Marine Avenue Site, Powell River, BC
2023 Environmental Monitoring Program Annual Report



PRESENTED TO
qathet Regional District

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by the qathet Regional District (qRD) to support quarterly environmental monitoring and to prepare the 2023 annual monitoring report for the Marine Avenue Site (Site), located in Powell River, British Columbia (BC). This report summarizes the results of the 2023 quarterly groundwater and surface water monitoring events. The work was conducted in accordance with the Updated Environmental Monitoring Plan for the Powell River Marine Avenue Site Closure Plan (Tetra Tech 2018).

Since 2020, there were significant activities at the Site including general site clean up, material processing, closure activities, and construction of the Resource Recovery Centre (RRC). Work on the RRC started in July 2023 and is expected to continue until Spring 2024.

In 2023, ongoing development of the RRC required that MW13-02 be modified as the side slopes of the Site's perimeter road would have buried the top of the well at its original elevation. A plan was formulated to extend the polyvinyl chloride pipe and external casing of MW13-02 the required distance and then re-cement the top of the casing at the design elevation. The well extension was completed on February 22, 2023, before all monitoring events in 2023.

This report also presents a summary of the Conceptual Site Model that was initially prepared for the 2019 Environmental Monitoring Report to describe the environmental system, and the processes that determine the transport of contaminants from sources, through media to receptors within the system.

Key findings of the 2023 annual groundwater and surface water sampling program include the following:

- The shallow groundwater flow direction at the Site was interpreted to be towards the southwest across the Site (generally in the direction toward the coast).
- Concentrations of dissolved cobalt, iron, and manganese exceeded BC Contaminated Sites Regulation – Drinking Water (CSR-DW) standards at one or more groundwater monitoring wells in 2023.
- Dissolved cobalt exceeded the CSR-DW standard at MW13-02 and MW19-04 during both the May and December monitoring events. The dissolved cobalt concentrations were between 2.27 µg/L and 2.90 µg/L at these two wells, which were below the CSR – Aquatic Life (AW) freshwater and marine water standard (40 µg/L).
- Dissolved iron concentrations exceeded the CSR-DW standard at MW13-02 (both events in May and December). Dissolved manganese concentrations exceeded the CSR-DW standard at MW13-02 (both events in May and December) and MW19-04 (May event only). The dissolved manganese concentration at MW13-02 appears to be on an upward trend and should continue to be monitored in 2024.
- Dissolved iron and dissolved manganese are often naturally occurring in groundwater under anaerobic conditions, while elevated dissolved arsenic concentrations may be related to the presence of dissolved iron. The measured concentrations of arsenic, iron, and manganese do not necessarily reflect groundwater quality impact caused by facility operations. At MW13-02, increasing trends of these parameters accompanied by an increase of ammonia suggests that the historical landfill may be contributing to anaerobic conditions in the local groundwater. However, this well is located at the edge of the waste footprint and therefore, the measured concentrations may not be representative of the surrounding groundwater.
- Sulphate did not exceed the CSR – AW and CSR-DW standards at any groundwater well in 2023. The sulphate concentration at MW13-02, while less than standards, has increased to relatively higher levels compared to sampling events prior to May 2021 and should continue to be monitored. However, the 2023 concentrations were reduced from those measured in 2022.

- Polycyclic aromatic hydrocarbons (PAHs) were detected MW13-02 in 2021 and at MW19-05 prior to decommissioning. PAHs at all wells were below the detection limits in 2023.
- Surface water monitoring identified laboratory pH values to be outside the Approved Water Quality Guidelines (AWQG) for Marine Aquatic Life (Marine AW) guideline at the four sampling locations during all monitoring events. The pH levels at these locations have generally remained above 7.0 prior to 2023; however, the pH levels at each location have had apparent decreasing trends since 2019. These values are interpreted to be related to a laboratory hold time issue, and the field-measured pH values which were generally within the guideline range are interpreted to be more reliable.
- Sulphate and chloride concentrations have remained within historical ranges and well below the BC AWQG for Fresh AW Guidelines at the four surface water sampling locations in 2023. There were no detectable concentrations of PAHs, petroleum hydrocarbons or volatile organic compounds in the surface water samples, and no indications of elevated concentrations (or increases between up and down-gradient locations) in other indicator parameters.

The following recommendations have been developed based on the data presented within this report:

- Continue the current quarterly groundwater monitoring and sampling schedule and analytical program in 2024.
- Add dissolved metals to the analytical program for surface water for the May and December monitoring events, as there are new guidelines for some dissolved metal parameters in the new BC AWQG (updated November 2023).
- Add dissolved organic carbon (DOC) to the analytical program for surface water when the metal parameters are being tested (May and December). The DOC concentration is required to calculate the new BC AWQG guidelines for dissolved copper, total aluminum, and total zinc.
- Consider addition of a surface water sampling location to further assess water quality in the western ephemeral watercourse on the Site. Addition of the sampling location should occur after final site development. Additionally, surface water sampling locations on the Site should be reassessed and potentially adjusted based on final Site development and surface water flows.
- Replace MW19-05 following completion of site development in this area to provide a groundwater monitoring location hydraulically down-gradient of the encapsulated waste, and to characterize groundwater characteristics between the Site and McFall Creek. This project is estimated for completion in Spring 2024.
- Discuss pH analysis with the contract lab, including the trend of decreasing pH noted over recent events relative to sample hold times, to determine options for confirming more reliable pH measurements.

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
AW	Aquatic Life
AWQG	Approved Water Quality Guidelines
BC	British Columbia
BC ENV	British Columbia Ministry of Environment and Climate Change Strategy
BOD	Biological Oxygen Demand
CARO	CARO Analytical Services
Closure Plan	Powell River Marine Avenue Site Closure Plan (SHA 2014)
COC	Chain of Custody
COD	Chemical Oxygen Demand
Constraints Memo	Preliminary Riparian Areas Assessment Results and Environmental Regulatory Constraints Analysis for Powell River Regional District Transfer Station Site on Marine Avenue (Tetra Tech 2017)
COPCs	Chemicals of Potential Concern
CSM	Conceptual Site Model
CSR	Contaminated Sites Regulation
CSR-AW	Contaminated Sites Regulation – Aquatic Life
CSR-DW	Contaminated Sites Regulation – Drinking Water
DO	Dissolved Oxygen
DOC	Dissolved Organic Carbon
DW	Drinking Water
EC	Electrical Conductivity
EMP	Environmental Monitoring Plan
EPH	Extractable Petroleum Hydrocarbon
Fresh AW	Freshwater Aquatic Life
HEPH	Heavy Extractable Petroleum Hydrocarbon
Hoskin	Hoskin Scientific
LEPH	Light Extractable Petroleum Hydrocarbon
LFG	Landfill Gas
Marine AW	Marine Aquatic Life
MKM	MKM Projects Ltd.
N/A	Not Applicable
ORP	Oxidation-Reduction Potential

Acronyms/Abbreviations	Definition
PAH	Polycyclic Aromatic Hydrocarbon
PHC	Petroleum Hydrocarbon
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
qRD	qathet Regional District
RDL	Reporting Detection Limit
RPD	Relative Percent Difference
RRC	Resource Recovery Centre
SHA	Sperling Hansen Associates Inc.
Site	Marine Avenue Site
TDS	Total Dissolved Solids
Tetra Tech	Tetra Tech Canada Inc.
TOC	Total Organic Carbon
Updated EMP	Updated Environmental Monitoring Plan for the Powell River Marine Avenue Site Closure Plan (Tetra Tech 2018)
VH	Volatile Hydrocarbon
VOC	Volatile Organic Compound
WQG	Water Quality Guidelines
WWQG	Working Water Quality Guidelines

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the qathet Regional District and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than qathet Regional District, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the qathet Regional District (qRD) to support quarterly environmental monitoring and to prepare the 2023 Annual Environmental Monitoring Report for the Marine Avenue Site (Site), in Powell River, British Columbia (BC). This report summarizes the results of the 2023 quarterly groundwater and surface water monitoring events. The work was conducted in accordance with the Updated Environmental Monitoring Plan (EMP) for the Powell River Marine Avenue Site Closure Plan (Tetra Tech 2018) ("Updated EMP").

1.1 Background

This section presents the Site's description and location with respect to nearby watercourses and current activities on the Site. The Site's history as an incinerator landfill, and historical site investigations have been previously discussed in detail in the 2021 Marine Avenue Site Environmental Monitoring Program Annual Report (Tetra Tech 2022).

1.1.1 Site Description

A site location plan and a site plan showing the locations of groundwater and surface water monitoring locations are presented on Figure 1 and Figure 2, respectively. The approximate position of the Site, obtained from the BC Water Resources Atlas is:

- Latitude: 49° 51' 1.4" N (49.85037).
- Longitude: 124° 31' 53.5" W (124.53153W).

The Site currently has two entrance points; one situated on the south side of the Site directly off of Marine Avenue with an unmanned gate that is padlocked by the qRD and another on the northwest corner of the Site directly off Marine Avenue that will be a manned gate pending completion of the Resource Recovery Centre (RRC). The Site is approximately 7 hectares in size and irregular in shape as shown on Figure 2.

Access roads are found throughout the Site as well as clearings that extend into the forested ravine area of McFall Creek, southeast of the Site. As described in Tetra Tech's memo, Preliminary Riparian Areas Assessment Results and Environmental Regulatory Constraints Analysis for Powell River Regional District Transfer Station Site on Marine Avenue (2017) ("Constraints Memo"), McFall Creek (also known as Squatter Creek) is a fish-bearing stream flowing from Cranberry Lake to the Strait of Georgia. At its closest point, McFall Creek is within 65 m of the Site's cleared area flowing to the southwest.

A surface water source was uncovered during site cleanup and landfill closure work in 2020 and 2021 as a seep located around SW-4 (Figure 2); however, there are additional seeps that emerge from the banks in multiple locations. Some of these seeps are rich in dissolved iron as observed by the presence of orange microbial mats. The channel widens in some areas where the ground is fully saturated and multiple very small flow paths braid through aquatic or semi-aquatic vegetation. The channel with flow enters a culvert at the corner of Marine Avenue and the Site entrance and flows downslope towards McFall Creek. Following this analysis, the Updated EMP added a surface water sampling location near the headwaters of the unnamed watercourse running through the centre of the Site. This watercourse is known colloquially as the "central drainage" within tender and design documents.

A second drainage path was identified on the Site running parallel to and east of the westernmost road on the Site and joining the central drainage in a general low-lying area before leaving the Site through a culvert under the current site entrance to meet McFall Creek.

Infrastructure from the former incinerator facility/landfill remains in place in some locations. This infrastructure includes:

- Short portions of the paved access road.
- Historical incinerator.

1.1.2 Site History

The Site was a gravel pit that was subsequently used as a landfill with a solid waste incinerator. The incinerator operated from the 1970s to approximately 1995. The Site has operated under Permit PR-509 (Appendix E) since 1971 with amendments in 1993 and 1994 reflecting changes in site operations. The permit was again amended to reflect a name change of the permit holder from The Corporation of the District of Powell River to qathet Regional District (application approved on March 12, 2024, effective date backdated to March 15, 2022). The amended Permit has not been provided to the qRD at this time and will be included with the annual environmental report for 2024.

Since closure of the incinerator in 1995, municipal solid waste has been transferred to the Roosevelt Regional Landfill (colloquially known as the Rabanco Landfill) in Washington, United States and construction and demolition waste has been transferred to the Ecowaste Landfill in Richmond, BC.

The Site has been altered from its original state, having been a former gravel pit and subsequently the site of a City-operated incinerator and bottom ash residual landfill. Ash generated in the incineration process was disposed on site in four distinct piles previously identified by Keystone Environmental Ltd. in 2003 and Sperling Hansen Associates Inc. (SHA) in 2014 as Pile D, Pile F, Pile M, and Pile Q. Previous site investigative work included classification and documentation of the stockpiled materials on site and installation of three groundwater monitoring wells (MW13-01, MW13-02, and MW13-03) as summarized in the Powell River Marine Avenue Site Closure Plan (SHA 2014) (“Closure Plan”).

Following the time when the Site was an incinerator and landfill, the Site operated as the commercial transfer station for the City of Powell River. The Site was used as a truck wash-out for the City of Powell River and private waste collection vehicles through early 2020 and until 2018 was used as a public works yard with minor material stockpiles and uncontrolled dumping of construction and roadworks maintenance materials. Since initiation of site works in 2020, the qRD has taken over care and control of the Site. Currently there are no operations on the Site; however, it is being redeveloped to be used as an RRC.

1.2 Regional Context

The Site’s geology and hydrogeology were discussed in the Closure Plan. The regional geology is described as an area covered by marine and glaciomarine sediments of the Capilano Group. Three boreholes were drilled during development of the Closure Plan to confirm local geology and hydrogeology. These boreholes and test pits found that sand was the “predominant material encountered beneath the waste piles and in test pits that did not encounter waste”.

The Closure Plan interpreted groundwater flow to follow regional topography toward the south-southwest. Inferred groundwater table contours were based on water level measurements in existing wells on-site and measurement of the water level in McFall Creek at three locations adjacent to the Site.

In October 2019, as part of the 2019 groundwater monitoring, Tetra Tech conducted hydraulic conductivity testing at all five monitoring wells. A summary of the hydraulic conductivity results is presented in Table 1-1.

Table 1-1: Hydraulic Conductivity Testing Results

Test Hole ID	Test Type	Hydraulic Conductivity (m/s)	Filter Pack Interval Lithology
MW13-01	Falling Head	6.9×10^{-5}	Fine sand to silt/0.2 m of flowing fine-medium sand, some silt
	Rising Head	7.5×10^{-5}	
MW13-02	Rising Head	2.8×10^{-6}	Till/fine silt sand/sand/clay
MW13-03	Rising Head	3.2×10^{-5}	Till/gravel and sandy silt – silty sand
MW19-04	Rising Head	7.5×10^{-7}	Fine sand; some coarse sand; some silt
MW19-05	Falling Head	3.1×10^{-7}	Coarse sand, some medium to coarse gravel/medium sand, some silt

As identified on Figure 2, the primary surface water receptors include an unnamed watercourse flowing on the Site and McFall Creek adjacent to the Site. This creek discharges to the Strait of Georgia, which is approximately 150 m southwest of the Site (Figure 1).

The nearest dwelling or building structure is located approximately 100 m south of the Site. The nearest well listed in the provincial Groundwater Well Registry is located over 5 km southeast of the Site (Government of British Columbia 2022). The well is unlicensed and has an unknown use. The Closure Plan states that no water wells were found during previous well searches.

1.3 Recent Site Developments

Major changes to the Site have occurred from 2020 to the present in four phases:

- Phase 1 – General Site Work and Material Processing (2020);
- Phase 2 – Landfill Closure (2020);
- Phase 3 – RRC Site Preparation (2021); and
- Phase 4 – RRC Construction (2022 to present).

Phase 1 to Phase 3 were discussed in 2021 Marine Avenue Site Environmental Monitoring Program Annual Report (Tetra Tech 2022). Phase 4 activities are outlined in Section 1.3.1.

1.3.1 Phase 4 – Resource Recovery Centre Construction

The qRD contracted MKM Projects Ltd. (MKM) to construct the RRC in 2022. Construction on the Site began in the summer of 2022 and is planned to continue until completion in 2024. The approximate schedule and scope of activities are listed below:

- Civil Works (2022 to 2023):
  - Site excavation, grading, and pad construction;
  - Public drop off area grade separated tipping wall construction;
  - Access road construction; and
  - Building subgrade and foundation preparation.

- Structural Works (2023 to 2024):
  - Commercial transfer station building construction;
  - Scale house construction;
  - Recycling depot construction; and
  - Site office and education area construction.

The construction in 2023 occurred in areas away from monitoring locations. The qRD and MKM have been in communication with Tetra Tech regarding planned construction activities in 2024 and will notify Tetra Tech if there is any work occurring near monitoring locations.

1.3.1.1 Well Extension

Ongoing development of the RRC required that MW13-02 be modified as the side slopes of the Site's perimeter road would have buried the top of the well at its original elevation. A plan was formulated to extend the PVC pipe and external casing of MW13-02 the required distance and then re-cement the top of the casing at the design elevation. JDK Specialty Welding & Repairs completed the work on February 22, 2023.

The well casing and polyvinyl chloride (PVC) pipe was extended by 81.3 cm and 86.8 cm, respectively. The new well stickup elevations for MW13-02 from surrounding ground were as follows:

- Well Casing: 69.9 cm above ground; and
- PVC Pipe: 62.2 cm above ground.

The well extension work was completed before all monitoring events in 2023. The new pipe stickup, ground elevation, and top-of-pipe elevation were used for calculating the 2023 groundwater elevations at MW13-02 and are shown in attached Table 1.

2.0 METHODOLOGY

In 2020 and 2021, Tetra Tech partnered with qRD staff to complete monitoring events while training qRD staff in the appropriate methodology and techniques to conduct field sampling. qRD staff conducted all sampling events in 2023. Tetra Tech continued to provide office support and quality checks of field data collection, chain of custody (COC) forms, and analytical data for the 2023 monitoring events.

2.1 Groundwater Sampling

Monitoring well locations are shown on Figure 2. All water level measuring, well development, sample collection, including preservation and storage techniques were conducted using standard environmental industry protocols. Observations of each monitoring well, including well integrity and site activity, were conducted by qRD staff.

Monitoring wells were purged using a dedicated bailer or peristaltic pump. The wells at the Site are purged and sampled using a peristaltic pump (except for MW13-03) to reduce the agitation of sediment during purging and sampling. The peristaltic pump intake line was submerged to a depth within the approximate middle of the well screen. Monitoring well MW13-03 is sampled using a dedicated bailer because the depth to groundwater is too deep to use a peristaltic pump.

During purging, measurements of field parameters (i.e., pH, temperature, conductivity, total dissolved solids [TDS], dissolved oxygen [DO], and oxidation-reduction potential [ORP]) were taken after every well volume was removed until well water had stabilized to variations of less than 10% between successive well volumes. Field parameters were measured with a YSI multi-probe device with a Quatro cable and flow-through cell rented from Hoskin Scientific (Hoskin) of Burnaby, BC. The YSI was calibrated by Hoskin prior to shipping to qRD. qRD staff verified the calibration in the field using pH 4.0, pH 7.0, and 1,413 µS/cm buffer solutions prior to use.

For MW13-03, qRD staff used the bailer to remove three well volumes of water from the well. The water was allowed to recover for a short period of time. Staff then used the bailer to collect several litres of water in a 20-litre bucket that had been previously cleaned and rinsed with distilled water. The YSI multi-probe device was used to take field measurements from the water in the bucket.

After sufficient time had passed allowing the wells to recover, samples were taken using a dedicated bailer or dedicated inertial pump (Waterra) system and placed in clean labelled bottles supplied by the laboratory, CARO Analytical Services (CARO). The samples were preserved as directed by CARO and stored in coolers with ice packs for transport to CARO's laboratory in Richmond, BC under the COC protocol.

Groundwater samples collected for dissolved metals analysis were field-filtered through a new, disposable 0.45 µm in-line filter attached to the peristaltic pump discharge tubing and preserved with laboratory-supplied nitric acid. For MW13-03, the water was collected using the bailer and then hand-pumped through a Nalgene filter into the laboratory-supplied sample bottles containing nitric acid preservative. Total nitrogen, total organic carbon (TOC), and total phosphorous analyses were preserved with aliquots of sulphuric acid supplied by the lab. The samples were submitted to CARO according to the suite of parameters identified in the Updated EMP (Tetra Tech 2018) and described in Table 2-1.

Groundwater sampling was conducted on the following dates: February 28, 2023, May 23, 2023, September 27, 2023, and December 18, 2023.

Table 2-1: Groundwater Analytical Suite

Parameters	February 2023	May 2023	September 2023	December 2023
General Chemistry (pH, Ammonia, Sulphide, Anions – Chloride, Sulphate, Fluoride, Nitrate, Nitrite)	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04
Dissolved Metals	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04
Total Metals	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04
Other Parameters (Conductivity, Hardness, TDS)	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04
BOD and COD	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04
Total Phenols	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed
Resins and Fatty Acids	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed
Hydrocarbons (EPH_{10-32}, LEPH, HEPH, VH_{6-10})	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed
PAHs	▪ MW13-01 ▪ MW13-02 ▪ MW13-03 ▪ MW19-04	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed

Abbreviations

BOD – Biological Oxygen Demand.
COD – Chemical Oxygen Demand.
EPH – Extractable Petroleum Hydrocarbon.
HEPH – Heavy Extractable Petroleum Hydrocarbon.
LEPH – Light Extractable Petroleum Hydrocarbon.
PAH – Polycyclic Aromatic Hydrocarbon.
TDS – Total Dissolved Solids.
VH – Volatile Hydrocarbon.

2.2 Surface Water Sampling

Surface water samples were collected from the locations shown on Figure 2. Samples were collected as grab samples near mid-stream (using an extension pole, if necessary) and halfway between the water surface and bottom of the creek with the mouth of the sample bottle facing upstream. Care was taken to avoid accidental sediment disruption during sampling. The samples were stored in coolers with ice packs and submitted to CARO according to the suite of parameters identified in the Updated EMP (Tetra Tech 2018) and described in Table 2-2.

Surface water sampling was conducted on the following dates: February 28, 2023, May 23, 2023, September 27, 2023, and December 18, 2023.

Table 2-2: Surface Water Analytical Suite

Parameters	February 2023	May 2023	September 2023	December 2023
General Chemistry (pH, Ammonia, Sulphide, Anions – Chloride, Sulphate, Fluoride, Nitrate, Nitrite)	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4
Total Metals	▪ Not analyzed	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4
Other Parameters (Conductivity, Hardness, TDS)	▪ Not analyzed	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4
COD and BOD	▪ Not analyzed	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4
Total Phenols	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed
Resins and Fatty Acids	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed
Hydrocarbons (EPH_{10-32}, LEPH, HEPH, VH_{6-10})	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed
PAHs	▪ SW-1 ▪ SW-2 ▪ SW-3 ▪ SW-4	▪ Not analyzed	▪ Not analyzed	▪ Not analyzed

Abbreviations
BOD – Biological Oxygen Demand.
COD – Chemical Oxygen Demand.
EPH – Extractable Petroleum Hydrocarbon.
HEPH – Heavy Extractable Petroleum Hydrocarbon.
LEPH – Light Extractable Petroleum Hydrocarbon.
PAH – Polycyclic Aromatic Hydrocarbon.
TDS – Total Dissolved Solids.
VH – Volatile Hydrocarbon.

2.3 Quality Assurance/Quality Control

The qRD implemented a quality assurance/quality control (QA/QC) program to assess the integrity of the sampling methodology and analytical testing. The QA/QC program adhered to the Tetra Tech In-house Quality Management System, which was designed to generate representative samples, mitigate potential cross contamination between sampling locations and samples, and reduce the potential for systematic bias. Tetra Tech trained qRD staff on the sampling methodology portions of the QA/QC program during sampling events in 2020 and February 2021. For the 2023 sampling events, qRD staff implemented the QA/QC program for sampling methodology while Tetra Tech staff remained responsible for QA/QC protocol during the analytical review stage of the program.

The QA/QC protocol included the following:

- Logging of subsurface conditions, monitoring, and sampling of environmental media.
- Recording the results of field activities in the field concurrently with the activities.
- Using clean, new sampling gloves at each sampling location.
- Placing samples into new and labelled laboratory-supplied containers, and when warranted, preserving the samples using laboratory-measured and supplied preservatives.
- Transporting temperature-sensitive samples to the analytical laboratory in chilled coolers using COC procedures either on the same day of sampling or within one day of sampling and analyzing the samples within the appropriate holding times.
- When appropriate, forming duplicate samples using industry accepted splitting methods.
- Using Canadian Association for Laboratory Accreditation-affiliated laboratories that are qualified to analyze the samples using Ministry-approved procedures.
- Submitting duplicate samples to the laboratory as “blind” samples meaning that the source of the sample (e.g., groundwater monitoring well, surface water location) was not identified.
- Decontaminating sampling equipment between sample locations.
- Reviewing the results of QA/QC analyses, assessing the significance of the analytical results, and identifying this information in this report.
- Comparing the laboratory certificates and the applicable standards to confirm the accuracy of the information presented with the analytical tables provided in the report.
- Reviewing this report by a qualified senior Tetra Tech professional to ensure that the report meets Tetra Tech technical and reporting requirements.

Part of the QA/QC program involved calculating the relative percent difference (RPD) between sample concentrations of paired blind duplicates. Results were calculated as follows:

$$RPD\ (\%) = 2 \times 100 \times |X - Y| / (X + Y)$$

Where:

- X is the measured concentration in the original sample; and
- Y is the measured concentration in the duplicate sample.

RPD values were not calculated if one or both of the sample-duplicate concentrations were less than the reporting detection limit (RDL). In these cases, duplicate samples were still considered as having passed the QA/QC reproducibility procedure if the sample-duplicate concentration difference was less than five times the RDL value.

2.4 Data Analysis and Evaluation

Analytical results for groundwater were compared to the Aquatic Life (AW) and Drinking Water (DW) standards defined by the BC Contaminated Sites Regulation (CSR), B.C. Reg. 375/96 (including amendments up to BC Reg 133/2022, effective March 1, 2023). The AW standards are further divided into Freshwater Aquatic Life (Fresh AW) and Marine Aquatic Life (Marine AW). The groundwater quality at monitoring well MW13-01, located hydraulically up-gradient of most Site features, is assumed to be representative of background groundwater quality for the Site. The background average concentration for a particular parameter is calculated from the concentrations of that parameter from previous measurements in 2019 to 2023 at MW13-01.

Analytical results for surface water were compared to guidelines set out by the BC Ministry of Environment and Climate Change Strategy (BC ENV) Water Quality Guidelines (WQG). Specifically, results were compared with the BC Approved Water Quality Guidelines (AWQG): Aquatic Life, Wildlife & Agriculture, November 2023 edition (BC ENV 2023), and BC Working Water Quality Guidelines (WWQG): Aquatic Life, Wildlife & Agriculture, February 2021 edition (BC ENV 2021). The guidelines for Fresh AW and Marine AW were referenced. The surface water quality at surface water location SW-1, located up-stream of the Site, is assumed to be representative of background surface water quality for the Site. The background average concentration for a particular parameter is calculated from the concentrations of that parameter from previous measurements at SW-1 in 2019 to 2023.

3.0 RESULTS

3.1 Groundwater Conditions

The following sections summarize the groundwater elevations, flow, and the groundwater analytical results.

3.1.1 Water Levels

Table 3-1 summarizes the groundwater elevations measured in the groundwater monitoring wells at the Site in 2023. Additional well information is presented in attached Table 1. The groundwater elevations and interpreted contours for each 2023 monitoring event are shown on Figure 3 (February), Figure 4 (May), Figure 5 (September), and Figure 6 (December).

Table 3-1: Groundwater Levels at the Site

Well ID	Groundwater Elevations (Metres Above Mean Sea Level)			
	February 2023	May 2023	September 2023	December 2023
MW13-01	52.12	51.61	51.52	51.59
MW13-02	33.72	33.45	32.46	33.80
MW13-03	15.67	16.65	16.63	16.70
MW19-04	38.37	38.31	38.32	37.57

The greatest fluctuations in groundwater level are at MW13-02 in the southeast portion of the Site, which is consistent with historical readings. Tetra Tech interprets a southwest groundwater flow direction for all monitoring events under an average hydraulic gradient of 0.10 m/m. This gradient has remained consistent since the onset of monitoring.

3.1.2 Analytical Results

Groundwater analytical results from 2023 are summarized in Table 3-2 with the full results presented in attached Table 2. The laboratory analytical certificates are in Appendix B. The following table summarizes the analytical results for key indicator parameters or parameters that exhibit concentrations greater than the referenced standards.

Table 3-2: Summary of Groundwater Analytical Results

Parameter	Most Stringent Standard*	Average Background Quality**	Measured Concentrations in 2023	
			Groundwater Concentration Range in 2023	Greater than the Standard
pH	None	7.01	▪ Minimum: 6.55 at MW13-01 (May) ▪ Maximum: 7.42 at MW13-01 (February)	▪ N/A
EC	None	124 µS/cm	▪ Minimum: 111 µS/cm at MW13-01 (February) ▪ Maximum: 1,470 µS/cm at MW13-02 (May)	▪ N/A
TDS	None	99,833 µg/L	▪ Minimum: 100,000 µg/L at MW13-01 (December) ▪ Maximum: 1,180,000 µg/L at MW13-02 (May)	▪ N/A
Sulphate (Figure 7)	500,000 µg/L (CSR-DW)	5,956 µg/L	▪ Minimum: 1,600 µg/L at MW19-04 (September) ▪ Maximum: 352,000 µg/L at MW13-02 (May)	▪ None
Chloride (Figure 8)	250,000 µg/L (CSR-DW)	7,445 µg/L	▪ Minimum: 5,830 µg/L at MW19-04 (February) ▪ Maximum: 27,300 µg/L at MW13-03 (February)	▪ None
Nitrate (as N)	10,000 µg/L (CSR-DW)	436 µg/L	▪ Minimum: less than the analytical detection limit (10 µg/L) at MW13-02 (all events) and MW19-04 (all events) ▪ Maximum:2,280 µg/L at MW13-03 (February)	▪ None
Ammonia (as N)	18,400 µg/L (CSR-Fresh AW)	Less than the analytical detection limit (50 µg/L)	▪ Minimum: less than the analytical detection limit (10 µg/L) at MW13-01 (all events) and MW13-03 (September, December) ▪ Maximum: 10,700 µg/L at MW13-02 (December)	▪ None
Dissolved Cobalt (Figure 9)	1 µg/L (CSR-DW)	Less than the analytical detection limit (0.10 µg/L)	▪ Minimum: Less than the analytical detection limit (0.10 µg/L) at MW13-01 (May and December) and MW13-03 (May and December) ▪ Maximum: 2.90 µg/L at MW13-02 (May) and MW19-04 (May)	▪ 2.90 µg/L (May) and 2.48 1µg/L (December) at MW13-02 ▪ 2.90 µg/L (May) and 2.27 µg/L (December) at MW19-04

Parameter	Most Stringent Standard*	Average Background Quality**	Measured Concentrations in 2023	
			Groundwater Concentration Range in 2023	Greater than the Standard
Dissolved Arsenic (Figure 10)	10 µg/L (CSR-DW)	Less than the analytical detection limit (0.5 µg/L)	▪ Minimum: Less than the analytical detection limit (0.50 µg/L) at MW13-01 (May and December), MW13-03 (May and December), and MW19-04 (May) ▪ Maximum: 7.02 µg/L at MW13-02 (December)	▪ None
Dissolved Iron (Figure 11)	6,500 µg/L (CSR-DW)	Less than the analytical detection limit (10 µg/L)	▪ Minimum: Less than the analytical detection limit (10 µg/L) at MW13-01 (May, December) and MW13-03 (May, December) Maximum: 99,100 µg/L at MW13-02 (May)	▪ 99,100 µg/L (May) and 91,700 µg/L (December) at MW13-02
Dissolved Manganese (Figure 12)	1,500 µg/L (CSR-DW)	0.30 µg/L	▪ Minimum: Less than the analytical detection limit at (0.20 µg/L) at MW13-01 (May) ▪ Maximum: 2,170 µg/L at MW13-02 (May)	▪ 2,170 µg/L (May) and 2,150 µg/L (December) at MW13-02 ▪ 1,580 µg/L (May) at MW19-04
EPHs and VHs	Various	Less than the detection limits for all parameters	▪ Less than the detection limits at all monitoring wells (February)	▪ None
PAHs	Various	Less than the detection limits for all parameters	▪ Less than the detection limits at all monitoring wells (February)	▪ None
Resins and Fatty Acids	None	Less than the detection limits for all parameters (Except oleic acid, 22 µg/L)	▪ Less than the detection limits at all monitoring wells (February)	▪ N/A

Notes:

* Groundwater monitoring wells results are compared to CSR-Fresh AW, CSR-Marine AW, and CSR-DW standards.

**Background quality is the average of all available measurements, including non-detectable (value of half the detection limit) results at MW13-01, from 2019 to 2023.

Abbreviations:

EC – Electrical Conductivity.
EPH – Extractable Petroleum Hydrocarbon.
N/A – Not Applicable
PAH – Polycyclic Aromatic Hydrocarbon.
TDS – Total Dissolved Solids.
VOC – Volatile Organic Compound.
VH – Volatile Hydrocarbon.

3.2 Surface Water Conditions

3.2.1 Analytical Results

Surface water analytical results from 2023 are summarized in Table 3-3 with the full results presented in attached Table 3. The laboratory analytical results are in Appendix B. Table 3-3 summarizes the analytical results for key indicator parameters or parameters that exhibit concentrations greater than the referenced guidelines.

Table 3-3: Summary of Surface Water Analytical Results

Parameter	Most Stringent Guideline*	Average Background Quality**	Measured Concentrations in 2023	
			Surface water Concentration Range in 2023	Greater than the Guideline
pH (Figure 13)	7.0 to 8.7 (BC WQG – Marine AW)	7.27	▪ Minimum: 6.58 at SW-2 (December) ▪ Maximum: 6.93 at SW-4 (February)	▪ All four locations (all events) (below guideline range)
EC	None	101 µS/cm	▪ Minimum: 88 µS/cm at SW-1 (February) ▪ Maximum: 165 µS/cm at SW-4 (December)	▪ N/A
TDS	None	74,786 µg/L	▪ Minimum: 65,000 µg/L at SW-2 (May) ▪ Maximum: 148,000 µg/L at SW-4 (December)	▪ N/A
Sulphate (Figure 14)	128,000 µg/L (BC WQG – Fresh AW)	3,159 µg/L	▪ Minimum: 2,100 µg/L at SW-1 (December) ▪ Maximum: 8,200 at SW-4 (September, December)	▪ None
Chloride (Figure 15)	600,000 µg/L (BC WQG – Fresh AW)	9,526 µg/L	▪ Minimum: 9,020 µg/L at SW-1 (December) ▪ Maximum: 10,800 µg/L at SW-2 (September)	▪ None
Nitrate (as N)	32,800 µg/L (BC WQG – Fresh AW)	119 µg/L	▪ Minimum: less than the analytical detection limit (10 µg/L) at SW-4 (May, September) ▪ Maximum: 156 µg/L at SW-2 (May)	▪ None
Ammonia (as N)	2,910 µg/L (BC WQG – Fresh AW)	Less than the analytical detection limit (50 µg/L)	▪ Minimum: less than the analytical detection limit (50 µg/L) at all four locations (all events) ▪ Maximum: N/A	▪ None
EPHs and VHs	Various	Less than the detection limits for all parameters	▪ Less than the detection limits at all locations (February)	▪ None
PAHs	Various	Less than the detection limits for all parameters	▪ Less than the detection limits at all locations (February)	▪ None
Resins and Fatty Acids	None	Less than the detection limits for all parameters	▪ Less than the detection limits at all locations (February)	▪ N/A

Notes:

* Surface water results are compared to the BC WQG for Fresh AW and Marine AW.

**Background quality is the average of all available measurements, including non-detectable (value of half the detection limit) results at SW-1, from 2019 to 2023.

Abbreviations:

EC – Electrical Conductivity.
EPH – Extractable Petroleum Hydrocarbon.
N/A – Not Applicable
PAH – Polycyclic Aromatic Hydrocarbon.
TDS – Total Dissolved Solids.
VH – Volatile Hydrocarbon.

3.3 Quality Assurance / Quality Control Results

The field QA/QC program included the collection of one duplicate sample during each event and the use of COC forms to track sample handling between the field and the laboratory. In addition, sample hold times and temperatures were evaluated to determine if these parameters exceeded laboratory or method QA/QC limits. Duplicate samples were collected by qRD from the following locations:

- SW-3 in February 2023.
- MW19-04 in May 2023.
- MW13-03 in September 2023.
- MW13-01 in December 2023.

The duplicates were submitted to CARO and tested for routine parameters (e.g., pH, EC, major ions). All samples were received by the laboratory at temperatures below the alert limit of 10ºC and were analyzed within the method hold time.

Duplicate results were considered as having passed the QA/QC reproducibility procedure if the RPD was less than or equal to 30%, indicating a close correlation between the sample-duplicate pair. In poor precision situations (e.g., RPD >50%), the results cannot be distinguished as to whether it is due to the non-homogenous nature of the samples or poor sampling method or laboratory technique. Therefore, RPD is usually used for flagging data for further review, rather than for taking corrective action.

The RPD calculations are summarized in attached Table 4. Most parameters passed the QA/QC reproducibility procedure with an RPD of <30% with the following exception: SW-3 in February, sulphate (RPD 73%). This result is not interpreted to have affected results interpretation. Other RPD values remained under 20% for all other parameters tested during all sampling events. Based on the results of the QA/QC program, Tetra Tech considers the analytical results reliable.

4.0 DISCUSSION

4.1 Groundwater Historical Comparison

The historical context of the Site includes groundwater analytical data from well installations in 2013 and 2019, and data collection from 2019 to the present. Figure 7 to Figure 12 show concentrations of key groundwater parameters from 2019 to 2023. It should be noted that the figures do not show the results from the December 2013 sampling event as there was no data collected between 2013 and 2019.

Sulphate (Figure 7) has not exceeded the CSR-DW (500,000 µg/L) in the past, but there have been higher concentrations of sulphate at MW19-05 prior to decommissioning. The sulphate concentration at MW13-02, while less than standards, has increased to relatively higher levels (more than 300,000 µg/L in 2022 and 2023) compared to concentrations observed before May 2021 (13,700 µg/L or less) and should continue to be monitored. The 2023 concentrations were reduced from those measured in 2022.

Chloride concentrations (Figure 8) have remained stable at all wells and remained well below the CSR-AW and CSR-DW Standards at the groundwater wells since installation.

Dissolved cobalt (Figure 9) has consistently exceeded the CSR-DW standard (1 µg/L) in the past at MW13-02, MW19-04, and MW19-05 (prior to decommissioning). In 2023, exceedances of the CSR-DW standard for dissolved cobalt were observed at MW13-02 and MW19-04 (both the May and December events at both wells), with values ranging between 2.27 µg/L and 2.90 µg/L at these two wells. However, the 2023 concentrations remained within historical ranges at all wells. The 2023 and historical dissolved cobalt concentrations at all wells were below the CSR-AW freshwater and marine standards (40 µg/L).

In the past, dissolved arsenic (Figure 10) exceeded the CSR-DW standard (10 µg/L) at MW13-02 during several monitoring events. However, the dissolved arsenic concentrations at MW13-02 remained below the CSR-DW standard during both monitoring events in 2023.

Dissolved iron and manganese concentrations exceeded the CSR-DW Standards as follows:

- Dissolved iron (Figure 11) exceeded the CSR-DW standard (6,500 µg/L) at MW13-02 in both the May and December monitoring events but remained within historical ranges.
- Dissolved manganese (Figure 12) exceeded the CSR-DW standard (1,500 µg/L) at MW13-02 (both events in May and December) and MW19-04 (May event only) in 2023. The dissolved manganese concentration at MW13-02 appears to be on an upward trend and should continue to be monitored in 2024.

Dissolved iron and dissolved manganese are often naturally occurring in groundwater under anaerobic conditions. Elevated dissolved arsenic concentrations may be related to the presence of dissolved iron. Arsenic is strongly adsorbed onto iron (hydro)oxides and when these oxides dissolve due to anaerobic groundwater conditions, arsenic is mobilized. Monitoring well MW13-02 was installed within the waste footprint, and the presence of landfill-related parameters (as well as anaerobic conditions) would not be unexpected. The measured concentrations of arsenic, iron, and manganese do not necessarily reflect groundwater quality impact caused by facility operations; however, increases in the concentrations of these parameters, in particular at MW13-02, in recent years with corresponding increases in ammonia concentrations suggest that the historical landfill may be contributing to anaerobic conditions in the local groundwater.

PAHs had been detected MW13-02 in 2021 and at MW19-05 prior to decommissioning. PAHs at all wells were below the detection limits in 2023.

4.2 Surface Water Historical Comparison

The historical context of the Site includes data collection in March 2014 and from 2019 to the present. Figure 13 to Figure 15 show concentrations of key parameters from 2019 to 2023. Tetra Tech notes that the figures do not show the results from the March 2014 sampling event as there was no data collected between 2014 and 2019.

Locations for surface water samples were as follows:

- Surface Water sample SW-1 is on McFall creek upstream of the Site.
- Surface Water sample SW-2 is on McFall creek upstream of the Site watercourse outlet.
- Surface Water sample SW-3 is on McFall creek downstream of the Site watercourse outlet.
- Surface Water sample SW-4 is near the headwaters of the on-site watercourse.

Location SW-1 represents an upstream location on McFall Creek; Locations SW-2 and SW-3 represent locations on McFall Creek that are upstream and downstream, respectively, from the Site watercourse outlet. Location SW-4 represents an upstream location on the unnamed watercourse across the Site.

The laboratory pH levels (Figure 13) of the surface water samples at the four sampling locations during all monitoring events in 2023 were outside the range set by the BC AWQG for Marine AW (pH 7.0 to 8.7), with values ranging from 6.58 to 6.93. The pH values at these locations have generally remained above 7.0 prior to 2023; however, the pH values at each location have had apparent decreasing trends since 2019. It should be noted that the pH values in 2023 remained within the acceptable range set by the BC AWQG for Fresh AW (pH 6.5 to 9.0). The reason for the decreasing pH is not clear, as similar patterns are seen in the upstream and downstream locations and at both watercourses (and therefore they are interpreted to not be related to site activities). pH is susceptible to swings in water of low hardness, and with the presence of dissolved iron and longer hold times, there is a potential for an acidifying effect due to the oxidation of the dissolved iron in the samples (Nilsson and Sandberg 2017). With the exception of anomalously low field pH values at the time of the September event across all samples, the field pH measurements were more within the usual range and are expected to be more reliable. The pH of the surface water should continue to be closely monitored, and we recommend qRD discuss the trend noted in pH with the contract lab in future events to minimize the potential for this effect.

Sulphate concentrations (Figure 14) have remained well below the BC AWQG for Fresh AW Guideline (128,000 ug/L) at the four surface water sampling locations. The 2023 sulphate concentrations remained within historical ranges.

Chloride concentrations (Figure 15) have remained well below the BC AWQG for Fresh AW Guideline (600,000 ug/L) at the four surface water sampling locations. The 2023 chloride concentrations remained within historical ranges.

Concentrations of total metals such as cobalt and arsenic, seen in hydraulically upgradient groundwater and indicative of anaerobic conditions, are not seen in appreciable quantities in the surface water, measuring either non-detectable or well below comparative guidelines.

5.0 CONCEPTUAL SITE MODEL UPDATE

A Conceptual Site Model (CSM) was created as a component of the initial environmental monitoring program completed in 2019 (Tetra Tech 2019). A CSM is a representation of an environmental system and the processes that determine the transport of contaminants from sources through the environmental media to environmental receptors within the system.

The key indicator compounds, elements, and parameters identified in the CSM were:

- Routine Chemistry and Nutrients:
  - Chloride.
  - Nitrogen parameters (nitrate, ammonia).
  - TDS.
  - Sulphate.
- Dissolved Metals:
  - Iron, manganese.
  - Boron, nickel.

- Organic and other parameters.
  - PAHs.

We note that sulphide is not included in the above list; sulphides are less useful as an indicator parameter as they are difficult to sample effectively (and therefore provide less reliable results). In addition, sulphides are also present up-gradient at this Site, in both groundwater and surface water based on the sampling results to date.

Available Background Concentrations

Background groundwater concentrations are available from one well (MW13-01) and one surface water location (SW-1). MW13-01 and SW-1 have been sampled for five years (19 monitoring events). Most parameters at MW13- 01 have not exceed applicable standards except sulphide (October 2019). SW-1 has had exceedances of referenced guidelines for pH (all events in 2023, though interpreted to be a laboratory effect as discussed above), sulphide (April 2019, October 2019), dissolved iron (October 2020), total iron (October 2020, December 2021), and total zinc (July 2019).

5.1 Source Characteristics and Release Mechanisms

The potential release mechanisms for chemicals of potential concern (COPCs) at the Site include:

- Leachate migration through foundation soils beneath stockpiled or landfilled waste to the groundwater (or laterally through the covering soils and/or direct leaching from stockpiles to surface water runoff).
- Landfill gas (LFG) emission laterally and vertically through cover soils by pressure differentials within the waste greater than atmospheric (Tetra Tech 2020).

With waste stockpiles removed, processed, or encapsulated in 2020, the erosion of waste piles will no longer be a significant potential release mechanism for COPCs in future. However, there is a potential for residual COPCs in the soils beneath the former pile locations.

