg	111	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	2.5 mg/kg	110	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	2.5 mg/kg	122	70.0	130	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	2.5 mg/kg	115	60.0	140	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	2.5 mg/kg	112	70.0	130	----

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
Volatile Organic Compounds (QCLot: 1620886) - continued									
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	2.5 mg/kg	109	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	2.5 mg/kg	109	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	2.5 mg/kg	110	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	2.5 mg/kg	110	70.0	130	----
Styrene	100-42-5	E611C	0.05	mg/kg	2.5 mg/kg	107	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	2.5 mg/kg	110	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	2.5 mg/kg	99.1	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	2.5 mg/kg	122	70.0	130	----
Toluene	108-88-3	E611C	0.05	mg/kg	2.5 mg/kg	114	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	2.5 mg/kg	117	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	2.5 mg/kg	104	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	2.5 mg/kg	118	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	2.5 mg/kg	91.2	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	2.5 mg/kg	119	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	5 mg/kg	116	70.0	130	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	2.5 mg/kg	113	70.0	130	----
Hydrocarbons (QCLot: 1617250)									
EPH (C10-C19)	----	E601A	200	mg/kg	1130 mg/kg	92.1	70.0	130	----
EPH (C19-C32)	----	E601A	200	mg/kg	576 mg/kg	96.0	70.0	130	----
Hydrocarbons (QCLot: 1617251)									
F2 (C10-C16)	----	E601.SG	25	mg/kg	619 mg/kg	106	70.0	130	----
F3 (C16-C34)	----	E601.SG	50	mg/kg	1240 mg/kg	98.8	70.0	130	----
F4 (C34-C50)	----	E601.SG	50	mg/kg	994 mg/kg	96.8	70.0	130	----
Hydrocarbons (QCLot: 1620885)									
F1 (C6-C10)	----	E581.VH+F1	5	mg/kg	60.2 mg/kg	105	70.0	130	----
VHs (C6-C10)	----	E581.VH+F1	10	mg/kg	59.1 mg/kg	97.8	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1617249)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	96.4	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	96.2	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	81.8	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	94.7	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	94.7	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	90.4	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	87.2	60.0	130	----

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
Polycyclic Aromatic Hydrocarbons (QCLot: 1617249) - continued									
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	91.4	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	83.1	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	102	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	88.7	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	96.8	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	96.6	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	90.6	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	92.1	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	102	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	93.0	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	94.2	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	98.7	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	74.9	60.0	130	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1620886)										
VA24C1043-004	Anonymous	Benzene	71-43-2	E611C	2.79 mg/kg	2.93 mg/kg	95.1	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	2.70 mg/kg	2.93 mg/kg	92.1	60.0	140	----
		Bromoform	75-25-2	E611C	2.92 mg/kg	2.93 mg/kg	99.4	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	2.82 mg/kg	2.93 mg/kg	96.3	60.0	140	----
		Chlorobenzene	108-90-7	E611C	2.93 mg/kg	2.93 mg/kg	100	60.0	140	----
		Chloroethane	75-00-3	E611C	3.02 mg/kg	2.93 mg/kg	103	60.0	140	----
		Chloroform	67-66-3	E611C	2.77 mg/kg	2.93 mg/kg	94.6	60.0	140	----
		Chloromethane	74-87-3	E611C	2.68 mg/kg	2.93 mg/kg	91.6	60.0	140	----
		Dibromochloromethane	124-48-1	E611C	2.83 mg/kg	2.93 mg/kg	96.7	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	2.91 mg/kg	2.93 mg/kg	99.2	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	3.03 mg/kg	2.93 mg/kg	103	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	3.10 mg/kg	2.93 mg/kg	106	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	2.79 mg/kg	2.93 mg/kg	95.1	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	2.72 mg/kg	2.93 mg/kg	92.8	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	2.60 mg/kg	2.93 mg/kg	88.8	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	2.65 mg/kg	2.93 mg/kg	90.5	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	2.77 mg/kg	2.93 mg/kg	94.4	60.0	140	----
		Dichloromethane	75-09-2	E611C	2.80 mg/kg	2.93 mg/kg	95.4	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	2.80 mg/kg	2.93 mg/kg	95.4	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	2.80 mg/kg	2.93 mg/kg	95.4	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	2.88 mg/kg	2.93 mg/kg	98.2	60.0	140	----
		Ethylbenzene	100-41-4	E611C	2.73 mg/kg	2.93 mg/kg	93.0	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	2.96 mg/kg	2.93 mg/kg	101	60.0	140	----
		Styrene	100-42-5	E611C	2.85 mg/kg	2.93 mg/kg	97.1	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	2.82 mg/kg	2.93 mg/kg	96.3	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	2.59 mg/kg	2.93 mg/kg	88.4	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	2.83 mg/kg	2.93 mg/kg	96.7	60.0	140	----
		Toluene	108-88-3	E611C	2.83 mg/kg	2.93 mg/kg	96.6	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	2.88 mg/kg	2.93 mg/kg	98.2	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	2.70 mg/kg	2.93 mg/kg	92.1	60.0	140	----
		Trichloroethylene	79-01-6	E611C	2.79 mg/kg	2.93 mg/kg	95.2	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	3.16 mg/kg	2.93 mg/kg	108	60.0	140	----
		Vinyl chloride	75-01-4	E611C	2.68 mg/kg	2.93 mg/kg	91.2	60.0	140	----
		Xylene, m+p-	179601-23-1	E611C	5.94 mg/kg	5.86 mg/kg	101	60.0	140	----
		Xylene, o-	95-47-6	E611C	2.82 mg/kg	2.93 mg/kg	96.0	60.0	140	----
Hydrocarbons (QCLot: 1617250)										
VA24C1763-001	SW-3	EPH (C10-C19)	----	E601A	780 mg/kg	929 mg/kg	84.3	60.0	140	----
		EPH (C19-C32)	----	E601A	420 mg/kg	472 mg/kg	90.1	60.0	140	----
Hydrocarbons (QCLot: 1617251)										

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Hydrocarbons (QCLot: 1617251) - continued										
VA24C1763-002	SW-2	F2 (C10-C16)	----	E601.SG	497 mg/kg	519 mg/kg	95.7	60.0	140	----
		F3 (C16-C34)	----	E601.SG	962 mg/kg	1040 mg/kg	92.2	60.0	140	----
		F4 (C34-C50)	----	E601.SG	762 mg/kg	834 mg/kg	91.3	60.0	140	----
Hydrocarbons (QCLot: 1620885)										
VA24C1671-003	Anonymous	F1 (C6-C10)	----	E581.VH+F1	120 mg/kg	166 mg/kg	72.6	60.0	140	----
		VHs (C6-C10)	----	E581.VH+F1	110 mg/kg	152 mg/kg	72.4	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1617249)										
VA24C1763-001	SW-3	Acenaphthene	83-32-9	E641A-L	0.413 mg/kg	0.418 mg/kg	99.0	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.409 mg/kg	0.418 mg/kg	98.0	50.0	140	----
		Acridine	260-94-6	E641A-L	0.380 mg/kg	0.418 mg/kg	91.0	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.397 mg/kg	0.418 mg/kg	95.1	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.414 mg/kg	0.418 mg/kg	99.2	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.385 mg/kg	0.418 mg/kg	92.2	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.357 mg/kg	0.418 mg/kg	85.6	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.378 mg/kg	0.418 mg/kg	90.6	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.352 mg/kg	0.418 mg/kg	84.2	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.431 mg/kg	0.418 mg/kg	103	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.366 mg/kg	0.418 mg/kg	87.6	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.408 mg/kg	0.418 mg/kg	97.7	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.406 mg/kg	0.418 mg/kg	97.3	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.386 mg/kg	0.418 mg/kg	92.4	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.389 mg/kg	0.418 mg/kg	93.2	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.441 mg/kg	0.418 mg/kg	106	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.396 mg/kg	0.418 mg/kg	94.8	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.393 mg/kg	0.418 mg/kg	94.1	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.412 mg/kg	0.418 mg/kg	98.6	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.327 mg/kg	0.418 mg/kg	78.3	50.0	140	----

Reference Material (RM) Report

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

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Percent Passing (QCLot: 1621937)									
QC-1621937-001	RM	Passing (0.002mm)	----	E184	22.5 %	103	74.1	126	----
QC-1621937-001	RM	Passing (0.004mm)	----	E184	25.1 %	102	76.8	123	----
QC-1621937-001	RM	Passing (0.005mm)	----	E184	26.5 %	102	77.9	122	----
QC-1621937-001	RM	Passing (0.020mm)	----	E184	41.8 %	97.0	85.8	114	----
QC-1621937-001	RM	Passing (0.0312mm)	----	E184	45.6 %	102	88.0	112	----
Percent Passing (QCLot: 1621938)									
QC-1621938-001	RM	Passing (19mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (2.0mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (25.4mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (38.1mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (4.75mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (50.8mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (76.2mm)	----	E181	100 %	100	90.0	110	----
QC-1621938-001	RM	Passing (9.5mm)	----	E181	100 %	100	90.0	110	----
Percent Passing (QCLot: 1621939)									
QC-1621939-001	RM	Passing (0.05mm)	----	E182	54.1 %	104	90.0	110	----
QC-1621939-001	RM	Passing (0.063mm)	----	E182	57.1 %	102	90.8	109	----
QC-1621939-001	RM	Passing (0.075mm)	----	E182	60.2 %	100	91.4	109	----
QC-1621939-001	RM	Passing (0.125mm)	----	E182	68.2 %	101	92.7	107	----
QC-1621939-001	RM	Passing (0.149mm)	----	E182	72 %	99.3	93.1	107	----
QC-1621939-001	RM	Passing (0.250mm)	----	E182	82.3 %	99.9	94.1	106	----
QC-1621939-001	RM	Passing (0.420mm)	----	E182	89.9 %	98.2	94.6	105	----
QC-1621939-001	RM	Passing (0.50mm)	----	E182	91.2 %	100	94.7	105	----
QC-1621939-001	RM	Passing (0.841mm)	----	E182	95.6 %	98.9	94.9	105	----
QC-1621939-001	RM	Passing (1.0mm)	----	E182	96.3 %	99.8	94.9	105	----
Organic / Inorganic Carbon (QCLot: 1623184)									
QC-1623184-003	RM	Carbon, inorganic [IC]	----	E354	0.383 %	100	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1623604)									
QC-1623604-003	RM	Carbon, total [TC]	----	E351	1.4 %	99.2	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1623734)									
QC-1623734-003	RM	Carbon, total [TC]	----	E351	1.4 %	98.7	80.0	120	----
Metals (QCLot: 1617252)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Metals (QCLot: 1617252) - continued									
QC-1617252-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	102	70.0	130	----
Metals (QCLot: 1617253)									
QC-1617253-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	112	70.0	130	----
QC-1617253-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	104	70.0	130	----
QC-1617253-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	103	70.0	130	----
QC-1617253-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	102	70.0	130	----
QC-1617253-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	106	70.0	130	----
QC-1617253-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	105	70.0	130	----
QC-1617253-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	103	70.0	130	----
QC-1617253-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	103	70.0	130	----
QC-1617253-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	101	70.0	130	----
QC-1617253-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	101	70.0	130	----
QC-1617253-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	96.9	70.0	130	----
QC-1617253-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	104	70.0	130	----
QC-1617253-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	97.5	70.0	130	----
QC-1617253-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	110	70.0	130	----
QC-1617253-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	105	70.0	130	----
QC-1617253-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	100	70.0	130	----
QC-1617253-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	101	70.0	130	----
QC-1617253-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	99.9	70.0	130	----
QC-1617253-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	115	70.0	130	----
QC-1617253-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	106	70.0	130	----
QC-1617253-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	111	60.0	140	----
QC-1617253-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	101	70.0	130	----
QC-1617253-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	113	70.0	130	----
QC-1617253-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	107	70.0	130	----
QC-1617253-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	91.9	50.0	150	----
QC-1617253-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	100	70.0	130	----
QC-1617253-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	102	40.0	160	----
QC-1617253-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	107	70.0	130	----
QC-1617253-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	113	70.0	130	----
QC-1617253-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	104	70.0	130	----
QC-1617253-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	103	70.0	130	----
QC-1617253-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	101	70.0	130	----
QC-1617253-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	108	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

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Environmental Division
Vancouver
Work Order Reference
VA24C1763

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	WSP Canada Inc.
Contact:	Elaine Irving/Adrienne Ducharme
Phone:	1-604-297-2030/1-604-296-2689
	Company address below will appear on the final report
Street:	840 Howe Street, 10th Floor
City/Province:	Vancouver, BC
Postal Code:	V6Z 2M1
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)
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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,
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please cont