A summary of the CSM for the Site is provided in Table 5-1.

Table 5-1: Summary of Conceptual Site Model

Release Mechanism	COPCs	Migration Pathway	Potential Receptor	Exposure Pathway
Leachate Infiltration	Nutrients and inorganics; metals; PHCs; PAHs	Migration vertically to groundwater then carried with groundwater flow	Human users of water (i.e., water well); aquatic life	P1 – Migration to off-Site groundwater user or surface water receptor (i.e., nearby creeks)
Erosion/Runoff	Nutrients and inorganics; metals; PHCs; PAHs	Carried with runoff or via dust	Human users of the Site; terrestrial receptors; aquatic receptors	P2 – Direct exposure to waste or leaching to surface water
Landfill Gas Generation	Methane, VOCs	Migration beneath cover and venting via risers Lateral migration from buried wastes	Human users of the Site	P3 – Ventilation from risers

Abbreviations:
COPC – Chemical of Potential Concern.
PAH – Polycyclic Aromatic Hydrocarbon.
PHC – Petroleum Hydrocarbon.
VOC – Volatile Organic Compound.

The above pathways are defined in numerical order as follows:

- P1 – Leachate mixed with groundwater migrating to potential water wells or to nearby surface water via discharge. Current groundwater sampling data from hydraulically down-gradient of the landfill has identified relatively low levels of some COPCs in the groundwater; however, there are no users in the immediate vicinity. Well 13-02 in particular shows increasing trends in several parameters, however, it is installed within the waste footprint. The local topography has limited the ability to install groundwater monitoring wells beyond a very narrow corridor.
- P2 – Waste movement from stockpiles due to erosion or slope failure. Erosion is of heightened concern if waste or soil is exposed during high precipitation events common in autumn to spring months. Direct runoff from precipitation has potential to leach COPCs from stockpiled waste and carry with surface water flow to aquatic receptors.
- P3 – Encapsulated waste generating LFG from the decomposition of organics. The cover is designed to collect and vent LFG to the atmosphere from two risers at a height of approximately 2.75 m above finished grade.

5.2 Data Gaps

The CSM illustrates the potential release mechanisms and potential exposure pathways to each receptor. Current monitoring information suggests there may be COPCs in groundwater located laterally from the Site; however, monitoring data is limited and no trends are apparent outside of the waste footprint.

Gaps in information relative to the CSM include:

- There is limited ability to monitor groundwater adjacent to the east side of the Site beyond well MW13-02 due to topography and vegetation. The interpretation of surface water data therefore is important to understand the potential for the site to impact the surrounding environment.
- The available groundwater and surface water data is limited to five years of monitoring events. Ongoing monitoring is required to evaluate potential trends in parameter concentrations and to further evaluate the potential for impact from historical site activities.

Site closure activities in 2020 and 2021 involved substantial movement of soils and materials around the Site which can affect infiltration patterns and groundwater chemistry. Data collected in 2022 and 2023 may be difficult to compare to previous years and ongoing monitoring will be required to document the potential effects of site improvements on groundwater and surface water conditions.

The construction of the RRC in 2022 to 2024 will continue to improve site conditions and limit site erosion, reducing the potential for release of and exposure to COPCs.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The potential for migration of landfill and solid waste-related compounds from the Site can be assessed from evaluation of groundwater composition at the Site and Site boundary, and surface water composition from waters adjacent to the Site. The background Site conditions are monitored by groundwater well MW13-01 and surface water location SW-1. As discussed in Section 4.1 and Section 4.2, there are no indications of significant impact at the monitoring locations relating to the historical site use.

6.1.1 Groundwater

Groundwater was assessed based on analysis of routine parameters, nutrients, phenols, dissolved metals, total metals, petroleum hydrocarbons, VOCs, PAHs, and resins and fatty acids. Based on the interpreted southwesterly groundwater flow:

- Monitoring well MW13-01 is hydraulically up-gradient of most site features.
- Monitoring well MW13-02 is hydraulically down-gradient of most site features but is installed within the waste footprint and of questionable monitoring value in terms of evaluating groundwater characteristics off-site.
- Monitoring well MW13-03 is hydraulically down-gradient of the site features.
- Monitoring well MW19-04 is hydraulically down-gradient or cross-gradient from historical stockpile locations.
- Monitoring well MW19-05 was a cross-gradient monitoring well that was decommissioned due to construction on September 14, 2020 (refer to Section 6.2 regarding recommended replacement).

Groundwater at the Site appears to have a moderate level of minerals, with TDS values ranging from 100 mg/L to 1,180 mg/L in 2023. Concentrations of dissolved metal parameters cobalt, iron, and manganese exceeded CSR-DW standards at one or more wells in 2023.

Sulphate did not exceed the CSR-AW and CSR-DW standards at any well in 2023. The sulphate concentration at MW13-02, while less than standards, has increased to relatively higher levels (more than 300,000 µg/L in 2022 and 2023) compared to concentrations observed before May 2021 (13,700 µg/L or less) and should continue to be monitored. However, the 2023 concentrations were reduced from those measured in 2022.

Dissolved cobalt exceeded the CSR-DW standard at MW13-02 and MW19-04 during both the May and December monitoring events. The dissolved cobalt concentrations were between 2.27 µg/L and 2.90 µg/L at these two wells, which were below the CSR-AW freshwater and marine water standard (40 µg/L).

In the past, dissolved arsenic (Figure 10) exceeded the CSR-DW standard (10 µg/L) at MW13-02 during several monitoring events. However, the dissolved arsenic concentrations at all wells remained below the CSR-DW standard during both monitoring events in 2023.

Dissolved iron concentrations exceeded the CSR-DW standard at MW13-02 (both events in May and December). Dissolved manganese concentrations exceeded the CSR-DW standard at MW13-02 (both events in May and December) and MW19-04 (May event only). The dissolved manganese concentration at MW13-02 appears to be on an upward trend and should continue to be monitored in 2024.

Dissolved iron and dissolved manganese are often naturally occurring in groundwater under anaerobic conditions, while elevated dissolved arsenic concentrations may be related to the presence of dissolved iron. The measured concentrations of arsenic, iron, and manganese do not necessarily reflect groundwater quality impact caused by facility operations. At MW13-02, increasing trends of these parameters accompanied by an increase of ammonia suggests that the historical landfill may be contributing to anaerobic conditions in the local groundwater. However, this well located at the edge of the waste footprint and therefore, the measured concentrations may not be representative of the surrounding groundwater.

PAHs were detected MW13-02 in 2021 and at MW19-05 prior to decommissioning. PAHs at all wells were below the detection limits in 2023. The historical landfill had final cover installed in fall 2020. Closure activities on-site included the excavation of ash northeast of MW 13-02 which was consolidated with other waste materials before final cover was installed. PAHs should continue to be monitored at MW13-02, and at the well recommended to be replaced at the former location of MW19-05.

6.1.2 Surface Water

Surface water was assessed based on analysis of routine parameters, nutrients, phenols, dissolved metals, total metals, petroleum hydrocarbons, VOCs, PAHs, and resins and fatty acids. Samples were collected from the following locations:

- Surface Water sample SW-1 is on McFall creek upstream of the Site.
- Surface Water sample SW-2 is on McFall creek upstream of the Site watercourse outlet.
- Surface Water sample SW-3 is on McFall creek downstream of the Site watercourse outlet.
- Surface Water sample SW-4 is near the headwaters of the on-site watercourse.

Surface water monitoring at these locations in 2023 identified laboratory pH values to be outside the BC AWQG for Marine AW guideline range at the four sampling locations during all monitoring events. The pH values were found to be between 6.58 and 6.93. The pH levels at these locations have generally remained above 7.0 prior to 2023; however, the pH levels at each location have had apparent decreasing trends since 2019. These values are interpreted to be related to a laboratory hold time issue, and the field-measured pH values which were generally within the guideline range are interpreted to be more reliable.

Sulphate and chloride concentrations have remained within historical ranges and well below the BC AWQG for Fresh AW Guidelines at the four surface water sampling locations in 2023. There were no detectable concentrations of PAHs, petroleum hydrocarbons, or VOCs in the surface water samples, and no indications of elevated concentrations (or increases between up and down-gradient locations) in other indicator parameters.

6.1.3 Correlations Between Groundwater and Surface Water

Concentrations of dissolved metal parameters cobalt, iron, and manganese exceeded the CSR-DW standards at one or more groundwater monitoring wells in 2023. In the surface water, there were no indications of elevated concentrations of these parameters or increases between upstream and downstream sampling locations.

Dissolved iron exceeded the CSR-DW standards at hydraulically down-gradient well MW13-02. The dissolved iron concentrations have exceeded the standards at MW13-02 in the past, dissolved and total iron concentrations has previously exceeded guidelines at monitoring locations SW-1, SW-2, and SW-3. Tetra Tech interprets the dissolved and total iron concentrations to be representative of background site conditions and not from Site operations. However, iron concentrations should continue to be monitored at all locations in 2024.

6.2 Recommendations

The following recommendations have been developed based on the data presented within this report:

- Continue the current quarterly groundwater monitoring and sampling schedule and analytical program in 2024.
- Add dissolved metals to the analytical program for surface water for the May and December monitoring events, as there are new guidelines for some dissolved metal parameters in the new BC AWQG (updated November 2023).
- Add dissolved organic carbon (DOC) to the analytical program for surface water when the metal parameters are being tested (May and December). The DOC concentration is required to calculate the new BC AWQG guidelines for dissolved copper, total aluminum, and total zinc.
- Consider addition of a surface water sampling location to further assess water quality in the western ephemeral watercourse on the Site. Addition of the sampling location should occur after final site development. Additionally, surface water sampling locations on the Site should be reassessed and potentially adjusted based on final Site development and surface water flows.
- Replace MW19-05 following completion of site development in this area to provide a groundwater monitoring location hydraulically down-gradient of the encapsulated waste, and to characterize groundwater characteristics between the Site and McFall Creek. This project is estimated for completion in Spring 2024.
- Discuss pH analysis with the contract lab, including the trend of decreasing pH noted over recent events relative to sample hold times, to determine options for confirming more reliable pH measurements.

7.0 NEXT STEPS

Tetra Tech recognizes that there is ongoing work at the Site, as detailed in Updated End-Use Plan for the Marine Avenue Site (Tetra Tech 2018). This work is not anticipated to impact the environmental monitoring activities but is included for comprehension.

Tetra Tech trained qRD staff to assist with the environmental monitoring program during the 2020 and 2021 monitoring events and qRD staff will continue to be responsible for monitoring and sampling in 2024. Table 7-1 presents the next steps and anticipated scheduling for the RRC development.

Table 7-1: Next Steps for RRC Development

Item	Date	Description
Finalize Construction of RRC	Spring 2024	Finalizing construction which has included multiple structures, major earthworks, and surface water management systems.
Replace MW19-05	Spring 2024	Replace MW19-05 following completion of site development to best capture potential lateral groundwater conditions between potential sources and McFall Creek. This should be completed after completion of site development.

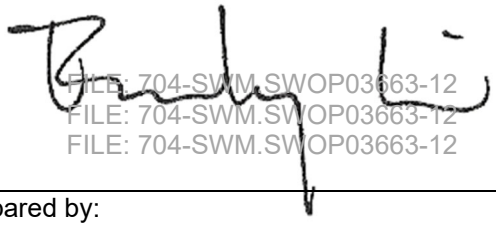
8.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of qathet Regional District and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than qathet Regional District, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

9.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



FILE: 704-SWM.SWOP03663-12
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/as

PERMIT TO PRACTICE
TETRA TECH CANADA INC.
PERMIT NUMBER: 1001972

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TABLES

Table 1 Groundwater Monitoring Summary
Table 2 Groundwater Analytical Results
Table 3 Surface Water Analytical Results
Table 4 Groundwater and Surface Water QA/QC Analytical Results

Table 1: Groundwater Monitoring Summary

Monitoring Well		MW13-01	MW13-02	MW13-03	MW19-04	MW19-05
Year Installed		2013	2013	2013	2019	2019
Year Decommissioned		--	--	--	--	2020
Year of Well Extension		--	2023	--	--	--
Pipe Length (m)		8.4	10.1	15.4	4.5	7.0
Pipe Stickup (m)		0.62	0.53	0.57	0.73	0.98
Pipe Stickup (m) - After Well Extension***		--	0.62	--	--	--
Screened Section length (m)		3.0	3.0	3.0	3.0	5.0
Screened Interval (m-TPC)		5.3 to 8.4	7.1 to 10.1	12.4 to 15.4	1.4 to 4.5	2.0 to 7.0
Ground Elevation (m)		55.97	40.15	29.08	39.64	44.73
Ground Elevation (m) - After Well Extension***		--	40.93	--	--	--
TPC Elevation (m)		56.59	40.68	29.65	40.37	45.71
TPC Elevation (m) - After Well Extension***		--	41.55	--	--	--
Depth to Groundwater (m-TPC)	Dec 1, 2013	5.25	8.04	13.46	*	*
	Apr 3, 2019	5.41	7.28	13.97	3.25	3.42
	Jul 1, 2019	5.61	8.06	13.07	2.81	4.00
	Oct 16, 2019	5.68	8.44	13.14	2.49	4.26
	Jan 27, 2020	5.49	6.62	12.83	2.00	2.64
	Apr 23, 2020	5.65	7.44	13.00	2.28	3.72
	Jul 22, 2020	6.01	8.14	13.08	2.26	4.10
	Oct 1, 2020	5.07	8.84	13.01	2.16	**
	Feb 24, 2021	4.57	7.02	12.97	2.15	**
	May 11, 2021	4.68	7.59	13.11	2.12	**
	Jul 19, 2021	4.76	8.00	12.97	2.19	**
	Dec 1, 2021	4.62	6.58	12.80	1.80	**
	Mar 2, 2022	4.85	7.90	12.94	1.97	**
	Jul 12, 2022	4.42	7.27	12.98	2.75	**
	Oct 11, 2022	4.51	8.17	13.70	2.16	**
	Dec 12, 2022	4.44	8.19	13.40	2.05	**
	Feb 28, 2023	4.47	7.83	13.98	2.00	**
	May 23, 2023	4.98	8.10	13.00	2.06	**
	Sep 27, 2023	5.07	9.09	13.02	2.05	**
	Dec 18, 2023	5.00	7.75	12.95	2.80	**
Groundwater Elevation (mamsl)	Dec 1, 2013	51.34	32.64	16.19	*	*
	Apr 1, 2019	51.18	33.40	15.69	37.12	42.29
	Jul 1, 2019	50.98	32.62	16.58	37.56	41.71
	Oct 1, 2019	50.91	32.24	16.51	37.88	41.45
	Jan 27, 2020	51.10	34.07	16.82	38.37	43.07
	Apr 23, 2020	50.94	33.25	16.66	38.09	41.99
	Jul 22, 2020	50.58	32.54	16.57	38.12	41.62
	Oct 1, 2020	51.52	31.84	16.64	38.22	**
	Feb 24, 2021	52.02	33.66	16.68	38.22	**
	May 11, 2021	51.91	33.09	16.54	38.25	**
	Jul 19, 2021	51.83	32.68	16.68	38.18	**
	Dec 1, 2021	51.97	34.10	16.85	38.57	**
	Mar 2, 2022	51.74	32.78	16.72	38.40	**
	Jul 12, 2022	52.17	33.41	16.67	37.62	**
	Oct 11, 2022	52.08	32.51	15.95	38.21	**
	Dec 12, 2022	52.15	32.49	16.25	38.32	**
	Feb 28, 2023	52.12	33.72	15.67	38.37	**
	May 23, 2023	51.61	33.45	16.65	38.31	**
	Sep 27, 2023	51.52	32.46	16.63	38.32	**
	Dec 18, 2023	51.59	33.80	16.70	37.57	**

Notes:

TPC - Top of plastic pipe casing.
m-TPC - Metres below TPC.
mamsl - Metres Above Mean Sea Level.
* Monitoring well not installed at time of monitoring event.
** Monitoring well decommisioned prior to event.
*** New elevations for MW13-02 after well extension work completed on February 22, 2022.

Table 2: Groundwater Analytical Results

					MW 13-01																				
					14-Dec-2013	2-Apr-2019	DUP (2-Apr-2019)	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023	DUP (18-Dec-2023)
					-	L2252890	L2252890	L2318207	L2367392	VA20A09082812020	VA20A536325042020	VA20B113924072020	VA20B95653010020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282	23L2282
					-	L2252890-3	L2252890-1	L2318207-1	L2367392-1	VA20A0908-001	VA20A5363-001	VA20B1139-001	VA20B9565-001	21B2866-02	21E1432-01	21G2459-02	21L0641-02	22C0773-02	22G1537-02	22J1342-05	22L1310-02	23C0154-01	23E2913-01	23I3541-01	23L2282-01	23L2282-09
Parameter	**Unit**	**CSR - AW**		**CSR - DW**																					
		Freshwater	**Marine**																						
Field Measurements																									
Temperature	°C	-	-	-	-	9.34	-	11.60	11.3	10.1	10.42	10.7	10.8	9.3	10.1	11.9	11.4	9.8	11.4	12.3	10.7	9.7	11.7	11.5	10.6	10.6
Electrical Conductivity	µS/cm	-	-	-	-	124	-	96	143.9	95.9	94	132	127	83.5	125.4	94.9	84.8	78.4	84.4	126.2	85.8	76.2	89.2	99.2	9.8	9.8
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	-	84	-	87.1	85	85	82.6	78	81.9	82.55	74.5	71.5	74.5	82.2	76.8	70.2	77.7	89.7	8.45	8.45
Salinity	-	15	10	-	-	-	-	0.06	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	11.2	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	1.26	-	12.28	-	8.03	12.23	7.11	10.8	11.1	8.86	9.48	10.63	9.47	11.1	10.70	9.72	9.91	1.06	4.73	4.16	4.16
pH	pH Units	-	-	-	-	6.31	-	6.61	6.78	6.26	6.05	6.47	6.43	6.42	6.32	6.56	6.10	6.33	6.91	6.61	6.45	6.21	6.81	5.06	4.33	4.33
Oxidation Reduction Potential (ORP)	-	-	-	-	-	-	-	249.3	-	156	139.6	95.2	80.6	96.7	114	116.8	56.5	119.3	25.5	15.7	99.3	22.4	62.2	206.8	152	152
Physical Parameters																										
pH	pH Units	-	-	-	7.05	6.85	6.86	7.69	7.06	7.18	7.72	7.42	6.99	-	6.35	-	7.22	-	7.49	-	6.55	7.42	6.55	6.71	6.58	6.57
Electrical Conductivity (EC)	µS/cm	-	-	-	126	128	131	121	121	-	131	-	138	-	139	-	120	-	115	-	124	111	116	125	122	120
Total Suspended Solids (TSS)	µg/L	-	-	-	709,000	<3,000	33,300	143,000	<3,000	-	<3000	-	<3000	-	<3300	-	<2500	-	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	100,000	-	-	-	-	107,000	116,000	-	103,000	-	-	-	-	-	71,000	-	-	-	102,000	-	100,000	-
Hardness as $CaCO_3$	µg/L	-	-	-	45,300	46,100	43,700	52,100	40,900	-	44,000	-	49,400	-	43,500	43,900	37,800	40,600	41,300	40,800	41,200	-	42,700	-	44,600	44,100
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	47,800	-	-	-	-	-	-	40,400	46,400	53,200	49,000	48,600
Alkalinity (P)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	47,800	-	-	-	-	-	-	40,400	46,400	53,200	49,000	48,600
Carbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	1,500,000	1,500,000	250,000	9,720	8,860	8,890	8,830	7,270	7,210	8,970	8,550	7,770	7180	6950	7490	4700	7,510	7,690	8,150	7,400	6,700	6,280	6,730	6,830	6,380
Fluoride	µg/L	2,000 / 3,000 [#1]	15,000	1,500	27	33	35	29	30	27	29	28	31	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	2,180,000-4,290,000 [#1]	2,180,000-4,290,000 [#1]	500,000	5,980	5,630	5790	6,750	6,340	6,020	5,490	6,390	6,370	5800	6000	6100	5300	5,800	5,600	6,500	6,800	5,800	6,000	6,000	5,300	5,300
Sulphide (as S)	µg/L	20	20	50	<20	<18	<18	<2.0	**31**	<2.0	2.3	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	-	50	-	-		-	-	<2.0	2.4	<2.0	<2.0	<20	-	<20	<20	<20	<20	<20	<20	-	-	-	-	-
Turbidity	NTU	-	-	-	-	17.8	23.8	-	0.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-	-		-	-	-	4,000	-	3,700	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																										
Ammonia as N	µg/L	3,700-18,400 [#2]	6,850-200,000 [#2]	-	<5.0	<5.0	<5.0	5.8	<5.0	<5.0	<5.0	8	<5.0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Nitrate (as N)	µg/L	400,000	400,000	10,000	171	407	347	139	87.3	492	497	205	208	889	628	368	876	1,150	554	218	135	395	470	223	441	418
Nitrite (as N)	µg/L	200-2,000 [#3]	200-2,000 [#3]	1,000	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<1.0	<1	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	-	497	-	-	-	-	-	-	-	554	-	-	-	-	-	-	-
Demand Parameters																										
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-	<2,000	2900	-	<2,000	-	<2,000	-	<2,000	-	<1200	-	<1200	-	<6,200	-	<2,200	-	<4,800	-	<2,800	-
Chemical Oxygen Demand (COD)	µg/L	-	-	-	<20,000	<20,000	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-
Carbon																										
Dissolved Organic Carbon (DOC) (Filtered)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	610	-	4850	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-	1,810	3950	-	<500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																										
Phenols (4AAP)	µg/L	-	-	-	<1.0	<1.0	<1.0	-	-	-	-	<1	-	<2	-	-	-	<2.0	-	-	<2.0	<2.00	-	-	-	-
Dissolved Metals																										
Aluminum	µg/L	-	-	9,500	<5.0	6.1	4.5	-	4.1	-	<1.0	-	<1.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5	<5
Antimony	µg/L	90	2,500	6	<0.50	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.2	<0.2
Arsenic	µg/L	50	125	10	<0.50	<0.10	<0.10	-	0.10	-	<0.10	-	<0.10	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.5	<0.5
Barium	µg/L	10,000	5,000	1,000	<20	1.17	1.18	-	1.27	-	1.39	-	1.3	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5	<5
Beryllium	µg/L	1.5	1,000	8	<1.0	<0.10	<0.10	-	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	<0.1
Bismuth	µg/L	-	-	-	-	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	-	-
Boron	µg/L	12,000	12,000	5,000	<100	<10	<10	-	<10	-	<10	-	<10	-	<50	-	<50	-	<50	-	<50	-	<50.0	-	<50	<50
Cadmium	µg/L	1.5-4.0 [#1]	15	5	<0.010	0.0131	<0.0050	-	<0.0050	-	<0.0050	-	<0.0050	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.01	<0.01
Calcium	µg/L	-	-	-	13,300	13,900	13,000	-	12,100	-	13,000	-	14,100	-	12,800	-	10,700	-	121,000	-	12,000	-	12,800	-	13,200	13,100
Cesium	µg/L	-	-	-	-	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	10 [#4]	15 [#4]	50 [#4]	<1.0	<0.10	<0.10	-	<0.10	-	<0.50	-	<0.10	-	<0.50	-	<0.50	-	1	-	<0.50	-	1.05	-	<0.5	<0.5
Cobalt	µg/L	40	40	1	<0.30	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	<0.1
Copper	µg/L	20-90 [#1]	20	1,500	<1.0	0.20	<0.20	-	0.25	-	<0.20	-	0.00023	-	<0.40	-	<0.40	-	<0.40	-	84	-	<0.40	-	<0.4	1.86
Iron	µg/L	-	-	6,500	<30	<10	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	<10	<10
Lead	µg/L	40-160 [#1]	20	10	<0.50	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.050	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2	<0.2
Lithium	µg/L	-	-	8	<5.0	<1.0	<1.0	-	<1.0	-	<1	-	<1	-	0.76	-	0.68	-	0.78	-	0.78	-	0.84	-	0.84	0.82
Magnesium	µg/L	-	-	-	2940	2750	2720	-	2,610	-	2,880	-	3,000	-	2780	-	2720	-	2,680	-	2,710	-	2,600	-	2,800	2,780
Manganese	µg/L	-	-	1,500	10.2	0.49	0.21	-	0.16	-	<0.10	-	<0.10	-	0.32	-	0.43	-	<0.20	-	<0.20	-	<0.20	-	1.5	<0.2
Mercury	µg/L	0.25	0.25	1	<0.010	-	-	-	<0.0050	-	-	-	<0.0050	-	<0.010	-	<0.010	-	<0.010	-	-	-	<0.010	-	<0.01	<0.01
Molybdenum	µg/L	10,000	10,000	250	<1.0	0.102	0.092	-	0.128	-	0.117	-	0.131	-	0.15	-	0.12	-	<0.010	-	0.13	-	0.12	-	0.14	0.16
Nickel	µg/L	250-1,500 [#1]	83	80	<1.0	<0.50	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-	<0.40	-	15.7	<0.4
Phosphorus	µg/L	-	-	-	-	<50	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	-	-
Potassium	µg/L	-	-	-	<2000	1410	1350	-	1,290	-	1,240	-	1,280	-	1260	-	1290	-	1,210	-	1,420	-	1,330	-	-	-
Rubidium	µg/L	-	-	-	-	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	20	20	10	0.11	0.102	0.115	-	0.156	-	0.093	-	0.083	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.5	<0.5
Silicon	µg/L	-	-	-	-	12,000	12,900	-	13,300	-	13,100	-	12,000	-	14,300	-	14,300	-	12,600	-	13,900	-	13,800	-	-	-
Silver	µg/L	0.5 / 15 [#1]	15	20	<0.020	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.050	-	<0.050	-	<0.050	-	<0.05	<0.05
Sodium	µg/L	-	-	200,000	7,900	7,650	7690	-	7,590	-	7,220	-	7,820	-	7390	-	7120	-	6,940	-	7,520	-	7,430	-	7,770	7,740
Strontium	µg/L	-	-	2,500	-	71.1	72.8	-	72.4	-	77.2	-	79.2	-	68	-	55.4	-	67.6	-	69.9	-	71.5	-	69.7	68.5
Sulphur	µg/L	-	-	-	-	2,040	2030	-	2,280	-	1,690	-	1,990	-	<3000	-	<3000	-	<3000	-	<3000	-	<3,000	-	-	-
Tellurium	µg/L	-	-	-	-	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	<0.50	-	-	-
Thallium	µg/L	3	3	-	<0.20	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.020	-	<0.020	-	<0.020	-	<0.020	-	<0.020	-	<0.02	<0.02
Thorium	µg/L	-	-	-	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	-	-
Tin	µg/L	-	-	2,500	<0.50	0.50	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.2	<0.2
Titanium	µg/L	1,000	1,000	-	<10	<0.30	<0.30	-	<0.30	-	<0.30	-	<0.30	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5.0	-	<5	<5
Tungsten	µg/L	-	-	3	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1	<1
Uranium	µg/L	85	85	20	<0.20	0.056	0.053	-	0.037	-	0.064	-	0.066	-	0.057	-	0.061	-	0.05	-	0.062	-	0.058	-	0.055	0.053
Vanadium	µg/L	-	-	20	<1.0	0.90	0.83	-	0.93	-	0.84	-	0.86	-	1.1	-	<1.0	-	<5.0	-	<5.0	-	<5.0	-	<5	<5
Zinc	µg/L	75-2,400 [#1]	100	3,000	<5.0	2.6	<1.0	-	2.1	-	<1.0	-	<1.0	-	<4.0	-	<4.0	-	<4.0	-	8.2	-	<4.0	-	<4	<4
Zirconium	µg/L	-	-	-	-	<0.060	<0.060	-	<0.20	-	<0.3	-	<0.2	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
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TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW 13-01																					
					14-Dec-2013	2-Apr-2019	DUP (2-Apr-2019)	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023	DUP (18-Dec-2023)
					-	L2252890	L2252890	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B95653010200	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282	23L2282
					-	L2252890-3	L2252890-1	L2318207-1	L2367392-1	VA20A0908-001	VA20A5363-001	VA20B1139-001	VA20B9565-001	21B2866-02	21E1432-01	21G2459-02	21L0641-02	22C0773-02	22G1537-02	22J1342-05	22L1310-02	23C0154-01	23E2913-01	23I3541-01	23L2282-01	23L2282-09
		Freshwater	Marine																							
Total Metals																										
Aluminum	µg/L	-	-	-	-	-	-	7,860	-	-	6.4	-	3.7	-	-	-	-	-	-	-	-	-	-	-	<5	-
Antimony	µg/L	-	-	-	-	-	-	0.20	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.2	-
Arsenic	µg/L	-	-	-	-	-	-	1.78	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.5	-
Barium	µg/L	-	-	-	-	-	-	41.0	-	-	1.24	-	1.27	-	-	-	-	-	-	-	-	-	-	-	<5	-
Beryllium	µg/L	-	-	-	-	-	-	0.12	-	-	<0.20	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.1	-
Bismuth	µg/L	-	-	-	-	-	-	<0.050	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	-	-	<10	-	-	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	<50	-
Cadmium	µg/L	-	-	-	-	-	-	0.034	-	-	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	<0.01	-
Calcium	µg/L	-	-	-	-	-	-	13,800	-	-	13,000	-	14,600	-	-	12,900	-	12,400	-	12,200	-	-	-	-	11,800	-
Cesium	µg/L	-	-	-	-	-	-	0.366	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-					-
Chromium	µg/L	-	-	-	-	-	-	5.34	-	-	<0.50	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.5	-
Cobalt	µg/L	-	-	-	-	-	-	3.2	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.1	-
Copper	µg/L	-	-	-	-	-	-	18.9	-	-	<0.50	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	<0.4	-
Iron	µg/L	-	-	-	-	-	-	9,940	-	-	<10	-	<10	-	-	-	-	-	-	-	-	-	-	-	<10	-
Lead	µg/L	-	-	-	-	-	-	4.18	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	<0.2	-
Lithium	µg/L	-	-	-	-	-	-	3.7	-	-	<1.0	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	0.7	-
Magnesium	µg/L	-	-	-	-	-	-	4,300	-	-	2,760	-	3,160	-	-	2860	-	2,350	-	2,490	-	-	-	-	2,670	-
Manganese	µg/L	-	-	-	-	-	-	139	-	-	0.2	-	0.25	-	-	-	-	-	-	-	-	-	-	-	<0.2	-
Mercury	µg/L	-	-	-				-			-	-	0.0705	-	-	-	-	-	-	-	-	-	-	-	<0.01	-
Molybdenum	µg/L	-	-	-	-	-	-	0.651	-	-	0.107	-	0.115	-	-	-	-	-	-	-	-	-	-	-	0.17	-
Nickel	µg/L	-	-	-	-	-	-	3.64	-	-	<0.50	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	<0.4	-
Phosphorus	µg/L	-	-	-	-	-	-	178	-	-	<50	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-	-	-	2310	-	-	1,210	-	1,420	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-	-	-	5.72	-	-	<0.2	-	<0.2	-	-	-	-					-	-	-	-	-
Selenium	µg/L	-	-	-	-	-	-	0.124	-	-	0.14	-	0.134	-	-	-	-	-	-	-	-	-	-	-	<0.5	-
Silicon	µg/L	-	-	-	-	-	-	25,200	-	-	13,000	-	13,700	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	-	-	0.122	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	<0.05	-
Sodium	µg/L	-	-	-	-	-	-	8,090	-	-	6,840	-	8,600	-	-	-	-	-	-	-	-	-	-	-	6,890	-
Strontium	µg/L	-	-	-	-	-	-	94.6	-	-	79.4	-	77.2	-	-	-	-	-	-	-	-	-	-	-	66.3	-
Sulphur	µg/L	-	-	-	-	-	-	2,500	-	-	1,700	-	2,360	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	-	<0.20	-	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	-	-	0.040	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	<0.02	-
Thorium	µg/L	-	-	-	-	-	-	2.53	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	-	-	0.96	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.2	-
Titanium	µg/L	-	-	-	-	-	-	377	-	-	<0.30	-	<0.30	-	-	-	-	-	-	-	-	-	-	-	<5	-
Tungsten	µg/L	-	-	-	-	-	-	0.30	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<1	-
Uranium	µg/L	-	-	-	-	-	-	0.656	-	-	0.063	-	0.073	-	-	-	-	-	-	-	-	-	-	-	0.075	-
Vanadium	µg/L	-	-	-	-	-	-	21.5	-	-	1	-	1.45	-	-	-	-	-	-	-	-	-	-	-	<5	-
Zinc	µg/L	-	-	-	-	-	-	28.6	-	-	<3.0	-	<3.0	-	-	-	-	-	-	-	-	-	-	-	<4	-
Zirconium	µg/L	-	-	-	-	-	-	0.42	-	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons																										
EPH_{10-19}	µg/L	5,000	5,000	5,000	-	<250	440	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
EPH_{19-32}	µg/L	-	-	-	-	<250	460	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
LEPH	µg/L	500	500	-	-	<250	440	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
HEPH	µg/L	-	-	-	-	<250	460	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
VH_{6-10}	µg/L	15,000	15,000	15,000	-	<100	<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																										
Acenaphthene	µg/L	60	60	250	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
Acenaphthylene	µg/L	-	-	-	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.20	-	-	-	<0.20	-	-	-	<0.200	-	-	-	-
Acridine	µg/L	0.5	0.5	-	-	<0.010	<0.08	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
Anthracene	µg/L	1	1	1,000	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.010	-	-	-	<0.010	-	-	-	-
Benz(a)anthracene	µg/L	1	1	0.07	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.010	-	-	-	<0.010	-	-	-	-
Benzo(a)pyrene	µg/L	0.1	0.1	0.01	-	<0.0050	<0.0050	-	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.010	-	-	-	<0.010	-	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-	-	-	-	<0.015	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	-	-	0.07	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
2-Chloronaphthalene	µg/L	-	-	300	-	-	-	-	-	-	-	-	-	<0.10	-	-	-	<0.10	-	-	-	<0.100	-	-	-	-
Chrysene	µg/L	1	1	7	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	0.01	-	<0.0050	<0.0050	-	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.010	-	-	-	<0.010	-	-	-	-
Fluoranthene	µg/L	2	2	150	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.030	-	-	-	<0.030	-	-	-	<0.030	-	-	-	-
Fluorene	µg/L	120	120	150	-	<0.010	0.027	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-
1-Methylnaphthalene	µg/L	-	-	5.5	-	<0.050	<0.050	-	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.10	-	-	-	<0.100	-	-	-	-
2-Methylnaphthalene	µg/L	-	-	15	-	<0.020	<0.020	-	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.10	-	-	-	<0.100	-	-	-	-
Naphthalene	µg/L	10	10	80	-	<0.020	<0.020	-	<0.050	-	-	<0.050	-	<0.20	-	-	-	<0.20	-	-	-	<0.200	-	-	-	-
Phenanthrene	µg/L	3	3	-	-	<0.020	0.063	-	<0.020	-	-	<0.020	-	<0.10	-	-	-	<0.10	-	-	-	<0.100	-	-	-	-
Pyrene	µg/L	0.2	0.2	100	-	<0.010	<0.010	-	<0.010	-	-	<0.010	-	<0.020	-	-	-	<0.020	-	-	-	<0.020	-	-	-	-
Quinoline	µg/L	34	34	0.05	-	<0.050	<0.050	-	<0.050	-	-	<0.050	-	<0.050	-	-	-	<0.050	-	-	-	<0.050	-	-	-	-

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Table 2: Groundwater Analytical Results