Project Information

ALS Account # / Quote #:	
Job #:	VA24-GOLD100-011
PO / AFE:	CA0026317.6821/86000/03
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): 1763

ALS Contact: Amber Springer Sampler: TT

Analysis Requ

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	Particle Size (Wentworth - S184EA)	TOC, TIC, OC, org. matter (S351)	Metals + Hg + pH (CA09)	Moisture (E144)	EPH/LEPH/HEPH/PAHs (S668A)	PHC F2-F4 (E601.SG)	VOC/VPH/F1/BTEX, MTBE(S655C.A)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	SW-3	10-Aug-24	15:30	Sediment	6	R	R	R	R	R	R	R			
	SW-2	12-Aug-24	10:40	Sediment	6	R	R	R	R	R	R	R			
	SCV-1	12-Aug-24	15:00	Sediment	6	R	R	R	R	R	R	R			
	SCV-2	13-Aug-24	14:45	Sediment	6	R	R	R	R	R	R	R			
	SNW-1	17-Aug-24	12:30	Sediment	6	R	R	R	R	R	R	R			
	SE 18-1	17-Aug-24	11:00	Sediment	6	R	R	R	R	R	R	R			
	SW-1	18-Aug-24	11:30	Sediment	6	R	R	R	R	R	R	R			
	SW-4	18-Aug-24	9:30	Sediment	6	R	R	R	R	R	R	R			
	DUPB-SG	13-Aug-24	—	Sediment	6	R	R	R	R	R	R	R			
	TGT-Ref-1-SG	09-Aug-24	12:00	Sediment	2							R			
	KHK-Ref-1-SG	09-Aug-24	10:00	Sediment	2							R			
	DUPA-SG	09-Aug-24	—	Sediment	2							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)

Refer to quote GOLD100-011

SAMPLE RECEIPT DETAILS (ALS use only)

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6	3	2	3

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Patricia Tomliens	20-Aug-24	11:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
JC	22-8-24	835am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

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

APPENDIX 3D

Sediment Analytical Results

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqP(@1% TOC)	SCV-1	SCV-2	DupB-SG	SW-1	SW-2	SW-3	SW-4	SNW-1	SE18-1
Date Sampled													12-Aug-2024	13-Aug-2024	13-Aug-2024	18-Aug-2024	12-Aug-2024	10-Aug-2024	18-Aug-2024	17-Aug-2024	17-Aug-2024
Time Sampled													15:00	14:45	00:00	11:30	10:40	15:30	09:30	12:30	11:00
Laboratory Sample ID													VA24C1763-003	VA24C1763-004	VA24C1763-009	VA24C1763-007	VA24C1763-002	VA24C1763-001	VA24C1763-008	VA24C1763-005	VA24C1763-006
QA/QC														FDA	FD						
Parent Sample ID															SCV-2						
Physical Parameters																					
Moisture	0.25	%	-	-	-	-	-	-	-	-	-	-	23.2	16.8	19.7	12.1	17	21.1	23.1	19.8	19.6
pH (1:2 soil:water)	0.1	pH units	-	-	-	-	-	-	-	-	-	-	8.34	8.58	8.57	9.03	8.81	8.59	8.47	8.37	8.49
Particle Size																					
Clay (<0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	7.4	1.4	1.4	<1.0	1.3	1.9	2.7	5.5	1.8
Silt (0.063mm - 0.004mm)	1	%	-	-	-	-	-	-	-	-	-	-	35.3	3.8	3.3	1.2	2.2	5.5	12.5	21.5	4.6
Sand (2.0mm - 0.063mm)	1	%	-	-	-	-	-	-	-	-	-	-	47.1	94.1	94.2	78.6	95.5	92.3	54.9	64.5	92.1
Gravel (>2mm)	1	%	-	-	-	-	-	-	-	-	-	-	10.2	<1.0	1.1	20.2	1	<1.0	29.9	8.5	1.5
Organic / Inorganic Carbon																					
Inorganic Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	1.7	0.694	0.838	1.11	0.772	0.868	1.1	1.4	0.8
Total Carbon	0.05	%	-	-	-	-	-	-	-	-	-	-	4.33	1.14	1.13	1.39	1.09	1.59	2.56	3.04	1.35
Total Organic Carbon	0.152 - 0.476	%	-	-	-	-	-	-	-	-	-	-	2.63	0.446	0.292	0.28	0.318	0.722	1.46	1.64	0.55
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	-	-	-	-	-	-	-	-	-	-	14.2	5.79	6.98	9.24	6.43	7.24	9.14	11.7	6.66
Organic Matter	0.15 - 0.48	%	-	-	-	-	-	-	-	-	-	-	4.53	0.77	0.5	0.48	0.55	1.24	2.52	2.83	0.95
Metals																					
Aluminum	50	mg/kg	-	-	-	-	-	-	-	-	18000	-	5210	1530	1280	1020	1180	2450	4000	4550	1690
Antimony	0.1	mg/kg	-	-	0.63	-	-	2.4	-	-	9.3	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	0.1	mg/kg	7.24	41.6	7.4	7.24	8.2	20	41.6	70	35	-	3.61	1.17	0.93	0.36	0.51	1.48	3.59	3.74	1.35
Barium	0.5	mg/kg	-	-	-	130.1	-	-	-	-	48	-	14.9	4.25	3.9	3.1	4.32	9.24	13.1	12.4	4.59
Beryllium	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.32	0.1	<0.10	<0.10	<0.10	0.14	0.23	0.28	0.11
Bismuth	0.2	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	5	mg/kg	-	-	-	-	-	-	-	-	-	-	36.1	10.9	8.7	7.6	8.4	13.8	25.3	31.1	12.3
Cadmium	0.02	mg/kg	0.7	4.2	0.38	0.68	1.2	1.4	4.21	9.6	3	-	0.049	<0.020	<0.020	<0.020	<0.020	<0.020	0.059	0.035	<0.020
Calcium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	70000	18700	18100	23200	18400	26400	49800	51900	20500
Chromium	0.5	mg/kg	52.3	160	49	52.3	81	141	160	370	62	-	17.6	5.28	5.52	3.05	4.5	9.51	14.8	14.7	6.19
Cobalt	0.1	mg/kg	-	-	-	-	-	-	-	-	10	-	3.16	0.98	0.93	0.64	0.84	1.95	2.67	3.04	1.14
Copper	0.5	mg/kg	18.7	108	32	18.7	34	94	108	270	390	-	6.46	1.48	1.36	1.15	1.36	2.4	4.27	6.12	2.14
Iron	50	mg/kg	-	-	-	-	-	-	-	-	220000	-	14500	5040	3810	2390	3830	11400	17800	25300	9620
Lead	0.5	mg/kg	30.2	112	30	30.24	46.7	94	112	218	400	-	4.52	1.58	1.08	0.85	1.04	1.93	2.93	3.86	1.56
Lithium	2	mg/kg	-	-	-	-	-	-	-	-	-	-	23.5	6.9	6.3	4.9	5.5	10.5	17.7	20	7.4
Magnesium	20	mg/kg	-	-	-	-	-	-	-	-	-	-	38100	10400	9700	10400	10100	14400	25600	27500	11300
Manganese	1	mg/kg	-	-	-	-	-	-	-	-	260	-	136	39.8	37.4	33.2	34	78.5	108	138	49.8
Mercury	0.005	mg/kg	0.13	0.7	0.14	0.13	0.15	0.48	0.7	0.71	0.41	-	0.009	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0055	0.0075	<0.0050
Molybdenum	0.1	mg/kg	-	-	-	-	-	-	-	-	-	-	0.36	0.12	0.1	0.1	0.12	0.24	0.57	0.47	0.2
Nickel	0.5	mg/kg	30[(a)]	50[(a)]	15	15.9	20.9	47	42.8	51.6	110	-	9.6	2.72	2.71	1.57	2.38	5.47	8.08	8.41	3.15
Phosphorus	50	mg/kg	-	-	-	-	-	-	-	-	-	-	424	146	116	133	143	253	388	365	166
Potassium	100	mg/kg	-	-	-	-	-	-	-	-	-	-	2240	740	650	480	560	1190	1800	1880	770
Selenium	0.2	mg/kg	-	-	-	-	-	-	-	-	1	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver	0.1	mg/kg	1[(a)]	2.2[(a)]	0.23	0.73	1	1.1	1.77	3.7	3.1	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	50	mg/kg	-	-	-	-	-	-	-	-	-	-	4010	1970	2540	1330	2050	2090	3010	3330	2670
Strontium	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	46.7	14.1	12.7	16	12.6	19.6	46.2	36.1	15.4
Sulfur	1000	mg/kg	-	-	-	-	-	-	-	-	-	-	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Thallium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.092	<0.050	<0.050	<0.050	<0.050	0.063	0.081	0.075	<0.050
Tin	2	mg/kg	-	-	-	0.048	-	-	-	-	3.4	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	234	92.8	87.4	53.2	76	197	256	196	101
Tungsten	0.5	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	0.784	0.229	0.186	0.244	0.18	0.387	0.531	0.718	0.288
Vanadium	0.2	mg/kg	-	-	-	-	-	-	-	-	57	-	18.9	5.33	4.83	3.17	4.66	8.88	14.5	16	6.29
Zinc	2	mg/kg	124	271	94	124	150	245	271	410	410	-	14.8	4.4	4.8	3.1	3.9	8.1	12.5	13.2	5.3
Zirconium	1	mg/kg	-	-	-	-	-	-	-	-	-	-	5.9	2	1.4	1.4	1.6	2.6	3.6	5.2	2