					MW 13-01																				
					14-Dec-2013	2-Apr-2019	DUP (2-Apr-2019)	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023	DUP (18-Dec-2023)
					-	L2252890	L2252890	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B95653010200	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282	23L2282
					-	L2252890-3	L2252890-1	L2318207-1	L2367392-1	VA20A0908-001	VA20A5363-001	VA20B1139-001	VA20B9565-001	21B2866-02	21E1432-01	21G2459-02	21L0641-02	22C0773-02	22G1537-02	22J1342-05	22L1310-02	23C0154-01	23E2913-01	23I3541-01	23L2282-01	23L2282-09
Parameter	**Unit**	**CSR - AW**		**CSR - DW**																					
		Freshwater	**Marine**																						
Resin/Fatty Acids																									
Abietic Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Arachidic Acid	µg/L	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Dehydroabietic Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-	-
Lauric Acid	µg/L	-	-	-	-	15.6	7.5	-	-	-	-	<5.0	-		-	-	-	-	-	-	-					
Levopimaric Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-					
Linoleic Acid	µg/L	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Linolenic Acid	µg/L	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Myristic Acid	µg/L	-	-	-	-	<5.0	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-					
Neoabietic Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Octadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-					
Oleic Acid	µg/L	-	-	-	-	61.4	40	-	-	-	-	<5.0	-	0.0070	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Palmitic Acid	µg/L	-	-	-	-	<100	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Pimaric Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	<1.0	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Stearic Acid	µg/L	-	-	-	-	<20	<20	-	-	-	-	-	-	-	-	-	-	-	<10	-	-					
Total Fatty Acids	µg/L	-	-	-	-	<100	<100	-	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Total Resin Acids	µg/L	-	-	-	-	<10	<10	-	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
BTEXS & MTBE																										
Benzene	µg/L	400	1,000	5	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Toluene	µg/L	5	2,000	60	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Ethylbenzene	µg/L	2,000	2,500	140	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Xylenes Total	µg/L	300	300	90	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-
Styrene	µg/L	720	720	800	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	34,000	4,400	95	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Volatile Organic Compounds (VOCs)																										
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Bromoform	µg/L	-	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Carbon tetrachloride	µg/L	130	130	2	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Chlorobenzene	µg/L	13	250	80	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-
Chloroform	µg/L	20	20	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Dibromochloromethane	µg/L	-	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dibromoethane	µg/L	-	-	0.5	-	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichlorobenzene	µg/L	7	420	200	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
1,3-Dichlorobenzene	µg/L	1,500	1,500	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,4-Dichlorobenzene	µg/L	260	260	5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1-Dichloroethane	µg/L	-	-	30	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethane	µg/L	1,000	1,000	5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1-Dichloroethene	µg/L	-	-	14	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	8	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	80	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloropropane	µg/L	-	-	4.5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,3-Dichloropropene	µg/L	-	-	1.5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Methylene Chloride	µg/L	980	980	50	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	0.8	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Tetrachloroethene	µg/L	1,100	1,100	30	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	8000	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	3	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Trichloroethene	µg/L	200	200	5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Trichlorofluoromethane	µg/L	-	-	1000	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Vinyl chloride	µg/L	-	-	2	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Guideline varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Guideline is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW guidelines.
Red Text	Red text indicates an exceedance of the CSR DW standard.
Italic	Detection limit greater than guideline.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW 13-02																	
					14-Dec-2013	2-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
					-	L2252890	L2318207	L2367392	VA20A0908280122020	VA20A5363250420 20	VA20B1139240720 20	VA20B9565301020 20	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
					-	L2252890-2	L2318207-2	L2367392-2	VA20A0908-003	VA20A5363-002	VA20B1139-002	VA20B9565-002	21B2866-03	21E1432-02	21G2459-03	21L0641-03	22C0773-03	22G1537-03	22J1342-06	22L1310-03	23C0154-02	23E2913-02	23I3541-02	23L2282-02
		Freshwater	Marine																				
Field Measurements																							
Temperature	°C	-	-	-	-	9.77	11.81	11.7	10.4	10.68	12.7	11.8	11.6	12	12.8	12.7	12.4	13.3	12.6	12.1	12.2	13.1	12.5	12.4
Electrical Conductivity	µS/cm	-	-	-	-	361	674	639	297.3	400	826	1,294	605	9.81	1,022	125	1179	1145	3260	1221	1,151	1,285	1,189	3
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	438	-	267.2	358	539	845	526.5	637	864.5	106	1007.5	960	2127	1053	988	1,083	1,015	2.6
Salinity	-	15	10	-	-	-	0.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	11.45	5.07	-	0.59	3.84	0.22	2.52	2.3	0.35	0.79	0.86	0.4	5.03	2.17	0.32	0.41	1.23	1.35	1.09
pH	pH Units	-	-	-	-	6.67	4.76	6.62	6.59	6.39	9.07	6.67	6.43	6.47	6.67	6.56	6.38	7.63	7.54	6.49	6.4	6.64	4.54	6.45
Oxidation Reduction Potential (ORP)	-	-	-	-	-	-	88.2	-	20.9	-34.4	-95.3	-58.1	-75.1	-10.1	-64.4	-86.2	8.7	-341.0	-200.1	-24.7	94.1	27	58.4	94.8
Physical Parameters																								
pH	pH Units	-	-	-	6.9	7.04	7.88	7.23	7.03	7.65	6.71	7.46	-	6.19	-	6.62	-	7.49	-	6.4	6.97	6.74	6.87	6.69
Electrical Conductivity (EC)	µS/cm	-	-	-	347	330	529	653	-	470	-	1,190	-	899	-	1520	-	1330	-	1560	1,440	1,470	1,410	1,330
Total Suspended Solids (TSS)	µg/L	-	-	-	418,000	207,000	1,150,000	609,000	-	10,000	-	88,200	-	131,000	-	170,000	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	192,000	-	-	-	260,000	344,000	-	793,000	-	-	-	-	-	948,000	-	-	-	1,180,000	-	1,060,000
Hardness as $CaCO_3$	µg/L	-	-	-	151,000	160,000	311,000	305,000	-	230,000	-	583,000	-	398,000	618,000	691,000	622,000	669,000	885,000	773,000	-	719,000	-	742,000
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	467,000	-	-	-	-	-	-	416,000	488,000	501,000	520,000
Alkalinity (P)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	467,000	-	-	-	-	-	-	416,000	488,000	501,000	520,000
Carbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	<50	<50	<50	<250	<50	<50	-	<250	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	1,500,000	1,500,000	250,000	7,060	2,190	5,540	5,200	1,380	1,960	3,880	23,000	3510	5650	9360	12,900	12,400	9,000	16,100	10,500	8,590	7,390	8,740	8,890
Fluoride	µg/L	2,000 / 3,000 #1	15,000	1,500	142	59	70	<100	39	51	<100	<100	<100	<100	120	230	180	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	2,180,000-4,290,000 #1	2,180,000-4,290,000 #1	500,000	3,060	920	11,900	3,200	480	<300	5,230	13,700	2500	39,800	181,000	226,000	326,000	381,000	491,000	380,000	334,000	352,000	344,000	328,000
Sulphide (as S)	µg/L	20	20	50	<20	19	<2.0	**32**	71.6	13.8	<2.0	4.8	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	-	50	-	-	-	-	76	14.7	<2.0	5.1	66	-	40	44	41	<20	<20	<20	-	-	-	-
Turbidity	NTU	-	-	-	-	181	-	1,050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-	-	-	-	-	19,100	-	47,600	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																								
Ammonia as N	µg/L	3,700-18,400 #2	6,850-200,000 #2	-	1,420	564	1500	1540	408	715	1,360	4,330	1000	1290	3120	6930	3410	6180	6700	8360	7,480	8,940	6,970	10,700
Nitrate (as N)	µg/L	400,000	400,000	10,000	64.2	6.0	36.2	<25	<5	<5	<25	<25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrite (as N)	µg/L	200-2,000 #3	200-2,000 #3	1,000	5.2	<1.0	2.2	<5	<1	<1	<5.0	<25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	<50	-	-	-	-	-	-	-	<20	-	-	-	-	-	-
Demand Parameters																								
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-	<2,000	-	<2,000	-	2,000	-	4,600	-	<2200	-	10,600	-	<6,200	-	8,100	-	5,000	-	9,800
Chemical Oxygen Demand (COD)	µg/L	-	-	-	74,000	47,000	-	63,000	-	<20,000	-	81,000	-	35,000	-	107,000	-	92,000	-	85,000	-	73,000	-	95,000
Carbon																								
Dissolved Organic Carbon (DOC) (Filtered)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	26,300	-	31,700	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-	21,000	-	10,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																								
Phenols (4AAP)	µg/L	-	-	-	4.0	<1.0	-	-	-	-	<1.0	-	2	-	-	-	<2.0	-	-	-	<2.00	-	-	-
Dissolved Metals																								
Aluminum	µg/L	-	-	9,500	26.9	19.9	-	1.6	-	13.1	-	8.9	-	18.9	-	12.7	-	18.4	-	9.2	-	16.7	-	18.2
Antimony	µg/L	90	2,500	6	<0.50	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Arsenic	µg/L	50	125	10	2.94	0.62	-	0.42	-	0.94	-	14.8	-	2.86	-	10.5	-	5.04	-	17.8	-	6.61	-	7.02
Barium	µg/L	10,000	5,000	1,000	32	15.0	-	24.7	-	20.7	-	112	-	50.3	-	158	-	141	-	143	-	151	-	154
Beryllium	µg/L	1.5	1,000	8	<1.0	<0.10	-	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	<0.1
Bismuth	µg/L	-	-	-	-	<0.050	-	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-
Boron	µg/L	12,000	12,000	5,000	<100	32	-	85	-	34	-	287	-	86.3	-	311	-	399	-	482	-	365	-	310
Cadmium	µg/L	1.5-4.0 #1	15	5	0.076	<0.0050	-	<0.0050	-	<0.050	-	<0.0050	-	<0.010	-	<0.010	-	<0.01	-	<0.01	-	<0.010	-	<0.01
Calcium	µg/L	-	-	-	52,800	60,700	-	112,000	-	82,900	-	192,000	-	149,000	-	220,000	-	233,000	-	267,000	-	244,000	-	255,000
Cesium	µg/L	-	-	-	-	<0.010	-	<0.010	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	10 #4	15 #4	50 #4	<1.0	0.83	-	0.20	-	0.79	-	1.06	-	1.52	-	2.09	-	2.94	-	1.92	-	2.77	-	3.07
Cobalt	µg/L	40	40	1	3.35	<0.10	-	2.39	-	0.23	-	5.81	-	0.99	-	5.67	-	2.42	-	6.72	-	2.90	-	2.48
Copper	µg/L	20-90 #1	20	1,500	<1.0	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.40	-	1.22	-	<0.4	-	<0.4	-	<0.40	-	<0.4
Iron	µg/L	-	-	6,500	13,700	14,500	-	<10	-	24,000	-	82,500	-	64,300	-	97,200	-	96,800	-	95,700	-	99,100	-	91,700
Lead	µg/L	40-160 #1	20	10	<0.50	<0.050	-	<0.050	-	<0.050	-	<0.050	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Lithium	µg/L	-	-	8	<5.0	<1.0	-	<1.0	-	<1.0	-	2.1	-	0.53	-	1.47	-	0.65	-	1.9	-	0.79	-	0.95
Magnesium	µg/L	-	-	-	4710	2,110	-	5,990	-	2,870	-	13,300	-	6190	-	34,100	-	21,000	-	25,500	-	26,200	-	25,200
Manganese	µg/L	-	-	1,500	627	656	-	1,350	-	1,040	-	1,860	-	1560	-	1710	-	1,920	-	1,970	-	2,170	-	2,150
Mercury	µg/L	0.25	0.25	1	<0.010	-	-	<0.0050	-	-	-	<0.0050	-	<0.010	-	<0.010	-	<0.01	-	-	-	<0.010	-	<0.01
Molybdenum	µg/L	10,000	10,000	250	1.9	0.187	-	1.38	-	0.211	-	3.31	-	0.53	-	2.98	-	0.88	-	3.37	-	1.19	-	1.3
Nickel	µg/L	250-1,500 #1	83	80	1.5	<0.50	-	<0.50	-	<0.50	-	0.58	-	<0.40	-	0.87	-	0.42	-	0.79	-	<0.40	-	0.49
Phosphorus	µg/L	-	-	-	-	<50	-	<50	-	<50	-	236	-	<50	-	171	-	76	-	264	-	104	-	-
Potassium	µg/L	-	-	-	12,000	6,390	-	15,800	-	6,460	-	22,200	-	11,300	-	27,500	-	24,200	-	27,400	-	28,300	-	-
Rubidium	µg/L	-	-	-	-	3.56	-	6.03	-	3.78	-	8.85	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	20	20	10	<0.10	0.070	-	<0.050	-	0.085	-	0.209	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5
Silicon	µg/L	-	-	-	-	8,160	-	11,700	-	10,500	-	15,300	-	11,600	-	16,300	-	11,500	-	18,300	-	11,900	-	-
Silver	µg/L	0.5 / 15 #1	15	20	<0.020	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-	<0.05
Sodium	µg/L	-	-	200,000	9,600	4,940	-	11,800	-	4,850	-	32,300	-	11,600	-	45,200	-	36,200	-	27,300	-	30,200	-	28,300
Strontium	µg/L	-	-	2,500	-	157	-	307	-	235	-	698	-	407	-	950	-	1000	-	1,170	-	1,400	-	1,420
Sulphur	µg/L	-	-	-	-	670	-	1,960	-	<500	-	6,210	-	8800	-	84,600	-	129,000	-	132,000	-	123,000	-	-
Tellurium	µg/L	-	-	-	-	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-
Thallium	µg/L	3	3	-	<0.20	<0.010	-	<0.010	-	<0.010	-	<0.010	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.020	-	<0.02
Thorium	µg/L	-	-	-	-	0.12	-	<0.10	-	<0.10	-	<0.10	-	0.12	-	<0.10	-	0.14	-	<0.1	-	0.12	-	-
Tin	µg/L	-	-	2,500	<0.50	0.20	-	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Titanium	µg/L	1,000	1,000	-	<10	2.67	-	<0.30	-	1.35	-	1.09	-	<5.0	-	<5.0	-	<5	-	<5	-	<5.0	-	<5
Tungsten	µg/L	-	-	3	-	<0.10	-	<0.10	-	<0.10	-	0.22	-	<1.0	-	<1.0	-	<1	-	<1	-	<1.0	-	<1
Uranium	µg/L	85	85	20	1.59	0.104	-	0.324	-	0.068	-	0.989	-	0.263	-	1.3	-	0.362	-	1.07	-	0.708	-	0.587
Vanadium	µg/L	-	-	20	<1.0	4.54	-	<0.50	-	2.89	-	4.92	-	3.7	-	7.3	-	7.6	-	8.2	-	7.5	-	6.4
Zinc	µg/L	75-2,400 #1	100	3,000	10.1	1.1	-	<1.0	-	1.6	-	1.1	-	<4.0	-	<4.0	-	<4	-	<4	-	<4.0	-	<4
Zirconium	µg/L	-	-	-	-	0.198	-	<0.20	-	<0.30	-	0.41	-	0.28	-	0.58	-	0.54	-	0.6	-	0.60	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Standard is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW standard.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW standard.
Red Text	Red text indicates an exceedance of the CSR DW standard.
Italic	Detection limit greater than standard.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW 13-02																			
		Freshwater	Marine		14-Dec-2013	2-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
					-	L2252890	L2318207	L2367392	VA20A0908012020	VA20A5363252042020	VA20B1139240720 20	VA20B9565301020 20	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
					-	L2252890-2	L2318207-2	L2367392-2	VA20A0908-003	VA20A5363-002	VA20B1139-002	VA20B9565-002	21B2866-03	21E1432-02	21G2459-03	21L0641-03	22C0773-03	22G1537-03	22J1342-06	22L1310-03	23C0154-02	23E2913-02	23I3541-02	23L2282-02
Total Metals																								
Aluminum	µg/L	-	-	-	-	-	65,600	-	-	127	-	38.6	-	-	-	-	-	-	-	-	-	-	-	28
Antimony	µg/L	-	-	-	-	-	0.73	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.2
Arsenic	µg/L	-	-	-	-	-	11.1	-	-	0.9	-	14.2	-	-	-	-	-	-	-	-	-	-	-	7.08
Barium	µg/L	-	-	-	-	-	410	-	-	23.2	-	96.3	-	-	-	-	-	-	-	-	-	-	-	147
Beryllium	µg/L	-	-	-	-	-	0.67	-	-	<0.020	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.1
Bismuth	µg/L	-	-	-	-	-	0.29	-	-	<0.050	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	-	92	-	-	33	-	259	-	-	-	-	-	-	-	-	-	-	-	348
Cadmium	µg/L	-	-	-	-	-	0.427	-	-	<0.0050	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	<0.01
Calcium	µg/L	-	-	-	-	-	98,600	-	-	87,700	-	209,000	-	-	215,000	-	224,000	-	310,000	-	-	-	-	254,000
Cesium	µg/L	-	-	-	-	-	2.30	-	-	0.01	-	<0.010	-	-	-	-								
Chromium	µg/L	-	-	-	-	-	54.8	-	-	1.14	-	1.24	-	-	-	-	-	-	-	-	-	-	-	1.74
Cobalt	µg/L	-	-	-	-	-	17.9	-	-	0.24	-	6	-	-	-	-	-	-	-	-	-	-	-	2.53
Copper	µg/L	-	-	-	-	-	107	-	-	<0.50	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	<0.4
Iron	µg/L	-	-	-	-	-	85,400	-	-	28,300	-	87,200	-	-	-	-	-	-	-	-	-	-	-	88,100
Lead	µg/L	-	-	-	-	-	34.4	-	-	0.238	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	<0.2
Lithium	µg/L	-	-	-	-	-	24	-	-	<1.0	-	2.1	-	-	-	-	-	-	-	-	-	-	-	1.05
Magnesium	µg/L	-	-	-	-	-	15,700	-	-	2,810	-	14,600	-	-	19,400	-	15,100	-	26,600	-	-	-	-	25,900
Manganese	µg/L	-	-	-	-	-	1,540	-	-	1,040	-	1,790	-	-	-	-	-	-	-	-	-	-	-	2,040
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	<0.01
Molybdenum	µg/L	-	-	-	-	-	2.02	-	-	0.218	-	3.5	-	-	-	-	-	-	-	-	-	-	-	1.41
Nickel	µg/L	-	-	-	-	-	25.8	-	-	<0.50	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	0.42
Phosphorus	µg/L	-	-	-	-	-	760	-	-	<50	-	230	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-	-	18,600	-	-	6,680	-	23,700	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-	-	43.7	-	-	3.85	-	9.35	-	-	-	-								-
Selenium	µg/L	-	-	-	-	-	0.260	-	-	0.066	-	0.19	-	-	-	-	-	-	-	-	-	-	-	<0.5
Silicon	µg/L	-	-	-	-	-	76,000	-	-	10,600	-	16,700	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	-	0.42	-	-	<0.01	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	<0.05
Sodium	µg/L	-	-	-	-	-	12,400	-	-	4,750	-	34,300	-	-	-	-	-	-	-	-	-	-	-	28,000
Strontium	µg/L	-	-	-	-	-	364	-	-	248	-	710	-	-	-	-	-	-	-	-	-	-	-	1,280
Sulphur	µg/L	-	-	-	-	-	5,000	-	-	<500	-	6,760	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	<1.0	-	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	-	0.356	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	<0.02
Thorium	µg/L	-	-	-	-	-	22.9	-	-	0.16	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	-	1.13	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.2
Titanium	µg/L	-	-	-	-	-	2,720	-	-	7.21	-	2.85	-	-	-	-	-	-	-	-	-	-	-	<5
Tungsten	µg/L	-	-	-	-	-	<0.50	-	-	<0.10	-	0.23	-	-	-	-	-	-	-	-	-	-	-	<1
Uranium	µg/L	-	-	-	-	-	3.60	-	-	0.071	-	1.05	-	-	-	-	-	-	-	-	-	-	-	0.63
Vanadium	µg/L	-	-	-	-	-	154	-	-	4.44	-	5.55	-	-	-	-	-	-	-	-	-	-	-	6.5
Zinc	µg/L	-	-	-	-	-	412	-	-	<3.0	-	24.8	-	-	-	-	-	-	-	-	-	-	-	<4
Zirconium	µg/L	-	-	-	-	-	2.9	-	-	0.22	-	0.45	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons																								
EPH_{10-19}	µg/L	5,000	5,000	5,000	-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
EPH_{19-32}	µg/L	-	-	-	-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
LEPH	µg/L	500	500	-	-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
HEPH	µg/L	-	-	-	-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
VH_{6-10}	µg/L	15,000	15,000	15,000	-	<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																								
Acenaphthene	µg/L	60	60	250	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Acenaphthylene	µg/L	-	-	-	-	<0.010	-	<0.010	-	-	<0.010	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-
Acridine	µg/L	0.5	0.5	-	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Anthracene	µg/L	1	1	1,000	-	<0.010	-	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benz(a)anthracene	µg/L	1	1	0.07	-	<0.010	-	<0.010	-	-	<0.010	-	0.015	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benzo(a)pyrene	µg/L	0.1	0.1	0.01	-	<0.0050	-	<0.0050	-	-	<0.0050	-	0.018	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-	-	-	<0.015	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	-	-	0.07	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
2-Chloronaphthalene	µg/L	-	-	300	-	-	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Chrysene	µg/L	1	1	7	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	0.01	-	<0.0050	-	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Fluoranthene	µg/L	2	2	150	-	<0.010	-	<0.010	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-
Fluorene	µg/L	120	120	150	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	<0.010	-	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
1-Methylnaphthalene	µg/L	-	-	5.5	-	<0.050	-	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
2-Methylnaphthalene	µg/L	-	-	15	-	<0.020	-	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Naphthalene	µg/L	10	10	80	-	<0.020	-	<0.050	-	-	<0.050	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-
Phenanthrene	µg/L	3	3	-	-	<0.020	-	<0.020	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Pyrene	µg/L	0.2	0.2	100	-	<0.010	-	<0.010	-	-	<0.010	-	<0.02	-	-	-	<0.02	-	-	-	<0.020	-	-	-
Quinoline	µg/L	34	34	0.05	-	<0.050	-	<0.050	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Standard is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW standard.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW standard.
Red Text	Red text indicates an exceedance of the CSR DW standard.
Italic	Detection limit greater than standard.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW 13-02																			
					14-Dec-2013	2-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
					-	L2252890	L2318207	L2367392	VA20A0908280 12020	VA20A5363250 42020	VA20B1139240 72020	VA20B9565301 02020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
		Freshwater	Marine		-	L2252890-2	L2318207-2	L2367392-2	VA20A0908-003	VA20A5363-002	VA20B1139-002	VA20B9565-002	21B2866-03	21E1432-02	21G2459-03	21L0641-03	22C0773-03	22G1537-03	22J1342-06	22L1310-03	23C0154-02	23E2913-02	23I3541-02	23L2282-02
Resin/Fatty Acids																								
Abietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Arachidic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Dehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-
Lauric Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Linolenic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Myristic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Octadecanoic Acid	µg/L	-	-	-	-	-											-	<10	-	-	-			
Oleic Acid	µg/L	-	-	-	-	6.0	-	-	-	-	<5.0	-	0.014	-	-	-	-	<10	-	-	<0.01	-	-	-
Palmitic Acid	µg/L	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Stearic Acid	µg/L	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	-	<100	-	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin Acids	µg/L	-	-	-	-	<10	-	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
BTEXS & MTBE																								
Benzene	µg/L	400	1,000	5	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Toluene	µg/L	5	2,000	60	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Ethylbenzene	µg/L	2,000	2,500	140	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Xylenes Total	µg/L	300	300	90	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-
Styrene	µg/L	720	720	800	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	34,000	4,400	95	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Volatile Organic Compounds (VOCs)																								
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	100	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Bromoform	µg/L	-	-	100	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Carbon tetrachloride	µg/L	130	130	2	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Chlorobenzene	µg/L	13	250	80	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-
Chloroform	µg/L	20	20	100	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Dibromochloromethane	µg/L	-	-	100	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dibromoethane	µg/L	-	-	0.5	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichlorobenzene	µg/L	7	420	200	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
1,3-Dichlorobenzene	µg/L	1,500	1,500	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,4-Dichlorobenzene	µg/L	260	260	5	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethane	µg/L	-	-	30	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethane	µg/L	1,000	1,000	5	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethene	µg/L	-	-	14	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	8	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	80	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloropropane	µg/L	-	-	4.5	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,3-Dichloropropene	µg/L	-	-	1.5	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Methylene Chloride	µg/L	980	980	50	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	0.8	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Tetrachloroethene	µg/L	1,100	1,100	30	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	8000	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	3	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Trichloroethene	µg/L	200	200	5	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Trichlorofluoromethane	µg/L	-	-	1000	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Vinyl chloride	µg/L	-	-	2	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Guideline varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Guideline is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW guidelines.
Red Text	Red text indicates an exceedance of the CSR DW standard.
#a#c	Detection limit greater than guideline.

TETRA TECH

Table 2: Groundwater Analytical Results

					MW 13-03																			
					14-Dec-2013	3-Apr-2019	25-Jul-2019	17-Oct-2019	DUP (17-Oct-2019)	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	DUP (27-Sep-2023)	18-Dec-2023
					-	L2254197	L2318207	L2367392	L2367392	VA20A090828012020	VA20A53625042020	VA20B113924072020	VA20B956530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23I3541	23L2282
					-	L2254197-4	L2318207-3	L2367392-3	L2367392-10	VA20A0908-004	VA20A5363-003	VA20B1139-003	VA20B9565-003	21B2866-04	21E1432-03	21G2459-04	21L0641-04	22C0773-04	22G1537-04	22J1342-07	22L1310-04	23C0154-03	23E2913-03	23I3541-03	23I3541-09	23L2282-03
Parameter	**Unit**	**CSR - AW**		**CSR - DW**																				
		Freshwater	**Marine**																					
Field Measurements																								
Temperature	°C	-	-	-	-	9.57	15.52	11.8	-	-	12.2	12.1	12	10.9	11.7	13.6	11.6	11.4	12.6	12.3	10.9	10.9	11.7	11.7	11.7	10.7
Electrical Conductivity	µS/cm	-	-	-	-	257	392	378.9	-	-	359	480	239	285	474.5	298.8	188.2	264.9	294.3	295.7	325.4	324.2	370.6	365.3	365.3	278
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	310.000	-	-	-	308	312	155	254	305.5	247.65	164.5	232.7	250.6	192.5	289.7	289.25	323.6	319.2	319.2	249.6
Salinity	-	15	10	-	-	-	0.230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	-	12.01	10.16	-	-	-	6.13	5	5.1	5.9	5.7	5.38	7.8	5.37	6.03	6.60	6.78	5.84	0.93	6.24	6.24	5.9
pH	pH Units	-	-	-	-	6.78	6.44	6.63	-	-	6.36	7.55	6.29	6.19	6.2	6.28	5.91	6.15	6.82	6.58	6.34	5.88	6.56	4.9	4.9	6.01
Oxidation Reduction Potential (ORP)	-	-	-	-	-	-	265.3	-	-	-	192.3	107	118.2	97.1	150.1	99.2	36	156.3	47.3	59.5	46.6	110.4	102.3	171	171	104.1
Physical Parameters																										
pH	pH Units	-	-	-	6.96	7.07	8.14	6.91	7.11	6.5	6.97	7.64	6.68	-	6.22	-	6.41	-	7.21	-	6.48	6.97	6.67	7.01	6.95	6.61
Electrical Conductivity (EC)	µS/cm	-	-	-	215	438	461	474	470	-	482	-	495	-	494	-	290	-	393	-	478	471	505	495	497	422
Total Suspended Solids (TSS)	µg/L	-	-	-	869,000	2,530,000	1,640,000	1,260,000	2,350,000	-	52,600	-	29,500	-	283,000	-	83,000	-	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	144,000	-	-	-	-	276,000	306,000	-	306,000	-	-	-	-	-	253,000	-	-	-	322,000	-	-	310,000
Hardness as $CaCO_3$	µg/L	-	-	-	87,300	118,000	361,000	152,000	162,000	-	154,000	-	167,000	-	152,000	126,000	79,900	134,000	151,000	188,000	174,000	-	180,000	-	-	183,000
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	186,000	-	-	-	-	-	-	144,000	175,000	194,000	197,000	151,000
Alkalinity (P)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	186,000	-	-	-	-	-	-	144,000	175,000	194,000	197,000	151,000
Carbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	<50	55	53	77	81	<50	77	90	68	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	1,500,000	1,500,000	250,000	9,630	44,700	34,800	30,400	30,000	37,700	34,000	28,300	30,900	23,500	20,600	18,100	12,400	16,100	15,400	17,900	22,000	27,300	22,600	22,700	23,400	22,300
Fluoride	µg/L	2,000 / 3,000 #1	15,000	1,500	60	41	42	35	35	36	35	34	34	<100	<100	<100	120	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	2,180,000-4,290,000 #2	2,180,000-4,290,000 #2	500,000	12,000	24,900	27,600	28,300	28,400	21,000	24,900	29,900	28,200	24,200	27,900	26,500	17,300	28,200	33,600	40,300	38,300	35,500	43,000	50,000	49,800	34,800
Sulphide (as S)	µg/L	20	20	50	<20	<90	<90	<18	<18	<2.0	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	-	50		-	-	-		<2.0	<2.0	<2.0	<2.0	25	-	<20	<20	<20	<20	<20	<20	-	-	-	-	-
Turbidity	NTU	-	-	-	-	>4000	-	1030	1350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-	-	-	-	-	-	<2,000	-	8,300	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																										
Ammonia as N	µg/L	3,700-18,400 #2	6,850-200,000 #2	-	106	9.5	9.5	<5.0	<5.0	5.7	<5.0	15.5	<5.0	90	<50	<50	<50	<50	<50	186	120	54	70	<50	<50	<50
Nitrate (as N)	µg/L	400,000	400,000	10,000	526	1,210	910	674	670	1,440	1,860	1260	1350	2300	1680	1010	1440	1,980	1,680	1,130	1,130	2,280	2,130	1,800	1,740	1,640
Nitrite (as N)	µg/L	200-2,000 #3	200-2,000 #3	1,000	2.1	<1.0	1.9	<1.0	<1.0	<1.0	<1.0	2.2	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-		-	-	-		-	1,860	-	-	-	-	-	-	-	1,680	-	-	-	-	-	-	-
Demand Parameters																										
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-	<2000	-	<2,000	<2000	-	<2,000	-	<2,000	-	<2400	-	<3600	-	<17,500	-	14,500	-	<1,400	-	-	<2,800
Chemical Oxygen Demand (COD)	µg/L	-	-	-	47,000	56,000	-	<20,000	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	26,000	-	44,000	-	45,000	-	-	50,000
Carbon																										
Dissolved Organic Carbon (DOC) (Filtered)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	5680	-	2600	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-	5310	-	3,200	3950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																										
Phenols (4AAP)	µg/L	-	-	-	<1.0	<1.0	-	-	-	-	-	<1.0	<1.0	<2	-	-	-	<2	-	-	-	<2.00	-	-	-	-
Dissolved Metals																										
Aluminum	µg/L	-	-	9,500	37.7	23.7	-	9.5	11.5	-	2.6	-	2.0	-	<5.0	-	6.2	-	18.1	-	12.9	-	11.2	-	-	8.2
Antimony	µg/L	90	2,500	6	<0.50	<0.10	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	0.25	-	<0.2	-	<0.20	-	-	<0.2
Arsenic	µg/L	50	125	10	<0.50	0.11	-	0.16	0.12	-	0.11	-	0.10	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-	<0.5
Barium	µg/L	10,000	5,000	1,000	<20	14.3	-	16.2	16.2	-	16.7	-	16.6	-	14.1	-	9.4	-	16.2	-	16.3	-	17	-	-	16
Beryllium	µg/L	1.5	1,000	8	<1.0	<0.10	-	<0.10	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-	<0.1
Bismuth	µg/L	-	-	-	-	<0.050	-	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-	-
Boron	µg/L	12,000	12,000	5,000	<100	84	-	117	130	-	92	-	115	-	100	-	87	-	88	-	116	-	104	-	-	92.9
Cadmium	µg/L	1.5-4.0 #1	15	5	0.034	0.0142	-	0.0104	0.0102	-	0.0135	-	0.0126	-	0.059	-	0.011	-	0.091	-	0.02	-	0.012	-	-	0.014
Calcium	µg/L	-	-	-	25,600	35,600	-	45,900	50,900	-	44,200	-	46,500	-	48,000	-	23,700	-	47,100	-	53,800	-	54,500	-	-	57,700
Cesium	µg/L	-	-	-	-	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	10 #4	15 #4	50 #4	<1.0	<0.10	-	<0.10	<0.10	-	<0.50	-	<0.10	-	<0.50	-	0.89	-	1.37	-	1.11	-	1.01	-	-	1.27
Cobalt	µg/L	40	40	1	2	0.17	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-	<0.1
Copper	µg/L	20-90 #1	20	1,500	1	1.34	-	1.82	1.88	-	1.64	-	1.88	-	6.20	-	0.91	-	13.4	-	2.08	-	2.38	-	-	2.23
Iron	µg/L	-	-	6,500	83	17	-	<10	<10	-	<0.01	-	<10	-	<10	-	<10	-	22	-	<10	-	<10	-	-	<10
Lead	µg/L	40-160 #1	20	10	<0.50	<0.050	-	<0.050	<0.050	-	<0.050	-	<0.050	-	1.03	-	<0.20	-	0.72	-	<0.2	-	<0.20	-	-	<0.2
Lithium	µg/L	-	-	8	<5.0	1.9	-	1.9	1.8	-	2	-	2.1	-	2.08	-	1.65	-	2.05	-	2.08	-	2.21	-	-	2.19
Magnesium	µg/L	-	-	-	5690	7130	-	9020	8520	-	8,660	-	8,330	-	7750	-	5000	-	8,010	-	9,570	-	10,700	-	-	9,490
Manganese	µg/L	-	-	1,500	404	19.4	-	0.44	0.43	-	0.4	-	0.42	-	1.17	-	0.98	-	5.13	-	0.8	-	0.76	-	-	0.85
Mercury	µg/L	0.25	0.25	1	<0.010	-	-	<0.0050	<0.0050	-	-	-	<0.0050	-	<0.010	-	<0.010	-	<0.01	-	-	-	<0.010	-	-	<0.01
Molybdenum	µg/L	10,000	10,000	250	2.1	0.242	-	1.67	0.321	-	0.164	-	0.205	-	0.24	-	0.15	-	0.16	-	0.21	-	0.18	-	-	0.17
Nickel	µg/L	250-1,500 #1	83	80	1.8	<0.50	-	<0.50	<0.50	-	0.81	-	<0.50	-	<0.40	-	<0.40	-	1.58	-	<0.4	-	<0.40	-	-	<0.4
Phosphorus	µg/L	-	-	-	-	<50	-	<50	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	-	-
Potassium	µg/L	-	-	-	4100	4300	-	4630	4980	-	4,480	-	4,850	-	3860	-	3670	-	6,650	-	4,680	-	4,590	-	-	-
Rubidium	µg/L	-	-	-	-	0.24	-	<0.20	<0.20	-	<0.2	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	20	20	10	<0.10	<0.050	-	0.057	<0.050	-	<0.050	-	<0.050	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-	<0.5
Silicon	µg/L	-	-	-	-	11,500	-	13,300	12,400	-	12,800	-	12,700	-	12,300	-	13,800	-	12,400	-	13,900	-	13,500	-	-	-
Silver	µg/L	0.5 / 15 #1	15	20	<0.020	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-	-	<0.05
Sodium	µg/L	-	-	200,000	17,400	43,600	-	36,600	39,100	-	35,800	-	35,300	-	30,400	-	26,500	-	28,700	-	29,200	-	31,300	-	-	29,600
Strontium	µg/L	-	-	2,500	-	264	-	321	329	-	309	-	331	-	266	-	159	-	284	-	348	-	401	-	-	355
Sulphur	µg/L	-	-	-	-	8640	-	10,900	9750	-	8,020	-	9,650	-	6500	-	5700	-	10,900	-	12,700	-	14,600	-	-	-
Tellurium	µg/L	-	-	-	-	<0.20	-	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-	-
Thallium	µg/L	3	3	-	<0.20	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.020	-	-	<0.02
Thorium	µg/L	-	-	-	-	<0.10	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-	-
Tin	µg/L	-	-	2,500	<0.50	<0.10	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	0.4	-	<0.2	-	<0.20	-	-	<0.2
Titanium	µg/L	1,000	1,000	-	<10	<0.90	-	<0.30	<0.30	-	<0.30	-	<0.30	-	<5.0	-	<5.0	-	<5	-	<5	-	<5.0	-	-	<5
Tungsten	µg/L	-	-	3	-	<0.10	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<1.0	-	<1.0	-	<1	-	<1	-	<1.0	-	-	<1
Uranium	µg/L	85	85	20	0.35	0.945	-	2.43	2.48	-	2.01	-	1.87	-	2.04	-	0.428	-	1.58	-	2.86	-	3.29	-	-	1.85
Vanadium	µg/L	-	-	20	<1.0	<0.5	-	0.55	0.63	-	<0.50	-	0.5	-	<1.0	-	<1.0	-	<5	-	<5	-	<5.0	-	-	<5
Zinc	µg/L	75-2,400 #1	100	3,000	10.8	1.0	-	<1.0	<1.0	-	<1.0	-	21.7	-	19.4	-	15.1	-	**169**	-	<4	-	<4.0	-	-	6.6
Zirconium	µg/L	-	-	-	-	<0.060	-	<0.20	<0.20	-	<0.30	-	<0.20	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Standard is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW standard.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW standard.
Red Text	Red text indicates an exceedance of the CSR DW standard.
Italic	Detection limit greater than standard.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW 13-03																				
		Freshwater	Marine		14-Dec-2013	3-Apr-2019	25-Jul-2019	17-Oct-2019	DUP (17-Oct-2019)	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	DUP (27-Sep-2023)	18-Dec-2023
					-	L2254197	L2318207	L2367392	L2367392	VA20A0908028012020	VA20A5363253042020	VA20B1139240720	VA20B9565301020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23I3541	23L2282
					-	L2254197-4	L2318207-3	L2367392-3	L2367392-10	VA20A0908-004	VA20A5363-003	VA20B1139-003	VA20B9565-003	21B2866-04	21E1432-03	21G2459-04	21L0641-04	22C0773-04	22G1537-04	22J1342-07	22L1310-04	23C0154-03	23E2913-03	23I3541-03	23I3541-09	23L2282-03
Total Metals																									
Aluminum	µg/L	-	-	-	-	-	94,300	-	-	-	2,760	-	824	-	-	-	-	-	-	-	-	-	-	-	4,210
Antimony	µg/L	-	-	-	-	-	<1.0	-	-	-	<0.10	-	0.14	-	-	-	-	-	-	-	-	-	-	-	<0.2
Arsenic	µg/L	-	-	-	-	-	9.1	-	-	-	0.39	-	0.2	-	-	-	-	-	-	-	-	-	-	-	0.51
Barium	µg/L	-	-	-	-	-	597	-	-	-	44.9	-	20.8	-	-	-	-	-	-	-	-	-	-	-	47.1
Beryllium	µg/L	-	-	-	-	-	<1.0	-	-	-	0.048	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.1
Bismuth	µg/L	-	-	-	-	-	<0.5	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	-	100	-	-	-	91	-	98	-	-	-	-	-	-	-	-	-	-	-	83
Cadmium	µg/L	-	-	-	-	-	0.355	-	-	-	0.0285	-	0.0144	-	-	-	-	-	-	-	-	-	-	-	0.024
Calcium	µg/L	-	-	-	-	-	72,700	-	-	-	45,800	-	51,200	-	-	37,600	-	40,200	-	56,600	-	-	-	-	49,000
Cesium	µg/L	-	-	-	-	-	3.61	-	-	-	0.105	-	0.03	-	-	-	-								
Chromium	µg/L	-	-	-	-	-	59.0	-	-	-	2	-	0.55	-	-	-	-	-	-	-	-	-	-	-	2.68
Cobalt	µg/L	-	-	-	-	-	55.6	-	-	-	2.07	-	0.49	-	-	-	-	-	-	-	-	-	-	-	2.51
Copper	µg/L	-	-	-	-	-	182	-	-	-	8.45	-	3.03	-	-	-	-	-	-	-	-	-	-	-	10.8
Iron	µg/L	-	-	-	-	-	96,300	-	-	-	2,940	-	830	-	-	-	-	-	-	-	-	-	-	-	4,180
Lead	µg/L	-	-	-	-	-	16.0	-	-	-	0.721	-	0.124	-	-	-	-	-	-	-	-	-	-	-	0.89
Lithium	µg/L	-	-	-	-	-	44	-	-	-	3.4	-	2.4	-	-	-	-	-	-	-	-	-	-	-	3.4
Magnesium	µg/L	-	-	-	-	-	43,700	-	-	-	9,710	-	9,440	-	-	7770	-	8,130	-	11,300	-	-	-	-	10,000
Manganese	µg/L	-	-	-	-	-	2,340	-	-	-	93.9	-	20.6	-	-	-	-	-	-	-	-	-	-	-	96.6
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	<0.01
Molybdenum	µg/L	-	-	-	-	-	3.13	-	-	-	0.265	-	0.237	-	-	-	-	-	-	-	-	-	-	-	0.31
Nickel	µg/L	-	-	-	-	-	43.4	-	-	-	1.48	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	2.25
Phosphorus	µg/L	-	-	-	-	-	3150	-	-	-	203	-	51	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-	-	16,700	-	-	-	4,990	-	4,880	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-	-	78.8	-	-	-	2.43	-	0.74	-	-	-	-					-	-	-	-
Selenium	µg/L	-	-	-	-	-	<0.50	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	<0.5
Silicon	µg/L	-	-	-	-	-	100,000	-	-	-	16,300	-	14,700	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	-	0.84	-	-	-	0.021	-	0.012	-	-	-	-	-	-	-	-	-	-	-	0.062
Sodium	µg/L	-	-	-	-	-	45,200	-	-	-	34,800	-	38,500	-	-	-	-	-	-	-	-	-	-	-	26,800
Strontium	µg/L	-	-	-	-	-	581	-	-	-	331	-	342	-	-	-	-	-	-	-	-	-	-	-	360
Sulphur	µg/L	-	-	-	-	-	8,800	-	-	-	8,320	-	10,400	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	<2.0	-	-	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	-	0.48	-	-	-	0.016	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	0.024
Thorium	µg/L	-	-	-	-	-	13.3	-	-	-	0.53	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	-	1.50	-	-	-	0.41	-	0.1	-	-	-	-	-	-	-	-	-	-	-	<0.2
Titanium	µg/L	-	-	-	-	-	5,780	-	-	-	167	-	55.7	-	-	-	-	-	-	-	-	-	-	-	252
Tungsten	µg/L	-	-	-	-	-	1.0	-	-	-	<0.10	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<1
Uranium	µg/L	-	-	-	-	-	8.38	-	-	-	2.38	-	2.05	-	-	-	-	-	-	-	-	-	-	-	2.24
Vanadium	µg/L	-	-	-	-	-	201	-	-	-	7.13	-	2.48	-	-	-	-	-	-	-	-	-	-	-	9.1
Zinc	µg/L	-	-	-	-	-	1,240	-	-	-	8.9	-	46.2	-	-	-	-	-	-	-	-	-	-	-	36.9
Zirconium	µg/L	-	-	-	-	-	<2.0	-	-	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons																									
EPH_{10-19}	µg/L	5,000	5,000	5,000	-	<250	-	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
EPH_{19-32}	µg/L	-	-	-	-	<250	-	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
LEPH	µg/L	500	500	-	-	<250	-	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
HEPH	µg/L	-	-	-	-	<250	-	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
VH_{6-10}	µg/L	15,000	15,000	15,000	-	<100	-	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																									
Acenaphthene	µg/L	60	60	250	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Acenaphthylene	µg/L	-	-	-	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-	-
Acridine	µg/L	0.5	0.5	-	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Anthracene	µg/L	1	1	1,000	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Benz(a)anthracene	µg/L	1	1	0.07	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Benzo(a)pyrene	µg/L	0.1	0.1	0.01	-	<0.0050	-	<0.0050	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-	-	-	<0.015	<0.015	-	-	<0.0150	-					-	-	-	-	-	-	-	-	-
Benzo(b+j+k)fluoranthene	µg/L	-	-	0.07	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
2-Chloronaphthalene	µg/L	-	-	300	-	-	-	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
Chrysene	µg/L	1	1	7	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	0.01	-	<0.0050	-	<0.0050	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Fluoranthene	µg/L	2	2	150	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-	-
Fluorene	µg/L	120	120	150	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
1-Methylnaphthalene	µg/L	-	-	5.5	-	<0.050	-	<0.050	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
2-Methylnaphthalene	µg/L	-	-	15	-	<0.020	-	<0.050	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
Naphthalene	µg/L	10	10	80	-	<0.020	-	<0.050	<0.050	-	-	<0.050	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-	-
Phenanthrene	µg/L	3	3	-	-	<0.020	-	<0.020	<0.020	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
Pyrene	µg/L	0.2	0.2	100	-	<0.010	-	<0.010	<0.010	-	-	<0.010	-	<0.02	-	-	-	<0.02	-	-	-	<0.020	-	-	-	-
Quinoline	µg/L	34	34	0.05	-	<0.050	-	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Standard is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW standard.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW standard.
Red Text	Red text indicates an exceedance of the CSR DW standard.
Italic	Detection limit greater than standard.

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Table 2: Groundwater Analytical Results