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqP(@1% TOC)	SCV-1	SCV-2	DupB-SG	SW-1	SW-2	SW-3	SW-4	SNW-1	SE18-1
Date Sampled Time Sampled Laboratory Sample ID QA/QC Parent Sample ID			ISQG	PEL	T_{20}	TEL	ERL	T_{50}	PEL	ERM	AET		12-Aug-2024 15:00 VA24C1763-003	13-Aug-2024 14:45 VA24C1763-004 FDA	13-Aug-2024 00:00 VA24C1763-009 FD SCV-2	18-Aug-2024 11:30 VA24C1763-007	12-Aug-2024 10:40 VA24C1763-002	10-Aug-2024 15:30 VA24C1763-001	18-Aug-2024 09:30 VA24C1763-008	17-Aug-2024 12:30 VA24C1763-005	17-Aug-2024 11:00 VA24C1763-006
BTEX																					
Benzene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	0.06	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ethylbenzene	0.015	mg/kg	-	-	-	-	-	-	-	-	0.004	3.6	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*
Toluene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.67	<0.050	<0.050	<0.050	0.057	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, m+p-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	0.025	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene, o-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylenes, total	0.075	mg/kg	-	-	-	-	-	-	-	-	0.004	-	*<0.075*	*<0.075*	*<0.075*	*<0.075*	*<0.075*	*<0.075*	*<0.075*	*<0.075*	*<0.075*
Methyl-tert-butyl ether [MTBE]	0.04	mg/kg											<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Volatile Organic Compounds																					
Chlorobenzene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,3-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,4-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropane, 1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropylene, cis+trans-1,3-	0.075	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075
Dichloropropylene, cis-1,3-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,1-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,1-	0.05 - 0.43	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.210	<0.110	<0.060	<0.050	<0.050	<0.140	<0.050	<0.115	<0.115
Dichloroethylene, cis-1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, trans-1,2-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloromethane	0.045	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045
Dichloropropylene, trans-1,3-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,1-	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl chloride	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromodichloromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	0.05	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hydrocarbons																					
F1 (C6-C10)	5	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
F1-BTEX	5	mg/kg	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
EPH (C10-C19)	200	mg/kg	-	-	-	-	-	-	-	-	-	-	<200	<200	<200	<200	<200	<200	<200	<200	<200
EPH (C19-C32)	200	mg/kg	-	-	-	-	-	-	-	-	-	-	<200	<200	<200	<200	<200	<200	<200	<200	<200
F2 (C10-C16)	25	mg/kg	-	-	-	-	-	-	-	-	-	-	<25	<25	<25	<25	<25	<25	<25	<25	<25
F3 (C16-C34)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	50	mg/kg	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50
VHs (C6-C10)	10	mg/kg	-	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
VPHs	10	mg/kg	-	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
LEPHs	200	mg/kg	-	-	-	-	-	-	-	-	-	-	<200	<200	<200	<200	<200	<200	<200	<200	<200
HEPHs	200	mg/kg	-	-	-	-	-	-	-	-	-	-	<200	<200	<200	<200	<200	<200	<200	<200	<200
TEH (C10-C50)	75	mg/kg	-	-	-	-	-	-	-	-	-	-	<75	<75	<75	<75	<75	<75	<75	<75	<75
TEH (C16-C50)	75	mg/kg	-	-	-	-	-	-	-	-	-	-	<75	<75	<75	<75	<75	<75	<75	<75	<75

Sample ID	Lowest Detection Limits	Units	CCME [1]		NOAA Sediment Benchmarks [2]							Eco Tox EqP(@1% TOC)	SCV-1	SCV-2	DupB-SG	SW-1	SW-2	SW-3	SW-4	SNW-1	SE18-1
Date Sampled													12-Aug-2024	13-Aug-2024	13-Aug-2024	18-Aug-2024	12-Aug-2024	10-Aug-2024	18-Aug-2024	17-Aug-2024	17-Aug-2024
Time Sampled													15:00	14:45	00:00	11:30	10:40	15:30	09:30	12:30	11:00
Laboratory Sample ID													VA24C1763-003	VA24C1763-004	VA24C1763-009	VA24C1763-007	VA24C1763-002	VA24C1763-001	VA24C1763-008	VA24C1763-005	VA24C1763-006
QA/QC														FDA	FD						
Parent Sample ID															SCV-2						
Polycyclic Aromatic Hydrocarbons																					
Acenaphthene	0.005	mg/kg	0.00671	0.0889	0.019	0.007	0.016	0.116	0.089	0.500	0.130	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.005	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	0.004	mg/kg	0.0469	0.245	0.034	0.0469	0.0853	0.29	0.245	1.1	0.28	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Benz(a)anthracene	0.01	mg/kg	0.0748	0.693	0.061	0.0748	0.261	0.466	0.693	1.6	0.96	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	mg/kg	0.0888	0.763	0.069	0.0888	0.43	0.52	0.763	1.6	1.1	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j)fluoranthene	0.01	mg/kg	-	-	0.13	-	-	1.107	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	0.01	mg/kg	0.31[(a)]	0.78[(a)]	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	0.01	mg/kg	2.3[(a)]	4.5[(a)]	0.07	-	-	0.537	-	-	1.8	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	0.01	mg/kg	0.108	0.846	0.082	0.108	0.384	0.65	0.846	2.8	0.95	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	0.005	mg/kg	0.00622	0.135	0.019	0.00622	0.0634	0.113	0.135	0.26	0.23	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.01	mg/kg	0.113	1.494	0.119	0.113	0.6	1.034	1.494	5.1	1.3	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	0.01	mg/kg	0.0212	0.144	0.019	0.0212	0.019	0.114	0.144	0.54	0.12	0.54	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	0.34[(a)]	0.88[(a)]	0.068	-	-	0.488	-	-	0.6	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	0.01	mg/kg	-	-	0.021	-	-	0.094	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	0.01	mg/kg	0.0202	0.201	0.021	0.0202	0.07	0.128	0.201	0.67	0.064	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.01	mg/kg	0.0346	0.391	0.03	0.0346	0.16	0.217	0.391	2.1	0.23	0.48	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.01	mg/kg	0.0867	0.544	0.068	0.0867	0.24	0.455	0.544	1.5	0.66	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.01	mg/kg	0.153	1.398	0.125	0.153	0.665	0.932	1.398	2.6	2.4	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	0.01	mg/kg	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Notes

[1] Canadian Council of Ministers of the Environment (CCME). 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. In: Canadian Environmental Quality Guidleines, 1999, Canadian Council of Ministers of the Environment, Winnipeg, MB.

[2] Buchman, MF. National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables, NOAA OR&R Report 08-1, Seattle, WA, Office of Response and Restoration Divisions, NOAA, 2008.

[(a)] CCME Guideline values substituted with the BC ENV Working Sediment Guideline in the absence of an applicable CCME Sediment Guideline

BC ENV = British Columbia Ministry of Environment; CCME = Canadian Council of Miniters of the Environment; ISQG = Interim Sediment Quality Guidelines; mg/kg = miligram per kilogram; NOAA = National Oceanic and Atmospheric Administration; PEL = Probable Effects Levels; ERL = Effect Range Low; SWQG = working sediment quality guidelines; ERM = Effect Range-Median; AET = Apparent Effects Threshold; T20 = Concentrations corresponding to 20% probability of observing toxicity; TEL= Threshold Effects Levels; T50 = Concentrations corresponding to 50% probably of observing toxicity; pH = scale of acidity; % - percentage; "-" = no value or no result available.

Value	Greater than CCME ISQG guideline
Value	Greater than CCME ISQG and PEL guidelines
Value	Greater than NOAA sediment Benchmarks T_{20} guideline
Value	Greater than NOAA sediment Benchmarks TEL guideline
Value	Greater than NOAA sediment Benchmarks ERLguideline
Value	Greater than NOAA sediment Benchmarks T_{50} guideline
Value	Greater than NOAA sediment Benchmarks PEL guideline
Value	Greater than NOAA sediment Benchmarks ERM guideline
Value	Greater than NOAA sediment Benchmarks AET guideline

APPENDIX 3E

Sediment QA/QC Results

Appendix 3E - Table 1: Sediment Analytical Results Quality Assurance/Quality Control
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavet, 2024