					MW 13-03																				
					14-Dec-2013	3-Apr-2019	25-Jul-2019	17-Oct-2019	DUP (17-Oct-2019)	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	DUP (27-Sep-2023)	18-Dec-2023
					-	L2254197	L2318207	L2367392	L2367392	VA20A09082012020	VA20A5363025042020	VA20B1139024072020	VA20B9565302010220	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23I3541	23L2282
					-	L2254197-4	L2318207-3	L2367392-3	L2367392-10	VA20A0908-004	VA20A5363-003	VA20B1139-003	VA20B9565-003	21B2866-04	21E1432-03	21G2459-04	21L0641-04	22C0773-04	22G1537-04	22J1342-07	22L1310-04	23C0154-03	23E2913-03	23I3541-03	23I3541-09	23L2282-03
Parameter	**Unit**	**CSR - AW**		**CSR - DW**																					
		Freshwater	**Marine**																						
Resin/Fatty Acids																									
Abietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Arachidic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Dehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-	-
Lauric Acid	µg/L	-	-	-	-	96.4	-	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Linolenic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Myristic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Octadecanoic Acid	µg/L	-	-	-														-	<10	-	-	-	-	-	-	-
Oleic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	-	<5.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Palmitic Acid	µg/L	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Stearic Acid	µg/L	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	-	<100	-	-	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Total Resin Acids	µg/L	-	-	-	-	<10	-	-	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
BTEXS & MTBE																										
Benzene	µg/L	400	1,000	5	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Toluene	µg/L	5	2,000	60	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Ethylbenzene	µg/L	2,000	2,500	140	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Xylenes Total	µg/L	300	300	90	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-
Styrene	µg/L	720	720	800	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	34,000	4,400	95	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Volatile Organic Compounds (VOCs)																										
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Bromoform	µg/L	-	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Carbon tetrachloride	µg/L	130	130	2	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Chlorobenzene	µg/L	13	250	80	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-
Chloroform	µg/L	20	20	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Dibromochloromethane	µg/L	-	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dibromoethane	µg/L	-	-	0.5	-	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichlorobenzene	µg/L	7	420	200	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
1,3-Dichlorobenzene	µg/L	1,500	1,500	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,4-Dichlorobenzene	µg/L	260	260	5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1-Dichloroethane	µg/L	-	-	30	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethane	µg/L	1,000	1,000	5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1-Dichloroethene	µg/L	-	-	14	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	8	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	80	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloropropane	µg/L	-	-	4.5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,3-Dichloropropene	µg/L	-	-	1.5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Methylene Chloride	µg/L	980	980	50	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	0.8	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Tetrachloroethene	µg/L	1,100	1,100	30	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	8000	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	3	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Trichloroethene	µg/L	200	200	5	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Trichlorofluoromethane	µg/L	-	-	1000	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Vinyl chloride	µg/L	-	-	2	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Guideline varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Guideline is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW guidelines.
Red Text	Red text indicates an exceedance of the CSR DW standard.
RAIC	Detection limit greater than guideline.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW19-04																		MW19-05				
		Freshwater	Marine		25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	DUP(23-May-2023)	27-Sep-2023	18-Dec-2023	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020
					L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B956530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23E2913	23I3541	23L2282	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020
					L2318207-4	L2367392-4	VA20A0908-005	VA20A5363-004	VA20B1139-004	VA20B9565-004	21B2866-05	21E1432-04	21G2459-05	21L0641-05	22C0773-05	22G1537-05	22J1342-08	22L1310-05	23C0154-04	23E2913-04	23E2913-09	23I3541-04	23L2282-04	L2318207-5	L2367392-5	VA20A0908-006	VA20A5363-005	VA20B1139-005
Field Measurements																											
Temperature	°C	-	-	-	16.94	13.1	9.1	11.35	16	13.7	7.6	11.1	16.2	10.1	7.6	13.3	14.8	8.2	7.1	12.6	12.6	15.4	9.2	14.40	11.4	9	9.38	11.7
Electrical Conductivity	µS/cm	-	-	-	180	197.1	-	236	308	337	310	352.2	322.3	260.7	262	340.1	380.6	280.0	208.9	239.3	239.3	236.2	0.4	705	625	200	392	88.4
Total Dissolved Solids (TDS)	mg/L	-	-	-	195	-	4.6	208	200	218.4	302	229.45	257.55	237.9	276	286	247.4	268.2	207.35	204.6	204.6	187.7	0.65	458	-	187.2	369	572
Salinity	-	15	10	-	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.35	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	-	-	-	5.39	-	11.85	4.94	8.2	1.83	5.9	4.02	0.84	5.2	8.7	1.77	1.57	3.23	4.8	0.81	0.81	7.27	6.86	5.68	-	8.63	5.64	4.91
pH	pH Units	-	-	-	6.43	6.69	4.2	6.47	6.54	6.36	6.34	6.36	6.37	6.38	8.29	6.62	6.58	8.2	6.18	6.73	6.73	4.85	6.55	5.92	6.94	6.34	6.26	6.53
Oxidation Reduction Potential (ORP)	-	-	-	-	255.2	-	-	115.5	54.1	65.3	57.5	85.1	54.8	28.1	141.7	51.6	17.6	83.1	32.5	55.6	55.6	142.4	127.8	249.7	-	156.2	101.9	111.8
Physical Parameters																												
pH	pH Units	-	-	-	7.93	7.04	6.86	8.18	6.81	6.92	-	6.43	-	5.85	-	7.81	-	6.59	7.1	6.67	6.65	6.83	6.79	8.02	7.25	7.15	8.13	6.81
Electrical Conductivity (EC)	µS/cm	-	-	-	265	248	-	304	-	353	-	384	-	382	-	456	-	374	339	312	314	258	322	746	853	-	695	-
Total Suspended Solids (TSS)	µg/L	-	-	-	1,930,000	959,000	-	264,000	-	6,900	-	3400	-	11,400	-	-	-	-	-	-	-	-	-	2,760,000	1,880,000	-	114,000	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	-	-	179,000	223,000	-	245,000	-	-	-	-	-	293,000	-	-	-	235,000	-	-	262,000	-	-	178,000	506,000	-
Hardness as $CaCO_3$	µg/L	-	-	-	99,700	105,000	-	201,000	-	171,000	-	153,000	161,000	163,000	198,000	218,000	182,000	195,000	-	140,000	144,000	-	174,000	368,000	392,000	-	304,000	-
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-	-	-	-	-	-	-	193,000	-	-	-	-	-	-	158,000	149,000	145,000	144,000	162,000	-	-	-	-	-
Alkalinity (P)	µg/L	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000	-	-	-	-	-
Bicarbonate	µg/L	-	-	-	-	-	-	-	-	-	-	193,000	-	-	-	-	-	-	158,000	149,000	145,000	144,000	162,000	-	-	-	-	-
Carbonate	µg/L	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000	-	-	-	-	-
Hydroxide	µg/L	-	-	-	-	-	-	-	-	-	-	<1000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000	-	-	-	-	-
Bromide	µg/L	-	-	-	<50	<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	<250	<50	<50	<250
Chloride	µg/L	1,500,000	1,500,000	250,000	7,240	7,260	3,760	6,110	6,480	6,680	7220	7380	7400	4460	6,090	4,960	6,590	6,460	5,830	6,140	-	6,950	7,250	8,480	9,200	17,300	9,380	11,500
Fluoride	µg/L	2,000 / 3,000 [#1]	15,000	1,500	50	37	39	40	42	45	<100	<100	<100	120	<100	<100	<100	<100	<100	<100	-	<100	<100	29	<100	33	29	<100
Sulphate	µg/L	2,180,000-4,290,000 [#1]	2,180,000-4,290,000 [#1]	500,000	4,290	3,770	2,800	5,050	3,340	2,630	4900	4000	1600	4500	4,000	1,500	2,400	6,300	2,900	1,700	-	1,600	2,600	270,000	323,000	37,900	240,000	325,000
Sulphide (as S)	µg/L	20	20	50	<2.0	**29**	<2.0	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	<18	<2.0	2	2.6
Sulphide (as H2S)	µg/L	-	-	50	-	-	<2.0	<2.0	<2.0	<2.0	<20	-	21	<20	<20	<20	<20	<20	-	-	-	-	-			<2.0	2.1	2.8
Turbidity	NTU	-	-	-	-	668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1340	-	-	-
Acidity	µg/L	-	-	-	-	-	-	<2,000	-	5,300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2,000	-
Nutrients																												
Ammonia as N	µg/L	3,700-18,400 [#2]	6,850-200,000 [#2]	-	140	106	106	130	166	140	160	187	315	121	209	313	360	272	92	158	-	158	113	81.5	13.2	<5.0	<5.0	12.8
Nitrate (as N)	µg/L	400,000	400,000	10,000	182	204	160	121	25.6	49.3	<10	<10	<10	<10	312	<10	<10	19	<10	<10	-	<10	<10	167	39	374	161	160
Nitrite (as N)	µg/L	200-2,000 [#3]	200-2,000 [#3]	1,000	<1.0	<1.0	<1.0	1.6	84.4	7.7	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10	2.1	<5.0	<1.0	<1.0	<5.0
Nitrate and Nitrite (as N)	µg/L	-	-	-	-	-	-	123.0	-	-	-	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-
Demand Parameters																												
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	<2000	<2000	-	2,400	-	<2,000	-	<2400	-	<3600	-	<6,200	-	<7,400	-	<1,400	-	-	<2,800	<2000	<2000	-	<2,000	-
Chemical Oxygen Demand (COD)	µg/L	-	-	-	78,000	50,000	-	<20,000	-	<20,000	-	21,000	-	23,000	-	60,000	-	54,000	-	36,000	-	-	41,000	127,000	43,000	-	<20,000	-
Carbon																												
Dissolved Organic Carbon (DOC) (Filtered)	µg/L	-	-	-	-	-	-	-	-	-	-	14,500	-	13,300	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-	10,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7520	-	-	-
Phenols																												
Phenols (4AAP)	µg/L	-	-	-	4.6	-	-	-	<1.0	-	4	-	-	-	<2	-	-	-	<2	-	-	-	-	5.9	-	-	-	<1.0
Dissolved Metals																												
Aluminum	µg/L	-	-	9,500	6.6	8.9	-	4.5	-	6.2	-	8.4	-	13.9	-	12.8	-	21.5	-	17.3	16.3	-	11.6	3.9	4.6	-	4.8	-
Antimony	µg/L	90	2,500	6	0.20	0.17	-	0.22	-	0.21	-	0.34	-	0.51	-	0.6	-	0.45	-	0.38	0.35	-	0.34	0.19	0.17	-	0.15	-
Arsenic	µg/L	50	125	10	0.52	0.44	-	0.39	-	0.34	-	<0.50	-	0.53	-	0.63	-	0.96	-	<0.50	<0.50	-	1.35	0.22	0.29	-	0.14	-
Barium	µg/L	10,000	5,000	1,000	20.1	21.0	-	24.8	-	36.2	-	32.3	-	28.9	-	46.7	-	33.4	-	24.3	24.5	-	26.5	18.7	21.5	-	17.6	-
Beryllium	µg/L	1.5	1,000	8	<0.10	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	<0.10	-	<0.1	<0.10	<0.10	-	<0.020	-
Bismuth	µg/L	-	-	-	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	<0.10	-	-	<0.050	<0.050	-	<0.050	-
Boron	µg/L	12,000	12,000	5,000	50	40	-	61	-	51	-	63.9	-	<50	-	78.3	-	53.3	-	52.8	52.5	-	<50	821	770	-	637	-
Cadmium	µg/L	1.5-4.0 [#1]	15	5	0.0337	0.0505	-	0.0394	-	0.0552	-	0.073	-	0.072	-	0.081	-	0.1	-	0.083	0.079	-	0.036	0.0967	0.125	-	0.0641	-
Calcium	µg/L	-	-	-	31,600	32,500	-	38,400	-	49,300	-	46,900	-	49,100	-	68,100	-	61,400	-	43,300	45,100	-	55,400	129,000	137,000	-	103,000	-
Cesium	µg/L	-	-	-	<0.010	<0.010	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	-	<0.010	-
Chromium	µg/L	10 [#4]	15 [#4]	50 [#4]	0.33	0.32	-	<0.50	-	0.34	-	0.57	-	<0.50	-	1.05	-	2.59	-	0.99	1.15	-	0.9	<0.10	<0.10	-	<0.50	-
Cobalt	µg/L	40	40	1	0.60	0.95	-	1.38	-	1.48	-	2.83	-	1.28	-	3.8	-	2	-	2.9	2.89	-	2.27	1.03	1.11	-	2.14	-
Copper	µg/L	20-90 [#1]	20	1,500	4.3	3.29	-	4.01	-	3.65	-	5.51	-	5.62	-	6.24	-	4.26	-	7.39	7.36	-	1.59	2.46	1.75	-	1.37	-
Iron	µg/L	-	-	6,500	57	78	-	852	-	698	-	1140	-	963	-	1540	-	3170	-	1,500	1,500	-	5,960	<10	<10	-	26	-
Lead	µg/L	40-160 [#1]	20	10	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.20	-	<0.20	-	<0.2	-	0.24	-	<0.20	<0.20	-	<0.2	<0.050	<0.050	-	<0.050	-
Lithium	µg/L	-	-	8	2.0	1.9	-	1.9	-	2.4	-	2.07	-	1.69	-	2.64	-	2.38	-	2.4	2.41	-	1.97	1.3	1.1	-	<1.0	-
Magnesium	µg/L	-	-	-	5020	5780	-	7,740	-	8,420	-	8620	-	9820	-	11,500	-	9,990	-	7,590	7,640	-	8,600	11,100	12,000	-	9,410	-
Manganese	µg/L	-	-	1,500	190	396	-	460	-	748	-	995	-	679	-	2,360	-	1,700	-	1,580	1,580	-	1,420	463	595	-	221	-
Mercury	µg/L	0.25	0.25	1	<0.0050	<0.0050	-	-	-	<0.0050	-	<0.010	-	<0.010	-	<0.01	-	-	-	<0.010	<0.010	-	<0.01	<0.0050	<0.0050	-	-	-
Molybdenum	µg/L	10,000	10,000	250	0.473	0.404	-	0.225	-	0.293	-	0.4	-	0.41	-	0.47	-	0.53	-	0.26	0.25	-	0.46	1.11	1.05	-	0.455	-
Nickel	µg/L	250-1,500 [#1]	83	80	0.53	<0.50	-	<0.50	-	<0.50	-	0.74	-	0.54	-	1.01	-	0.41	-	0.42	0.41	-	0.73	1.09	1.36	-	0.72	-
Phosphorus	µg/L	-	-	-	<50	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	<50	<50	-	-	<50	<50	-	<50	-
Potassium	µg/L	-	-	-	10,200	10,400	-	8,570	-	9,790	-	10,300	-	7900	-	11,800	-	10,900	-	8,870	9,040	-	-	4,540	4,640	-	3,420	-
Rubidium	µg/L	-	-	-	2.48	1.99	-	1.69	-	2.47	-	-	-	-	-	-	-	-	-	-	-	-	-	2.76	3.09	-	2.35	-
Selenium	µg/L	20	20	10	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	<0.50	-	<0.5	<0.050	0.090	-	0.114	-
Silicon	µg/L	-	-	-	15,600	14,400	-	13,600	-	15,200	-	16,900	-	12,800	-	17,300	-	16,200	-	17,400	17,900	-	-	7,350	8,360	-	6,680	-
Silver	µg/L	0.5 / 15 [#1]	15	20	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	<0.050	<0.050	-	<0.05	<0.010	<0.010	-	<0.010	-
Sodium	µg/L	-	-	200,000	6940	7950	-	7,130	-	7,640	-	7740	-	7640	-	9,130	-	7,930	-	8,640	8,580	-	9,250	24,000	27,700	-	21,900	-
Strontium	µg/L	-	-	2,500	149	169	-	211	-	254	-	255	-	242	-	355	-	341	-	284	286	-	257	817	884	-	642	-
Sulphur	µg/L	-	-	-	1610	1520	-	1,720	-	980	-	<3000	-	<3000	-	<3000	-	<3000	-	<3,000	<3,000	-	-	102,000	120,000	-	83,500	-
Tellurium	µg/L	-	-	-	<0.20	<0.20	-	<0.010	-	<0.20	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	<0.50	-	-	<0.20	<0.20	-	<0.20	-
Thallium	µg/L	3	3	-	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.020	<0.020	-	<0.02	<0.010	<0.010	-	<0.010	-
Thorium	µg/L	-	-	-	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	<0.10	-	-	<0.10	<0.10	-	<0.10	-
Tin	µg/L	-	-	2,500	0.20	0.15	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	<0.20	-	<0.2	0.17	0.13	-	<0.10	-
Titanium	µg/L	1,000	1,000	-	0.31	0.44	-	<0.30	-	<0.30	-	<5.0	-	<5.0	-	<5	-	<5	-	<5.0	<5.0	-	<5	<0.30	<0.30	-	<0.30	-
Tungsten	µg/L	-	-	3	<0.10	<0.10	-	<0.10	-	<0.10	-	<1.0	-	<1.0	-	<1	-	<1	-	<1.0	<1.0	-	<1	<0.10	<0.10	-	<0.10	-
Uranium	µg/L	85	85	20	0.124	0.126	-	0.315	-	0.354	-	0.479	-	0.726	-	1.12	-	0.931	-	0.38	0.389	-	0.544	4.85	5.86	-	6.42	-
Vanadium	µg/L	-	-	20	1.27	1.16	-	0.78	-	0.68	-	1.3	-	1.2	-	<5	-	<5	-	<5.0	<5.0	-	<5	0.84	0.63	-	<0.50	-
Zinc	µg/L	75-2,400 [#1]	100	3,000	2.7	1.5	-	2.2	-	1.1	-	<4.0	-	<4.0	-	45.9	-	<4	-	<4.0	<4.0	-	<4	6.2	8.4	-	1.6	-
Zirconium	µg/L	-	-	-	<0.20	<0.20	-	<0.30	-	<0.2	-	<0.10	-	<0.10	-	0.15	-	<0.1	-	<0.10	<0.10	-	-	<0.20	<0.20	-	<0.30	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Standard is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW standard.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW standard.
Red Text	Red text indicates an exceedance of the CSR DW standard.
#a#c	Detection limit greater than standard.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW19-04																			MW19-05				
		Freshwater	Marine		25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	DUP(23-May-2023)	27-Sep-2023	18-Dec-2023	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020
					L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B956530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23E2913	23I3541	23L2282	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020
					L2318207-4	L2367392-4	VA20A0908-005	VA20A5363-004	VA20B1139-004	VA20B9565-004	21B2866-05	21E1432-04	21G2459-05	21L0641-05	22C0773-05	22G1537-05	22J1342-08	22L1310-05	23C0154-04	23E2913-04	23E2913-09	23I3541-04	23L2282-04	L2318207-5	L2367392-5	VA20A0908-006	VA20A5363-005	VA20B1139-005
Total Metals																												
Aluminum	µg/L	-	-	-	-	-	-	4,330	-	57.4	-	-	-	-	-	-	-	-	-	-	-	254	-	-	-	976	-
Antimony	µg/L	-	-	-	-	-	-	0.86	-	0.25	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	0.19	-
Arsenic	µg/L	-	-	-	-	-	-	3.67	-	0.69	-	-	-	-	-	-	-	-	-	-	-	1.71	-	-	-	0.65	-
Barium	µg/L	-	-	-	-	-	-	122	-	36.2	-	-	-	-	-	-	-	-	-	-	-	27.4	-	-	-	29.3	-
Beryllium	µg/L	-	-	-	-	-	-	0.118	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	0.025	-
Bismuth	µg/L	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	-
Boron	µg/L	-	-	-	-	-	-	61	-	48	-	-	-	-	-	-	-	-	-	-	-	<50	-	-	-	621	-
Cadmium	µg/L	-	-	-	-	-	-	0.228	-	0.0673	-	-	-	-	-	-	-	-	-	-	-	0.042	-	-	-	0.0865	-
Calcium	µg/L	-	-	-	-	-	-	58,800	-	53,700	-	-	50,600	-	63,600	-	58,100	-	-	-	-	47,600	-	-	-	106,000	-
Cesium	µg/L	-	-	-	-	-	-	0.196	-	<0.010	-	-	-	-									-	-	-	0.068	-
Chromium	µg/L	-	-	-	-	-	-	4.55	-	0.46	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	1.04	-
Cobalt	µg/L	-	-	-	-	-	-	9.21	-	1.91	-	-	-	-	-	-	-	-	-	-	-	2.03	-	-	-	9.23	-
Copper	µg/L	-	-	-	-	-	-	13.5	-	3.98	-	-	-	-	-	-	-	-	-	-	-	3.27	-	-	-	4.28	-
Iron	µg/L	-	-	-	-	-	-	11,900	-	2,300	-	-	-	-	-	-	-	-	-	-	-	6,490	-	-	-	1,490	-
Lead	µg/L	-	-	-	-	-	-	2.43	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	0.21	-	-	-	3.4	-
Lithium	µg/L	-	-	-	-	-	-	4.2	-	2.4	-	-	-	-	-	-	-	-	-	-	-	1.53	-	-	-	1.3	-
Magnesium	µg/L	-	-	-	-	-	-	13,200	-	8,910	-	-	8360	-	9,430	-	8,850	-	-	-	-	7,540	-	-	-	9,370	-
Manganese	µg/L	-	-	-	-	-	-	1,850	-	746	-	-	-	-	-	-	-	-	-	-	-	1,240	-	-	-	396	-
Mercury	µg/L	-	-	-	-	-	-	-	-	<0.0050	-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-	-	-	0.469	-	0.343	-	-	-	-	-	-	-	-	-	-	-	0.47	-	-	-	0.565	-
Nickel	µg/L	-	-	-	-	-	-	3.28	-	<0.50	-	-	-	-	-	-	-	-	-	-	-	0.6	-	-	-	1.13	-
Phosphorus	µg/L	-	-	-	-	-	-	3,450	-	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-
Potassium	µg/L	-	-	-	-	-	-	8,960	-	9,940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,620	-
Rubidium	µg/L	-	-	-	-	-	-	5.88	-	2.55	-	-	-	-								-	-	-	-	3.44	-
Selenium	µg/L	-	-	-	-	-	-	0.052	-	<0.050	-	-	-	-	-	-	-	-	-	-	-	<0.5	-	-	-	0.132	-
Silicon	µg/L	-	-	-	-	-	-	18,600	-	16,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,820	-
Silver	µg/L	-	-	-	-	-	-	0.023	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	<0.010	-
Sodium	µg/L	-	-	-	-	-	-	7,170	-	8,250	-	-	-	-	-	-	-	-	-	-	-	8,010	-	-	-	20,800	-
Strontium	µg/L	-	-	-	-	-	-	252	-	264	-	-	-	-	-	-	-	-	-	-	-	247	-	-	-	672	-
Sulphur	µg/L	-	-	-	-	-	-	1,930	-	1,120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83,300	-
Tellurium	µg/L	-	-	-	-	-	-	<0.20	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.20	-
Thallium	µg/L	-	-	-	-	-	-	0.046	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	<0.02	-	-	-	0.014	-
Thorium	µg/L	-	-	-	-	-	-	2.76	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	-
Tin	µg/L	-	-	-	-	-	-	0.19	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<0.2	-	-	-	0.12	-
Titanium	µg/L	-	-	-	-	-	-	122	-	2.88	-	-	-	-	-	-	-	-	-	-	-	13.2	-	-	-	51.8	-
Tungsten	µg/L	-	-	-	-	-	-	0.1	-	<0.10	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	0.15	-
Uranium	µg/L	-	-	-	-	-	-	1.5	-	0.414	-	-	-	-	-	-	-	-	-	-	-	0.564	-	-	-	7.16	-
Vanadium	µg/L	-	-	-	-	-	-	12	-	1.66	-	-	-	-	-	-	-	-	-	-	-	<5	-	-	-	5.89	-
Zinc	µg/L	-	-	-	-	-	-	15.6	-	<3.0	-	-	-	-	-	-	-	-	-	-	-	338	-	-	-	5.5	-
Zirconium	µg/L	-	-	-	-	-	-	0.41	-	<0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.20	-
Hydrocarbons																												
EPH_{10-19}	µg/L	5,000	5,000	5,000	<250	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-	<250	-	-	-	<250
EPH_{19-32}	µg/L	-	-	-	<250	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-	<250	-	-	-	<250
LEPH	µg/L	500	500	-	<250	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-	<250	-	-	-	<250
HEPH	µg/L	-	-	-	<250	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-	<250	-	-	-	<250
VH_{6-10}	µg/L	15,000	15,000	15,000	-	<100	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-	-	-	<100	-	-	<100
Polycyclic Aromatic Hydrocarbons (PAHs)																												
Acenaphthene	µg/L	60	60	250	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.014	<0.010	-	-	<0.010
Acenaphthylene	µg/L	-	-	-	<0.010	<0.010	-	-	<0.010	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-	<0.010	<0.010	-	-	<0.010
Acridine	µg/L	0.5	0.5	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	<0.010	<0.010	-	-	<0.010
Anthracene	µg/L	1	1	1,000	<0.010	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	0.042	<0.010	-	-	<0.010
Benz(a)anthracene	µg/L	1	1	0.07	<0.010	<0.010	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	0.125	0.014	-	-	<0.010
Benzo(a)pyrene	µg/L	0.1	0.1	0.01	<0.0050	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	0.0829	0.0118	-	-	<0.0050
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	<0.015	<0.015	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-	0.132	<0.015	-	-	<0.0150
Benzo(b+j)fluoranthene	µg/L	-	-	0.07	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.098	0.012	-	-	<0.010
Benzo(g,h,i)perylene	µg/L	-	-	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.066	0.011	-	-	<0.010
Benzo(k)fluoranthene	µg/L	-	-	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.034	<0.010	-	-	<0.010
2-Chloronaphthalene	µg/L	-	-	300	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-	-	-	-	-
Chrysene	µg/L	1	1	7	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.149	0.016	-	-	<0.010
Dibenz(a,h)anthracene	µg/L	-	-	0.01	<0.005	<0.0050	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	0.0164	<0.0050	-	-	<0.0050
Fluoranthene	µg/L	2	2	150	0.036	<0.010	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-	0.192	0.019	-	-	<0.010
Fluorene	µg/L	120	120	150	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.021	<0.010	-	-	<0.010
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	<0.010	<0.010	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	0.058	<0.010	-	-	<0.010
1-Methylnaphthalene	µg/L	-	-	5.5	<0.050	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	<0.050	<0.050	-	-	<0.010
2-Methylnaphthalene	µg/L	-	-	15	<0.050	<0.050	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	<0.050	<0.050	-	-	<0.010
Naphthalene	µg/L	10	10	80	<0.050	<0.050	-	-	<0.050	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-	<0.050	<0.050	-	-	<0.050
Phenanthrene	µg/L	3	3	-	<0.020	<0.020	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	0.178	<0.020	-	-	<0.020
Pyrene	µg/L	0.2	0.2	100	0.064	0.019	-	-	<0.010	-	<0.02	-	-	-	<0.02	-	-	-	<0.020	-	-	-	**0.207**	0.022	-	-	<0.010
Quinoline	µg/L	34	34	0.05	<0.050	<0.050	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	<0.050	<0.050	-	-	<0.050

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Standard varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Standard is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW standard.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW standard.
Red Text	Red text indicates an exceedance of the CSR DW standard.
#a#c	Detection limit greater than standard.

TETRA TECH

Table 2: Groundwater Analytical Results

Parameter	Unit	CSR - AW		CSR - DW	MW19-04																		MW19-05				
		Freshwater	Marine		25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	DUP(23-May-2023)	27-Sep-2023	18-Dec-2023	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020
					L2318207	L2367392	VA20A0908028012020	VA20A5363254042020	VA20B1139240720 20	VA20B9565302020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23E2913	23I3541	23L2282	L2318207	L2367392	VA20A0908028012020	VA20A5363254042020	VA20B1139240720 72020
					L2318207-4	L2367392-4	VA20A0908-005	VA20A5363-004	VA20B1139-004	VA20B9565-004	21B2866-05	21E1432-04	21G2459-05	21L0641-05	22C0773-05	22G1537-05	22J1342-08	22L1310-05	23C0154-04	23E2913-04	23E2913-09	23I3541-04	23L2282-04	L2318207-5	L2367392-5	VA20A0908-006	VA20A5363-005	VA20B1139-005
Resin/Fatty Acids																											
Abietic Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	0.0011	-	-	-	<1.0
Arachidic Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	<5.0
Behenic Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0059	-	-	-	<5.0
12-Chlorodehydroabietic Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
14-Chlorodehydroabietic Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
Dehydroabietic Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	0.0017	-	-	-	<1.0
Dichlorodehydroabietic Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-	-	-	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-	-	0.0014	-	-	-	<1.0
Lauric Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	<5.0
Levopimaric Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
Lignoceric Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	<5.0
Linoleic Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0050	-	-	-	<5.0
Linolenic Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0050	-	-	-	<5.0
Myristic Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	<5.0
Neoabietic Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
Octadecanoic Acid	µg/L	-	-	-						-	-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-
Oleic Acid	µg/L	-	-	-	<0.0050	-	-	-	<5.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0050	-	-	-	<5.0
Palmitic Acid	µg/L	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<100	-	-	-	-
Pimaric Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
Sandaracopimaric Acid	µg/L	-	-	-	<0.0010	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-	<0.0010	-	-	-	<1.0
Stearic Acid	µg/L	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	<20	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	<0.10	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-	<0.10	-	-	-	<110
Total Resin Acids	µg/L	-	-	-	<0.010	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-	<0.010	-	-	-	<3.5
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-	-	-	-	-	-
BTEXS & MTBE																											
Benzene	µg/L	400	1,000	5	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Toluene	µg/L	5	2,000	60	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Ethylbenzene	µg/L	2,000	2,500	140	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Xylenes Total	µg/L	300	300	90	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-
Styrene	µg/L	720	720	800	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	34,000	4,400	95	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																											
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	100	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Bromoform	µg/L	-	-	100	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/L	130	130	2	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	13	250	80	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	-
Chloroform	µg/L	20	20	100	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Dibromochloromethane	µg/L	-	-	100	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	µg/L	-	-	0.5	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-	-	-	-	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	7	420	200	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/L	1,500	1,500	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	260	260	5	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	µg/L	-	-	30	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/L	1,000	1,000	5	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	-	-	14	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	8	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	80	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	µg/L	-	-	4.5	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene	µg/L	-	-	1.5	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Methylene Chloride	µg/L	980	980	50	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	0.8	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/L	1,100	1,100	30	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	8000	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	3	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/L	200	200	5	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/L	-	-	1000	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Vinyl chloride	µg/L	-	-	2	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-

NOTES:

#1	Guideline varies with hardness. Values shown based on hardness range of 40.9 mg/L to 392 mg/L.
#2	Standard varies with pH. Value shown based on field pH range of 4.33 to 8.29.
#3	Guideline varies with chloride concentration. Value shown based on chloride range of 2.19 mg/L to 44.7 mg/L.
#4	Guideline is for Chromium VI.
-	Not analyzed or no applicable CSR standard.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, including amendments up to BC Reg. 133/2022, March 2023) Schedule 3.2.
AW	Freshwater and marine aquatic life standards.
DW	Drinking water standards.
Shaded	Shaded indicates an exceedance of the CSR Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the CSR Marine AW guidelines.
Red Text	Red text indicates an exceedance of the CSR DW standard.
italic	Detection limit greater than guideline.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-1																			
						Field ID	SW-1	SW-1	SW1	SW1	SW-1	SW-1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254181	L2318207	L2367392	VA20A09082801202	VA20A53632504202	VA20B11392407202	VA20B95530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254181-1	L2318207-6	L2367392-6	VA20A0908-007	VA20A5363-007	VA20B1139-007	VA20B9565-006	21B2866-06	21E1432-06	21G2459-06	21L0641-06	22C0773-06	22G1537-06	22J1342-01	22L1310-06	23C0154-05	23E2913-05	23I3541-05	23L2282-05
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																						
		Approved	**Working**	**Approved**	**Working**																					
Field Measurements																										
Temperature	°C	15	-	-	-		-	10.14	16.83	10.5	5.7	-	16.8	9.3	4	11.2	12.3	8	7.0	15.8	11.5	4.3	4	14.2	11.8	6.3
Electrical Conductivity	µS/cm	-	-	-	-		-	85	84	71.2	80.7	-	107.3	91.4	47.5	164.1	104.9	49	42.7	81.3	116.8	59.3	51.4	80.8	80.5	50
Total Dissolved Solids (TDS)	mg/L	-	-	-	-		-	55	65	-	-	-	69	59.2	51.4	106.6	89.7	47.2	42.25	64.4	75.9	63.8	55.9	66.1	70	50.7
Salinity	-	-	-	-	-		-	0.04	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-		-	106.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	Minimum 5 #1	-	Minimum 5 #1	-		-	12.68	8.79	-	13.31	-	7.56	11.5	14	10.34	10.9	13.2	12.28	9.66	16.42	12.97	12.29	8.74	10.16	12.3
pH	pH Units	6.5-9.0	-	7.0-8.7	-		-	7.33	**6.15**	7.53	-	-	7.43	7.6	7.48	7.74	7.29	6.68	7.01	7.72	7.83	7.36	7.29	7.68	**5.41**	**5.27**
Oxidation Reduction Potential (ORP)	-	-	-	-	-		-	81.8	300	-	-	-	108	60.5	79.4	133.5	106.6	-15.6	168.0	96.7	107.5	77.0	76.8	71.8	196.5	100.8
Physical Parameters																										
pH	pH Units	6.5-9.0	-	7.0-8.7	-		7.64	7.63	7.80	7.73	7.38	7.72	7.68	7.48	-	7.17	-	7.34	-	7.36	-	7.07	**6.72**	**6.59**	**6.77**	**6.59**
Electrical Conductivity (EC)	µS/cm	-	-	-	-		81.3	85.8	103	101	-	91.9	-	96.9	-	181	-	75.9	-	101	-	103	88	98	102	89.4
Total Suspended Solids (TSS)	µg/L	-	-	-	-		20,100	4,600	7,100	8,900	-	4,400	-	8,500	-	5,400	-	4,500	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	-		55,000	-	-	-	66,000	66,000	-	73,000	-	92500	-	-	-	64,000	-	-	-	70,000	-	92,000
Hardness as $CaCO_3$	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	-	51,200	46,700	23,400	23,000	33,400	36,300	29,700	-	33,300	-	27,700
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	-	61,400	-	-	-	-	-	-	25,200	33,300	37,500	31,400
Alkalinity (P)	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	-	61,400	-	-	-	-	-	-	25,200	33,300	37,500	31,400
Carbonate	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-		26,800	27,300	32,200	31,000	-	27,400	-	31,300	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	-		<50	<50	<50	<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	600,000	-	-	-		7,850	9,040	10,300	9,360	8,420	9,560	9,980	9,610	8,720	11,600	12,000	6,390	9,870	8,620	10,100	9,680	9,730	9,440	9,550	9,020
Fluoride	µg/L	743-1,138 #2	-	1500	-		29	<20	26	21	<20	21	25	<20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	128,000-218,000 #2	-	-	-		2,490	2,930	3,330	2,730	2,190	2,620	3,360	1,860	2,300	8,200	6,600	2,000	2,400	3,600	3,600	2,400	2,200	3,000	2,600	2,100
Sulphide (as S)	µg/L	-	-	-	-		-	18	<2.0	51	<2.0	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	2	-	-		-	-	-	-	<2.0	<2.0	<2.0	<2.0	<20	-	<20	<20	<20	<20	<20	<20	-	-	-	-
Turbidity	NTU	-	-	-	-		-	2.5	-	4.84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-		-	-	-	-	-	11,400	-	2,300	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																										
Ammonia as N	µg/L	2,910 - 27,200 #3	-	4,200 - 208,000 #3	-		5.7	17.3	14.6	5.1	27.1	9.7	20.6	10.4	<50	<50	<50	<50	<50	<50	<50	148	<50	<50	<50	<50
Nitrate (as N)	µg/L	32,800	-	-	-		202	84.8	81.3	31.5	216	53.8	103	44.7	201	257	172	137	178	152	104	66	93	123	75	82
Nitrite (as N)	µg/L	240-600 #4	-	-	-		1.5	1.2	2.3	1.1	3.8	<1.0	1.6	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-	-		-	-	-	-	-	54.4	-	-	-	-	-	-	-	152	-	-	-	-	-	-
Demand Parameters																										
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-		-	<2,000	-	<2,000	-	<2,000	-	<2,000	-	<2,400	-	<3,600	-	<3,800	-	<2,200	-	<1,400	-	<2,800
Chemical Oxygen Demand (COD)	µg/L	-	-	-	-		<20,000	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	28000
Carbon																										
Dissolved Organic Carbon (DOC)	µg/L	-	-	-	-		-	-	-	-	-	3,590	-	3,950	-	-	-	6,950	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-		-	3320	-	3810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																										
Phenols (4AAP)	µg/L	-	-	-	-		1.5	<1.0	-	-	-	-	<2.0	-	2.1	-	-	-	<2	-	-	-	<2.00	-	-	-
Dissolved Metals																										
Aluminum	µg/L	-	-	-	-		-	-	-	-	-	12.2	-	12.1	-	-	-	63.3	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	-		-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	-		-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	-		-	-	-	-	-	3.1	-	3.5	-	-	-	<5.00	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-		-	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-		-	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.10	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-		-	-	-	-	-	<10	-	<10	-	-	-	<50	-	-	-	-	-	-	-	-
Cadmium	µg/L	0.13-0.36 #2	-	-	-		-	-	-	-	-	<0.0050	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-
Calcium	µg/L	-	-	-	-		-	-	-	-	-	8,110	-	9,060	-	-	-	6,970	-	-	-	-	-	-	-	-
Cesium	µg/L	-	-	-	-		-	-	-	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-		-	-	-	-	-	<0.50	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	-		-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Copper	µg/L	NC	-	-	-		-	-	-	-	-	0.35	-	<0.20	-	-	-	0.61	-	-	-	-	-	-	-	-
Iron	µg/L	350	-	-	-		-	-	-	-	-	172	-	784	-	-	-	404	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	-		-	-	-	-	-	0.087	-	0.091	-	-	-	<0.20	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-		-	-	-	-	-	<1.0	-	<1.0	-	-	-	0.17	-	-	-	-	-	-	-	-
Magnesium	µg/L	-	-	-	-		-	-	-	-	-	1,580	-	1,640	-	-	-	1,450	-	-	-	-	-	-	-	-
Manganese	µg/L	-	-	-	-		-	-	-	-	-	6.95	-	5.45	-	-	-	3.47	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	-		-	-	-	-	-	-	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-		-	-	-	-	-	0.185	-	0.134	-	-	-	0.14	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	-		-	-	-	-	-	<0.50	-	<0.50	-	-	-	<0.40	-	-	-	-	-	-	-	-
Phosphorus	µg/L	-	-	-	-		-	-	-	-	-	<50	-	<50	-	-	-	<50	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-		-	-	-	-	-	789	-	624	-	-	-	770	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-		-	-	-	-	-	0.6	-	0.57	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	-		-	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.50	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-		-	-	-	-	-	3,670	-	5,150	-	-	-	5,300	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-		-	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.050	-	-	-	-	-	-	-	-
Sodium	µg/L	-	-	-	-		-	-	-	-	-	6,370	-	6,910	-	-	-	5,680	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	-		-	-	-	-	-	53	-	58.3	-	-	-	38.7	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-		-	-	-	-	-	720	-	<0.5	-	-	-	<3,000	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-		-	-	-	-	-	<0.20	-	<0.20	-	-	-	<0.50	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-		-	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.020	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-		-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-		-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-		-	-	-	-	-	<0.30	-	<0.30	-	-	-	<5.00	-	-	-	-	-	-	-	-
Tungsten	µg/L	-	-	-	-		-	-	-	-	-	<0.10	-	<0.10	-	-	-	<1.0	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	-		-	-	-	-	-	0.014	-	<0.010	-	-	-	<0.020	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-		-	-	-	-	-	<0.50	-	<0.50	-	-	-	<1.0	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	-		-	-	-	-	-	1.6	-	1.4	-	-	-	4.7	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-		-	-	-	-	-	<0.30	-	<0.20	-	-	-	<0.10	-	-	-	-	-	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
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AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-1																					
						Field ID	SW-1	SW-1	SW1	SW1	SW-1	SW-1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254181	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B995530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254181-1	L2318207-6	L2367392-6	VA20A0908-007	VA20A5363-007	VA20B1139-007	VA20B9565-006	21B2866-06	21E1432-06	21G2459-06	21L0641-06	22C0773-06	22G1537-06	22J1342-01	22L1310-06	23C0154-05	23E2913-05	23I3541-05	23L2282-05
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																								
		Approved	**Working**	**Approved**	**Working**																							
Total Metals																												
Aluminum	µg/L	NC	-	-	-		521	95.3	147	202	-	97.1	-	110	-	106	-	106	-	106	-	45.1	-	137	-	106		
Antimony	µg/L	250	9 [#6]	-	270 [#6]		<0.50	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2		
Arsenic	µg/L	5	-	12.5	-		<0.50	<0.10	0.13	0.12	-	<0.10	-	0.13	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5		
Barium	µg/L	-	1000	-	-		<20	3.51	4.21	4.94	-	3.87	-	4.25	-	6.2	-	<5.00	-	<5	-	<5	-	<5.0	-	<5		
Beryllium	µg/L	-	0.13	-	100		<1.0	<0.10	<0.10	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	<0.1		
Bismuth	µg/L	-	-	-	-		-	<0.050	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-		
Boron	µg/L	1200	-	1200	-		<100	<10	<10	<10	-	<10	-	<10	-	<50	-	<50	-	<50	-	<50	-	<50.0	-	<50		
Cadmium	µg/L	-	-	-	0.12		<0.010	<0.0050	<0.0050	0.0075	-	<0.0050	-	<0.0050	-	<0.010	-	<0.010	-	0.018	-	<0.01	-	<0.010	-	<0.01		
Calcium	µg/L	-	-	-	-		7980	8250	9600	9230	-	8,300	-	9,680	-	17,100	13,700	6,650	7,220	10,100	11,000	8,980	-	10,100	-	8,450		
Cesium	µg/L	-	-	-	-		-	<0.010	0.011	0.012	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-		
Chromium	µg/L	-	1 [#7]	-	1.5 [#7]		<1.0	<0.10	0.13	0.18	-	<0.50	-	<0.10	-	<0.50	-	<0.50	-	0.87	-	<0.5	-	<0.50	-	<0.5		
Cobalt	µg/L	110	-	-	-		<0.30	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	<0.1		
Copper	µg/L	-	-	3	-		1.5	<0.50	<1.0	0.60	-	0.6	-	<0.50	-	0.64	-	0.87	-	<0.4	-	<0.4	-	0.58	-	0.52		
Iron	µg/L	1000	-	-	-		1,070	407	702	821	-	380	-	1,050	-	391	-	493	-	589	-	804	-	612	-	664		
Lead	µg/L	13-44 [#2]	-	140	-		<0.50	0.133	0.167	0.220	-	0.148	-	0.181	-	0.25	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2		
Lithium	µg/L	-	-	-	-		<5.0	<1.0	<1.0	<1.0	-	<1.0	-	<1.0	-	0.69	-	0.19	-	0.5	-	0.29	-	0.47	-	0.27		
Magnesium	µg/L	-	-	-	-		1,660	1,620	2,000	1930	-	1,620	-	1,740	-	3,740	3,050	1,370	1,210	2,000	2,160	1,770	-	1,970	-	1,600		
Manganese	µg/L	816-1217 [#2]	-	-	100		29.7	11.4	24.7	27.7	-	15.6	-	12.7	-	21.7	-	4.67	-	28.6	-	11.7	-	32.4	-	16		
Mercury	µg/L	-	-	-	-		<0.010	-	-	<0.0050	-	-	-	<0.0050	-	<0.04	-	<0.04	-	<0.04	-	-	-	<0.010	-	<0.01		
Molybdenum	µg/L	46000	-	-	-		<1.0	0.151	0.173	0.169	-	0.165	-	0.149	-	0.37	-	0.19	-	0.17	-	0.13	-	0.17	-	0.15		
Nickel	µg/L	-	25-66 [#2]	-	8.3		<1.0	<0.50	<0.50	<0.50	-	<0.50	-	<0.50	-	<0.40	-	<0.40	-	<0.4	-	<0.4	-	<0.40	-	<0.4		
Phosphorus	µg/L	5-15	-	-	-		-	<50	<50	<50	-	<50	-	<50	-	<50	-	50	-	<50	-	<50	-	<50	-	-		
Potassium	µg/L	-	-	-	-		<2000	857	780	927	-	808	-	660	-	1,750	-	790	-	770	-	920	-	1,010	-	-		
Rubidium	µg/L	-	-	-	-		-	0.66	0.54	0.79	-	0.62	-	0.62	-	-	-	-						-	-	-		
Selenium	µg/L	2	-	2	-		<0.10	0.053	<0.050	<0.050	-	<0.050	-	0.052	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5		
Silicon	µg/L	-	-	-	-		-	4620	8940	6400	-	3,920	-	5,730	-	13,000	-	5,300	-	8,000	-	6,200	-	5,900	-	-		
Silver	µg/L	0.1 [#2]	-	3	-		<0.020	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-	<0.05		
Sodium	µg/L	-	-	-	-		6200	6820	7220	7200	-	6,460	-	7,110	-	11,500	-	5,860	-	6,950	-	7,480	-	7,430	-	6,760		
Strontium	µg/L	-	-	-	-		-	50.9	61.8	60.5	-	54.8	-	59.2	-	102	-	43.2	-	61.6	-	54.7	-	61.5	-	51.7		
Sulphur	µg/L	-	-	-	-		-	1090	1110	1060	-	810	-	<0.5	-	3,600	-	<3,000	-	<3000	-	<3000	-	<3,000	-	-		
Tellurium	µg/L	-	-	-	-		-	<0.20	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-		
Thallium	µg/L	-	0.8	-	-		<0.20	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.020	-	<0.020	-	<0.02	-	<0.02	-	<0.020	-	<0.02		
Thorium	µg/L	-	-	-	-		-	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-		
Tin	µg/L	-	-	-	-		<0.50	<0.10	<0.10	0.49	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2		
Titanium	µg/L	-	-	-	-		28	4.26	6.56	9.11	-	4.31	-	5.28	-	<5.00	-	<5.00	-	5.3	-	<5.0	-	7.1	-	<5		
Tungsten	µg/L	-	-	-	-		-	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<1.0	-	<1.0	-	<0.2	-	<1.0	-	<1.0	-	<1		
Uranium	µg/L	-	8.5	-	-		<0.20	0.022	0.023	0.027	-	0.02	-	0.021	-	0.097	-	<0.020	-	0.036	-	<0.02	-	0.024	-	<0.02		
Vanadium	µg/L	-	-	-	50		2	0.75	0.87	0.92	-	0.78	-	0.88	-	1.8	-	1.6	-	<5.0	-	<5.0	-	<5.0	-	<5		
Zinc	µg/L	NC	-	55	-		<5.0	<3.0	**72.3**	<3.0	-	<3	-	<3	-	<4	-	<4	-	<4.0	-	<4.0	-	4	-	<4		
Zirconium	µg/L	-	-	-	-		-	<0.060	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.10	-	0.22	-	<0.1	-	<0.1	-	<0.10	-	-		
Hydrocarbons																												
EPH_{10-19}	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-		
EPH_{10-32}	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-		
LEPH	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-		
HEPH	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-		
VH_{6-10}	µg/L	-	-	-	-		-	<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-		
Polycyclic Aromatic Hydrocarbons (PAHs)																												
Acenaphthene	µg/L	6	-	6	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
Acenaphthylene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-		
Acridine	µg/L	3	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
Anthracene	µg/L	4	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-		
Benz(a)anthracene	µg/L	0.1	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-		
Benzo(a)pyrene	µg/L	0.01	-	0.01	-		-	<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-		
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-		-	-	-	-	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-		
Benzo(b+j)fluoranthene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
Benzo(g,h,i)perylene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
Benzo(k)fluoranthene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
2-Chloronaphthalene	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-		
Chrysene	µg/L	-	-	0.1	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
Dibenz(a,h)anthracene	µg/L	-	-	-	-		-	<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-		
Fluoranthene	µg/L	4	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-		
Fluorene	µg/L	12	-	12	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		
1-Methylnaphthalene	µg/L	-	-	1	-		-	<0.050	-	-	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-		
2-Methylnaphthalene	µg/L	-	-	1	-		-	<0.020	-	-	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-		
Naphthalene	µg/L	1	-	1	-		-	<0.020	-	-	-	-	<0.050	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-		
Phenanthrene	µg/L	0.3	-	-	-		-	<0.020	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-		
Pyrene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.020	-	-	-	<0.02	-	-	-	<0.020	-	-	-		
Quinoline	µg/L	-	3.4	-	-		-	<0.050	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-		

NOTES:

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#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
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#6	Guideline is for Antimony III.
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BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