Sample ID	Lowest Detection Limits	Units	SCV-2	DupB-SG	Mean	Calculated RPD* (%)
Date Sampled			13-Aug-2024	13-Aug-2024		
Time Sampled			14:45	00:00		
Laboratory Sample ID			VA24C1763-004	VA24C1763-009		
QA/QC			FDA	FD		
Parent Sample ID				SCV-2		
Physical Parameters						
Moisture	0.25	%	16.8	19.7	18.25	16%
pH (1:2 soil:water)	0.1	pH units	8.58	8.57	8.575	0%
Particle Size						
Clay (<0.004mm)	1	%	1.4	1.4	1.4	NA
Silt (0.063mm - 0.004mm)	1	%	3.8	3.3	3.55	NA
Sand (2.0mm - 0.063mm)	1	%	94.1	94.2	94.15	0%
Gravel (>2mm)	1	%	<1.0	1.1	NC	NC
Organic / Inorganic Carbon						
Inorganic Carbon	0.05	%	0.694	0.838	0.766	19%
Total Carbon	0.05	%	1.14	1.13	1.135	1%
Total Organic Carbon	0.161	%	0.446	0.292	0.369	NA
Inorganic Carbon (as CaCO3 equivalent)	0.4	%	5.79	6.98	6.385	19%
Organic Matter	0.16	%	0.77	0.5	0.635	NA
Metals						
Aluminum	50	mg/kg	1530	1280	1405	18%
Antimony	0.1	mg/kg	<0.10	<0.10	NC	NC
Arsenic	0.1	mg/kg	1.17	0.93	1.05	23%
Barium	0.5	mg/kg	4.25	3.9	4.075	9%
Beryllium	0.1	mg/kg	0.1	<0.10	NC	NC
Bismuth	0.2	mg/kg	<0.20	<0.20	NC	NC
Boron	5	mg/kg	10.9	8.7	9.8	NA
Cadmium	0.02	mg/kg	<0.020	<0.020	NC	NC
Calcium	50	mg/kg	18700	18100	18400	3%
Chromium	0.5	mg/kg	5.28	5.52	5.4	4%
Cobalt	0.1	mg/kg	0.98	0.93	0.955	5%
Copper	0.5	mg/kg	1.48	1.36	1.42	NA
Iron	50	mg/kg	5040	3810	4425	28%
Lead	0.5	mg/kg	1.58	1.08	1.33	NA
Lithium	2	mg/kg	6.9	6.3	6.6	NA
Magnesium	20	mg/kg	10400	9700	10050	7%
Manganese	1	mg/kg	39.8	37.4	38.6	6%
Mercury	0.005	mg/kg	<0.0050	<0.0050	NC	NC
Molybdenum	0.1	mg/kg	0.12	0.1	0.11	NA
Nickel	0.5	mg/kg	2.72	2.71	2.715	0%
Phosphorus	50	mg/kg	146	116	131	NA
Potassium	100	mg/kg	740	650	695	13%
Selenium	0.2	mg/kg	<0.20	<0.20	NC	NC
Silver	0.1	mg/kg	<0.10	<0.10	NC	NC
Sodium	50	mg/kg	1970	2540	2255	25%
Strontium	0.5	mg/kg	14.1	12.7	13.4	10%
Sulfur	1000	mg/kg	<1000	<1000	NC	NC
Thallium	0.05	mg/kg	<0.050	<0.050	NC	NC
Tin	2	mg/kg	<2.0	<2.0	NC	NC
Titanium	1	mg/kg	92.8	87.4	90.1	6%
Tungsten	0.5	mg/kg	<0.50	<0.50	NC	NC
Uranium	0.05	mg/kg	0.229	0.186	0.2075	NA
Vanadium	0.2	mg/kg	5.33	4.83	5.08	10%
Zinc	2	mg/kg	4.4	4.8	4.6	NA
Zirconium	1	mg/kg	2	1.4	1.7	NA
BTEX						
Benzene	0.005	mg/kg	<0.0050	<0.0050	NC	NC
Ethylbenzene	0.015	mg/kg	<0.015	<0.015	NC	NC
Toluene	0.05	mg/kg	<0.050	<0.050	NC	NC
Styrene	0.05	mg/kg	<0.050	<0.050	NC	NC
Xylene, m+p-	0.05	mg/kg	<0.050	<0.050	NC	NC
Xylene, o-	0.05	mg/kg	<0.050	<0.050	NC	NC
Xylenes, total	0.075	mg/kg	<0.075	<0.075	NC	NC
Methyl-tert-butyl ether	0.04	mg/kg	<0.040	<0.040	NC	NC

Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavet, 2024

Sample ID	Lowest Detection Limits	Units	SCV-2	DupB-SG	Mean	Calculated RPD* (%)
Date Sampled			13-Aug-2024	13-Aug-2024		
Time Sampled			14:45	00:00		
Laboratory Sample ID			VA24C1763-004	VA24C1763-009		
QA/QC			FDA	FD		
Parent Sample ID				SCV-2		
Volatile Organic Compounds						
Chlorobenzene	0.05	mg/kg	<0.050	<0.050	NC	NC
Chloromethane	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichlorobenzene, 1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichlorobenzene, 1,3-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichlorobenzene, 1,4-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloropropane, 1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloropropylene, cis+trans-1,3-	0.075	mg/kg	<0.075	<0.075	NC	NC
Dichloropropylene, cis-1,3-	0.05	mg/kg	<0.050	<0.050	NC	NC
Tetrachloroethane, 1,1,1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Tetrachloroethane, 1,1,2,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Trichloroethane, 1,1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Trichlorofluoromethane	0.05	mg/kg	<0.050	<0.050	NC	NC
Carbon tetrachloride	0.05	mg/kg	<0.050	<0.050	NC	NC
Chloroethane	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloroethane, 1,1-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloroethane, 1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloroethylene, 1,1-	0.11	mg/kg	<0.110	<0.060	NC	NC
Dichloroethylene, cis-1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloroethylene, trans-1,2-	0.05	mg/kg	<0.050	<0.050	NC	NC
Dichloromethane	0.045	mg/kg	<0.045	<0.045	NC	NC
Dichloropropylene, trans-1,3-	0.05	mg/kg	<0.050	<0.050	NC	NC
Tetrachloroethylene	0.05	mg/kg	<0.050	<0.050	NC	NC
Trichloroethane, 1,1,1-	0.05	mg/kg	<0.050	<0.050	NC	NC
Trichloroethylene	0.01	mg/kg	<0.010	<0.010	NC	NC
Vinyl chloride	0.05	mg/kg	<0.050	<0.050	NC	NC
Bromodichloromethane	0.05	mg/kg	<0.050	<0.050	NC	NC
Bromoform	0.05	mg/kg	<0.050	<0.050	NC	NC
Chloroform	0.05	mg/kg	<0.050	<0.050	NC	NC
Dibromochloromethane	0.05	mg/kg	<0.050	<0.050	NC	NC
Hydrocarbons						
F1 (C6-C10)	5	mg/kg	<5.0	<5.0	NC	NC
F1-BTEX	5	mg/kg	<5.0	<5.0	NC	NC
EPH (C10-C19)	200	mg/kg	<200	<200	NC	NC
EPH (C19-C32)	200	mg/kg	<200	<200	NC	NC
F2 (C10-C16)	25	mg/kg	<25	<25	NC	NC
F3 (C16-C34)	50	mg/kg	<50	<50	NC	NC
F4 (C34-C50)	50	mg/kg	<50	<50	NC	NC
VHs (C6-C10)	10	mg/kg	<10	<10	NC	NC
VPHs	10	mg/kg	<10	<10	NC	NC
LEPHs	200	mg/kg	<200	<200	NC	NC
HEPHs	200	mg/kg	<200	<200	NC	NC
TEH (C10-C50)	75	mg/kg	<75	<75	NC	NC
TEH (C16-C50)	75	mg/kg	<75	<75	NC	NC
Polycyclinc Aromatic Hydrocarbons						
Acenaphthene	0.005	mg/kg	<0.0050	<0.0050	NC	NC
Acenaphthylene	0.005	mg/kg	<0.0050	<0.0050	NC	NC
Acridine	0.01	mg/kg	<0.010	<0.010	NC	NC
Anthracene	0.004	mg/kg	<0.0040	<0.0040	NC	NC
Benz(a)anthracene	0.01	mg/kg	<0.010	<0.010	NC	NC
Benzo(a)pyrene	0.01	mg/kg	<0.010	<0.010	NC	NC
Benzo(b+j)fluoranthene	0.01	mg/kg	<0.010	<0.010	NC	NC
Benzo(b+j+k)fluoranthene	0.015	mg/kg	<0.015	<0.015	NC	NC
Benzo(g,h,i)perylene	0.01	mg/kg	<0.010	<0.010	NC	NC
Benzo(k)fluoranthene	0.01	mg/kg	<0.010	<0.010	NC	NC
Chrysene	0.01	mg/kg	<0.010	<0.010	NC	NC
Dibenz(a,h)anthracene	0.005	mg/kg	<0.0050	<0.0050	NC	NC
Fluoranthene	0.01	mg/kg	<0.010	<0.010	NC	NC
Fluorene	0.01	mg/kg	<0.010	<0.010	NC	NC
Indeno(1,2,3-c,d)pyrene	0.01	mg/kg	<0.010	<0.010	NC	NC
Methylnaphthalene, 1-	0.01	mg/kg	<0.010	<0.010	NC	NC
Methylnaphthalene, 2-	0.01	mg/kg	<0.010	<0.010	NC	NC
Naphthalene	0.01	mg/kg	<0.010	<0.010	NC	NC
Phenanthrene	0.01	mg/kg	<0.010	<0.010	NC	NC
Pyrene	0.01	mg/kg	<0.010	<0.010	NC	NC
Quinoline	0.01	mg/kg	<0.010	<0.010	NC	NC