Parameter	Unit	BC WQG - Fresh AW		BC WQG - Marine AW		Location	SW-1																			
						Field ID	SW-1	SW-1	SW1	SW1	SW-1	SW-1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254181	L2318207	L2367392	VA20A09082801202O	VA20A53632504202O	VA20B11392407202O	VA20B95653010202O	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254181-1	L2318207-6	L2367392-6	VA20A0908-007	VA20A5363-007	VA20B1139-007	VA20B9565-006	21B2866-06	21E1432-06	21G2459-06	21L0641-06	22C0773-06	22G1537-06	22J1342-01	22L1310-06	23C0154-05	23E2913-05	23I3541-05	23L2282-05
		Approved	Working	Approved	Working																					
Resin/Fatty Acids																										
Abietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Arachidic Acid	µg/L					-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Dehydroabietic Acid	µg/L	-	1-13 [#1]	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<6.0	-	-	-	-	-	<10	-	-	<10	-	-	-
Lauric Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Linolenic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Myristic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Octadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Oleic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	0.017	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Palmitic Acid	µg/L	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Stearic Acid	µg/L	-	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	-	-	<100	-	-	-	-	<110	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin Acids	µg/L	-	1-52 [#1]	-	-	-	<10	-	-	-	-	<3.5	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
BTEXS & MTBE																										
Benzene	µg/L	40	-	110	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.5	-	-	-
Toluene	µg/L	0.5	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Ethylbenzene	µg/L	200	-	250	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Xylenes Total	µg/L	30	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	<2.0	-	-	-
Styrene	µg/L	-	72	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	3400	-	440	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Volatile Organic Compounds (VOCs)																										
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Bromoform	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Carbon tetrachloride	µg/L	-	13.3	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.5	-	-	-
Chlorobenzene	µg/L	-	1.3	-	25	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	-	<2.0	-	-	-
Chloroform	µg/L	-	1.8	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Dibromochloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dibromoethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	-	<0.3	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichlorobenzene	µg/L	-	0.7	-	42	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.5	-	-	-
1,3-Dichlorobenzene	µg/L	-	150	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,4-Dichlorobenzene	µg/L	-	26	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethane	µg/L	-	100	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloropropane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,3-Dichloropropene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Methylene Chloride	µg/L	-	98.1	-	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	-	<3.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-	<0.5	-	-	-
Tetrachloroethene	µg/L	-	110	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Trichloroethene	µg/L	-	21	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Trichlorofluoromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-
Vinyl chloride	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	<1.0	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-2																		
						Field ID	SW-2	SW-2	SW2	SW2	SW-2	SW-2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254181	L2318207	L2367392	VA20A09082801020	VA20A53625042020	VA20B11392407202	VA20B95653102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254181-2	L2318207-7	L2367392-7	VA20A0908-008	VA20A5363-008	VA20B1139-008	VA20B9565-007	21B2866-07	21E1432-07	21G2459-07	21L0641-07	2C0773-07	22G1537-07	22J1342-02	22L1310-07	23C0154-06	23E2913-06	23I3541-06	23L2282-06
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																					
		Approved	**Working**	**Approved**	**Working**																				
Field Measurements																									
Temperature	°C	15	-	-	-	-	-	9.87	15.89	10.4	5.9	13.01	16.2	9.4	4.1	10.9	13.3	8.5	7.0	15.5	11.3	4.5	3.8	13.3	11.5	6.5
Electrical Conductivity	µS/cm	-	-	-	-	-	-	91	109	74.9	85	75	119	93.9	51.3	145.9	116.6	51.4	46.4	94.1	128	63.3	54.4	87.9	81	48.6
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	-	59	71	-	-	63	78	61.1	55.3	94.9	97.5	49.1	46.15	74.6	83.2	67.5	59.15	73.6	71	48.1
Salinity	-	-	-	-	-	-	-	0.04	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	-	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	Minimum 5 [#1]	-	Minimum 5 [#1]	-	-	-	12.57	9.97	-	12.91	10.8	8.63	10.6	14.3	10.59	10.6	12.7	11.3	10.21	11.8	12.91	12.51	9.48	9.92	11.79
pH	pH Units	6.5-9.0	-	7.0-8.7	-	-	-	7.35	**6.86**	7.68	**6.29**	7.44	7.76	7.62	7.48	7.43	7.67	6.98	8.33	7.85	7.88	7.53	7.42	7.72	**5.62**	6.85
Oxidation Reduction Potential (ORP)	-	-	-	-	-	-	-	84.8	255	-	124.2	131	126	72.6	76.9	142.7	44.6	51.7	141.0	80.1	55.8	63.2	59.4	71.1	167.4	101.8
Physical Parameters																										
pH	pH Units	6.5-9.0	-	7.0-8.7	-	-	7.90	7.71	7.84	7.44	7.38	7.74	7.71	7.52	-	7.16	-	7.15	-	7.51	-	7.1	**6.67**	**6.59**	**6.75**	**6.58**
Electrical Conductivity (EC)	µS/cm	-	-	-	-	-	185	94.8	113	104	-	100	-	99.4	-	160	-	80.2	-	127	-	108	93.1	110	104	92.2
Total Suspended Solids (TSS)	µg/L	-	-	-	-	-	34,900	5,800	7,900	26,100	-	6,600	-	6,300	-	2,400	-	6,200	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	-	-	101,000	-	-	-	68,000	63,000	-	76,000	-	80400	-	-	-	80,000	-	-	-	65,000	-	92000
Hardness as $CaCO_3$	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51,300	51,500	25,700	25,600	43,400	39,700	32,000	-	38,100	-	28,800
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53,200	-	-	-	-	-	-	28400	37,200	39900	30800
Alkalinity (P)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53,200	-	-	-	-	-	-	28400	37,200	39900	30800
Carbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-	-	71,600	28,800	35,600	33,800	-	30,200	-	32,400	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	600,000	-	-	-	-	7,590	9,370	10,600	9,400	8,630	10,000	10,700	9,820	8,970	11,400	12,600	6,420	9,930	9,460	10,900	10,400	10,300	10,200	10,800	9,200
Fluoride	µg/L	743-1,138 [#4]	-	1500	-	-	43	21	28	22	<20	23	28	<20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	128,000-218,000 [#2]	-	-	-	-	16,400	3,250	3,740	3,020	2,280	2,940	3,860	2,070	2,500	5,900	6,500	2,100	2,600	5,200	4,100	2,700	2,500	3,600	3,000	2,300
Sulphide (as S)	µg/L	-	-	-	-	-	-	*<18*	<2.0	22	<2.0	<2.0	<2.0	2.2	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	2	-	-	-	-	-	-	-	<2.0	<2.0	<2.0	2.3	<20	-	<20	<20	<20	<20	<20	<20	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	2.94	-	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-	-	-	-	-	-	-	5,200	-	2,200	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																										
Ammonia as N	µg/L	2,910 - 27,200 [#3]	-	4,200 - 208,000 [#3]	-	-	11.2	8.2	6.5	<5.0	24.6	10.5	9.4	9.2	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Nitrate (as N)	µg/L	32,800	-	-	-	-	196	122	99	72.5	221	86.6	62	62	224	260	229	152	203	187	162	96	111	156	131	95
Nitrite (as N)	µg/L	240-600 [#4]	-	-	-	-	1.9	1.1	3.0	<1.0	4.0	<1.0	<1.0	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	-	-	87.1	-	-	-	-	-	-	-	187	-	-	-	-	-	-
Demand Parameters																										
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-	-	-	<2,000	-	<2,000	-	<2,000	-	<2,000	-	<2,400	-	<3,600	-	<3,800	-	<2,200	-	<1,400	-	<2,800
Chemical Oxygen Demand (COD)	µg/L	-	-	-	-	-	40,000	<20,000	-	33,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	48,000	-	<20,000	-	24,000
Carbon																										
Dissolved Organic Carbon (DOC)	µg/L	-	-	-	-	-	-	-	-	-	-	3,610	-	3,930	-	-	-	7,090	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-	-	-	3020	-	3520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																										
Phenols (4AAP)	µg/L	-	-	-	-	-	4.5	<1.0	-	-	-	-	<1.0	-	2.3	-	-	-	<2.0	-	-	-	<2.00	-	-	-
Dissolved Metals																										
Aluminum	µg/L	-	-	-	-	-	-	-	-	-	-	13.3	-	13.1	-	-	-	65.9	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	-	-	-	-	-	-	-	3.31	-	3.29	-	-	-	<5.00	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.10	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	-	-	-	-	-	-	<10	-	<10	-	-	-	<50	-	-	-	-	-	-	-	-
Cadmium	µg/L	0.13-0.36 [#2]	-	-	-	-	-	-	-	-	-	<0.0050	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-
Calcium	µg/L	-	-	-	-	-	-	-	-	-	-	8,990	-	10,000	-	-	-	7,680	-	-	-	-	-	-	-	-
Cesium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.50	-	<0.10	-	-	-	0.84	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Copper	µg/L	NC	-	-	-	-	-	-	-	-	-	0.4	-	0.2	-	-	-	0.6	-	-	-	-	-	-	-	-
Iron	µg/L	350	-	-	-	-	-	-	-	-	-	143	-	729	-	-	-	398	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	-	-	-	-	-	-	-	<0.050	-	0.09	-	-	-	<0.20	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-	-	-	-	-	-	-	<1.0	-	<1.0	-	-	-	0.21	-	-	-	-	-	-	-	-
Magnesium	µg/L	-	-	-	-	-	-	-	-	-	-	1,790	-	1,720	-	-	-	1,570	-	-	-	-	-	-	-	-
Manganese	µg/L	-	-	-	-	-	-	-	-	-	-	4.1	-	3.64	-	-	-	3.63	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-	-	-	-	-	-	-	0.181	-	0.14	-	-	-	0.16	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	-	-	-	-	-	-	-	<0.50	-	<0.50	-	-	-	<0.40	-	-	-	-	-	-	-	-
Phosphorus	µg/L	-	-	-	-	-	-	-	-	-	-	<50	-	<50	-	-	-	<50	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-	-	-	-	-	-	-	878	-	673	-	-	-	810	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-	-	-	-	-	-	-	0.61	-	0.55	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.50	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-	-	-	-	-	-	-	4,360	-	5,450	-	-	-	6,000	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.050	-	-	-	-	-	-	-	-
Sodium	µg/L	-	-	-	-	-	-	-	-	-	-	6,790	-	7,030	-	-	-	5,830	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	-	-	-	-	-	-	-	58.1	-	60.9	-	-	-	42.9	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-	-	-	-	-	-	-	850	-	600	-	-	-	<3,000	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.20	-	<0.20	-	-	-	<0.50	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.020	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.30	-	<0.30	-	-	-	<5.00	-	-	-	-	-	-	-	-
Tungsten	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<1.0	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	-	-	-	-	-	-	-	0.022	-	0.011	-	-	-	0.023	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.50	-	0.5	-	-	-	<1.0	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	-	-	-	-	-	-	-	1.2	-	<1.0	-	-	-	4	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.30	-	<0.20	-	-	-	<0.10	-	-	-	-	-	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-2																					
						Field ID	SW-2	SW-2	SW2	SW2	SW-2	SW-2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254181	L2318207	L2367392	VA20A09082801020	VA20A53632042020	VA20B11392407202O	VA20B95653010202O	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254181-2	L2318207-7	L2367392-7	VA20A0908-008	VA20A5363-008	VA20B1139-008	VA20B9565-007	21B2866-07	21E1432-07	21G2459-07	21L0641-07	2C0773-07	22G1537-07	22J1342-02	22L1310-07	23C0154-06	23E2913-06	23I3541-06	23L2282-06
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																								
		Approved	**Working**	**Approved**	**Working**																							
Total Metals																												
Aluminum	µg/L	NC	-	-	-		774	133	170	439	-	132	-	134	-	47.9	-	118	-	147	-	67.1	-	176	-	152
Antimony	µg/L	250	9 [#6]	-	270 [#6]		0.54	<0.10	<0.10	<0.10	-	<0.10	-	0.22	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Arsenic	µg/L	5	-	12.5	-		0.7	<0.10	0.14	0.17	-	0.13	-	2.56	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5
Barium	µg/L	-	1000	-	-		<20	4.09	4.45	6.89	-	4.26	-	4.75	-	5.7	-	<5.00	-	5	-	<5	-	<5.0	-	<5
Beryllium	µg/L	-	0.13	-	100		<1.0	<0.10	<0.10	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	<0.1
Bismuth	µg/L	-	-	-	-		-	<0.050	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-
Boron	µg/L	1200	-	1200	-		<100	<10	<10	<10	-	<10	-	<10	-	<50	-	<50	-	<50	-	<50	-	<50.0	-	<50
Cadmium	µg/L	-	-	-	0.12		0.033	<0.0050	<0.0050	0.0104	-	<0.0050	-	<0.0050	-	<0.010	-	<0.010	-	<0.01	-	<0.01	-	<0.010	-	<0.01
Calcium	µg/L	-	-	-	-		21,400	8,530	10,500	9,950	-	9,070	-	9,890	-	15,100	15,100	7,010	7,970	13,200	11,800	9,660	-	11,400	-	8,690
Cesium	µg/L	-	-	-	-		-	<0.010	0.012	0.027	-	<0.010	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	1 [#7]	-	1.5 [#7]		<1.0	0.11	0.23	0.40	-	<0.50	-	0.10	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5
Cobalt	µg/L	110	-	-	-		0.34	<0.10	<0.10	0.20	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	<0.1
Copper	µg/L	-	-	3	-		**5.7**	0.51	<1.0	1.49	-	0.64	-	0.53	-	<0.40	-	1.07	-	0.49	-	0.42	-	0.61	-	0.61
Iron	µg/L	1000	-	-	-		3,010	427	594	1,120	-	366	-	1,060	-	142	-	508	-	572	-	721	-	568	-	681
Lead	µg/L	13-44 [#2]	-	140	-		2.73	0.142	0.152	0.380	-	0.145	-	0.195	-	<0.20	-	<0.20	-	0.23	-	<0.2	-	<0.20	-	<0.2
Lithium	µg/L	-	-	-	-		<5.0	<1.0	<1.0	<1.0	-	<1.0	-	<1.0	-	1.62	-	0.24	-	0.61	-	0.35	-	0.56	-	0.31
Magnesium	µg/L	-	-	-	-		4390	1810	2280	2170	-	1,820	-	1870	-	3,400	3,350	1,450	1,370	2,500	2,470	1,910	-	2,310	-	1,710
Manganese	µg/L	816-1217 [#2]	-	-	100		**139**	12.0	19.3	50.7	-	14.2	-	14.6	-	8.05	-	4.62	-	26	-	11	-	25.4	-	16.4
Mercury	µg/L	-	-	-	-		<0.010	-	-	-	-	-	-	<0.0050	-	<0.04	-	<0.04	-	<0.04	-	-	-	<0.010	-	<0.01
Molybdenum	µg/L	46000	-	-	-		<1.0	0.155	0.180	0.212	-	0.218	-	0.155	-	0.3	-	0.3	-	0.23	-	0.16	-	0.18	-	0.15
Nickel	µg/L	-	25-66 [#2]	-	8.3		<1.0	<0.50	<0.50	<0.50	-	<0.50	-	<0.50	-	<0.40	-	<0.40	-	<0.4	-	<0.4	-	<0.40	-	<0.4
Phosphorus	µg/L	5-15	-	-	-		-	<50	<50	<50	-	<50	-	<50	-	<50	-	92	-	<50	-	<50	-	<50	-	-
Potassium	µg/L	-	-	-	-		3100	922	887	1160	-	904	-	725	-	1,370	-	820	-	1,070	-	970	-	1,110	-	-
Rubidium	µg/L	-	-	-	-		-	0.68	0.54	0.98	-	0.74	-	0.61	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	2	-	2	-		<0.10	0.067	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5
Silicon	µg/L	-	-	-	-		-	5170	7830	6890	-	4,530	-	6,130	-	13,200	-	5,500	-	9,000	-	6,600	-	7,000	-	-
Silver	µg/L	0.1 [#2]	-	3	-		<0.020	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-	<0.05
Sodium	µg/L	-	-	-	-		9600	7050	7510	7380	-	6,920	-	7,320	-	9,640	-	5,990	-	8,340	-	7,760	-	8,100	-	6,890
Strontium	µg/L	-	-	-	-		-	55.6	68.8	66.3	-	60.4	-	64.1	-	91.9	-	46.2	-	76.4	-	57.8	-	70.2	-	54.6
Sulphur	µg/L	-	-	-	-		-	1,110	1,300	1,010	-	1,000	-	700	-	3,900	-	3,100	-	<3000	-	<3000	-	<3,000	-	-
Tellurium	µg/L	-	-	-	-		-	<0.20	<0.20	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-
Thallium	µg/L	-	0.8	-	-		<0.20	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.020	-	<0.020	-	<0.02	-	<0.02	-	<0.020	-	<0.02
Thorium	µg/L	-	-	-	-		-	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-
Tin	µg/L	-	-	-	-		<0.50	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Titanium	µg/L	-	-	-	-		36	6.51	7.45	21.7	-	7.1	-	6.72	-	<5.00	-	<5.00	-	7.2	-	<5	-	11.6	-	6.5
Tungsten	µg/L	-	-	-	-		-	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<1.0	-	<1.0	-	<0.2	-	<1	-	<1.0	-	<1
Uranium	µg/L	-	8.5	-	-		0.46	0.033	0.036	0.074	-	0.034	-	0.025	-	0.059	-	0.023	-	0.059	-	0.026	-	0.042	-	0.027
Vanadium	µg/L	-	-	-	50		2.5	0.85	1.00	1.69	-	0.92	-	1.01	-	1.5	-	1.8	-	<5	-	<5	-	<5.0	-	<5
Zinc	µg/L	NC	-	55	-		14.2	<3.0	<3.0	3.2	-	<3.0	-	<3.0	-	<4	-	<4	-	<4	-	<4	-	<4.0	-	<4
Zirconium	µg/L	-	-	-	-		-	<0.060	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.10	-	0.19	-	<0.1	-	<0.1	-	<0.10	-	-
Hydrocarbons																												
EPH_{10-19}	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
EPH_{19-32}	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
LEPH	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
HEPH	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
VH_{6-10}	µg/L	-	-	-	-		-	<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																												
Acenaphthene	µg/L	6	-	6	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Acenaphthylene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-
Acridine	µg/L	3	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Anthracene	µg/L	4	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benz(a)anthracene	µg/L	0.1	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benzo(a)pyrene	µg/L	0.01	-	0.01	-		-	<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-		-	-	-	-	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
2-Chloronaphthalene	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Chrysene	µg/L	-	-	0.1	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	-	-		-	<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Fluoranthene	µg/L	4	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-
Fluorene	µg/L	12	-	12	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
1-Methylnaphthalene	µg/L	-	-	1	-		-	<0.050	-	-	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
2-Methylnaphthalene	µg/L	-	-	1	-		-	<0.020	-	-	-	-	<0.010	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Naphthalene	µg/L	1	-	1	-		-	<0.020	-	-	-	-	<0.050	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-
Phenanthrene	µg/L	0.3	-	-	-		-	<0.020	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Pyrene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.020	-	-	-	<0.02	-	-	-	<0.020	-	-	-
Quinoline	µg/L	-	3.4	-	-		-	<0.050	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

Table 3: Surface Water Analytical Results

						Location	SW-2																			
						Field ID	SW-2	SW-2	SW2	SW2	SW-2	SW-2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2	SW2
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254181	L2318207	L2367392	VA20A09082812020	VA20A53632504202O	VA20B1392407202O	VA20B9565O102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254181-2	L2318207-7	L2367392-7	VA20A0908-008	VA20A5363-008	VA20B1139-008	VA20B9565-007	21B2866-07	21E1432-07	21G2459-07	21L0641-07	2C0773-07	22G1537-07	22J1342-02	22L1310-07	23C0154-06	23E2913-06	23I3541-06	23L2282-06
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																						
		Approved	**Working**	**Approved**	**Working**																					
Resin/Fatty Acids																										
Abietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Arachidic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Dehydroabietic Acid	µg/L	-	1-13[#5]	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-
Lauric Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	9.6	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Linolenic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Myristic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Octadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Oleic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Palmitic Acid	µg/L	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Stearic Acid	µg/L	-	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	-	-	<100	-	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin Acids	µg/L	-	1-52[#5]	-	-	-	<10	-	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
BTEXS & MTBE																										
Benzene	µg/L	40	-	110	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Toluene	µg/L	0.5	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Ethylbenzene	µg/L	200	-	250	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Xylenes Total	µg/L	30	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-
Styrene	µg/L	-	72	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	3400	-	440	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	1.7	-	-	-
Volatile Organic Compounds (VOCs)																										
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Bromoform	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Carbon tetrachloride	µg/L	-	13.3	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Chlorobenzene	µg/L	-	1.3	-	25	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-
Chloroform	µg/L	-	1.8	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Dibromochloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dibromoethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichlorobenzene	µg/L	-	0.7	-	42	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
1,3-Dichlorobenzene	µg/L	-	150	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,4-Dichlorobenzene	µg/L	-	26	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethane	µg/L	-	100	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloropropane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,3-Dichloropropene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Methylene Chloride	µg/L	-	98.1	-	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Tetrachloroethene	µg/L	-	110	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Trichloroethene	µg/L	-	21	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Trichlorofluoromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Vinyl chloride	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
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#7	Guideline is for Chromium VI.
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-	Not analyzed or no applicable BC WQG guideline.
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AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-3																			
						Field ID	SW-3	SW-3	SW-3	SW-3	SW-3	SW-3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	Dup	SW3	SW3	SW3
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254182	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B11392407202O	VA20B95653102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254182-1	L2318207-8	L2367392-8	VA20A0908-009	VA20A5363-009	VA20B1139-009	VA20B9565-008	21B2866-08	21E1432-08	21G2459-08	21L0641-08	22C0773-08	22G1537-08	22J1342-03	22L1310-08	23C0154-07	23C0154-09	23E2913-07	23I3541-07	23L2282-07
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																						
		Approved	**Working**	**Approved**	**Working**																					
Field Measurements																										
Temperature	°C	15	-	-	-	-	-	9.93	15.71	10.5	5.93	13.05	16.2	9.3	4.1	10.7	13.9	8.3	7.1	15.6	11.4	4.7	3.9	3.9	13.2	11.5	6.6
Electrical Conductivity	µS/cm	-	-	-	-	-	-	96	98	84.4	85.7	79	176.7	96.6	53.5	128.8	127.8	54.1	47.7	102.5	136.7	67.4	58.5	58.5	92.9	87.3	54.7
Total Dissolved Solids (TDS)	mg/L	-	-	-	-	-	-	62	770	-	-	67	82.5	63	57.9	83.85	105.3	51.6	47.45	81.2	88.9	71.5	63.7	63.7	78	76	54.6
Salinity	-	-	-	-	-	-	-	0.05	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-	-	-	107.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	Minimum 5 [#1]	-	Minimum 5 [#1]	-	-	-	12.41	9.96	-	12.87	10.69	7.74	11.3	14.7	10.9	9.68	13.3	11.78	10.81	11.63	13.46	12.53	12.53	11.3	10.85	11.52
pH	pH Units	6.5-9.0	-	7.0-8.7	-	-	-	7.44	**6.84**	7.97	6.48	7.51	8.52	7.65	7.48	6.64	7.72	6.56	**6.3**	7.9	7.9	7.11	7.08	7.08	7.46	**5.64**	7.31
Oxidation Reduction Potential (ORP)	-	-	-	-	-	-	-	83.7	262	-	126.1	129.7		34.6	67.6	163.6	100.3	-27.2	171.8	72.1	83	28.9	76.6	76.6	67.4	188.6	107.2
Physical Parameters																										
pH	pH Units	6.5-9.0	-	7.0-8.7	-	-	7.71	7.76	7.83	7.52	7.40	7.74	7.72	7.55	-	7.64	-	7.1	-	7.47	-	7.09	**6.61**	**6.74**	**6.63**	**6.78**	**6.6**
Electrical Conductivity (EC)	µS/cm	-	-	-	-	-	88.6	99.1	123	120	-	106	-	102	-	140	-	83.3	-	174	-	115	103	101	117	113	97.1
Total Suspended Solids (TSS)	µg/L	-	-	-	-	-	23,500	6,600	9,900	22,700	-	5,400	-	6,100	-	<3,300	-	6,800	-	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	-	-	68,000	-	-	-	69,000	72,000	-	82,000	-	70800	-	-	-	101,000	-	-	-	-	75,000	-	100,000
Hardness as $CaCO_3$	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39,900	55,900	26,000	27,400	37,800	42,500	34,800	-	-	39,900	-	30,100
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45,900	-	-	-	-	-	-	24,600	29,600	38,300	43,700	33,000
Alkalinity (P)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45,900	-	-	-	-	-	-	24,600	29,600	38,300	43,700	33,000
Carbonate	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-	-	29,500	30,300	38,000	38,500	-	30,200	-	33,500	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	600,000	-	-	-	-	7,870	9,440	10,700	9,830	8,620	10,000	10,700	9,830	9,160	10,600	12,300	6,580	9,900	9,490	10,700	10,400	10,200	10,200	10,100	10,600	9,150
Fluoride	µg/L	743-1,138 [#4]	-	1500	-	-	25	22	33	25	<20	24	30	20	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	128,000-218,000 [#2]	-	-	-	-	3,190	3,850	4,830	4,330	2,400	3,460	4,600	2,320	2,900	5,700	8,400	2,400	3,000	4,100	5,100	3,500	7,700	3,600	4,700	4,700	2,700
Sulphide (as S)	µg/L	-	-	-	-	-	-	*<18*	<2.0	*<18*	<2.0	<2.0	3.1	<2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	2	-	-	-	-	-	-	-	<2.0	<2.0	3.3	<2.0	<20	-	<20	<20	<20	<20	<20	<20	-	-	-	-	-
Turbidity	NTU	-	-	-	-	-	-	2.58	-	7.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-	-	-	-	-	-	-	6,300	-	<2,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																										
Ammonia as N	µg/L	2,910 - 27,200 [#3]	-	4,200 - 208,000 [#3]	-	-	5.9	9.1	6.3	<5.0	23	6.9	12.3	6.2	<50	<50	<50	<50	64	<50	<50	152	<50	<50	<50	<50	<50
Nitrate (as N)	µg/L	32,800	-	-	-	-	212	123	91.5	58.9	226	87.7	139	64.3	227	183	228	157	198	195	161	91	117	115	153	132	94
Nitrite (as N)	µg/L	240-600 [#4]	-	-	-	-	1.4	<1.0	3.0	<1.0	3.9	<1.0	1.6	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-	-	-	-	-	-	-	-	88.2	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-
Demand Parameters																										
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-	-	-	<2,000	-	<2,000	-	<2,000	-	<2,000	-	<1,200	-	<3,600	-	<3,800	-	<2,200	-	-	<1,400	-	<2,800
Chemical Oxygen Demand (COD)	µg/L	-	-	-	-	-	<20,000	<20,000	-	25,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	-	<20,000	-	47000
Carbon																										
Dissolved Organic Carbon (DOC)	µg/L	-	-	-	-	-	-	-	-	-	-	3,520	-	3,680	-	-	-	7,360	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-	-	-	3,020	-	5,560	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																										
Phenols (4AAP)	µg/L	-	-	-	-	-	4.3	<1.0	-	-	-	-	<1.0	-	<2.0	-	-	-	<2.0	-	-	-	<2.00	-	-	-	-
Dissolved Metals																										
Aluminum	µg/L	-	-	-	-	-	-	-	-	-	-	14	-	14.2	-	-	-	66.6	-	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	-	-	-	-	-	-	-	3.06	-	3.24	-	-	-	<5.00	-	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.10	-	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	-	-	-	-	-	-	<10	-	<10	-	-	-	<50	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	0.13-0.36 [#2]	-	-	-	-	-	-	-	-	-	<0.0050	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-	-
Calcium	µg/L	-	-	-	-	-	-	-	-	-	-	9,410	-	9,890	-	-	-	7,660	-	-	-	-	-	-	-	-	-
Cesium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.50	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-	-
Copper	µg/L	NC	-	-	-	-	-	-	-	-	-	0.37	-	0.21	-	-	-	1.14	-	-	-	-	-	-	-	-	-
Iron	µg/L	350	-	-	-	-	-	-	-	-	-	147	-	729	-	-	-	398	-	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	-	-	-	-	-	-	-	<0.050	-	0.089	-	-	-	<0.20	-	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-	-	-	-	-	-	-	<1.0	-	<1.0	-	-	-	0.23	-	-	-	-	-	-	-	-	-
Magnesium	µg/L	-	-	-	-	-	-	-	-	-	-	1,840	-	1,770	-	-	-	1,670	-	-	-	-	-	-	-	-	-
Manganese	µg/L	-	-	-	-	-	-	-	-	-	-	3.8	-	3.48	-	-	-	3.67	-	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-	-	-	-	-	-	-	0.195	-	0.154	-	-	-	0.15	-	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	-	-	-	-	-	-	-	<0.50	-	<0.50	-	-	-	<0.40	-	-	-	-	-	-	-	-	-
Phosphorus	µg/L	-	-	-	-	-	-	-	-	-	-	<50	-	<50	-	-	-	<50	-	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-	-	-	-	-	-	-	958	-	714	-	-	-	880	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-	-	-	-	-	-	-	0.63	-	0.51	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.50	-	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-	-	-	-	-	-	-	4,460	-	5,490	-	-	-	5,400	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.050	-	-	-	-	-	-	-	-	-
Sodium	µg/L	-	-	-	-	-	-	-	-	-	-	7,790	-	7,210	-	-	-	6,130	-	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	-	-	-	-	-	-	-	62.8	-	62.2	-	-	-	42.6	-	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-	-	-	-	-	-	-	1,030	-	520	-	-	-	<3,000	-	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.20	-	<0.20	-	-	-	<0.50	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.020	-	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.30	-	<0.30	-	-	-	<5.00	-	-	-	-	-	-	-	-	-
Tungsten	µg/L	-	-	-	-	-	-	-	-	-	-	<0.10	-	<0.10	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	-	-	-	-	-	-	-	0.027	-	0.013	-	-	-	0.028	-	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.50	-	0.50	-	-	-	<1.0	-	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	-	-	-	-	-	-	-	1.5	-	<1.0	-	-	-	<4	-	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-	-	-	-	-	-	-	<0.30	-	<0.20	-	-	-	<0.10	-	-	-	-	-	-	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-3																				
						Field ID	SW-3	SW-3	SW-3	SW-3	SW-3	SW-3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	Dup	SW3	SW3	SW3
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254182	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B11392407202O	VA20B956530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254182-1	L2318207-8	L2367392-8	VA20A0908-009	VA20A5363-009	VA20B1139-009	VA20B9565-008	21B2866-08	21E1432-08	21G2459-08	21L0641-08	22C0773-08	22G1537-08	22J1342-03	22L1310-08	23C0154-07	23C0154-09	23E2913-07	23I3541-07	23L2282-07
Parameter	Unit	BC WQG - Fresh AW		BC WQG - Marine AW																							
		Approved	Working	Approved	Working																						
Total Metals																											
Aluminum	µg/L	NC	-	-	-		566	95.8	188	554	-	200	-	170	-	29	-	120	-	117	-	62.3	-	-	197	-	161
Antimony	µg/L	250	9 [#6]	-	270 [#6]		<0.50	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	1.12	-	<0.20	-	<0.2	-	<0.2	-	-	<0.20	-	<0.2
Arsenic	µg/L	5	-	12.5	-		<0.50	0.10	0.15	0.30	-	0.12	-	0.12	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	-	<0.50	-	<0.5
Barium	µg/L	-	1000	-	-		<20	3.89	4.89	9.3	-	5	-	4.47	-	<5.00	-	<5.00	-	<5	-	<5	-	-	<5.0	-	<5
Beryllium	µg/L	-	0.13	-	100		<1.0	<0.10	<0.10	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	-	<0.10	-	<0.1
Bismuth	µg/L	-	-	-	-		-	<0.050	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	-	<0.10	-	-
Boron	µg/L	1200	-	1200	-		<100	<10	13	13	-	<10	-	<10	-	<50	-	<50	-	<50	-	<50	-	-	<50.0	-	<50
Cadmium	µg/L	-	-	-	0.12		<0.010	<0.0050	<0.0050	0.0133	-	<0.0050	-	0.0077	-	<0.010	-	<0.010	-	<0.01	-	<0.01	-	-	<0.010	-	<0.01
Calcium	µg/L	-	-	-	-		8830	9080	11,300	11,300	-	8,830	-	10,200	-	13,300	16,400	7,430	8,610	11,300	12,800	10,500	-	-	12,000	-	9,160
Cesium	µg/L	-	-	-	-		-	<0.010	0.014	0.037	-	0.014	-	0.013	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	1 [#7]	-	1.5 [#7]		<1.0	0.11	0.16	0.69	-	<0.50	-	0.14	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	-	<0.50	-	<0.5
Cobalt	µg/L	110	-	-	-		<0.30	<0.10	<0.10	0.27	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	-	0.1	-	<0.1
Copper	µg/L	-	-	3	-		1.6	<0.50	<1.0	**3.37**	-	0.71	-	<0.50	-	<0.40	-	0.91	-	<0.4	-	0.41	-	-	0.72	-	0.59
Iron	µg/L	1000	-	-	-		1,130	384	661	1,660	-	490	-	1,100	-	201	-	501	-	459	-	698	-	-	590	-	668
Lead	µg/L	13-44 [#2]	-	140	-		0.56	0.132	0.233	1.06	-	0.202	-	0.216	-	<0.20	-	0.2	-	<0.2	-	<0.2	-	-	0.2	-	<0.2
Lithium	µg/L	-	-	-	-		<5.0	<1.0	<1.0	<1.0	-	<1.0	-	<1.0	-	0.66	-	0.23	-	0.53	-	0.37	-	-	0.57	-	0.32
Magnesium	µg/L	-	-	-	-		1810	1860	2390	2480	-	1,970	-	1,930	-	2,890	3,600	1,500	1,420	2,310	2,570	2,090	-	-	2,380	-	1,740
Manganese	µg/L	816-1217 [#2]	-	-	100		37.6	10.4	25.0	87.3	-	18.4	-	15.3	-	17.7	-	4.94	-	18	-	10.6	-	-	29.1	-	16.6
Mercury	µg/L	-	-	-	-		<0.010	-	-	0.0051	-	-	-	<0.0050	-	<0.04	-	<0.04	-	<0.04	-	-	-	-	<0.020	-	<0.01
Molybdenum	µg/L	46000	-	-	-		<1.0	0.184	0.245	0.241	-	0.224	-	0.176	-	0.17	-	0.17	-	0.17	-	0.17	-	-	0.24	-	0.16
Nickel	µg/L	-	25-66 [#2]	-	8.3		<1.0	<0.50	<0.50	0.52	-	<0.50	-	<0.50	-	<0.40	-	<0.40	-	<0.4	-	<0.4	-	-	<0.40	-	<0.4
Phosphorus	µg/L	5-15	-	-	-		-	<50	<50	74	-	<50	-	<50	-	<50	-	77	-	<50	-	<50	-	-	<50	-	-
Potassium	µg/L	-	-	-	-		<2000	977	1010	1470	-	974	-	778	-	1,170	-	890	-	900	-	1,090	-	-	1,240	-	-
Rubidium	µg/L	-	-	-	-		-	0.69	0.63	1.26	-	0.8	-	0.66	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	2	-	2	-		<0.10	<0.050	<0.050	0.083	-	<0.050	-	<0.050	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	-	<0.50	-	<0.5
Silicon	µg/L	-	-	-	-		-	5210	8200	7520	-	4,980	-	6,350	-	12,600	-	5,500	-	9,400	-	6,900	-	-	7,000	-	-
Silver	µg/L	0.1 [#2]	-	3	-		<0.020	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	-	<0.050	-	<0.05
Sodium	µg/L	-	-	-	-		6,600	7,350	8,120	8,660	-	7,670	-	7,540	-	8,300	-	6,190	-	7,480	-	8,250	-	-	8,800	-	7,180
Strontium	µg/L	-	-	-	-		-	58.7	74.6	73.9	-	65.6	-	66.6	-	75.2	-	48.4	-	71.2	-	63.3	-	-	73.6	-	58.2
Sulphur	µg/L	-	-	-	-		-	1130	1720	508,000	-	1,370	-	810	-	3,000	-	<3,000	-	<3000	-	<3000	-	-	<3,000	-	-
Tellurium	µg/L	-	-	-	-		-	<0.20	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	-	<0.50	-	-
Thallium	µg/L	-	0.8	-	-		<0.20	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.020	-	<0.020	-	<0.02	-	<0.02	-	-	<0.020	-	<0.02
Thorium	µg/L	-	-	-	-		-	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	-	<0.10	-	-
Tin	µg/L	-	-	-	-		<0.50	<0.10	<0.10	4.3	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	-	<0.20	-	<0.2
Titanium	µg/L	-	-	-	-		28	4.39	8.52	28.7	-	9.96	-	8.05	-	<5.00	-	<5.00	-	5.8	-	<5	-	-	10	-	7.4
Tungsten	µg/L	-	-	-	-		-	<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<1.0	-	<1.0	-	<0.2	-	<1	-	-	<1.0	-	<1
Uranium	µg/L	-	8.5	-	-		<0.20	0.036	0.043	0.096	-	0.05	-	0.027	-	0.021	-	0.03	-	0.049	-	0.03	-	-	0.047	-	0.03
Vanadium	µg/L	-	-	-	50		2.1	0.78	1.12	2.03	-	1.02	-	1.16	-	1.1	-	1.5	-	<5	-	<5	-	-	<5.0	-	<5
Zinc	µg/L	NC	-	55	-		<5.0	<3.0	3.1	6.3	-	3.7	-	<3.0	-	<4	-	<4	-	<4	-	<4	-	-	<4.0	-	<4
Zirconium	µg/L	-	-	-	-		-	<0.060	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.10	-	0.16	-	<0.1	-	<0.1	-	-	<0.10	-	-
Hydrocarbons																											
EPH$_{10-19}$	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
EPH$_{19-32}$	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
LEPH	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
HEPH	µg/L	-	-	-	-		-	<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-	-
VH$_{6-10}$	µg/L	-	-	-	-		-	<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																											
Acenaphthene	µg/L	6	-	6	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Acenaphthylene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-	-
Acridine	µg/L	3	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Anthracene	µg/L	4	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Benz(a)anthracene	µg/L	0.1	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Benzo(a)pyrene	µg/L	0.01	-	0.01	-		-	<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-		-	-	-	-	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
2-Chloronaphthalene	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
Chrysene	µg/L	-	-	0.1	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	-	-		-	<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-	-
Fluoranthene	µg/L	4	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-	-
Fluorene	µg/L	12	-	12	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-
1-Methylnaphthalene	µg/L	-	-	1	-		-	<0.050	-	-	-	-	<0.050	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
2-Methylnaphthalene	µg/L	-	-	1	-		-	<0.020	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
Naphthalene	µg/L	1	-	1	-		-	<0.020	-	-	-	-	<0.020	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-	-
Phenanthrene	µg/L	0.3	-	-	-		-	<0.020	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-	-
Pyrene	µg/L	-	-	-	-		-	<0.010	-	-	-	-	<0.010	-	<0.020	-	-	-	<0.02	-	-	-	<0.020	-	-	-	-
Quinoline	µg/L	-	3.4	-	-		-	<0.050	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-3																				
						Field ID	SW-3	SW-3	SW-3	SW-3	SW-3	SW-3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	Dup	SW3	SW3	SW3
						Sample Date	25-Mar-2014	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	-	L2254182	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B11392407202	VA20B95653102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	-	L2254182-1	L2318207-8	L2367392-8	VA20A0908-009	VA20A5363-009	VA20B1139-009	VA20B9565-008	21B2866-08	21E1432-08	21G2459-08	21L0641-08	22C0773-08	22G1537-08	22J1342-03	22L1310-08	23C0154-07	23C0154-09	23E2913-07	23I3541-07	23L2282-07
Parameter	Unit	BC WQG - Fresh AW		BC WQG - Marine AW																							
		Approved	Working	Approved	Working																						
Resin/Fatty Acids																											
Abietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Arachidic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Dehydroabietic Acid	µg/L	-	1-13 [#5]	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-	-
Lauric Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Linolenic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Myristic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Octadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-
Oleic Acid	µg/L	-	-	-	-	-	<5.0	-	-	-	-	<5.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Palmitic Acid	µg/L	-	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-	-
Stearic Acid	µg/L	-	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	-	-	<100	-	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Total Resin Acids	µg/L	-	1-52 [#5]	-	-	-	<10	-	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-	-
BTEXS & MTBE																											
Benzene	µg/L	40	-	110	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Toluene	µg/L	0.5	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Ethylbenzene	µg/L	200	-	250	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Xylenes Total	µg/L	30	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-
Styrene	µg/L	-	72	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	3400	-	440	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Volatile Organic Compounds (VOCs)																											
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Bromoform	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Carbon tetrachloride	µg/L	-	13.3	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Chlorobenzene	µg/L	-	1.3	-	25	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-	-
Chloroform	µg/L	-	1.8	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Dibromochloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dibromoethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichlorobenzene	µg/L	-	0.7	-	42	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
1,3-Dichlorobenzene	µg/L	-	150	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,4-Dichlorobenzene	µg/L	-	26	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1-Dichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethane	µg/L	-	100	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1-Dichloroethene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,2-Dichloropropane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,3-Dichloropropene	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Methylene Chloride	µg/L	-	98.1	-	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-	-
Tetrachloroethene	µg/L	-	110	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Trichloroethene	µg/L	-	21	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Trichlorofluoromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-
Vinyl chloride	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
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#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-4																	
						Field ID	SW-4	SW4	SW4	SW-4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4
						Sample Date	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	L2254182	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B956530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	L2254182-2	L2318207-9	L2367392-9	VA20A0908-010	VA20A5363-010	VA20B1139-010	VA20B9565-009	21B2866-09	21E1432-09	21G2459-09	21L0641-09	22C0773-09	22G1537-09	22J1342-04	22L1310-09	23C0154-08	23E2913-08	23I3541-08	23L2282-08
Parameter	Unit	BC WQG - Fresh AW		BC WQG - Marine AW																				
		Approved	Working	Approved	Working																			
Field Measurements																								
Temperature	°C	15	-	-	-		9.93	13.09	11	9.1	11.11	11.6	10.9	7.1	10.6	12.2	10.3	9.4	12.1	11.3	9.0	8.9	14.3	11.6	8.1
Electrical Conductivity	µS/cm	-	-	-	-		125	132	145.3	182.2	136	180	176.5	106	153.2	121.5	115.8	106.4	116.7	163.8	113.1	103.4	124.6	126.7	133.4
Total Dissolved Solids (TDS)	mg/L	-	-	-	-		114	111	-	-	120	117	114.4	105	100.75	104.65	104.6	98.8	99.9	106.5	106.0	97.5	101.8	110.7	128.1
Salinity	-	-	-	-	-		0.08	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	%	-	-	-	-		102.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Oxygen	mg/L	Minimum 5 [#1]	-	Minimum 5 [#1]	-		11.63	9.73	-	11.85	10.82	8.26	8.87	10	8.71	9.11	9.71	9.01	9.68	9.78	8.80	8.91	0.85	3.19	0.79
pH	pH Units	6.5-9.0	-	7.0-8.7	-		**6.91**	**4.54**	7.32	5.75	7.18	7.23	7.25	7.07	7.13	7.17	6.22	**6.92**	7.33	7.66	**6.96**	**6.72**	7.18	**5.58**	**6.5**
Oxidation Reduction Potential (ORP)	-	-	-	-	-		124.5	360	-	-	130.7	105.9	87.6	103	118	124.6	-5.2	153.2	26.7	32	9.8	39.8	60.7	197.4	91.7
Physical Parameters																									
pH	pH Units	6.5-9.0	-	7.0-8.7	-		7.87	8.06	7.44	7.64	8.06	7.72	7.61	-	**6.86**	-	7.13	-	7.12	-	**6.62**	**6.93**	**6.67**	**6.91**	**6.87**
Electrical Conductivity (EC)	µS/cm	-	-	-	-		180	182	160	-	187	-	184	-	169	-	170	-	157	-	165	153	152	156	165
Total Suspended Solids (TSS)	µg/L	-	-	-	-		7,200	3,900	7,700	-	10,600	-	4,700	-	8,600	-	3,500	-	-	-	-	-	-	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	-		-	-	-	127,000	123,000	-	135,000	-	94700	-	-	-	107,000	-	-	-	108,000	-	148000
Hardness as $CaCO_3$	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	55,400	59,400	60,200	59,000	55,100	56,100	57,000	-	59,000	-	61,400
Alkalinity (total as $CaCO_3$)	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	66,700	-	-	-	-	-	-	66700	55,300	59500	66100
Alkalinity (P)	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bicarbonate	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	66,700	-	-	-	-	-	-	66700	55,300	59500	66100
Carbonate	µg/L	-	-	-	-		-	-	-	-	-	-	-	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Hydroxide	µg/L	-	-	-	-		69,100	63,200	53,800	-	65,500	-	68,400	-	<1,000	-	-	-	-	-	-	<1,000	<1,000	<1,000	<1,000
Bromide	µg/L	-	-	-	-		<50	<50	<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	600,000	-	-	-		9,430	10,100	7,990	9,220	9,760	10,000	10,200	9,330	9,520	10,200	8,670	9,840	9,880	10,500	10,000	9,890	9,470	9,890	9,710
Fluoride	µg/L	743-1,135 [#2]	-	1500	-		38	37	31	36	34	34	38	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Sulphate	µg/L	128,000-218,000 [#2]	-	-	-		14,700	15,000	13,700	13,300	14,700	17,300	15,200	11,800	10,700	9,200	8,900	9,000	7,500	7,700	8,500	7,100	6,400	8,200	8,200
Sulphide (as S)	µg/L	-	-	-	-		*<18*	<2.0	34	<2.0	2.5	<2.0	<2.0	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	-	2	-	-		-	-	-	<2.0	2.6	<2.0	<2.0	<20	-	<20	<20	<20	<20	<20	<20	-	-	-	-
Turbidity	NTU	-	-	-	-		0.96	-	3.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	-	-	-	-		-	-	-	-	12,200	-	2,100	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients																									
Ammonia as N	µg/L	2,910 - 27,200 [#3]	-	4,200 - 208,000 [#3]	-		<5.0	<5.0	7.1	<5.0	6	16.4	<5.0	<50	<50	<50	<50	<50	<50	<50	74	<50	<50	<50	<50
Nitrate (as N)	µg/L	32,800	-	-	-		117	76	155	105	126	72.7	89.8	106	32	37	62	100	15	29	70	28	<10	<10	57
Nitrite (as N)	µg/L	240-600 [#4]	-	-	-		<1.0	1.2	<1.0	1.3	<1.0	<1.0	<1.0	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Nitrate and Nitrite (as N)	µg/L	-	-	-	-		-	-	-	-	126	-	-	-	-	-	-	-	<20	-	-	-	-	-	-
Demand Parameters																									
Biochemical Oxygen Demand (BOD)	µg/L	-	-	-	-		<2,000	-	<2,000	-	<2,000	-	<2,000	-	<2,400	-	<2,400	-	<3,800	-	<2,200	-	<1,400	-	<2,800
Chemical Oxygen Demand (COD)	µg/L	-	-	-	-		<20,000	-	28,000	-	<20,000	-	20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000	-	<20,000
Carbon																									
Dissolved Organic Carbon (DOC)	µg/L	-	-	-	-		-	-		-	1,240	-	1,630	-	-	-	2,610	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	-	-	-	-		870	-	7,430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																									
Phenols (4AAP)	µg/L	-	-	-	-		<1.0	-	-	-	-	<1.0	-	<2.0	-	-	-	<2	-	-	-	<2.00	-	-	-
Dissolved Metals																									
Aluminum	µg/L	-	-	-	-		-	-	-	-	2.6	-	32.6	-	-	-	23.2	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	-		-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	-		-	-	-	-	<0.10	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	-		-	-	-	-	3.8	-	4.96	-	-	-	<5.00	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-		-	-	-	-	<0.020	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-		-	-	-	-	<0.050	-	<0.050	-	-	-	<0.10	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-		-	-	-	-	36	-	32	-	-	-	<50	-	-	-	-	-	-	-	-
Cadmium	µg/L	0.13-0.36 [#2]	-	-	-		-	-	-	-	<0.0050	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-
Calcium	µg/L	-	-	-	-		-	-	-	-	19,600	-	20,600	-	-	-	17,000	-	-	-	-	-	-	-	-
Cesium	µg/L	-	-	-	-		-	-	-	-	<0.010	-	<0.010	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-		-	-	-	-	<0.50	-	<0.10	-	-	-	<0.50	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	-		-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Copper	µg/L	NC	-	-	-		-	-	-	-	<0.20	-	0.31	-	-	-	0.89	-	-	-	-	-	-	-	-
Iron	µg/L	350	-	-	-		-	-	-	-	<10	-	54	-	-	-	62	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	-		-	-	-	-	<0.050	-	<0.050	-	-	-	<0.20	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-		-	-	-	-	1	-	1.2	-	-	-	1.13	-	-	-	-	-	-	-	-
Magnesium	µg/L	-	-	-	-		-	-	-	-	4,160	-	4,240	-	-	-	4,290	-	-	-	-	-	-	-	-
Manganese	µg/L	-	-	-	-		-	-	-	-	2.14	-	10.3	-	-	-	7.8	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	-		-	-	-	-	-	-	<0.0050	-	-	-	<0.010	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-		-	-	-	-	0.162	-	0.171	-	-	-	0.19	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	-		-	-	-	-	<0.50	-	<0.50	-	-	-	<0.40	-	-	-	-	-	-	-	-
Phosphorus	µg/L	-	-	-	-		-	-	-	-	<50	-	<50	-	-	-	<50	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-		-	-	-	-	2,060	-	2,000	-	-	-	2,130	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	-		-	-	-	-	<0.20	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	-		-	-	-	-	0.064	-	0.087	-	-	-	<0.50	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-		-	-	-	-	11,000	-	12,100	-	-	-	13,300	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-		-	-	-	-	<0.010	-	<0.010	-	-	-	<0.050	-	-	-	-	-	-	-	-
Sodium	µg/L	-	-	-	-		-	-	-	-	10,200	-	9,760	-	-	-	9,300	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	-		-	-	-	-	118	-	116	-	-	-	90.9	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-		-	-	-	-	4,500	-	4,890	-	-	-	3,700	-	-	-	-	-	-	-	-
Tellurium	µg/L	-	-	-	-		-	-	-	-	<0.20	-	<0.20	-	-	-	<0.50	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-		-	-	-	-	<0.010	-	<0.010	-	-	-	<0.020	-	-	-	-	-	-	-	-
Thorium	µg/L	-	-	-	-		-	-	-	-	<0.10	-	<0.10	-	-	-	<0.10	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-		-	-	-	-	<0.10	-	<0.10	-	-	-	<0.20	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-		-	-	-	-	<0.30	-	0.97	-	-	-	<5.00	-	-	-	-	-	-	-	-
Tungsten	µg/L	-	-	-	-		-	-	-	-	<0.10	-	<0.10	-	-	-	<1.0	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	-		-	-	-	-	0.164	-	0.102	-	-	-	0.117	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-		-	-	-	-	0.58	-	0.64	-	-	-	<1.0	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	-		-	-	-	-	1.3	-	1.1	-	-	-	<4	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-		-	-	-	-	<0.30	-	<0.20	-	-	-	<0.10	-	-	-	-	-	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

						Location	SW-4																			
						Field ID	SW-4	SW4	SW4	SW-4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4
						Sample Date	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	L2254182	L2318207	L2367392	VA20A09082801202	VA20A53623504202	VA20B11392407202	VA20B95653102202	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	L2254182-2	L2318207-9	L2367392-9	VA20A0908-010	VA20A5363-010	VA20B1139-010	VA20B9565-009	21B2866-09	21E1432-09	21G2459-09	21L0641-09	22C0773-09	22G1537-09	22J1342-04	22L1310-09	23C0154-08	23E2913-08	23I3541-08	23L2282-08
Parameter	**Unit**	**BC WQG - Fresh AW**		**BC WQG - Marine AW**																						
		Approved	**Working**	**Approved**	**Working**																					
Total Metals																										
Aluminum	µg/L	NC	-	-	-		21.8	22.9	158	-	46.3	-	338	-	169	-	54.2	-	44	-	144	-	84.3	-	278
Antimony	µg/L	250	9 [#6]	-	270 [#6]		<0.10	<0.10	<0.10	-	<0.10	-	<0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Arsenic	µg/L	5	-	12.5	-		<0.10	<0.10	0.2	-	<0.10	-	0.13	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5
Barium	µg/L	-	1000	-	-		4.20	4.40	6.0	-	4.84	-	6.87	-	6.6	-	<5.00	-	<5	-	<5	-	<5.0	-	6.1
Beryllium	µg/L	-	0.13	-	100		<0.10	<0.10	<0.10	-	<0.020	-	<0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	<0.1
Bismuth	µg/L	-	-	-	-		<0.050	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-
Boron	µg/L	1200	-	1200	-		38	34	38	-	36	-	29	-	<50	-	<50	-	<50	-	<50	-	<50.0	-	<50
Cadmium	µg/L	-	-	-	0.12		<0.0050	<0.0050	0.0135	-	<0.0050	-	0.0058	-	<0.010	-	<0.010	-	<0.01	-	<0.01	-	<0.010	-	<0.01
Calcium	µg/L	-	-	-	-		20,300	19,000	15,900	-	19,300	-	20,400	-	18,600	17,700	16,500	18,300	16,400	16,800	16,800	-	17,600	-	18,400
Cesium	µg/L	-	-	-	-		<0.010	<0.010	<0.010	-	<0.010	-	0.017	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	1 [#7]	-	1.5 [#7]		<0.10	<0.10	0.23	-	<0.50	-	0.22	-	<0.50	-	<0.50	-	<0.5	-	0.96	-	<0.50	-	<0.5
Cobalt	µg/L	110	-	-	-		<0.10	<0.10	0.16	-	<0.10	-	0.13	-	0.16	-	<0.10	-	<0.1	-	0.1	-	<0.10	-	0.12
Copper	µg/L	-	-	3	-		<0.50	<0.50	2.83	-	<0.50	-	0.94	-	2.22	-	1.14	-	<0.4	-	1.03	-	0.66	-	0.94
Iron	µg/L	1000	-	-	-		100	114	773	-	227	-	325	-	436	-	100	-	260	-	309	-	440	-	445
Lead	µg/L	13-44 [#2]	-	140	-		<0.050	<0.050	0.224	-	0.082	-	0.3	-	0.81	-	<0.20	-	<0.2	-	<0.2	-	0.27	-	0.21
Lithium	µg/L	-	-	-	-		1.1	1.0	<1.0	-	1	-	1.3	-	1.69	-	1.02	-	1.1	-	1.17	-	1.15	-	1.18
Magnesium	µg/L	-	-	-	-		4,470	3,830	3,390	-	4,200	-	4,210	-	4,030	3,690	3,630	3,240	3,450	3,420	3,630	-	3,630	-	3,750
Manganese	µg/L	816-1217 [#2]	-	-	100		9.97	10.2	49.1	-	15.4	-	16.5	-	42.8	-	7.4	-	18.4	-	21.4	-	28.4	-	29.2
Mercury	µg/L	-	-	-	-		-	-	<0.0050	-	-	-	<0.0050	-	<0.04	-	-	-	<0.04	-	-	-	<0.010	-	<0.01
Molybdenum	µg/L	46000	-	-	-		0.163	0.157	0.171	-	0.171	-	0.193	-	0.17	-	0.25	-	0.15	-	0.2	-	0.19	-	0.2
Nickel	µg/L	-	25-66 [#2]	-	8.3		<0.50	<0.50	<0.50	-	<0.50	-	<0.50	-	<0.40	-	<0.40	-	<0.4	-	0.41	-	<0.40	-	<0.4
Phosphorus	µg/L	5-15	-	-	-		<50	<50	<50	-	<50	-	<50	-	<50	-	59	-	<50	-	<50	-	<50	-	-
Potassium	µg/L	-	-	-	-		2,110	1,920	3,130	-	2,020	-	2,100	-	1,900	-	2,020	-	1,510	-	1,850	-	1,640	-	-
Rubidium	µg/L	-	-	-	-		<0.20	<0.20	0.99	-	<0.20	-	0.45	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	2	-	2	-		0.129	0.068	0.07	-	0.068	-	0.058	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	<0.5
Silicon	µg/L	-	-	-	-		11,800	13,100	9560	-	11,800	-	13,500	-	13,800	-	12,200	-	12,500	-	12,200	-	12,100	-	-
Silver	µg/L	0.1 [#2]	-	3	-		<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.050	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-	<0.05
Sodium	µg/L	-	-	-	-		10,000	9,230	8,360	-	9,500	-	10,300	-	9,120	-	8,830	-	8,300	-	8,670	-	8,830	-	9,200
Strontium	µg/L	-	-	-	-		118	108	97.5	-	120	-	118	-	98.6	-	98.4	-	87.4	-	93	-	96.9	-	107
Sulphur	µg/L	-	-	-	-		5160	5320	5040	-	5,000	-	5,440	-	3,800	-	3,900	-	<3000	-	3000	-	<3,000	-	-
Tellurium	µg/L	-	-	-	-		<0.20	<0.20	<0.20	-	<0.20	-	<0.50	-	<0.50	-	<0.50	-	<0.5	-	<0.5	-	<0.50	-	-
Thallium	µg/L	-	0.8	-	-		<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.020	-	<0.020	-	<0.02	-	<0.02	-	<0.020	-	<0.02
Thorium	µg/L	-	-	-	-		<0.10	<0.10	<0.10	-	0.10	-	0.10	-	<0.10	-	<0.10	-	<0.1	-	<0.1	-	<0.10	-	-
Tin	µg/L	-	-	-	-		<0.10	<0.10	0.10	-	0.10	-	0.10	-	<0.20	-	<0.20	-	<0.2	-	<0.2	-	<0.20	-	<0.2
Titanium	µg/L	-	-	-	-		0.96	<0.90	4.64	-	1.9	-	18	-	8.4	-	<5.00	-	<5.0	-	<5.0	-	<5.0	-	8.3
Tungsten	µg/L	-	-	-	-		<0.10	<0.10	<0.10	-	0.10	-	0.10	-	<1.0	-	<1.0	-	<0.2	-	<1	-	<1.0	-	<1
Uranium	µg/L	-	8.5	-	-		0.22	0.147	0.235	-	0.232	-	0.125	-	0.128	-	0.113	-	0.102	-	0.115	-	0.06	-	0.109
Vanadium	µg/L	-	-	-	50		0.80	0.76	1.31	-	0.9	-	1.49	-	1.8	-	1.1	-	<5.0	-	<5.0	-	<5.0	-	<5
Zinc	µg/L	NC	-	55	-		<3.0	<3.0	<3.0	-	<3.0	-	<3.0	-	5	-	<4	-	<4.0	-	<4.0	-	<4.0	-	21.6
Zirconium	µg/L	-	-	-	-		<0.060	<0.20	<0.20	-	<0.20	-	<0.20	-	<0.10	-	0.18	-	<0.1	-	<0.1	-	<0.10	-	-
Hydrocarbons																										
EPH_{10-19}	µg/L	-	-	-	-		<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
EPH_{19-32}	µg/L	-	-	-	-		<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
LEPH	µg/L	-	-	-	-		<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
HEPH	µg/L	-	-	-	-		<250	-	-	-	-	<250	-	<250	-	-	-	<250	-	-	-	<250	-	-	-
VH_{6-10}	µg/L	-	-	-	-		<100	-	-	-	-	<100	-	-	-	-	-	<100	-	-	-	<100	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																										
Acenaphthene	µg/L	6	-	6	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Acenaphthylene	µg/L	-	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-
Acridine	µg/L	3	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Anthracene	µg/L	4	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benz(a)anthracene	µg/L	0.1	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benzo(a)pyrene	µg/L	0.01	-	0.01	-		<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	-	-	-	-		-	-	-	-	-	<0.0150	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	-	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Benzo(g,h,i)perylene	µg/L	-	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Benzo(k)fluoranthene	µg/L	-	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
2-Chloronaphthalene	µg/L	-	-	-	-		-	-	-	-	-	-	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Chrysene	µg/L	-	-	0.1	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Dibenz(a,h)anthracene	µg/L	-	-	-	-		<0.0050	-	-	-	-	<0.0050	-	<0.010	-	-	-	<0.01	-	-	-	<0.010	-	-	-
Fluoranthene	µg/L	4	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.030	-	-	-	<0.03	-	-	-	<0.030	-	-	-
Fluorene	µg/L	12	-	12	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-
1-Methylnaphthalene	µg/L	-	-	1	-		<0.050	-	-	-	-	<0.050	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
2-Methylnaphthalene	µg/L	-	-	1	-		<0.020	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Naphthalene	µg/L	1	-	1	-		<0.020	-	-	-	-	<0.020	-	<0.20	-	-	-	<0.2	-	-	-	<0.200	-	-	-
Phenanthrene	µg/L	0.3	-	-	-		<0.020	-	-	-	-	<0.020	-	<0.10	-	-	-	<0.1	-	-	-	<0.100	-	-	-
Pyrene	µg/L	-	-	-	-		<0.010	-	-	-	-	<0.010	-	<0.020	-	-	-	<0.02	-	-	-	<0.020	-	-	-
Quinoline	µg/L	-	3.4	-	-		<0.050	-	-	-	-	<0.050	-	<0.050	-	-	-	<0.05	-	-	-	<0.050	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the guidelines for these parameters. Dissolved Organic Carbon was not analyzed.
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
EPHw	Extractable Petroleum Hydrocarbons.
LEPHw	Light Extractable Petroleum Hydrocarbons.
HEPHw	Heavy Extractable Petroleum Hydrocarbons.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

TETRA TECH

Table 3: Surface Water Analytical Results

Parameter	Unit	BC WQG - Fresh AW		BC WQG - Marine AW		Location	SW-4																		
						Field ID	SW-4	SW4	SW4	SW-4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4	SW4
						Sample Date	1-Apr-2019	25-Jul-2019	17-Oct-2019	27-Jan-2020	23-Apr-2020	22-Jul-2020	28-Oct-2020	21-Feb-2021	11-May-2021	19-Jul-2021	01-Dec-2021	02-Mar-2022	12-Jul-2022	11-Oct-2022	12-Dec-2022	28-Feb-2023	23-May-2023	27-Sep-2023	18-Dec-2023
						Laboratory Report Number	L2254182	L2318207	L2367392	VA20A090828012020	VA20A536325042020	VA20B113924072020	VA20B956530102020	21B2866	21E1432	21G2459	21L0641	22C0773	22G1537	22J1342	22L1310	23C0154	23E2913	23I3541	23L2282
						Laboratory Sample ID	L2254182-2	L2318207-9	L2367392-9	VA20A0908-010	VA20A5363-010	VA20B1139-010	VA20B9565-009	21B2866-09	21E1432-09	21G2459-09	21L0641-09	22C0773-09	22G1537-09	22J1342-04	22L1310-09	23C0154-08	23E2913-08	23I3541-08	23L2282-08
		Approved	Working	Approved	Working																				
Resin/Fatty Acids																									
Abietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Arachidic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
14-Chlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Dehydroabietic Acid	µg/L	-	1-13 [#5]	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Dichlorodehydroabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
9,10-Dichlorostearic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Isopimaric & Palustric Acids	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<6.0	-	-	-	-	<10	-	-	<10	-	-	-
Lauric Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Lignoceric Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Linolenic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	<10	-	-	<0.01	-	-	-
Myristic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Octadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Oleic Acid	µg/L	-	-	-	-	<5.0	-	-	-	-	<5.0	-	0.017	-	-	-	-	<10	-	-	<0.01	-	-	-
Palmitic Acid	µg/L	-	-	-	-	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Sandaracopimaric Acid	µg/L	-	-	-	-	<1.0	-	-	-	-	<1.0	-	<0.0060	-	-	-	-	<10	-	-	<0.01	-	-	-
Stearic Acid	µg/L	-	-	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	-	-	-	-
Total Fatty Acids	µg/L	-	-	-	-	<100	-	-	-	-	<110	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin Acids	µg/L	-	1-52 [#5]	-	-	<10	-	-	-	-	<3.5	-	-	-	-	-	-	<10	-	-	<10	-	-	-
Total Resin and Fatty Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	-	-	<10	-	-	-
BTEXS & MTBE																									
Benzene	µg/L	40	-	110	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Toluene	µg/L	0.5	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Ethylbenzene	µg/L	200	-	250	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Xylenes Total	µg/L	30	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-
Styrene	µg/L	-	72	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	3400	-	440	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Volatile Organic Compounds (VOCs)																									
Hexadecanoic Acid	µg/L	-	-	-	-	-	-	-	-	-	-	-	<6.0	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Bromoform	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Carbon tetrachloride	µg/L	-	13.3	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Chlorobenzene	µg/L	-	1.3	-	25	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Chloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<2.0	-	-	-	-	-	-	-	<2.0	-	-	-
Chloroform	µg/L	-	1.8	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Dibromochloromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dibromoethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.30	-	-	-	-	-	-	-	<0.3	-	-	-
Dibromomethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichlorobenzene	µg/L	-	0.7	-	42	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
1,3-Dichlorobenzene	µg/L	-	150	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,4-Dichlorobenzene	µg/L	-	26	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethane	µg/L	-	100	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1-Dichloroethene	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (cis)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloroethene (trans)	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,2-Dichloropropane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,3-Dichloropropene	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Methylene Chloride	µg/L	-	98.1	-	-	-	-	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	<3.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	<0.5	-	-	-
Tetrachloroethene	µg/L	-	110	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,1-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
1,1,2-Trichloroethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Trichloroethene	µg/L	-	21	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Trichlorofluoromethane	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-
Vinyl chloride	µg/L	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	<1.0	-	-	-

NOTES:

#1	Guideline is for all life stages other than buried embryo/alevin.
#2	Guideline varies with hardness. Values shown based on hardness range of 23.0 mg/L to 61.4 mg/L.
#3	Guideline varies with pH and temperature. Values shown based on field pH range of 4.54 to 8.33 and temperature range of 3.8 to 16.83 °C.
#4	Guideline varies with chloride concentration. Value shown based on chloride range of 6.39 mg/L to 12.6 mg/L.
#5	Guideline varies with pH. Value shown based on field pH range of 4.54 to 8.33.
#6	Guideline is for Antimony III.
#7	Guideline is for Chromium VI.
NC	Not Calculated; BC AWQG now requires Dissolved Organic Carbon (DOC) data to calculate the
-	Not analyzed or no applicable BC WQG guideline.
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (November 2023).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (February 2021).
AW	Aquatic Wildlife.
Shaded	Shaded indicates an exceedance of the BCWQG Freshwater AW guidelines.
BOLD	Bold and underlined indicates an exceedance of the BCWQG Marine AW guidelines.

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Table 4: Groundwater and Surface Water QA/QC Analytical Results

	Location		SW3	Dup	RPD (%)	MW19-04	Dup	RPD (%)	MW13-03	Dup	RPD (%)	MW13-01	Dup	RPD (%)
	Sample Date		28-Feb-2023	28-Feb-2023		23-May-2023	23-May-2023		27-Sep-2023	27-Sep-2023		18-Dec-2023	18-Dec-2023	
	Laboratory Report Number		23C0154	23C0154		23E2913	23E2913		23I3541	23I3541		23L2282	23L2282	
	Laboratory Sample ID		23C0154-07	23C0154-09		23E2913-04	23E2913-09		23I3541-03	23I3541-09		23L2282-01	23L2282-09	
Parameter	**Unit**	**RDL**												
Physical Parameters														
pH	pH Units	0.1	6.61	6.74	2	6.67	6.65	0	7.01	6.95	1	6.58	6.57	0
Electrical Conductivity (EC)	µS/cm	2	103	101	2	312	314	1	495	497	0	122	120	2
Total Suspended Solids (TSS)	µg/L	3,000	-	-	-	235,000	-	-	-	-	-	100,000	-	-
Total Dissolved Solids (TDS)	µg/L	-	-	-	-	235,000	-	-	-	-	-	100,000	-	-
Hardness as $CaCO_3$	µg/L	500	-	-	-	140,000	144,000	3	-	-	-	44,600	44,100	1
Alkalinity (total as $CaCO_3$)	µg/L	1000	24,600	29,600	18	149,000	145,000	3	194000	197000	2	49,000	48,600	1
Alkalinity (P)	µg/L	1000	<1,000	<1,000	-	<1,000	<1,000	-	<1,000	<1,000	-	<1,000	<1,000	-
Bicarbonate	µg/L	1000	24,600	29,600	18	149,000	145,000	3	194000	197000	2	49,000	48,600	1
Carbonate	µg/L	1000	<1,000	<1,000	-	<1,000	<1,000	-	<1,000	<1,000	-	<1,000	<1,000	-
Hydroxide	µg/L	1000	<1,000	<1,000	-	<1,000	<1,000	-	<1,000	<1,000	-	<1,000	<1,000	-
Bromide	µg/L	50	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	µg/L	500	10,200	10,200	0	6,140	-	-	22,700	23,400	3	6,830	6,380	7
Fluoride	µg/L	20	<100	<100	-	<100	-	-	<100	<100	-	<100	<100	-
Sulphate	µg/L	300	7,700	3,600	**73**	1,700	-	-	50,000	49,800	0	5,300	5,300	0
Sulphide (as S)	µg/L	10	-	-	-	-	-	-	-	-	-	-	-	-
Sulphide (as H2S)	µg/L	0.002	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Acidity	µg/L	2,000	-	-	-	-	-	-	-	-	-	-	-	-
Nutrients														
Ammonia as N	µg/L	5	<50	<50	-	158	-	-	<50	<50	-	<50	<50	-
Nitrate (as N)	µg/L	5	117	115	2	<10	-	-	1,800	1,740	3	441	418	5
Nitrite (as N)	µg/L	1	<10	<10	-	<10	-	-	<10	<10	-	<10	<10	-
Nitrate and nitrate (as N)	µg/L	50	-	-	-	-	-	-	-	-	-	-	-	-
Demand Parameters														
Biochemical Oxygen Demand (BOD)	µg/L	2,000	-	-	-	<1,400	-	-	-	-	-	<2,800	-	-
Chemical Oxygen Demand (COD)	µg/L	20,000	-	-	-	36,000	-	-	-	-	-	<20,000	-	-
Carbon														
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	-	-	-	-	-	-	-
Phenols														
Phenols (4AAP)	µg/L	1	<2.00	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals														
Aluminum	µg/L	1	-	-	-	17.3	16.3	6	-	-	-	<5	<5	-
Antimony	µg/L	0.1	-	-	-	0.38	0.35	-	-	-	-	<0.2	<0.2	-
Arsenic	µg/L	0.1	-	-	-	<0.50	<0.50	-	-	-	-	<0.5	<0.5	-
Barium	µg/L	0.1	-	-	-	24.3	24.5	1	-	-	-	<5	<5	-
Beryllium	µg/L	0.1	-	-	-	<0.10	<0.10	-	-	-	-	<0.1	<0.1	-
Bismuth	µg/L	0.05	-	-	-	<0.10	<0.10	-	-	-	-	-	-	-
Boron	µg/L	10	-	-	-	52.8	52.5	1	-	-	-	<50	<50	-
Cadmium	µg/L	0.005	-	-	-	0.083	0.079	5	-	-	-	<0.01	<0.01	-
Calcium	µg/L	50	-	-	-	43,300	45,100	4	-	-	-	13,200	13,100	1
Cesium	µg/L	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	0.1	-	-	-	0.99	1.15	15	-	-	-	<0.5	<0.5	-
Cobalt	µg/L	0.1	-	-	-	2.9	2.89	0	-	-	-	<0.1	<0.1	-
Copper	µg/L	0.2	-	-	-	7.39	7.36	0	-	-	-	<0.4	1.86	-
Iron	µg/L	10	-	-	-	1,500	1,500	0	-	-	-	<10	<10	-
Lead	µg/L	0.05	-	-	-	<0.20	<0.20	-	-	-	-	<0.2	<0.2	-
Lithium	µg/L	1	-	-	-	2.4	2.41	-	-	-	-	0.84	0.82	-
Magnesium	µg/L	5	-	-	-	7,590	7,640	1	-	-	-	2,800	2,780	1
Manganese	µg/L	0.1	-	-	-	1580	1,580	0	-	-	-	1.5	<0.2	-
Mercury	µg/L	0.005	-	-	-	<0.010	<0.010	-	-	-	-	<0.01	<0.01	-
Molybdenum	µg/L	0.05	-	-	-	0.26	0.25	-	-	-	-	0.14	0.16	-
Nickel	µg/L	0.5	-	-	-	0.42	0.41	-	-	-	-	15.7	<0.4	-
Phosphorus	µg/L	50	-	-	-	<50	<50	-	-	-	-	-	-	-
Potassium	µg/L	50	-	-	-	8,870	9,040	2	-	-	-	-	-	-
Rubidium	µg/L	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	0.05	-	-	-	<0.50	<0.50	-	-	-	-	<0.5	<0.5	-
Silicon	µg/L	50	-	-	-	17,400	17,900	3	-	-	-	-	-	-
Silver	µg/L	0.01	-	-	-	<0.050	<0.050	-	-	-	-	<0.05	<0.05	-
Sodium	µg/L	50	-	-	-	8,640	8,580	1	-	-	-	7,770	7,740	0
Strontium	µg/L	0.2	-	-	-	284	286	1	-	-	-	69.7	68.5	2
Sulphur	µg/L	500	-	-	-	<3,000	<3,000	-	-	-	-	-	-	-
Tellurium	µg/L	0.2	-	-	-	<0.50	<0.50	-	-	-	-	-	-	-
Thallium	µg/L	0.01	-	-	-	<0.020	<0.020	-	-	-	-	<0.02	<0.02	-
Thorium	µg/L	0.1	-	-	-	<0.10	<0.10	-	-	-	-	-	-	-
Tin	µg/L	0.1	-	-	-	<0.20	<0.20	-	-	-	-	<0.2	<0.2	-
Titanium	µg/L	0.3	-	-	-	<5.0	<5.0	-	-	-	-	<5	<5	-
Tungsten	µg/L	0.1	-	-	-	<1.0	<1.0	-	-	-	-	<1	<1	-
Uranium	µg/L	0.01	-	-	-	0.38	0.389	2	-	-	-	0.055	0.053	4
Vanadium	µg/L	0.5	-	-	-	<5.0	<5.0	-	-	-	-	<5	<5	-
Zinc	µg/L	1	-	-	-	<4.0	<4.0	-	-	-	-	<4	<4	-
Zirconium	µg/L	0.06	-	-	-	<0.10	<0.10	-	-	-	-	-	-	-
Total Metals														
Aluminum	µg/L	3	-	-	-	-	-	-	-	-	-	<5	-	-
Antimony	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.2	-	-
Arsenic	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.5	-	-
Barium	µg/L	0.1	-	-	-	-	-	-	-	-	-	<5	-	-
Beryllium	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-
Bismuth	µg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	10	-	-	-	-	-	-	-	-	-	<50	-	-
Cadmium	µg/L	0.005	-	-	-	-	-	-	-	-	-	<0.01	-	-
Calcium	µg/L	50	-	-	-	-	-	-	-	-	-	11,800	-	-
Cesium	µg/L	0.01	-	-	-	-	-	-	-	-	-		-	-
Chromium	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.5	-	-
Cobalt	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.1	-	-
Copper	µg/L	0.5	-	-	-	-	-	-	-	-	-	<0.4	-	-
Iron	µg/L	10	-	-	-	-	-	-	-	-	-	<10	-	-
Lead	µg/L	0.05	-	-	-	-	-	-	-	-	-	<0.2	-	-
Lithium	µg/L	1	-	-	-	-	-	-	-	-	-	0.7	-	-
Magnesium	µg/L	5	-	-	-	-	-	-	-	-	-	2,670	-	-
Manganese	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.2	-	-
Mercury	µg/L	0.01	-	-	-	-	-	-	-	-	-	<0.01	-	-
Molybdenum	µg/L	0.05	-	-	-	-	-	-	-	-	-	0.17	-	-
Nickel	µg/L	0.5	-	-	-	-	-	-	-	-	-	<0.4	-	-
Phosphorus	µg/L	50	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	µg/L	50	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	0.05	-	-	-	-	-	-	-	-	-	<0.5	-	-
Silicon	µg/L	100	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	0.01	-	-	-	-	-	-	-	-	-	<0.05	-	-
Sodium	µg/L	50	-	-	-	-	-	-	-	-	-	6,890	-	-
Strontium	µg/L	0.2	-	-	-	-	-	-	-	-	-	66.3	-	-
Sulphur	µg/L	500	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	µg/L	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	0.01	-	-	-	-	-	-	-	-	-	<0.02	-	-
Thorium	µg/L	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Tin	µg/L	0.1	-	-	-	-	-	-	-	-	-	<0.2	-	-
Titanium	µg/L	0.3	-	-	-	-	-	-	-	-	-	<5	-	-
Tungsten	µg/L	0.1	-	-	-	-	-	-	-	-	-	<1	-	-
Uranium	µg/L	0.01	-	-	-	-	-	-	-	-	-	0.075	-	-
Vanadium	µg/L	0.5	-	-	-	-	-	-	-	-	-	<5	-	-
Zinc	µg/L	3	-	-	-	-	-	-	-	-	-	<4	-	-
Zirconium	µg/L	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Hydrocarbons									-	-				
EPH_{10-19}	µg/L	250	<250	-	-	-	-	-	-	-	-	-	-	-
EPH_{19-32}	µg/L	250	<250	-	-	-	-	-	-	-	-	-	-	-
LEPH	µg/L	250	<250	-	-	-	-	-	-	-	-	-	-	-
HEPH	µg/L	250	<250	-	-	-	-	-	-	-	-	-	-	-
VH^{6-10}	µg/L	100	<100	-	-	-	-	-	-	-	-	-	-	-

NOTES:

-	RPD not calculated.
<	Concentration is less than the laboratory detection limit indicated.
RDL	Laboratory Reportable Detection Limit.
RPD	RPD is Relative Percentage Difference calculated as RPD(%)=(|V1-V2|/[(V1+V2)/2])*100 where V1,V2 = concentrations of parent and duplicate sample, respectively. RPDs have only been calculated where concentrations are greater than 5 times the RDL.
BOLD	High RPDs are in bold (groundwater metals were compared against a 30% screening threshold and groundwater VOCs and other organics were compared to a 45% screening threshold as recommended by BC Ministry of Environment Q&A, and BC Environmental. Laboratory Manual).

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Table 4: Groundwater and Surface Water QA/QC Analytical Results

	Location		SW3	Dup		MW19-04	Dup		MW13-03	Dup		MW13-01	Dup	
	Sample Date		28-Feb-2023	28-Feb-2023	RPD (%)	23-May-2023	23-May-2023	RPD (%)	27-Sep-2023	27-Sep-2023	RPD (%)	18-Dec-2023	18-Dec-2023	RPD (%)
	Laboratory Report Number		23C0154	23C0154		23E2913	23E2913		23I3541	23I3541		23L2282	23L2282	
	Laboratory Sample ID		23C0154-07	23C0154-09		23E2913-04	23E2913-09		23I3541-03	23I3541-09		23L2282-01	23L2282-09	
Parameter	**Unit**	**RDL**												
Polycyclic Aromatic Hydrocarbons (PAHs)														
Acenaphthene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	µg/L	0.01	<0.200	-	-	-	-	-	-	-	-	-	-	-
Acridine	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
Anthracene	µg/L	0.01	<0.010	-	-	-	-	-	-	-	-	-	-	-
Benz(a)anthracene	µg/L	0.01	<0.010	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	µg/L	0.005	<0.010	-	-	-	-	-	-	-	-	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	0.015	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
2-chloronaphthalene	µg/L	0.01	<0.100	-	-	-	-	-	-	-	-	-	-	-
Chrysene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	µg/L	0.005	<0.010	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	µg/L	0.01	<0.030	-	-	-	-	-	-	-	-	-	-	-
Fluorene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.01	<0.050	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	µg/L	0.05	<0.100	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	µg/L	0.02	<0.100	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	µg/L	0.02	<0.200	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	µg/L	0.02	<0.100	-	-	-	-	-	-	-	-	-	-	-
Pyrene	µg/L	0.01	<0.020	-	-	-	-	-	-	-	-	-	-	-
Quinoline	µg/L	0.05	<0.050	-	-	-	-	-	-	-	-	-	-	-
Resin/Fatty Acids														
Abietic Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Arachidic Acid	µg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Behenic Acid	µg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
12-Chlorodehydroabietic Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
14-Chlorodehydroabietic Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Dehydroabietic Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Dichlorodehydroabietic Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
9,10-Dichlorostearic Acid	µg/L		<10	-	-	-	-	-	-	-	-	-	-	-
Isopimaric & Palustric Acids	µg/L	0.001	<10	-	-	-	-	-	-	-	-	-	-	-
Lauric Acid	µg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Levopimaric Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Lignoceric Acid	µg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Linoleic Acid	µg/L	0.005	<0.01	-	-	-	-	-	-	-	-	-	-	-
Linolenic Acid	µg/L	0.005	<0.01	-	-	-	-	-	-	-	-	-	-	-
Myristic Acid	µg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Neoabietic Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Octadecanoic Acid	µg/L		-	-	-	-	-	-	-	-	-	-	-	-
Oleic Acid	µg/L	0.005	<0.01	-	-	-	-	-	-	-	-	-	-	-
Palmitic Acid	µg/L	100	-	-	-	-	-	-	-	-	-	-	-	-
Pimaric Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Sandaracopimaric Acid	µg/L	0.001	<0.01	-	-	-	-	-	-	-	-	-	-	-
Stearic Acid	µg/L	20	-	-	-	-	-	-	-	-	-	-	-	-
Total Fatty Acids	µg/L	0.1	<10	-	-	-	-	-	-	-	-	-	-	-
Total Resin Acids	µg/L	0.01	<10	-	-	-	-	-	-	-	-	-	-	-
Total Resin and Fatty Acid	µg/L	0.01	<10	-	-	-	-	-	-	-	-	-	-	-
BTEXS & MTBE														
Benzene	µg/L	0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
Toluene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Xylenes Total	µg/L	2	<2.0	-	-	-	-	-	-	-	-	-	-	-
Styrene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)														
Hexadecanoic Acid	µg/L	6	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Bromoform	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	µg/L	0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	µg/L	2	<2.0	-	-	-	-	-	-	-	-	-	-	-
Chloroform	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane	µg/L	0.3	<0.3	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	µg/L	0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (cis)	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (trans)	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	µg/L	3	<3.0	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	µg/L	1	<1.0	-	-	-	-	-	-	-	-	-	-	-

NOTES:

-	RPD not calculated.
<	Concentration is less than the laboratory detection limit indicated.
RDL	Laboratory Reportable Detection Limit.
RPD	RPD is Relative Percentage Difference calculated as RPD(%)=(|V1-V2|/[(V1+V2)/2])*100 where V1,V2 = concentrations of parent and duplicate sample, respectively. RPDs have only been calculated where concentrations are greater than 5 times the RDL.
BOLD	High RPDs are in bold (groundwater metals were compared against a 30% screening threshold and groundwater VOCs and other organics were compared to a 45% screening threshold as recommended by BC Ministry of Environment Q&A, and BC Environmental Laboratory Manual).

FIGURES

Figure 1 Site Location Plan
Figure 2 Site Plan
Figure 3 Interpreted Groundwater Flow February 2023
Figure 4 Interpreted Groundwater Flow May 2023
Figure 5 Interpreted Groundwater Flow September 2023
Figure 6 Interpreted Groundwater Flow December 2023
Figure 7 Sulphate Concentrations in Groundwater
Figure 8 Chloride Concentrations in Groundwater
Figure 9 Dissolved Cobalt Concentrations in Groundwater
Figure 10 Dissolved Arsenic Concentrations in Groundwater
Figure 11 Dissolved Iron Concentrations in Groundwater
Figure 12 Dissolved Manganese Concentrations in Groundwater
Figure 13 pH in Surface Water
Figure 14 Sulphate Concentrations in Surface Water
Figure 15 Chloride Concentrations in Surface Water



NOTE:

BASE IMAGE OBTAINED FROM GOOGLE EARTH
IMAGERY DATE: APRIL 2021

0 500m

Scale: 1:10,000 @ 11"x17"

CLIENT

qathet REGIONAL DISTRICT

TETRA TECH

ENVIRONMENTAL MONITORING
MARINE AVENUE SITE, POWELL RIVER, BC

SITE LOCATION PLAN

PROJECT NO.	DWN	CKD	REV
SWM.SWOP03663-12	MC / DBD	PB	0
OFFICE: VAN	DATE: March 2024		

Figure 1

Q:\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\PRRD Transfer Station\SWM.SWOP03663 Env Compliance Reporting\FIGURES\CAD\SWM.SWOP03663-12\SWM.SWOP03663-12 Figure 1_SS.dwg [FIGURE 1] March 08, 2024 - 11:36:11 am (BY: FLEMING, ALEXA)



NOTES:

1) BASE IMAGE OBTAINED FROM GOOGLE EARTH IMAGERY DATE: APRIL 2021

2) TOPO SURVEY FROM POLARIS LAND SURVEYS AND QATHET REGIONAL DISTRICT: JANUARY 2021

0 100 m

Scale: 1: 3 000

LEGEND:

- EXISTING MONITORING WELL LOCATION (APPROXIMATE)
- EXISTING SURFACE WATER MONITORING LOCATION (APPROXIMATE)
- MONITORING WELL DECOMMISSIONED SEPT. 14, 2020
- APPROXIMATE FACILITY OUTLINE (CONSTRUCTION COMPLETION PENDING IN 2024)

CLIENT

qathet REGIONAL DISTRICT

TETRA TECH

ENVIRONMENTAL MONITORING
MARINE AVENUE SITE, POWELL RIVER, BC

SITE PLAN

PROJECT NO.	DWN	CKD	REV
SWM.SWOP03663-12	MC / DBD	PB	0

OFFICE	DATE
VAN	March 2024

Figure 2

C:\Users\mike.murphy1\OneDrive - Tetra Tech, Inc\Documents\WFH\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\PRRD Transfer Station\SWM.SWOP03663 Env Compliance Reporting\FIGURES\CAD\SWM.SWOP03663-12\SWM.SWOP03663-12 Figure 2_SS.dwg [FIGURE 2] March 22, 2024 - 2:37:41 pm (BY: MURPHY, MIKE)



NOTES:

1) BASE IMAGE OBTAINED FROM GOOGLE EARTH IMAGERY DATE: APRIL 2021

2) TOPO SURVEY FROM POLARIS LAND SURVEYS AND QATHET REGIONAL DISTRICT: JANUARY 2021

0 100 m

Scale: 1: 3 000

LEGEND:

- EXISTING MONITORING WELL LOCATION (APPROXIMATE)
- EXISTING SURFACE WATER MONITORING LOCATION (APPROXIMATE)
- INTERPRETED GROUNDWATER CONTOURS
- INFERRED GROUNDWATER FLOW DIRECTION
- REMAINING ASH PILES
- CLOSURE AREA (2020)

CLIENT

qathet REGIONAL DISTRICT

TETRA TECH

ENVIRONMENTAL MONITORING
MARINE AVENUE SITE, POWELL RIVER, BC

INTERPRETED GROUNDWATER FLOW
FEBRUARY 2023

PROJECT NO.	DWN	CKD	REV
SWM.SWOP03663-12	MC / DBD	PB	0

OFFICE	DATE
VAN	March 2024

Figure 3

Q:\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\PRRD Transfer Station\SWM.SWOP03663 Env Compliance Reporting\FIGURES\CAD\SWM.SWOP03663-12SWM.SWOP03663-12 Figure 3_SS.dwg [FIGURE 3] March 05, 2024 - 10:38:14 am (BY: FLEMING, ALEXA)



NOTES:

1) BASE IMAGE OBTAINED FROM GOOGLE EARTH IMAGERY DATE: APRIL 2021

2) TOPO SURVEY FROM POLARIS LAND SURVEYS AND QATHET REGIONAL DISTRICT: JANUARY 2021

0 100 m

Scale: 1: 3 000

LEGEND:

- EXISTING MONITORING WELL LOCATION (APPROXIMATE)
- EXISTING SURFACE WATER MONITORING LOCATION (APPROXIMATE)
- INTERPRETED GROUNDWATER CONTOURS
- INFERRED GROUNDWATER FLOW DIRECTION
- REMAINING ASH PILES
- CLOSURE AREA (2020)

CLIENT

qathet REGIONAL DISTRICT

TETRA TECH

ENVIRONMENTAL MONITORING
MARINE AVENUE SITE, POWELL RIVER, BC

INTERPRETED GROUNDWATER FLOW
MAY 2023

PROJECT NO.	DWN	CKD	REV
SWM.SWOP03663-12	MC / DBD	PB	0

OFFICE	DATE
VAN	March 2024

Figure 4

Q:\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\PRRD Transfer Station\SWM.SWOP03663 Env Compliance Reporting\FIGURES\CAD\SWM.SWOP03663-12SWM.SWOP03663-12 Figure 4_SS.dwg [FIGURE 4] March 05, 2024 - 10:49:57 am (BY: FLEMING, ALEXA)



NOTES:

1) BASE IMAGE OBTAINED FROM GOOGLE EARTH IMAGERY DATE: APRIL 2021

2) TOPO SURVEY FROM POLARIS LAND SURVEYS AND QATHET REGIONAL DISTRICT: JANUARY 2021

0 100 m

Scale: 1: 3 000

LEGEND:

- EXISTING MONITORING WELL LOCATION (APPROXIMATE)
- EXISTING SURFACE WATER MONITORING LOCATION (APPROXIMATE)
- INTERPRETED GROUNDWATER CONTOURS
- INFERRED GROUNDWATER FLOW DIRECTION
- REMAINING ASH PILES
- CLOSURE AREA (2020)

CLIENT

qathet REGIONAL DISTRICT

TETRA TECH

ENVIRONMENTAL MONITORING
MARINE AVENUE SITE, POWELL RIVER, BC

INTERPRETED GROUNDWATER FLOW SEPTEMBER 2023

PROJECT NO.	DWN	CKD	REV
SWM.SWOP03663-12	MC / DBD	PB	0

OFFICE	DATE
VAN	March 2024

Figure 5

Q:\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\PRRD Transfer Station\SWM.SWOP03663 Env Compliance Reporting\FIGURES\CAD\SWM.SWOP03663-12SWM.SWOP03663-12 Figure 5_SS.dwg [FIGURE 5] March 05, 2024 - 10:39:27 am (BY: FLEMING, ALEXA)



NOTES:

1) BASE IMAGE OBTAINED FROM GOOGLE EARTH IMAGERY DATE: APRIL 2021

2) TOPO SURVEY FROM POLARIS LAND SURVEYS AND QATHET REGIONAL DISTRICT: JANUARY 2021

0 100 m

Scale: 1: 3 000

LEGEND:

- EXISTING MONITORING WELL LOCATION (APPROXIMATE)
- EXISTING SURFACE WATER MONITORING LOCATION (APPROXIMATE)
- INTERPRETED GROUNDWATER CONTOURS
- INFERRED GROUNDWATER FLOW DIRECTION
- REMAINING ASH PILES
- CLOSURE AREA (2020)