Notes

*The greater of the parent/duplicate reported detection limits were used in calculating the RPD.
BTEX = benzene, toluene, ethylbenzene, xylene; $CaCO_3$ = calcium carbonate; EPH = extractable petroleum hydrocarbons; FD = field duplicate; FDA = field duplicate available; HEPH = heavy extractable petroleum hydrocarbons; ID = identification; LEPH = light extractable petroleum hydrocarbons; Mean = average of two values; mg/kg = miligrams per kilogram; mm = millimitre; NA = not applicable; NC = not calculated; QA/QC = Quality Assurance/Quality Control; RPD = releative percent difference; TEH = total extractable hydrocarbons; THM = Trihalomethanes; VH = volatile hydrocarbon; VPH = volatile petroleum hydrocarbon; < = less than detection limit; > = greater than; % = percent; - = data not available.

Relative percent difference (RPD) = the difference between two values divided by the mean of the two values. RPD is calculated when the concentration is greater than five times the detection limit.

Bold values indicate an exceedance of the acceptable RPD of 50%.

Appendix 3E - Table 2: Sediment Hold Time Results Quality Assurance/ Quality Control
Milne Port Marine Environmental Effects Monitoring Program
Milne Inlet, Baffinland, Nunavet, 2024

Analysis	Hold Times - Extraction	Actual (Range)	Hold Times - Analysis	Actual (Range)	Hold Times Exceedances
pH	30 days	9 days - 16 days	30 days	9 days - 17 days	None
Moisture Content	n/a	n/a	0 days	13 days - 18 days	None
Organic/Inorganic Carbon	n/a	n/a	0 days	0 days - 19 days	None
Mercury in Soil/Sediment	28 days	9 days - 16 days	28 days	9 days - 17 days	None
Metals in Soil/Sediment	180 days	9 days - 16 days	180 days	9 days - 17 days	None
Hydrocarbons: PHC F2-F4	14 days	8 days - 16 days	40 days	1 day	None
Hydrocarbons: VH and F1	40 days	10 days to 19 days	40 days	11 days to 20 days	None
Polycyclic Aromatic Hydrocarbons	14 days	8 days - 16 days	40 days	1 day	None
Volatile Organic Compounds: BTEX	40 days	10 days to 19 days	40 days	11 days to 20 days	None

Notes:

BTEX = benzene, toluene, ethylbenzene, xylene; F1 - F4 = petroleum hydrocarbon fractions F1 to F4; n/a not applicable; PHC = petroleum hydrocarbon.

APPENDIX 3F

Power Analysis

POWER ANALYSIS - METHODS

A Type I error is concluding there is a significant effect when none exists (i.e., a false positive). Alpha (α) is the probability of committing a Type I error. A Type II error is the probability of concluding there is no significant effect when there is a real effect of some specified magnitude (i.e., a false negative). Beta (β) is the probability of committing a Type II error. The power of a statistical test (1 - β) is the probability of detecting a real effect. In this analysis, the Type I error-rate (α), also referred to as the significance level, was set to 0.05. The desired minimum statistical power was 80%, which corresponds to a type II error-rate of 0.2. Power analyses were conducted to assess the power of statistical tests under multiple effect sizes. For each model, a set of effect sizes was created, based on preliminary power analyses, so that power >80% was achieved at the largest absolute values of effect sizes, but also so that power is assessed at a range of effect sizes. Both negative and positive effect sizes were used, to assess the power of detecting either a reduction or an increase in values of the response variables. Since the analysis focused on assessment of changes to statistical power at different effect sizes, the power analysis used the observed samples sizes from the collected data.

Data Simulation following Effect Size Application

The power to detect statistically significant effects was estimated using residual bootstrapping in R v. 4.4.2 (R 2024), following the approach of Fox and Weisberg (2018). The general approach was to simulate data based on the model selected for interpretation, the observed sample size, and the residuals, and re-run the models that were used for the original analysis using the simulated data. The data simulation and analysis were repeated 5,000 times, and the proportion of repetitions where the *P*-values of interest were significant ($P<0.05$) was interpreted as the statistical power of the test.

To produce simulated data, the original model was used to predict values of the response variable. The predicted values were then adjusted according to the effect size, depending on the analysis (see below for details). The simulated data were analyzed using the same model structure as the original analysis. Effect sizes and statistical tests were applied differently to different models, as detailed below.