CLIENT

qathet REGIONAL DISTRICT

TETRA TECH

ENVIRONMENTAL MONITORING
MARINE AVENUE SITE, POWELL RIVER, BC

INTERPRETED GROUNDWATER FLOW DECEMBER 2023

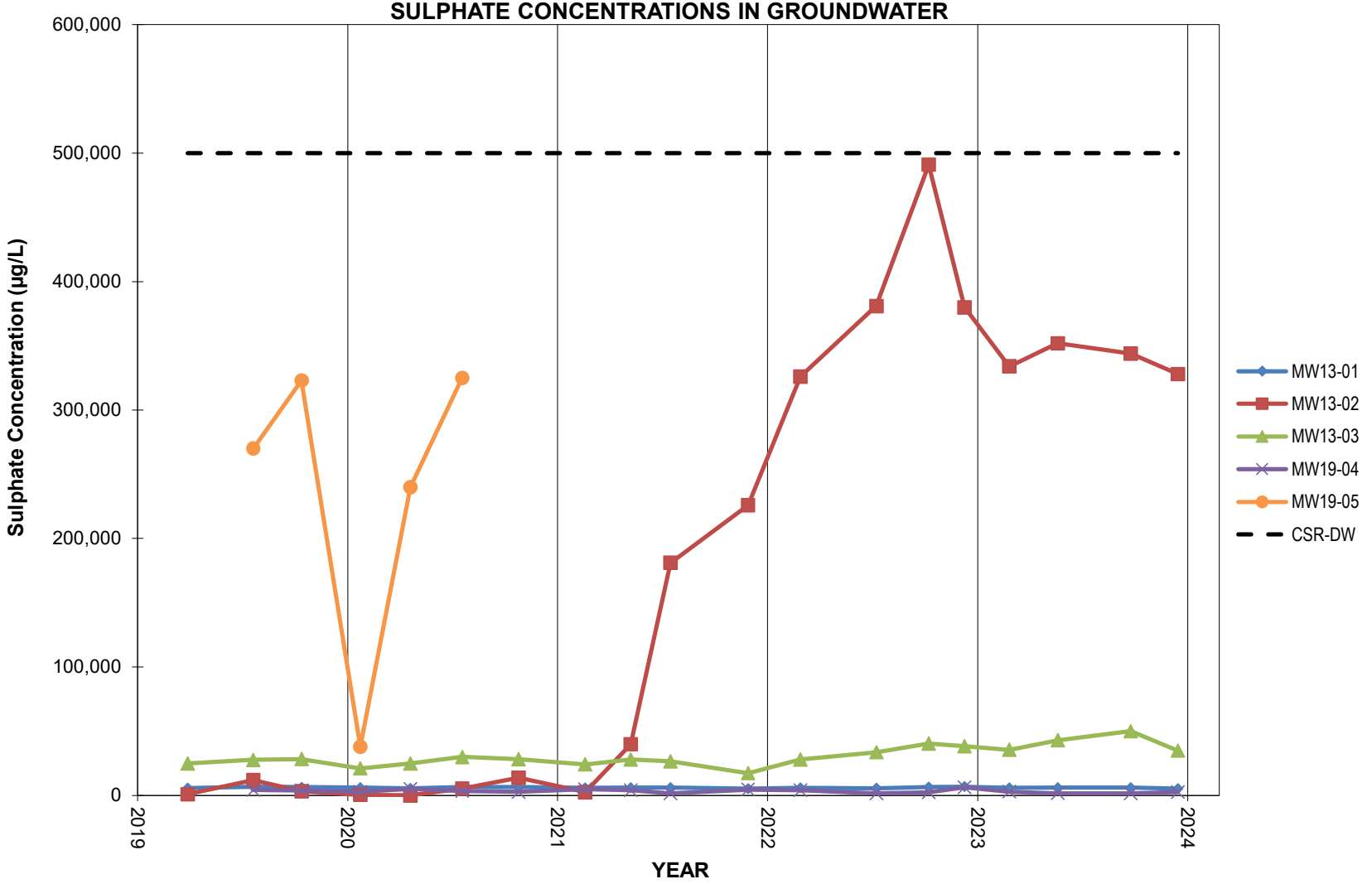
PROJECT NO.	DWN	CKD	REV
SWM.SWOP03663-12	MC / DBD	PB	0

OFFICE	DATE
VAN	March 2024

Figure 6

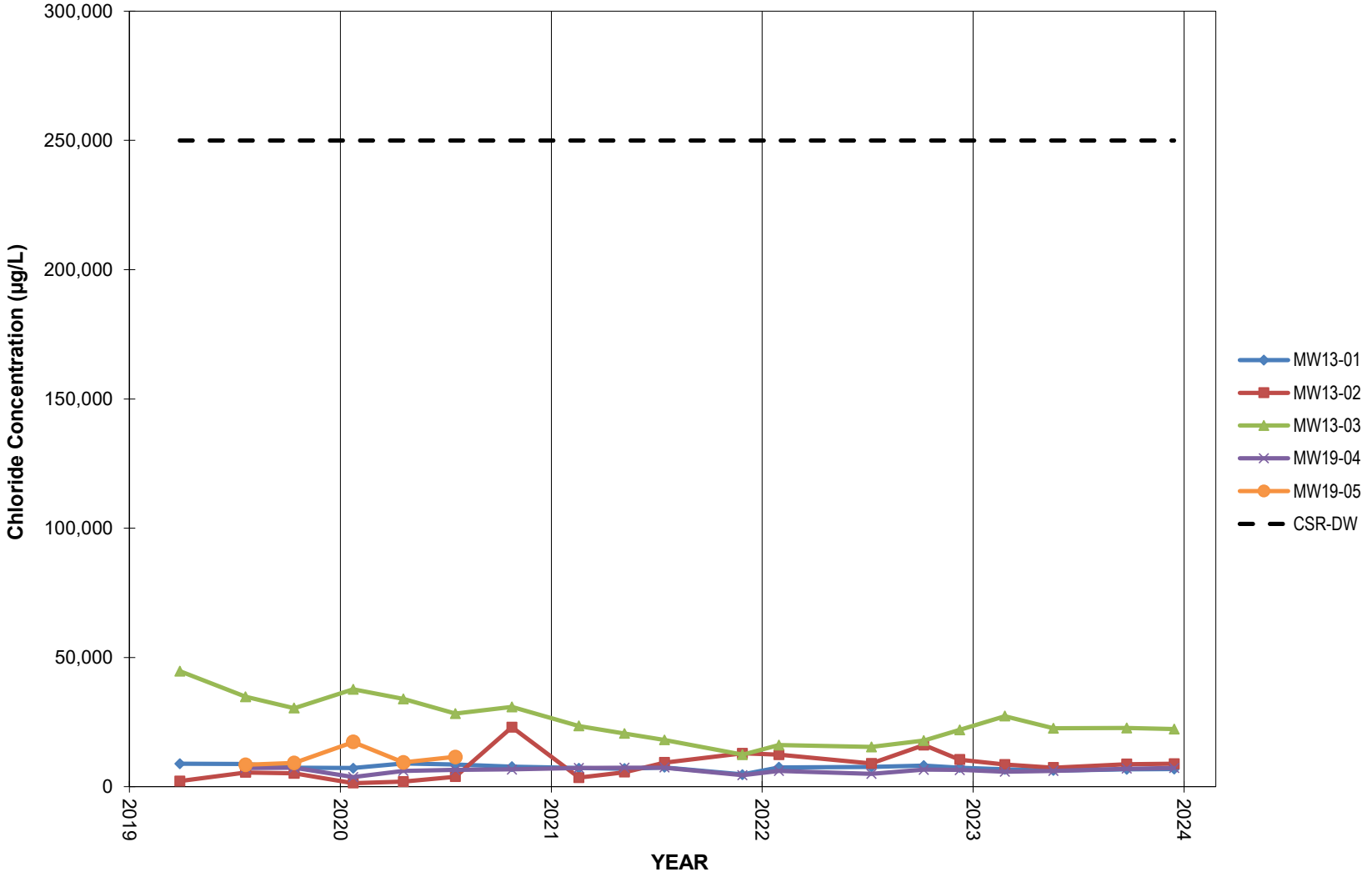
Q:\Edmonton\Drafting\00_MASTER PROJECT BASE PLANS\PRRD Transfer Station\SWM.SWOP03663 Env Compliance Reporting\FIGURES\CAD\SWM.SWOP03663-12SWM.SWOP03663-12 Figure 6_SS.dwg [FIGURE 6] March 05, 2024 - 10:42:03 am (BY: FLEMING, ALEXA)

FIGURE 7
SULPHATE CONCENTRATIONS IN GROUNDWATER



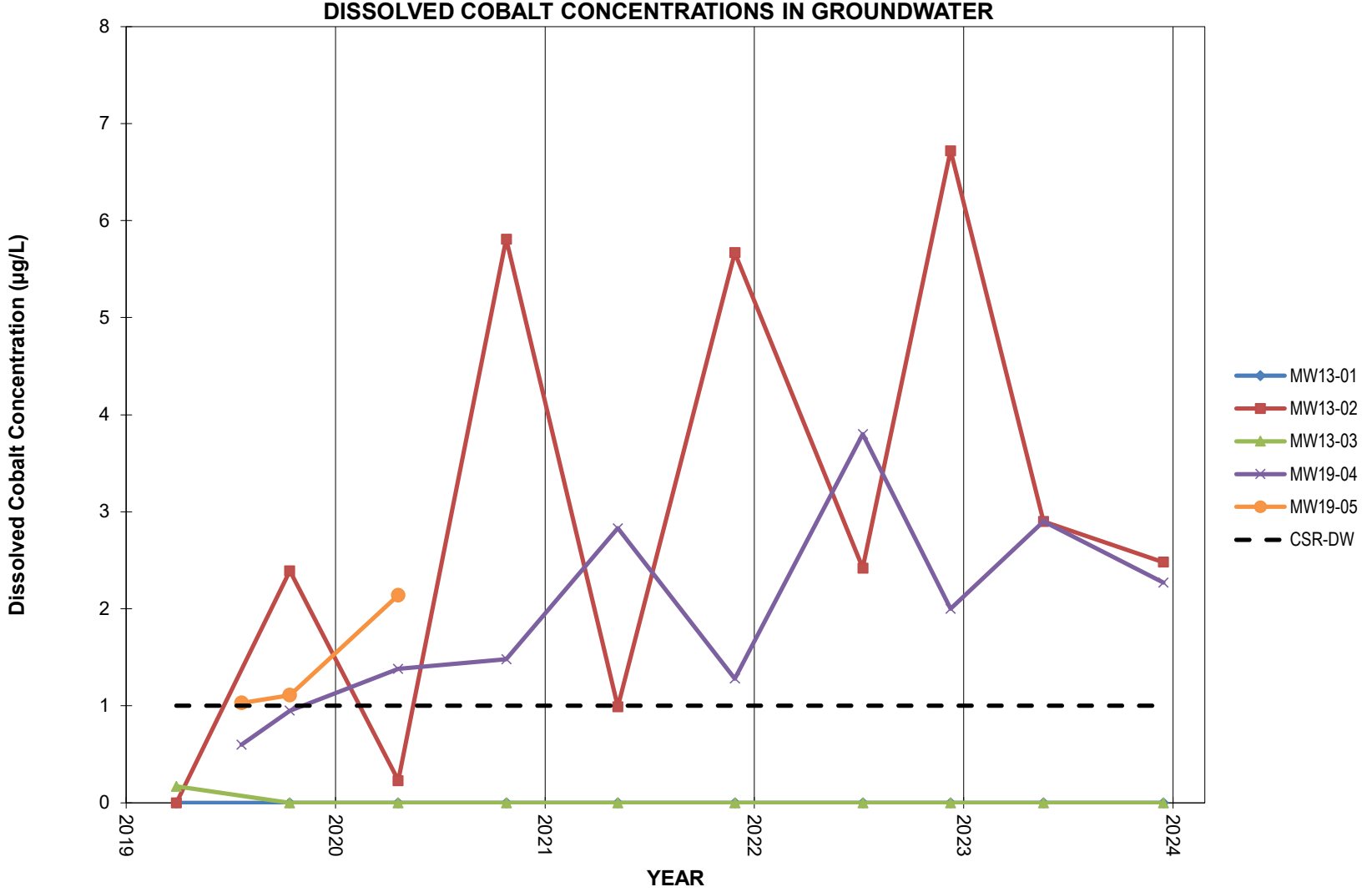
TETRA TECH

FIGURE 8
CHLORIDE CONCENTRATIONS IN GROUNDWATER



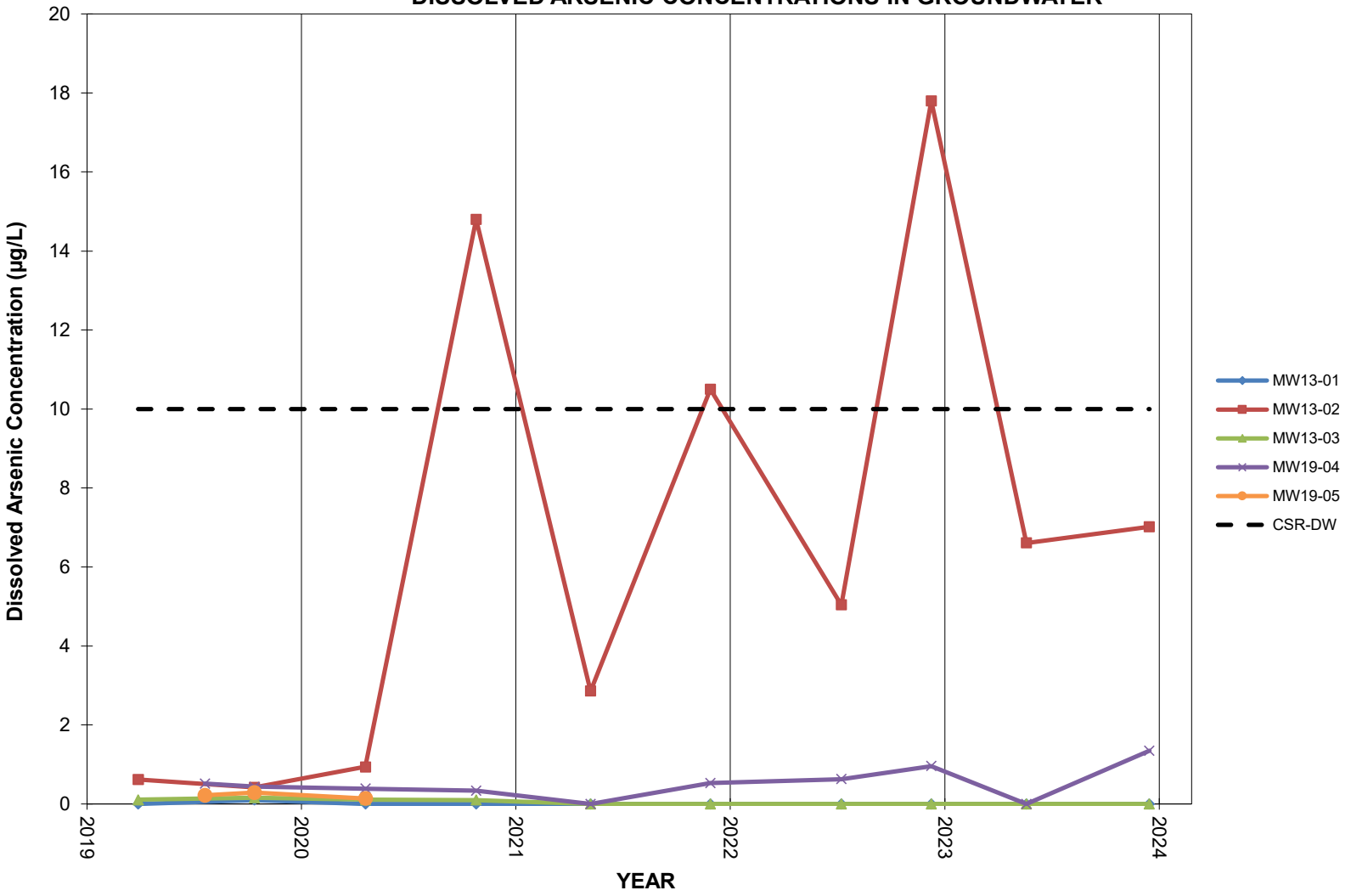
TETRA TECH

FIGURE 9
DISSOLVED COBALT CONCENTRATIONS IN GROUNDWATER



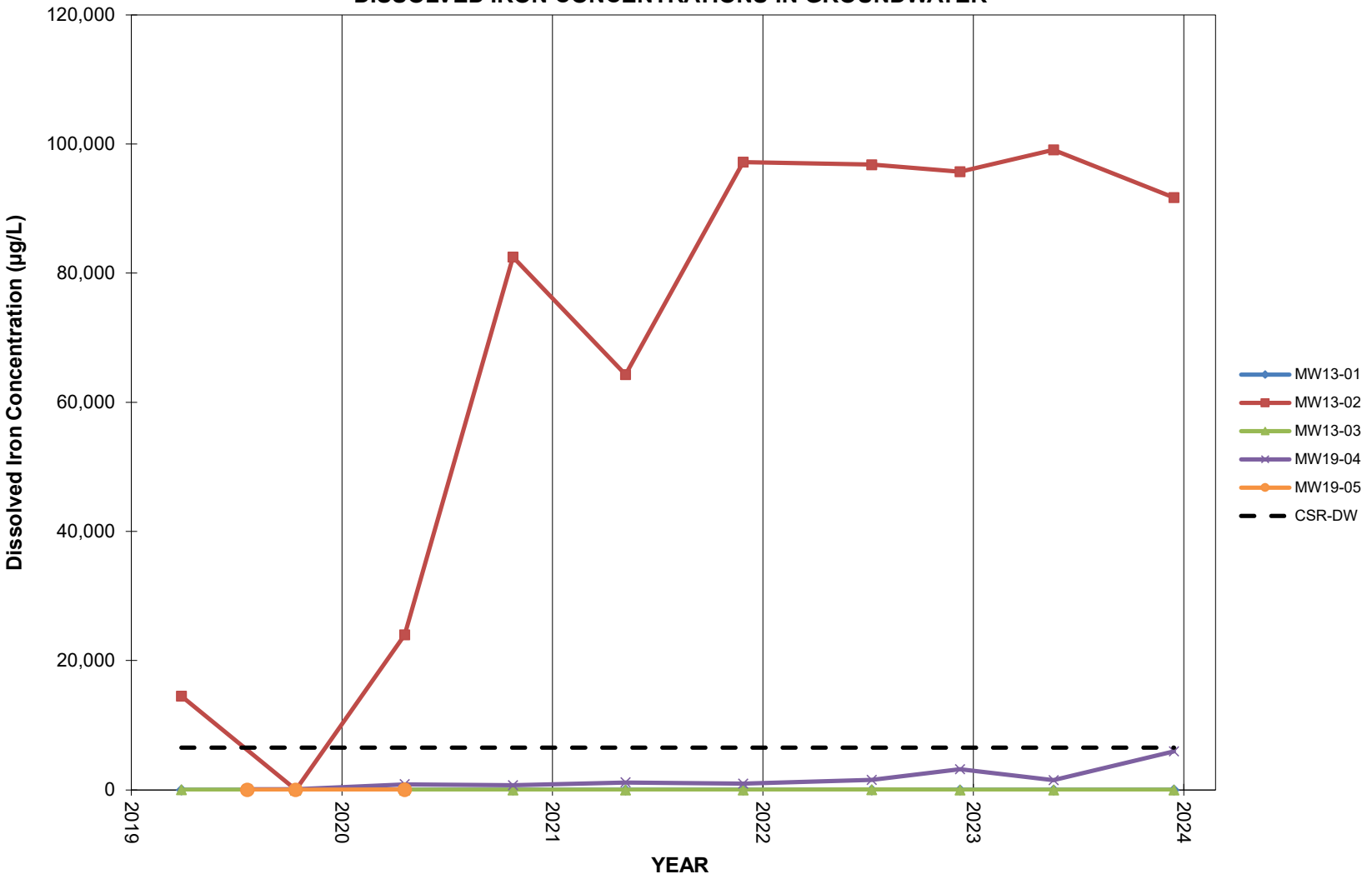
TETRA TECH

FIGURE 10
DISSOLVED ARSENIC CONCENTRATIONS IN GROUNDWATER



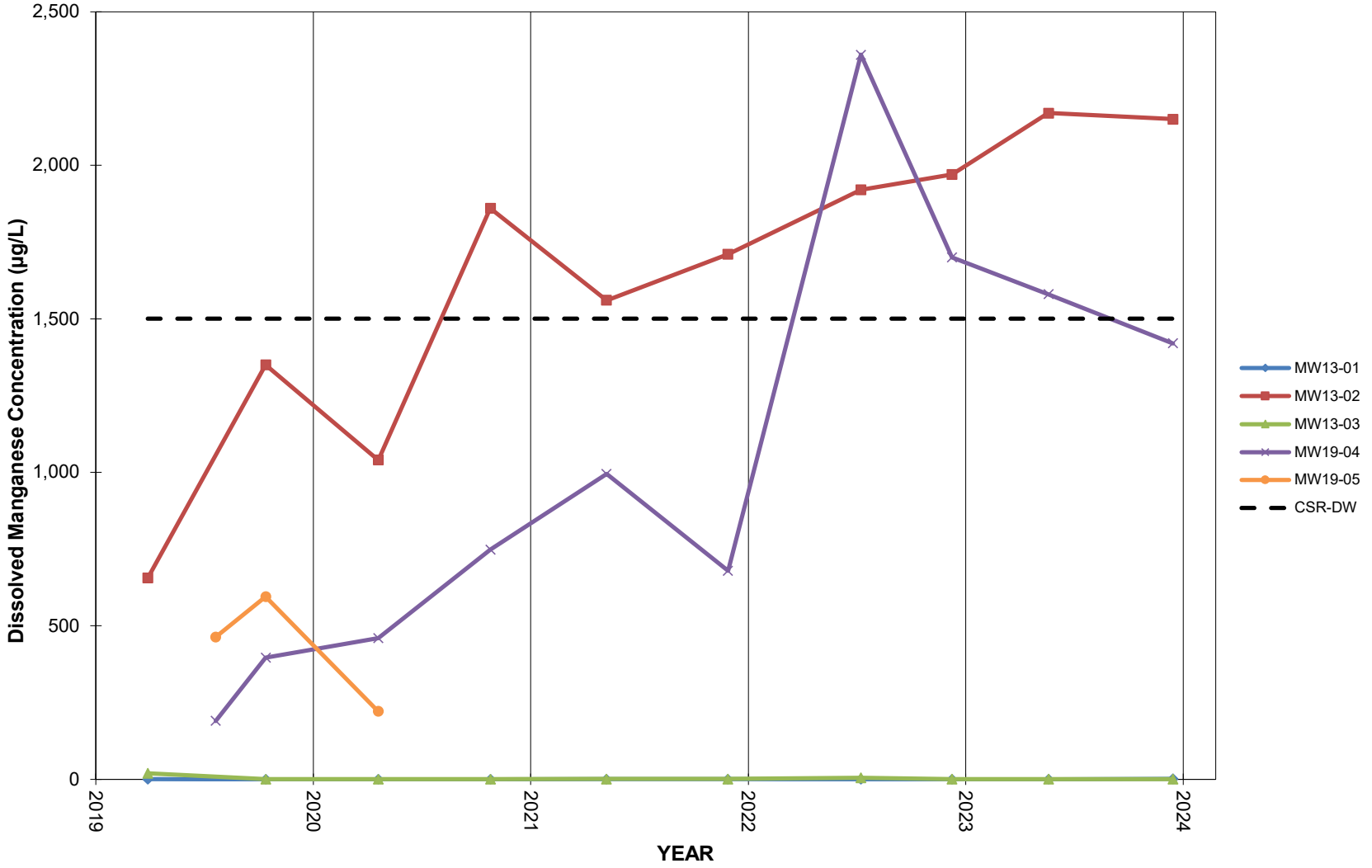
TETRA TECH

FIGURE 11
DISSOLVED IRON CONCENTRATIONS IN GROUNDWATER



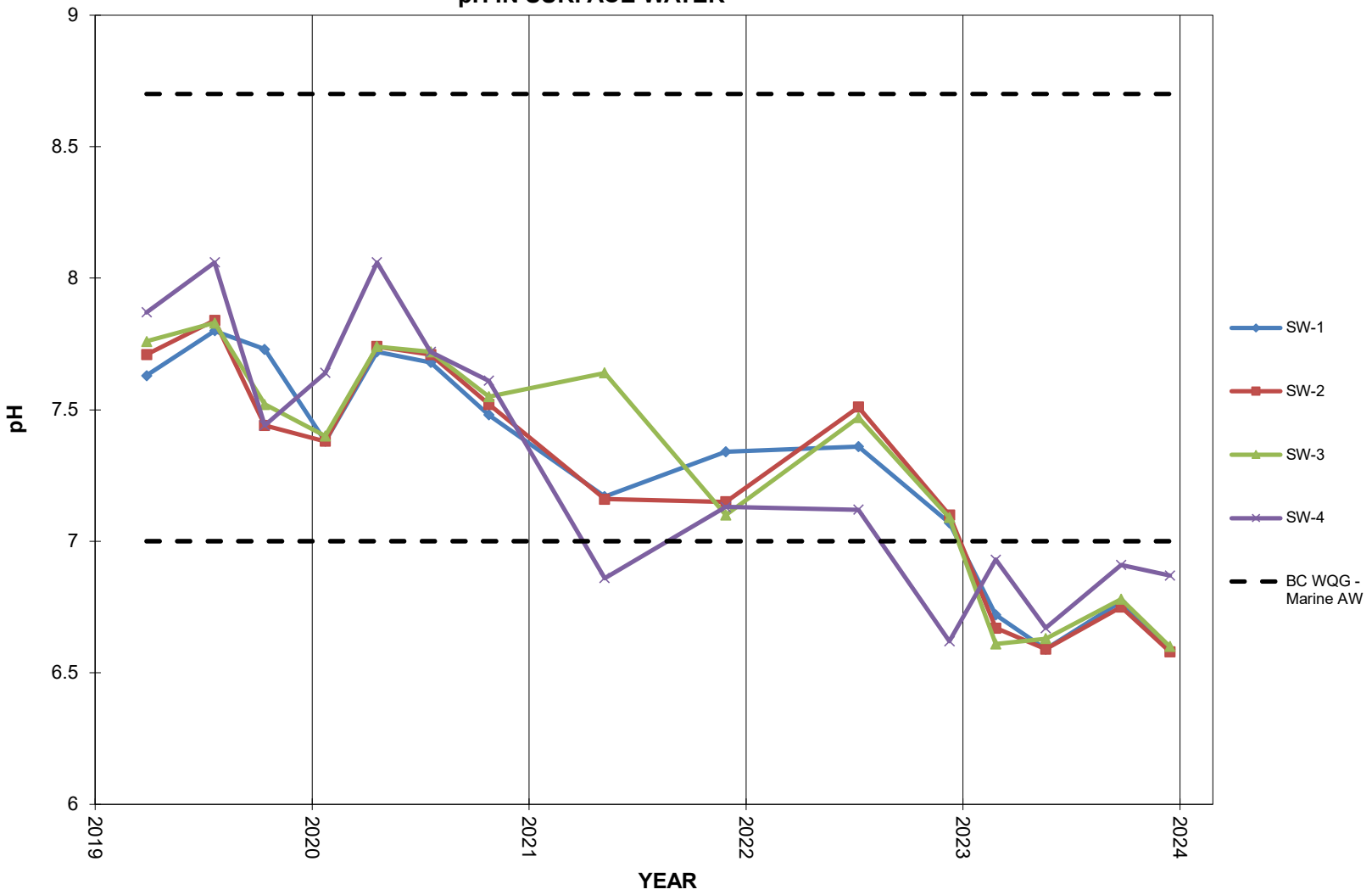
TETRA TECH

FIGURE 12
DISSOLVED MANGANESE CONCENTRATIONS IN GROUNDWATER



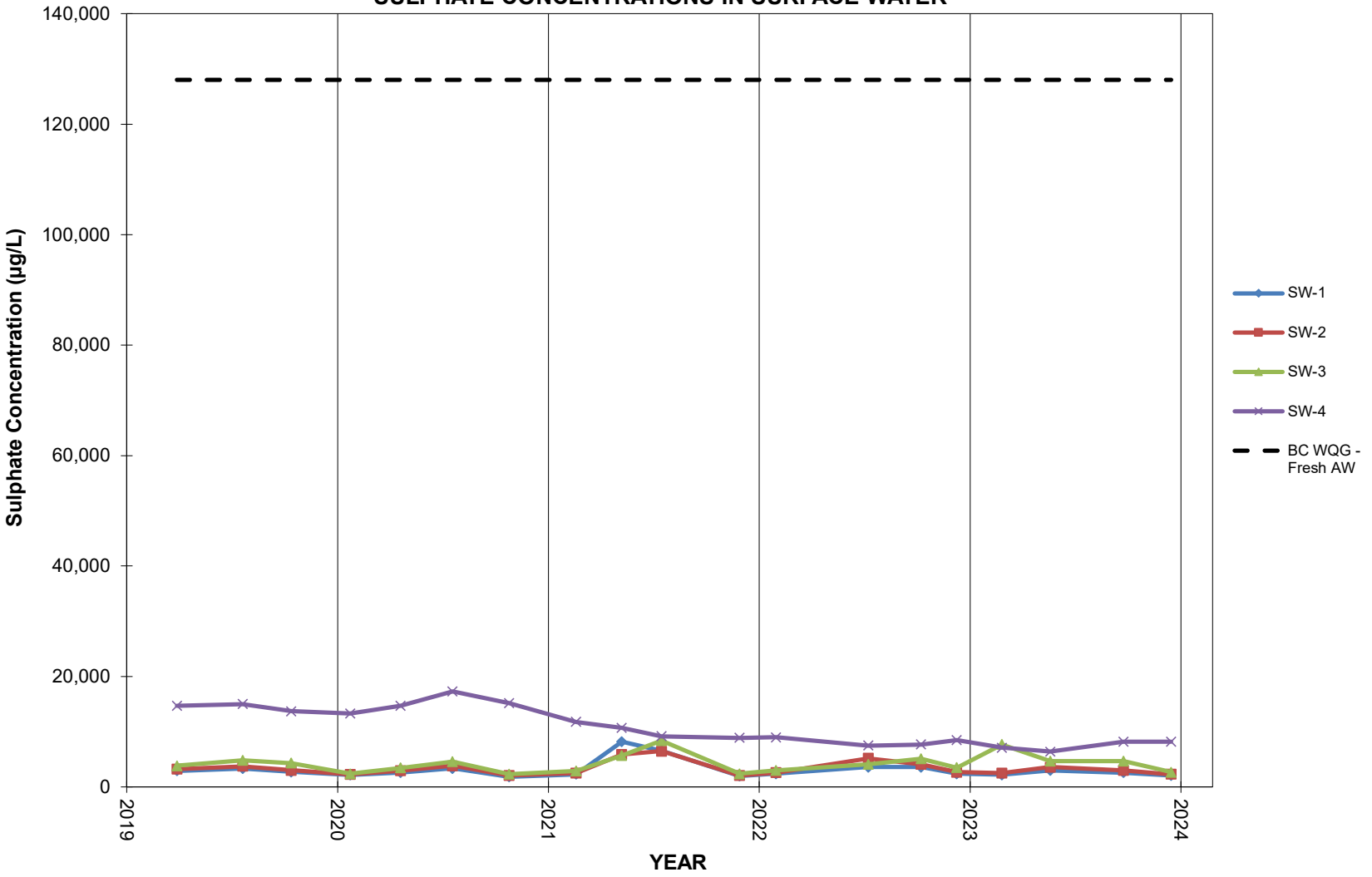
TETRA TECH

FIGURE 13
pH IN SURFACE WATER



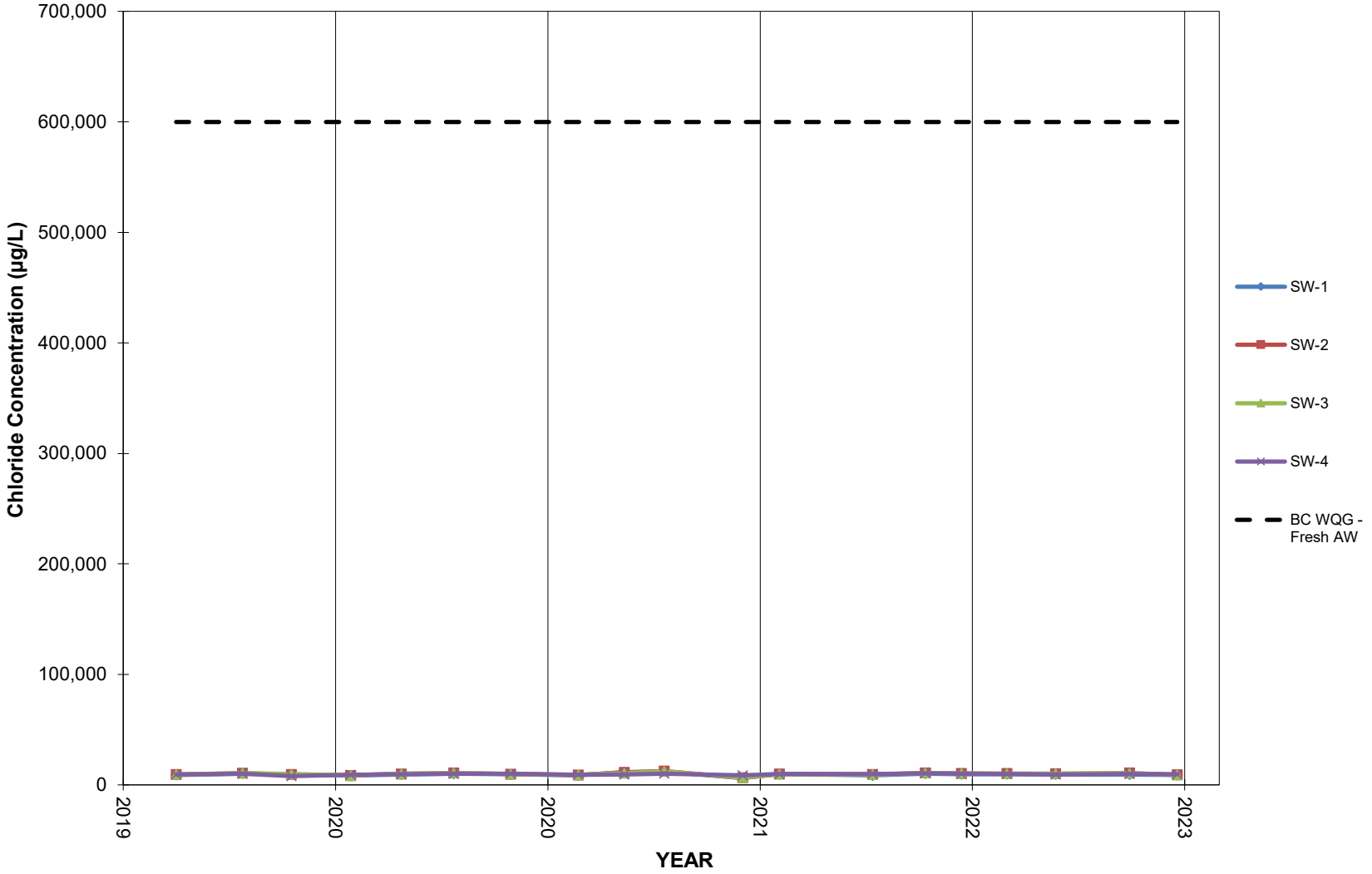
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FIGURE 14
SULPHATE CONCENTRATIONS IN SURFACE WATER



TETRA TECH

FIGURE 15
CHLORIDE CONCENTRATIONS IN SURFACE WATER



TETRA TECH

APPENDIX A

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

LABORATORY ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver) 1000 - 885 Dunsmuir Street Vancouver, BC V6C 1N5		
ATTENTION	Jeremy Reid	**WORK ORDER**	23C0154
PO NUMBER	704-SWM.SWOP03663-10	**RECEIVED / TEMP**	2023-03-01 10:23 / 2.2°C
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30
PROJECT INFO		**COC NUMBER**	No#

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at rpshyk@caro.ca

Authorized By:

Regan Pshyk
Account Manager

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23C0154-01) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**6.70**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	**0.395**	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**5.8**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-08	
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-04	
EPHw19-32	< 250	250	µg/L	2023-03-04	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*105*	*60-140*	%	*2023-03-04*	
Field Parameters					
Conductivity (EC)	**76**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**9.9**	1.0	mg/L	2023-02-28	
pH	**6.2**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**22**	-200	millivolts	2023-02-28	
Temperature, field	**9.7**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**40.4**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**40.4**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-03-02	
Conductivity (EC)	**111**	2.0	µS/cm	2023-03-03	
pH	**7.42**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-06	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-06	
Acridine	< 0.050	0.050	µg/L	2023-03-06	
Anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-06	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23C0154-01) | Matrix: Water | Sampled: 2023-02-28, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Chrysene	< 0.050	0.050	µg/L	2023-03-06	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-06	
Fluorene	< 0.050	0.050	µg/L	2023-03-06	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-06	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Naphthalene	< 0.200	0.200	µg/L	2023-03-06	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-06	
Pyrene	< 0.020	0.020	µg/L	2023-03-06	
Quinoline	< 0.050	0.050	µg/L	2023-03-06	
Surrogate: Acridine-d9	*113*	*50-140*	%	*2023-03-06*	
Surrogate: Naphthalene-d8	*116*	*50-140*	%	*2023-03-06*	
Surrogate: Perylene-d12	*125*	*50-140*	%	*2023-03-06*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-08	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-08	
Bromoform	< 1.0	1.0	µg/L	2023-03-08	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-08	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-08	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23C0154-01) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
Chloroethane	< 2.0	2.0	µg/L	2023-03-08	
Chloroform	< 1.0	1.0	µg/L	2023-03-08	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-08	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-08	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-08	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-08	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-08	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-08	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-08	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-08	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-08	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-08	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-08	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-08	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-08	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-08	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-08	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-08	
Styrene	< 1.0	1.0	µg/L	2023-03-08	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-08	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-08	
Toluene	< 1.0	1.0	µg/L	2023-03-08	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-08	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-08	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-08	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-08	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-08	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-08	
Surrogate: Toluene-d8	*99*	*70-130*	%	*2023-03-08*	
Surrogate: 4-Bromofluorobenzene	*75*	*70-130*	%	*2023-03-08*	
Surrogate: 1,4-Dichlorobenzene-d4	*92*	*70-130*	%	*2023-03-08*	
MW13-02 (23C0154-02) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**8.59**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**334**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23C0154-02) | Matrix: Water | Sampled: 2023-02-28, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-04	
EPHw19-32	< 250	250	µg/L	2023-03-04	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*109*	*60-140*	%	*2023-03-04*	
Field Parameters					
Conductivity (EC)	**1150**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**41.0**	1.0	mg/L	2023-02-28	
pH	**6.4**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**94**	-200	millivolts	2023-02-28	
Temperature, field	**12.2**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**416**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**416**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	**7.48**	0.050	mg/L	2023-03-02	
Conductivity (EC)	**1440**	2.0	µS/cm	2023-03-03	
pH	**6.97**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	**0.030**	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-06	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-06	
Acridine	< 0.050	0.050	µg/L	2023-03-06	
Anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Chrysene	< 0.050	0.050	µg/L	2023-03-06	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-06	
Fluorene	< 0.050	0.050	µg/L	2023-03-06	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-06	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23C0154-02) | Matrix: Water | Sampled: 2023-02-28, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Naphthalene	< 0.200	0.200	µg/L	2023-03-06	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-06	
Pyrene	< 0.020	0.020	µg/L	2023-03-06	
Quinoline	< 0.050	0.050	µg/L	2023-03-06	
Surrogate: Acridine-d9	*105*	*50-140*	%	*2023-03-06*	
Surrogate: Naphthalene-d8	*111*	*50-140*	%	*2023-03-06*	
Surrogate: Perylene-d12	*118*	*50-140*	%	*2023-03-06*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-03	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-03	
Bromoform	< 1.0	1.0	µg/L	2023-03-03	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-03	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
Chloroethane	< 2.0	2.0	µg/L	2023-03-03	
Chloroform	< 1.0	1.0	µg/L	2023-03-03	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-03	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-03	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23C0154-02) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-03	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-03	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-03	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-03	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-03	
Styrene	< 1.0	1.0	µg/L	2023-03-03	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-03	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Toluene	< 1.0	1.0	µg/L	2023-03-03	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-03	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-03	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-03	
Surrogate: Toluene-d8	*103*	*70-130*	%	*2023-03-03*	
Surrogate: 4-Bromofluorobenzene	*74*	*70-130*	%	*2023-03-03*	
Surrogate: 1,4-Dichlorobenzene-d4	*71*	*70-130*	%	*2023-03-03*	
MW13-03 (23C0154-03) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**27.3**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	**2.28**	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**35.5**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-03	
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-04	
EPHw19-32	< 250	250	µg/L	2023-03-04	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*105*	*60-140*	%	*2023-03-04*	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23C0154-03) | Matrix: Water | Sampled: 2023-02-28, Continued					
Field Parameters					
Conductivity (EC)	**324**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**5.8**	1.0	mg/L	2023-02-28	
pH	**5.9**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**110**	-200	millivolts	2023-02-28	
Temperature, field	**1.1**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**144**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**144**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	**0.054**	0.050	mg/L	2023-03-02	
Conductivity (EC)	**471**	2.0	µS/cm	2023-03-03	
pH	**6.97**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-06	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-06	
Acridine	< 0.050	0.050	µg/L	2023-03-06	
Anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Chrysene	< 0.050	0.050	µg/L	2023-03-06	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-06	
Fluorene	< 0.050	0.050	µg/L	2023-03-06	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-06	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Naphthalene	< 0.200	0.200	µg/L	2023-03-06	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-06	
Pyrene	< 0.020	0.020	µg/L	2023-03-06	
Quinoline	< 0.050	0.050	µg/L	2023-03-06	
Surrogate: Acridine-d9	*110*	*50-140*	%	*2023-03-06*	
Surrogate: Naphthalene-d8	*114*	*50-140*	%	*2023-03-06*	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23C0154-03) | Matrix: Water | Sampled: 2023-02-28, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Surrogate: Perylene-d12	*121*	*50-140*	%	*2023-03-06*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-03	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-03	
Bromoform	< 1.0	1.0	µg/L	2023-03-03	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-03	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
Chloroethane	< 2.0	2.0	µg/L	2023-03-03	
Chloroform	< 1.0	1.0	µg/L	2023-03-03	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-03	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-03	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-03	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23C0154-03) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-03	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-03	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-03	
Styrene	< 1.0	1.0	µg/L	2023-03-03	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-03	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Toluene	< 1.0	1.0	µg/L	2023-03-03	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-03	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-03	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-03	
Surrogate: Toluene-d8	*103*	*70-130*	%	*2023-03-03*	
Surrogate: 4-Bromofluorobenzene	*70*	*70-130*	%	*2023-03-03*	
Surrogate: 1,4-Dichlorobenzene-d4	*66*	*70-130*	%	*2023-03-03*	S02
MW19-04 (23C0154-04) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**5.83**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**2.9**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-03	
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-04	
EPHw19-32	< 250	250	µg/L	2023-03-04	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*108*	*60-140*	%	*2023-03-04*	
Field Parameters					
Conductivity (EC)	**209**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**4.8**	1.0	mg/L	2023-02-28	
pH	**6.2**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**32**	-200	millivolts	2023-02-28	
Temperature, field	**7.1**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**158**	1.0	mg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-04 (23C0154-04) | Matrix: Water | Sampled: 2023-02-28, Continued					
General Parameters, Continued					
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**158**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	**0.092**	0.050	mg/L	2023-03-02	
Conductivity (EC)	**339**	2.0	µS/cm	2023-03-03	
pH	**7.10**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-06	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-06	
Acridine	< 0.050	0.050	µg/L	2023-03-06	
Anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-06	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-06	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-06	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Chrysene	< 0.050	0.050	µg/L	2023-03-06	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-06	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-06	
Fluorene	< 0.050	0.050	µg/L	2023-03-06	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-06	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-06	
Naphthalene	< 0.200	0.200	µg/L	2023-03-06	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-06	
Pyrene	< 0.020	0.020	µg/L	2023-03-06	
Quinoline	< 0.050	0.050	µg/L	2023-03-06	
Surrogate: Acridine-d9	*107*	*50-140*	%	*2023-03-06*	
Surrogate: Naphthalene-d8	*109*	*50-140*	%	*2023-03-06*	
Surrogate: Perylene-d12	*118*	*50-140*	%	*2023-03-06*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-04 (23C0154-04) | Matrix: Water | Sampled: 2023-02-28, Continued					
Resin and Fatty Acids, Continued					
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-03	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-03	
Bromoform	< 1.0	1.0	µg/L	2023-03-03	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-03	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
Chloroethane	< 2.0	2.0	µg/L	2023-03-03	
Chloroform	< 1.0	1.0	µg/L	2023-03-03	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-03	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-03	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-03	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-03	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-03	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-03	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-03	
Styrene	< 1.0	1.0	µg/L	2023-03-03	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-03	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Toluene	< 1.0	1.0	µg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-04 (23C0154-04) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-03	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-03	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-03	
Surrogate: Toluene-d8	*129*	*70-130*	%	*2023-03-03*	
Surrogate: 4-Bromofluorobenzene	*86*	*70-130*	%	*2023-03-03*	
Surrogate: 1,4-Dichlorobenzene-d4	*81*	*70-130*	%	*2023-03-03*	
SW1 (23C0154-05) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**9.73**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	**0.093**	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**2.2**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-03	
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-03	
EPHw19-32	< 250	250	µg/L	2023-03-03	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*113*	*60-140*	%	*2023-03-03*	
Field Parameters					
Conductivity (EC)	**51**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**12.3**	1.0	mg/L	2023-02-28	
pH	**7.3**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**77**	-200	millivolts	2023-02-28	
Temperature, field	**4.0**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**25.2**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**25.2**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-03-02	
Conductivity (EC)	**88.0**	2.0	µS/cm	2023-03-03	
pH	**6.72**	0.10	pH units	2023-03-03	HT2