In this power analysis, the question of interest was the models' power to detect a difference between 2023 and 2024, across all sampled stations. To assess the power to detect between-year differences, the effect size was applied relative to 2023 data estimated values. This allowed assessing what effect size, relative to the previous sampling year, the model would be able to identify. This simulated dataset was analyzed using the models from the original analysis in the main report. The significance of the year effect was assessed and the *P*-value for the model was retained. For each effect size, the proportion of repetitions with *P*-values less than 0.05 at each transect was interpreted as the statistical power to detect a year effect. This analysis assessed how much higher or lower the 2024 values would have to be to detect a significant difference relative to 2023.

Power curves were produced, showing statistical power as a function of effect size in percentages. Horizontal lines were added to visualize statistical power values of 0.8 (hereafter sufficient power) and 0.9 (hereafter high power), and a vertical line was added to visualize the magnitude of difference that was observed in the original analysis.

POWER ANALYSIS – RESULTS

Sediment Quality – Percent Fines

The model of fines content data collected in 2023 and 2024 at the Capesize stations had sufficient power (>0.8) to detect a 30% decrease in fines or a 41% increase in fines (Figure 3G-1). The observed effect size was -37% and the effect of year was found to be significant in the original model (*P*=0.001; Section 3.4.3 in the 2024 MEEMP main report [WSP 2025]). Statistical power to detect the observed effect size was 0.93.

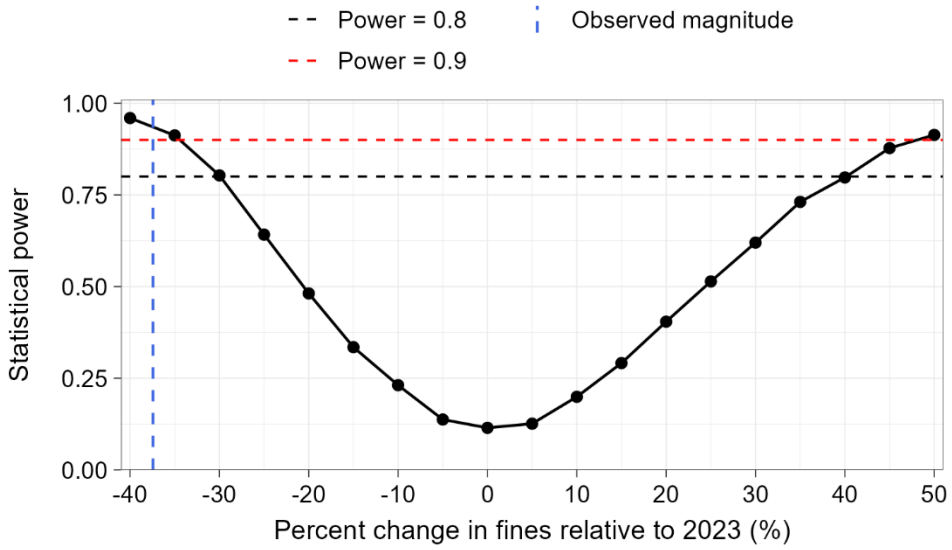

Figure 3G-1: Statistical power to detect a significant difference between fines content at the Capesize stations sampled in 2023 and 2024.

Sediment Quality – Iron Concentrations

The model of iron concentrations recorded in 2023 and 2024 at the Capesize stations had sufficient power (>0.8) to detect a 17% decrease or increase in iron concentrations (Figure 3G-2). The observed effect size was -16% and the effect of year was found to be significant in the original model (*P*<0.001; Section 3.4.4 in the 2024 MEEMP main report [WSP 2025]). Statistical power to detect the observed effect size was 0.76.

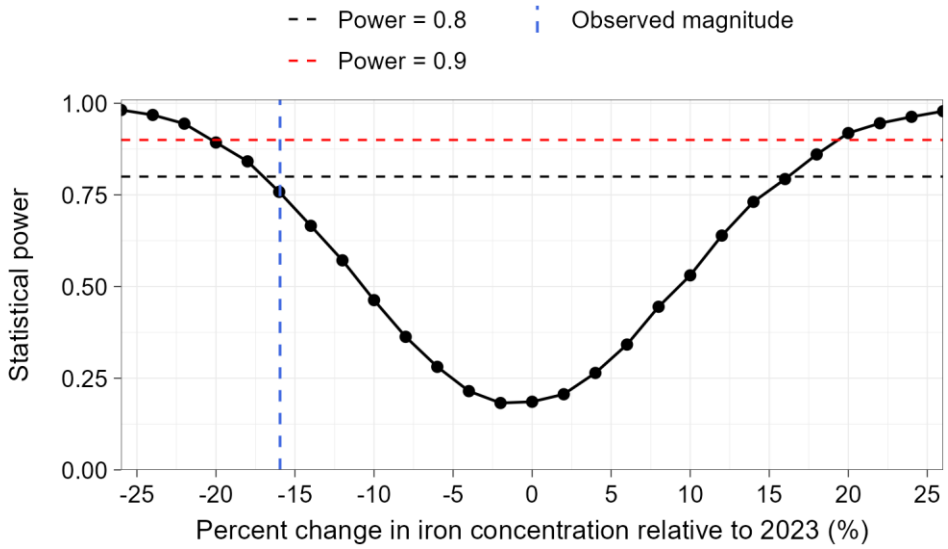

Figure 3G-2: Statistical power to detect a significant difference in iron concentration (after accounting for fines content) between 2023 and 2024 at the sampled Capesize stations.

POWER ANALYSIS – SUMMARY

Summary of Findings

In the analysis of percent fines, there was sufficient power to detect a 30% decrease in fines or a 41% increase in fines relative to 2023. The observed effect size (37% decrease in fines relative to 2023) had high statistical power. In the analysis of iron concentrations (after accounting for fines content), there was sufficient power to detect a 17% decrease or increase in iron relative to 2023. The observed effect size (16% decrease in fines relative to 2023) was just below the cutoff for sufficiency.

Overall, the results of the power analysis presented here indicate that analyses of sediment fines had slightly higher statistical power to detect scouring effects than deposition effects. However, effect sizes of 30% or more were still required to achieve sufficient power. The analysis of iron concentrations (accounting for fines content) had sufficient statistical power to detect small increases or decreases.

Given the limited statistical power to detect changes in fines content at effect sizes that may be of biological relevance, going forward, it is recommended that conclusions are not made based on strict adherence to statistical significance. Instead, effect size, uncertainty, and statistical significance and power should be considered together before ruling out spatial and temporal changes in percent fines and iron concentrations.

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