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23C0154-05) | Matrix: Water | Sampled: 2023-02-28, Continued					
General Parameters, Continued					
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-04	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-04	
Acridine	< 0.050	0.050	µg/L	2023-03-04	
Anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Chrysene	< 0.050	0.050	µg/L	2023-03-04	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-04	
Fluorene	< 0.050	0.050	µg/L	2023-03-04	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-04	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Naphthalene	< 0.200	0.200	µg/L	2023-03-04	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-04	
Pyrene	< 0.020	0.020	µg/L	2023-03-04	
Quinoline	< 0.050	0.050	µg/L	2023-03-04	
Surrogate: Acridine-d9	*110*	*50-140*	%	*2023-03-04*	
Surrogate: Naphthalene-d8	*110*	*50-140*	%	*2023-03-04*	
Surrogate: Perylene-d12	*120*	*50-140*	%	*2023-03-04*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23C0154-05) | Matrix: Water | Sampled: 2023-02-28, Continued					
Resin and Fatty Acids, Continued					
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-03	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-03	
Bromoform	< 1.0	1.0	µg/L	2023-03-03	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-03	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
Chloroethane	< 2.0	2.0	µg/L	2023-03-03	
Chloroform	< 1.0	1.0	µg/L	2023-03-03	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-03	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-03	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-03	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-03	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-03	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-03	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-03	
Styrene	< 1.0	1.0	µg/L	2023-03-03	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-03	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Toluene	< 1.0	1.0	µg/L	2023-03-03	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-03	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-03	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-03	
Surrogate: Toluene-d8	*100*	*70-130*	%	*2023-03-03*	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23C0154-05) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
Surrogate: 4-Bromofluorobenzene	*71*	*70-130*	%	*2023-03-03*	
Surrogate: 1,4-Dichlorobenzene-d4	*66*	*70-130*	%	*2023-03-03*	S02
SW2 (23C0154-06) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**10.3**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	**0.111**	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**2.5**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-03	
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-03	
EPHw19-32	< 250	250	µg/L	2023-03-03	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*106*	*60-140*	%	*2023-03-03*	
Field Parameters					
Conductivity (EC)	**54**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**12.5**	1.0	mg/L	2023-02-28	
pH	**7.4**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**59**	-200	millivolts	2023-02-28	
Temperature, field	**3.8**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**28.4**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**28.4**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-03-02	
Conductivity (EC)	**93.1**	2.0	µS/cm	2023-03-03	
pH	**6.67**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-04	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW2 (23C0154-06) | Matrix: Water | Sampled: 2023-02-28, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-04	
Acridine	< 0.050	0.050	µg/L	2023-03-04	
Anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Chrysene	< 0.050	0.050	µg/L	2023-03-04	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-04	
Fluorene	< 0.050	0.050	µg/L	2023-03-04	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-04	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Naphthalene	< 0.200	0.200	µg/L	2023-03-04	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-04	
Pyrene	< 0.020	0.020	µg/L	2023-03-04	
Quinoline	< 0.050	0.050	µg/L	2023-03-04	
Surrogate: Acridine-d9	*113*	*50-140*	%	*2023-03-04*	
Surrogate: Naphthalene-d8	*113*	*50-140*	%	*2023-03-04*	
Surrogate: Perylene-d12	*123*	*50-140*	%	*2023-03-04*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW2 (23C0154-06) | Matrix: Water | Sampled: 2023-02-28, Continued					
Resin and Fatty Acids, Continued					
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-03	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-03	
Bromoform	< 1.0	1.0	µg/L	2023-03-03	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-03	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
Chloroethane	< 2.0	2.0	µg/L	2023-03-03	
Chloroform	< 1.0	1.0	µg/L	2023-03-03	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-03	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-03	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-03	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-03	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-03	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-03	
Methyl tert-butyl ether	**1.7**	1.0	µg/L	2023-03-03	
Styrene	< 1.0	1.0	µg/L	2023-03-03	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-03	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Toluene	< 1.0	1.0	µg/L	2023-03-03	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-03	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-03	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-03	
Surrogate: Toluene-d8	*104*	*70-130*	%	*2023-03-03*	
Surrogate: 4-Bromofluorobenzene	*71*	*70-130*	%	*2023-03-03*	
Surrogate: 1,4-Dichlorobenzene-d4	*65*	*70-130*	%	*2023-03-03*	S02
SW3 (23C0154-07) | Matrix: Water | Sampled: 2023-02-28					
Anions					

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23C0154-07) | Matrix: Water | Sampled: 2023-02-28, Continued					
Anions, Continued					
Chloride	**10.2**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	**0.117**	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**7.7**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-09	
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-03	
EPHw19-32	< 250	250	µg/L	2023-03-03	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*110*	*60-140*	%	*2023-03-03*	
Field Parameters					
Conductivity (EC)	**58**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**12.5**	1.0	mg/L	2023-02-28	
pH	**7.1**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**77**	-200	millivolts	2023-02-28	
Temperature, field	**3.9**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**24.6**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**24.6**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-03-02	
Conductivity (EC)	**103**	2.0	µS/cm	2023-03-03	
pH	**6.61**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-04	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-04	
Acridine	< 0.050	0.050	µg/L	2023-03-04	
Anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-04	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23C0154-07) | Matrix: Water | Sampled: 2023-02-28, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Chrysene	< 0.050	0.050	µg/L	2023-03-04	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-04	
Fluorene	< 0.050	0.050	µg/L	2023-03-04	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-04	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Naphthalene	< 0.200	0.200	µg/L	2023-03-04	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-04	
Pyrene	< 0.020	0.020	µg/L	2023-03-04	
Quinoline	< 0.050	0.050	µg/L	2023-03-04	
Surrogate: Acridine-d9	*111*	*50-140*	%	*2023-03-04*	
Surrogate: Naphthalene-d8	*110*	*50-140*	%	*2023-03-04*	
Surrogate: Perylene-d12	*119*	*50-140*	%	*2023-03-04*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-09	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-09	
Bromoform	< 1.0	1.0	µg/L	2023-03-09	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-09	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-09	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23C0154-07) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
Chloroethane	< 2.0	2.0	µg/L	2023-03-09	
Chloroform	< 1.0	1.0	µg/L	2023-03-09	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-09	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-09	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-09	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-09	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-09	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-09	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-09	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-09	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-09	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-09	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-09	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-09	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-09	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-09	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-09	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-09	
Styrene	< 1.0	1.0	µg/L	2023-03-09	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-09	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-09	
Toluene	< 1.0	1.0	µg/L	2023-03-09	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-09	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-09	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-09	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-09	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-09	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-09	
Surrogate: Toluene-d8	*111*	*70-130*	%	*2023-03-09*	
Surrogate: 4-Bromofluorobenzene	*85*	*70-130*	%	*2023-03-09*	
Surrogate: 1,4-Dichlorobenzene-d4	*87*	*70-130*	%	*2023-03-09*	
SW4 (23C0154-08) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**9.89**	0.10	mg/L	2023-03-02	
Fluoride	< 0.10	0.10	mg/L	2023-03-02	
Nitrate (as N)	**0.028**	0.010	mg/L	2023-03-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-02	
Sulfate	**7.1**	1.0	mg/L	2023-03-02	
BCMOE Aggregate Hydrocarbons					
VHw (6-10)	< 100	100	µg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23C0154-08) | Matrix: Water | Sampled: 2023-02-28, Continued					
BCMOE Aggregate Hydrocarbons, Continued					
VPHw	< 100	100	µg/L	N/A	
EPHw10-19	< 250	250	µg/L	2023-03-03	
EPHw19-32	< 250	250	µg/L	2023-03-03	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	*95*	*60-140*	%	*2023-03-03*	
Field Parameters					
Conductivity (EC)	**103**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**8.9**	1.0	mg/L	2023-02-28	
pH	**6.7**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**40**	-200	millivolts	2023-02-28	
Temperature, field	**8.9**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**66.7**	1.0	mg/L	2023-03-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**66.7**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-03-02	
Conductivity (EC)	**153**	2.0	µS/cm	2023-03-03	
pH	**6.93**	0.10	pH units	2023-03-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-03-03	
Miscellaneous Subcontracted Parameters					
Phenolics, Total	< 0.00200	0.00200	mg/L	2023-03-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2023-03-04	
Acenaphthylene	< 0.200	0.200	µg/L	2023-03-04	
Acridine	< 0.050	0.050	µg/L	2023-03-04	
Anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benz(a)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2023-03-04	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2023-03-04	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2023-03-04	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Chrysene	< 0.050	0.050	µg/L	2023-03-04	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2023-03-04	
Fluoranthene	< 0.030	0.030	µg/L	2023-03-04	
Fluorene	< 0.050	0.050	µg/L	2023-03-04	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2023-03-04	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23C0154-08) | Matrix: Water | Sampled: 2023-02-28, Continued					
Polycyclic Aromatic Hydrocarbons (PAH), Continued					
1-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2023-03-04	
Naphthalene	< 0.200	0.200	µg/L	2023-03-04	
Phenanthrene	< 0.100	0.100	µg/L	2023-03-04	
Pyrene	< 0.020	0.020	µg/L	2023-03-04	
Quinoline	< 0.050	0.050	µg/L	2023-03-04	
Surrogate: Acridine-d9	*99*	*50-140*	%	*2023-03-04*	
Surrogate: Naphthalene-d8	*99*	*50-140*	%	*2023-03-04*	
Surrogate: Perylene-d12	*106*	*50-140*	%	*2023-03-04*	
Resin and Fatty Acids					
Linoleic Acid	< 10	10	µg/L	2023-03-07	
Linolenic Acid	< 10	10	µg/L	2023-03-07	
Oleic Acid	< 10	10	µg/L	2023-03-07	
9,10-Dichlorostearic Acid	< 10	10	µg/L	2023-03-07	
Stearic Acid	< 10	10	µg/L	2023-03-07	
Fatty Acids, Total	< 10	10	µg/L	2023-03-07	
Pimaric Acid	< 10	10	µg/L	2023-03-07	
Sandaracopimaric Acid	< 10	10	µg/L	2023-03-07	
Isopimaric Acid	< 10	10	µg/L	2023-03-07	
Palustric Acid	< 10	10	µg/L	2023-03-07	
Levopimaric Acid	< 10	10	µg/L	2023-03-07	
Dehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Abietic Acid	< 10	10	µg/L	2023-03-07	
Neoabietic Acid	< 10	10	µg/L	2023-03-07	
14-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12-Chlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
12,14-Dichlorodehydroabietic Acid	< 10	10	µg/L	2023-03-07	
Resin Acids, total	< 10	10	µg/L	2023-03-07	
Resin and Fatty Acids, total	< 10	10	µg/L	2023-03-07	
Volatile Organic Compounds (VOC)					
Benzene	< 0.5	0.5	µg/L	2023-03-03	
Bromodichloromethane	< 1.0	1.0	µg/L	2023-03-03	
Bromoform	< 1.0	1.0	µg/L	2023-03-03	
Carbon tetrachloride	< 0.5	0.5	µg/L	2023-03-03	
Chlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
Chloroethane	< 2.0	2.0	µg/L	2023-03-03	
Chloroform	< 1.0	1.0	µg/L	2023-03-03	
Dibromochloromethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dibromoethane	< 0.3	0.3	µg/L	2023-03-03	
Dibromomethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L	2023-03-03	
1,3-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23C0154-08) | Matrix: Water | Sampled: 2023-02-28, Continued					
Volatile Organic Compounds (VOC), Continued					
1,4-Dichlorobenzene	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,2-Dichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Dichloromethane	< 3.0	3.0	µg/L	2023-03-03	
1,2-Dichloropropane	< 1.0	1.0	µg/L	2023-03-03	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L	2023-03-03	
Ethylbenzene	< 1.0	1.0	µg/L	2023-03-03	
Methyl tert-butyl ether	< 1.0	1.0	µg/L	2023-03-03	
Styrene	< 1.0	1.0	µg/L	2023-03-03	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L	2023-03-03	
Tetrachloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Toluene	< 1.0	1.0	µg/L	2023-03-03	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L	2023-03-03	
Trichloroethylene	< 1.0	1.0	µg/L	2023-03-03	
Trichlorofluoromethane	< 1.0	1.0	µg/L	2023-03-03	
Vinyl chloride	< 1.0	1.0	µg/L	2023-03-03	
Xylenes (total)	< 2.0	2.0	µg/L	2023-03-03	
Surrogate: Toluene-d8	*136*	*70-130*	%	*2023-03-03*	S02
Surrogate: 4-Bromofluorobenzene	*90*	*70-130*	%	*2023-03-03*	
Surrogate: 1,4-Dichlorobenzene-d4	*88*	*70-130*	%	*2023-03-03*	
DUP1 (23C0154-09) | Matrix: Water | Sampled: 2023-02-28					
Anions					
Chloride	**10.2**	0.10	mg/L	2023-03-03	
Fluoride	< 0.10	0.10	mg/L	2023-03-03	
Nitrate (as N)	**0.115**	0.010	mg/L	2023-03-03	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-03-03	
Sulfate	**3.6**	1.0	mg/L	2023-03-03	
Field Parameters					
Conductivity (EC)	**58**	2	µS/cm	2023-02-28	
Oxygen, Dissolved	**12.5**	1.0	mg/L	2023-02-28	
pH	**7.1**	0.1	pH units	2023-02-28	
Oxidation/Reduction Potential	**77**	-200	millivolts	2023-02-28	
Temperature, field	**3.9**		°C	2023-02-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**29.6**	1.0	mg/L	2023-03-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP1 (23C0154-09) | Matrix: Water | Sampled: 2023-02-28, Continued					
General Parameters, Continued					
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Bicarbonate (as CaCO3)	**29.6**	1.0	mg/L	2023-03-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-03-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-03-02	
Conductivity (EC)	**101**	2.0	µS/cm	2023-03-03	
pH	**6.74**	0.10	pH units	2023-03-03	HT2

Sample Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
EPH in Water	EPA 3511* / BCMOE EPHw	Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID)	✓	Richmond
HEPHw in Water	BCMOE LEPH/HEPH	Calculation		N/A
LEPHw in Water	BCMOE LEPH/HEPH	Calculation		N/A
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phenolics in Water	EPA 9066	Auto-Distill-Colorimetric		Sublet
Polycyclic Aromatic Hydrocarbons in Water	EPA 3511* / EPA 8270D	Hexane MicroExtraction (Base/Neutral) / GC-MSD (SIM)	✓	Richmond
Resin and Fatty Acids in Water	MA414Acigr10	N/A		Sublet
Sulfide, Total in Water	SM 4500-S2 D* (2021)	Colorimetry (Methylene Blue)	✓	Edmonton
VH in Water	EPA 5030B / BCMOE VHw	Purge&Trap / Gas Chromatography (GC-FID)	✓	Richmond
Volatile Organic Compounds in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond
VPHw in Water	BCMOE VPH	Calculation: VH - (Benzene + Toluene + Ethylbenzene + Xylenes + Styrene)		N/A

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
BCMOE	British Columbia Environmental Laboratory Manual, British Columbia Ministry of Environment
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B3C0108										
Blank (B3C0108-BLK1)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B3C0108-BLK2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B3C0108-BS1)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Chloride	16.4	0.10	mg/L	16.0		103	90-110			
Fluoride	4.20	0.10	mg/L	4.00		105	88-108			
Nitrate (as N)	4.05	0.010	mg/L	4.00		101	90-110			
Nitrite (as N)	2.12	0.010	mg/L	2.00		106	85-115			
Sulfate	16.2	1.0	mg/L	16.0		101	90-110			
LCS (B3C0108-BS2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Chloride	16.4	0.10	mg/L	16.0		102	90-110			
Fluoride	4.13	0.10	mg/L	4.00		103	88-108			
Nitrate (as N)	4.02	0.010	mg/L	4.00		100	90-110			
Nitrite (as N)	2.06	0.010	mg/L	2.00		103	85-115			
Sulfate	16.3	1.0	mg/L	16.0		102	90-110			
BCMOE Aggregate Hydrocarbons, Batch B3C0184										
Blank (B3C0184-BLK1)				Prepared: 2023-03-02, Analyzed: 2023-03-03						
VHw (6-10)	< 100	100	µg/L							
LCS (B3C0184-BS2)				Prepared: 2023-03-02, Analyzed: 2023-03-03						
VHw (6-10)	1630	100	µg/L	2140		76	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
BCMOE Aggregate Hydrocarbons, Batch B3C0301										
Blank (B3C0301-BLK1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
EPHw10-19	< 250	250	µg/L							
EPHw19-32	< 250	250	µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	*3840*		*µg/L*	4440		*86*	*60-140*			
LCS (B3C0301-BS2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
EPHw10-19	15600	250	µg/L	15400		101	70-130			
EPHw19-32	23600	250	µg/L	22200		106	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	*2080*		*µg/L*	2220		*94*	*60-140*			
LCS Dup (B3C0301-BSD2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
EPHw10-19	15700	250	µg/L	15400		102	70-130	< 1	20	
EPHw19-32	24000	250	µg/L	22200		108	70-130	1	20	
Surrogate: 2-Methylnonane (EPH/F2-4)	*1960*		*µg/L*	2220		*88*	*60-140*			
BCMOE Aggregate Hydrocarbons, Batch B3C0435										
Blank (B3C0435-BLK1)				Prepared: 2023-03-04, Analyzed: 2023-03-04						
EPHw10-19	< 250	250	µg/L							
EPHw19-32	< 250	250	µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	*1590*		*µg/L*	2220		*72*	*60-140*			
LCS (B3C0435-BS2)				Prepared: 2023-03-04, Analyzed: 2023-03-04						
EPHw10-19	15200	250	µg/L	15400		99	70-130			
EPHw19-32	21900	250	µg/L	22200		98	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	*2340*		*µg/L*	2220		*105*	*60-140*			
LCS Dup (B3C0435-BSD2)				Prepared: 2023-03-04, Analyzed: 2023-03-04						
EPHw10-19	15500	250	µg/L	15400		100	70-130	1	20	
EPHw19-32	22300	250	µg/L	22200		100	70-130	2	20	
Surrogate: 2-Methylnonane (EPH/F2-4)	*2280*		*µg/L*	2220		*102*	*60-140*			
BCMOE Aggregate Hydrocarbons, Batch B3C0843										
Blank (B3C0843-BLK1)				Prepared: 2023-03-08, Analyzed: 2023-03-08						
VHw (6-10)	< 100	100	µg/L							
LCS (B3C0843-BS2)				Prepared: 2023-03-08, Analyzed: 2023-03-08						
VHw (6-10)	2040	100	µg/L	2140		95	70-130			
LCS (B3C0843-BS4)				Prepared: 2023-03-08, Analyzed: 2023-03-08						
VHw (6-10)	1970	100	µg/L	2140		92	70-130			
Duplicate (B3C0843-DUP1)		**Source: 23C0154-07**		Prepared: 2023-03-09, Analyzed: 2023-03-09						
VHw (6-10)	< 100	100	µg/L		< 100				30	
General Parameters, Batch B3C0165										
Blank (B3C0165-BLK1)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B3C0165-BLK2)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B3C0165-BLK3)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3C0165, Continued										
LCS (B3C0165-BS1)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Ammonia, Total (as N)	0.990	0.050	mg/L	1.00		99	85-115			
LCS (B3C0165-BS2)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Ammonia, Total (as N)	1.04	0.050	mg/L	1.00		104	85-115			
LCS (B3C0165-BS3)				Prepared: 2023-03-02, Analyzed: 2023-03-02						
Ammonia, Total (as N)	1.00	0.050	mg/L	1.00		100	85-115			
General Parameters, Batch B3C0307										
Blank (B3C0307-BLK1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B3C0307-BLK2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B3C0307-BLK3)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B3C0307-BS1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	100	1.0	mg/L	100		100	80-120			
LCS (B3C0307-BS2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	97.9	1.0	mg/L	100		98	80-120			
LCS (B3C0307-BS3)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	105	1.0	mg/L	100		105	80-120			
LCS (B3C0307-BS4)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Conductivity (EC)	1420	2.0	µS/cm	1410		101	95-105			
LCS (B3C0307-BS5)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Conductivity (EC)	1420	2.0	µS/cm	1410		100	95-105			
LCS (B3C0307-BS6)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Conductivity (EC)	1420	2.0	µS/cm	1410		101	95-105			
Duplicate (B3C0307-DUP3)		**Source: 23C0154-01**		Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Total (as CaCO3)	43.8	1.0	mg/L		40.4			8	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	43.8	1.0	mg/L		40.4			8	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3C0307, Continued										
Duplicate (B3C0307-DUP3), Continued		**Source: 23C0154-01**		Prepared: 2023-03-03, Analyzed: 2023-03-03						
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Conductivity (EC)	109	2.0	µS/cm		111			2	5	
Reference (B3C0307-SRM1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
pH	7.01	0.10	pH units	7.01		100	98-102			
Reference (B3C0307-SRM2)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
pH	7.02	0.10	pH units	7.01		100	98-102			
Reference (B3C0307-SRM3)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
pH	7.02	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B3C0367										
Blank (B3C0367-BLK1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Sulfide, Total	< 0.020	0.020	mg/L							
LCS (B3C0367-BS1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Sulfide, Total	0.503	0.020	mg/L	0.520		97	80-120			
Duplicate (B3C0367-DUP1)		**Source: 23C0154-04**		Prepared: 2023-03-03, Analyzed: 2023-03-03						
Sulfide, Total	< 0.020	0.020	mg/L		< 0.020				15	
Matrix Spike (B3C0367-MS1)		**Source: 23C0154-08**		Prepared: 2023-03-03, Analyzed: 2023-03-03						
Sulfide, Total	0.545	0.020	mg/L	0.520	< 0.020	105	70-130			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B3C0301										
Blank (B3C0301-BLK1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Acenaphthene	< 0.050	0.050	µg/L							
Acenaphthylene	< 0.200	0.200	µg/L							
Acridine	< 0.050	0.050	µg/L							
Anthracene	< 0.010	0.010	µg/L							
Benz(a)anthracene	< 0.010	0.010	µg/L							
Benzo(a)pyrene	< 0.010	0.010	µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L							
Benzo(k)fluoranthene	< 0.050	0.050	µg/L							
2-Chloronaphthalene	< 0.100	0.100	µg/L							
Chrysene	< 0.050	0.050	µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L							
Fluoranthene	< 0.030	0.030	µg/L							
Fluorene	< 0.050	0.050	µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L							
1-Methylnaphthalene	< 0.100	0.100	µg/L							
2-Methylnaphthalene	< 0.100	0.100	µg/L							
Naphthalene	< 0.200	0.200	µg/L							
Phenanthrene	< 0.100	0.100	µg/L							
Pyrene	< 0.020	0.020	µg/L							
Quinoline	< 0.050	0.050	µg/L							
Surrogate: Acridine-d9	*25.6*		*µg/L*	22.2		*115*	*50-140*			
Surrogate: Naphthalene-d8	*25.1*		*µg/L*	22.2		*113*	*50-140*			
Surrogate: Perylene-d12	*27.8*		*µg/L*	22.2		*125*	*50-140*			
LCS (B3C0301-BS1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Acenaphthene	22.8	0.050	µg/L	22.1		103	50-140			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B3C0301, Continued										
LCS (B3C0301-BS1), Continued				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Acenaphthylene	23.3	0.200	µg/L	21.9		107	50-140			
Acridine	22.2	0.050	µg/L	22.0		101	50-140			
Anthracene	24.5	0.010	µg/L	22.1		111	50-140			
Benz(a)anthracene	25.9	0.010	µg/L	22.1		117	50-140			
Benzo(a)pyrene	25.1	0.010	µg/L	21.9		115	50-140			
Benzo(b+j)fluoranthene	47.9	0.050	µg/L	43.8		109	50-140			
Benzo(g,h,i)perylene	24.3	0.050	µg/L	21.9		111	50-140			
Benzo(k)fluoranthene	25.1	0.050	µg/L	22.0		114	50-140			
2-Chloronaphthalene	22.4	0.100	µg/L	21.9		102	50-140			
Chrysene	26.7	0.050	µg/L	21.8		122	50-140			
Dibenz(a,h)anthracene	23.9	0.010	µg/L	22.2		108	50-140			
Fluoranthene	26.6	0.030	µg/L	22.2		120	50-140			
Fluorene	23.2	0.050	µg/L	22.7		102	50-140			
Indeno(1,2,3-cd)pyrene	24.4	0.050	µg/L	21.9		111	50-140			
1-Methylnaphthalene	24.2	0.100	µg/L	22.0		110	50-140			
2-Methylnaphthalene	24.5	0.100	µg/L	22.0		112	50-140			
Naphthalene	23.9	0.200	µg/L	22.0		109	50-140			
Phenanthrene	24.7	0.100	µg/L	21.9		113	50-140			
Pyrene	26.1	0.020	µg/L	22.2		117	50-140			
Quinoline	21.8	0.050	µg/L	22.2		98	50-140			
Surrogate: Acridine-d9	*29.6*		*µg/L*	22.2		*133*	*50-140*			
Surrogate: Naphthalene-d8	*30.7*		*µg/L*	22.2		*138*	*50-140*			
Surrogate: Perylene-d12	*28.8*		*µg/L*	22.2		*130*	*50-140*			
LCS Dup (B3C0301-BSD1)				Prepared: 2023-03-03, Analyzed: 2023-03-03						
Acenaphthene	19.9	0.050	µg/L	22.1		90	50-140	14	30	
Acenaphthylene	20.3	0.200	µg/L	21.9		93	50-140	14	30	
Acridine	19.9	0.050	µg/L	22.0		90	50-140	11	30	
Anthracene	21.3	0.010	µg/L	22.1		96	50-140	14	30	
Benz(a)anthracene	21.7	0.010	µg/L	22.1		98	50-140	18	30	
Benzo(a)pyrene	21.6	0.010	µg/L	21.9		98	50-140	15	30	
Benzo(b+j)fluoranthene	39.9	0.050	µg/L	43.8		91	50-140	18	30	
Benzo(g,h,i)perylene	19.8	0.050	µg/L	21.9		90	50-140	20	30	
Benzo(k)fluoranthene	20.6	0.050	µg/L	22.0		93	50-140	20	30	
2-Chloronaphthalene	19.6	0.100	µg/L	21.9		90	50-140	13	30	
Chrysene	22.1	0.050	µg/L	21.8		101	50-140	19	30	
Dibenz(a,h)anthracene	19.8	0.010	µg/L	22.2		89	50-140	19	30	
Fluoranthene	23.5	0.030	µg/L	22.2		106	50-140	12	30	
Fluorene	20.4	0.050	µg/L	22.7		90	50-140	13	30	
Indeno(1,2,3-cd)pyrene	20.1	0.050	µg/L	21.9		92	50-140	19	30	
1-Methylnaphthalene	21.1	0.100	µg/L	22.0		96	50-140	14	30	
2-Methylnaphthalene	21.4	0.100	µg/L	22.0		97	50-140	14	30	
Naphthalene	21.1	0.200	µg/L	22.0		96	50-140	13	30	
Phenanthrene	21.3	0.100	µg/L	21.9		97	50-140	15	30	
Pyrene	23.3	0.020	µg/L	22.2		105	50-140	11	30	
Quinoline	23.2	0.050	µg/L	22.2		104	50-140	6	30	
Surrogate: Acridine-d9	*26.4*		*µg/L*	22.2		*119*	*50-140*			
Surrogate: Naphthalene-d8	*26.1*		*µg/L*	22.2		*117*	*50-140*			
Surrogate: Perylene-d12	*27.6*		*µg/L*	22.2		*124*	*50-140*			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B3C0435										
Blank (B3C0435-BLK1)				Prepared: 2023-03-04, Analyzed: 2023-03-05						
Acenaphthene	< 0.050	0.050	µg/L							
Acenaphthylene	< 0.200	0.200	µg/L							
Acridine	< 0.050	0.050	µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B3C0435, Continued										
Blank (B3C0435-BLK1), Continued				Prepared: 2023-03-04, Analyzed: 2023-03-05						
Anthracene	< 0.010	0.010	µg/L							
Benz(a)anthracene	< 0.010	0.010	µg/L							
Benzo(a)pyrene	< 0.010	0.010	µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L							
Benzo(k)fluoranthene	< 0.050	0.050	µg/L							
2-Chloronaphthalene	< 0.100	0.100	µg/L							
Chrysene	< 0.050	0.050	µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L							
Fluoranthene	< 0.030	0.030	µg/L							
Fluorene	< 0.050	0.050	µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L							
1-Methylnaphthalene	< 0.100	0.100	µg/L							
2-Methylnaphthalene	< 0.100	0.100	µg/L							
Naphthalene	< 0.200	0.200	µg/L							
Phenanthrene	< 0.100	0.100	µg/L							
Pyrene	< 0.020	0.020	µg/L							
Quinoline	< 0.050	0.050	µg/L							
Surrogate: Acridine-d9	*22.9*		*µg/L*	22.2		*103*	*50-140*			
Surrogate: Naphthalene-d8	*23.1*		*µg/L*	22.2		*104*	*50-140*			
Surrogate: Perylene-d12	*25.0*		*µg/L*	22.2		*112*	*50-140*			
LCS (B3C0435-BS1)				Prepared: 2023-03-04, Analyzed: 2023-03-06						
Acenaphthene	23.3	0.050	µg/L	22.1		106	50-140			
Acenaphthylene	24.0	0.200	µg/L	21.9		110	50-140			
Acridine	23.3	0.050	µg/L	22.0		106	50-140			
Anthracene	25.7	0.010	µg/L	22.1		116	50-140			
Benz(a)anthracene	26.9	0.010	µg/L	22.1		122	50-140			
Benzo(a)pyrene	26.5	0.010	µg/L	21.9		121	50-140			
Benzo(b+j)fluoranthene	49.3	0.050	µg/L	43.8		113	50-140			
Benzo(g,h,i)perylene	24.6	0.050	µg/L	21.9		113	50-140			
Benzo(k)fluoranthene	25.8	0.050	µg/L	22.0		117	50-140			
2-Chloronaphthalene	22.5	0.100	µg/L	21.9		103	50-140			
Chrysene	28.3	0.050	µg/L	21.8		130	50-140			
Dibenz(a,h)anthracene	24.5	0.010	µg/L	22.2		111	50-140			
Fluoranthene	28.3	0.030	µg/L	22.2		127	50-140			
Fluorene	24.4	0.050	µg/L	22.7		108	50-140			
Indeno(1,2,3-cd)pyrene	25.0	0.050	µg/L	21.9		114	50-140			
1-Methylnaphthalene	24.5	0.100	µg/L	22.0		111	50-140			
2-Methylnaphthalene	24.5	0.100	µg/L	22.0		111	50-140			
Naphthalene	24.2	0.200	µg/L	22.0		110	50-140			
Phenanthrene	25.8	0.100	µg/L	21.9		118	50-140			
Pyrene	28.1	0.020	µg/L	22.2		126	50-140			
Quinoline	26.3	0.050	µg/L	22.2		118	50-140			
Surrogate: Acridine-d9	*27.6*		*µg/L*	22.2		*124*	*50-140*			
Surrogate: Naphthalene-d8	*27.8*		*µg/L*	22.2		*125*	*50-140*			
Surrogate: Perylene-d12	*29.3*		*µg/L*	22.2		*132*	*50-140*			
LCS Dup (B3C0435-BSD1)				Prepared: 2023-03-04, Analyzed: 2023-03-06						
Acenaphthene	20.0	0.050	µg/L	22.1		91	50-140	15	30	
Acenaphthylene	20.4	0.200	µg/L	21.9		93	50-140	16	30	
Acridine	20.0	0.050	µg/L	22.0		91	50-140	15	30	
Anthracene	21.6	0.010	µg/L	22.1		98	50-140	17	30	
Benz(a)anthracene	23.1	0.010	µg/L	22.1		105	50-140	15	30	
Benzo(a)pyrene	21.9	0.010	µg/L	21.9		100	50-140	19	30	
Benzo(b+j)fluoranthene	40.9	0.050	µg/L	43.8		93	50-140	19	30	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B3C0435, Continued										
LCS Dup (B3C0435-BSD1), Continued				Prepared: 2023-03-04, Analyzed: 2023-03-06						
Benzo(g,h,i)perylene	21.1	0.050	µg/L	21.9		96	50-140	15	30	
Benzo(k)fluoranthene	21.3	0.050	µg/L	22.0		96	50-140	19	30	
2-Chloronaphthalene	19.3	0.100	µg/L	21.9		88	50-140	16	30	
Chrysene	23.9	0.050	µg/L	21.8		110	50-140	17	30	
Dibenz(a,h)anthracene	20.3	0.010	µg/L	22.2		91	50-140	19	30	
Fluoranthene	24.1	0.030	µg/L	22.2		108	50-140	16	30	
Fluorene	20.6	0.050	µg/L	22.7		91	50-140	17	30	
Indeno(1,2,3-cd)pyrene	20.6	0.050	µg/L	21.9		94	50-140	19	30	
1-Methylnaphthalene	20.7	0.100	µg/L	22.0		94	50-140	17	30	
2-Methylnaphthalene	20.9	0.100	µg/L	22.0		95	50-140	16	30	
Naphthalene	20.6	0.200	µg/L	22.0		93	50-140	16	30	
Phenanthrene	21.7	0.100	µg/L	21.9		99	50-140	18	30	
Pyrene	23.8	0.020	µg/L	22.2		107	50-140	16	30	
Quinoline	26.0	0.050	µg/L	22.2		117	50-140	1	30	
Surrogate: Acridine-d9	*24.2*		*µg/L*	22.2		*109*	*50-140*			
Surrogate: Naphthalene-d8	*23.9*		*µg/L*	22.2		*108*	*50-140*			
Surrogate: Perylene-d12	*24.9*		*µg/L*	22.2		*112*	*50-140*			
Volatile Organic Compounds (VOC), Batch B3C0184										
Blank (B3C0184-BLK1)				Prepared: 2023-03-02, Analyzed: 2023-03-03						
Benzene	< 0.5	0.5	µg/L							
Bromodichloromethane	< 1.0	1.0	µg/L							
Bromoform	< 1.0	1.0	µg/L							
Carbon tetrachloride	< 0.5	0.5	µg/L							
Chlorobenzene	< 1.0	1.0	µg/L							
Chloroethane	< 2.0	2.0	µg/L							
Chloroform	< 1.0	1.0	µg/L							
Dibromochloromethane	< 1.0	1.0	µg/L							
1,2-Dibromoethane	< 0.3	0.3	µg/L							
Dibromomethane	< 1.0	1.0	µg/L							
1,2-Dichlorobenzene	< 0.5	0.5	µg/L							
1,3-Dichlorobenzene	< 1.0	1.0	µg/L							
1,4-Dichlorobenzene	< 1.0	1.0	µg/L							
1,1-Dichloroethane	< 1.0	1.0	µg/L							
1,2-Dichloroethane	< 1.0	1.0	µg/L							
1,1-Dichloroethylene	< 1.0	1.0	µg/L							
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L							
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L							
Dichloromethane	< 3.0	3.0	µg/L							
1,2-Dichloropropane	< 1.0	1.0	µg/L							
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L							
Ethylbenzene	< 1.0	1.0	µg/L							
Methyl tert-butyl ether	< 1.0	1.0	µg/L							
Styrene	< 1.0	1.0	µg/L							
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L							
Tetrachloroethylene	< 1.0	1.0	µg/L							
Toluene	< 1.0	1.0	µg/L							
1,1,1-Trichloroethane	< 1.0	1.0	µg/L							
1,1,2-Trichloroethane	< 1.0	1.0	µg/L							
Trichloroethylene	< 1.0	1.0	µg/L							
Trichlorofluoromethane	< 1.0	1.0	µg/L							
Vinyl chloride	< 1.0	1.0	µg/L							
Xylenes (total)	< 2.0	2.0	µg/L							
Surrogate: Toluene-d8	*26.6*		*µg/L*	25.0		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*18.2*		*µg/L*	24.9		*73*	*70-130*			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B3C0184, Continued										
Blank (B3C0184-BLK1), Continued				Prepared: 2023-03-02, Analyzed: 2023-03-03						
Surrogate: 1,4-Dichlorobenzene-d4	*17.4*		*µg/L*	25.0		*69*	*70-130*			*S02*
LCS (B3C0184-BS1)				Prepared: 2023-03-02, Analyzed: 2023-03-03						
Benzene	26.0	0.5	µg/L	20.1		129	70-130			
Bromodichloromethane	25.6	1.0	µg/L	20.1		127	70-130			
Bromoform	17.6	1.0	µg/L	20.1		88	70-130			
Carbon tetrachloride	26.7	0.5	µg/L	20.1		133	70-130			SPK
Chlorobenzene	22.1	1.0	µg/L	20.1		110	70-130			
Chloroethane	79.5	2.0	µg/L	20.1		396	60-140			SPK
Chloroform	25.3	1.0	µg/L	20.1		126	70-130			
Dibromochloromethane	27.8	1.0	µg/L	20.1		139	70-130			SPK
1,2-Dibromoethane	27.6	0.3	µg/L	20.1		137	70-130			SPK
Dibromomethane	29.0	1.0	µg/L	20.1		144	70-130			SPK
1,2-Dichlorobenzene	17.3	0.5	µg/L	20.1		86	70-130			
1,3-Dichlorobenzene	16.3	1.0	µg/L	20.1		81	70-130			
1,4-Dichlorobenzene	15.0	1.0	µg/L	20.1		75	70-130			
1,1-Dichloroethane	27.8	1.0	µg/L	20.1		139	70-130			SPK
1,2-Dichloroethane	25.8	1.0	µg/L	20.1		128	70-130			
1,1-Dichloroethylene	31.2	1.0	µg/L	20.1		155	70-130			SPK
cis-1,2-Dichloroethylene	29.1	1.0	µg/L	20.1		145	70-130			SPK
trans-1,2-Dichloroethylene	27.7	1.0	µg/L	20.1		138	70-130			SPK
Dichloromethane	28.1	3.0	µg/L	20.1		140	70-130			SPK
1,2-Dichloropropane	25.1	1.0	µg/L	20.1		125	70-130			
1,3-Dichloropropene (cis + trans)	41.8	1.0	µg/L	40.2		104	70-130			SPK
Ethylbenzene	19.1	1.0	µg/L	20.1		95	70-130			
Methyl tert-butyl ether	23.5	1.0	µg/L	20.0		118	70-130			
Styrene	20.6	1.0	µg/L	20.1		102	70-130			
1,1,2,2-Tetrachloroethane	20.2	0.5	µg/L	20.1		101	70-130			
Tetrachloroethylene	25.3	1.0	µg/L	20.1		126	70-130			
Toluene	26.6	1.0	µg/L	20.1		133	70-130			SPK
1,1,1-Trichloroethane	27.3	1.0	µg/L	20.1		136	70-130			SPK
1,1,2-Trichloroethane	28.2	1.0	µg/L	20.1		141	70-130			SPK
Trichloroethylene	27.0	1.0	µg/L	20.1		134	70-130			SPK
Trichlorofluoromethane	53.8	1.0	µg/L	20.1		268	60-140			SPK
Vinyl chloride	20.9	1.0	µg/L	20.1		104	60-140			
Xylenes (total)	54.2	2.0	µg/L	60.3		90	70-130			
Surrogate: Toluene-d8	*31.5*		*µg/L*	25.0		*126*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*23.5*		*µg/L*	24.9		*94*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*23.9*		*µg/L*	25.0		*96*	*70-130*			
Volatile Organic Compounds (VOC), Batch B3C0843										
Blank (B3C0843-BLK1)				Prepared: 2023-03-08, Analyzed: 2023-03-08						
Benzene	< 0.5	0.5	µg/L							
Bromodichloromethane	< 1.0	1.0	µg/L							
Bromoform	< 1.0	1.0	µg/L							
Carbon tetrachloride	< 0.5	0.5	µg/L							
Chlorobenzene	< 1.0	1.0	µg/L							
Chloroethane	< 2.0	2.0	µg/L							
Chloroform	< 1.0	1.0	µg/L							
Dibromochloromethane	< 1.0	1.0	µg/L							
1,2-Dibromoethane	< 0.3	0.3	µg/L							
Dibromomethane	< 1.0	1.0	µg/L							
1,2-Dichlorobenzene	< 0.5	0.5	µg/L							
1,3-Dichlorobenzene	< 1.0	1.0	µg/L							
1,4-Dichlorobenzene	< 1.0	1.0	µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B3C0843, Continued										
Blank (B3C0843-BLK1), Continued				Prepared: 2023-03-08, Analyzed: 2023-03-08						
1,1-Dichloroethane	< 1.0	1.0	µg/L							
1,2-Dichloroethane	< 1.0	1.0	µg/L							
1,1-Dichloroethylene	< 1.0	1.0	µg/L							
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L							
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L							
Dichloromethane	< 3.0	3.0	µg/L							
1,2-Dichloropropane	< 1.0	1.0	µg/L							
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L							
Ethylbenzene	< 1.0	1.0	µg/L							
Methyl tert-butyl ether	< 1.0	1.0	µg/L							
Styrene	< 1.0	1.0	µg/L							
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L							
Tetrachloroethylene	< 1.0	1.0	µg/L							
Toluene	< 1.0	1.0	µg/L							
1,1,1-Trichloroethane	< 1.0	1.0	µg/L							
1,1,2-Trichloroethane	< 1.0	1.0	µg/L							
Trichloroethylene	< 1.0	1.0	µg/L							
Trichlorofluoromethane	< 1.0	1.0	µg/L							
Vinyl chloride	< 1.0	1.0	µg/L							
Xylenes (total)	< 2.0	2.0	µg/L							
Surrogate: Toluene-d8	*25.6*		*µg/L*	25.0		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.6*		*µg/L*	24.9		*79*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*19.4*		*µg/L*	25.0		*78*	*70-130*			
LCS (B3C0843-BS1)				Prepared: 2023-03-08, Analyzed: 2023-03-08						
Benzene	23.3	0.5	µg/L	20.1		116	70-130			
Bromodichloromethane	25.2	1.0	µg/L	20.1		125	70-130			
Bromoform	22.5	1.0	µg/L	20.1		112	70-130			
Carbon tetrachloride	23.2	0.5	µg/L	20.1		115	70-130			
Chlorobenzene	22.0	1.0	µg/L	20.1		109	70-130			
Chloroethane	19.3	2.0	µg/L	20.1		96	60-140			
Chloroform	25.3	1.0	µg/L	20.1		126	70-130			
Dibromochloromethane	25.2	1.0	µg/L	20.1		126	70-130			
1,2-Dibromoethane	24.7	0.3	µg/L	20.1		123	70-130			
Dibromomethane	23.9	1.0	µg/L	20.1		119	70-130			
1,2-Dichlorobenzene	22.4	0.5	µg/L	20.1		112	70-130			
1,3-Dichlorobenzene	22.7	1.0	µg/L	20.1		113	70-130			
1,4-Dichlorobenzene	22.6	1.0	µg/L	20.1		112	70-130			
1,1-Dichloroethane	23.1	1.0	µg/L	20.1		115	70-130			
1,2-Dichloroethane	23.8	1.0	µg/L	20.1		118	70-130			
1,1-Dichloroethylene	22.2	1.0	µg/L	20.1		111	70-130			
cis-1,2-Dichloroethylene	24.4	1.0	µg/L	20.1		121	70-130			
trans-1,2-Dichloroethylene	23.6	1.0	µg/L	20.1		117	70-130			
Dichloromethane	24.0	3.0	µg/L	20.1		119	70-130			
1,2-Dichloropropane	23.6	1.0	µg/L	20.1		117	70-130			
1,3-Dichloropropene (cis + trans)	48.8	1.0	µg/L	40.2		121	70-130			
Ethylbenzene	21.9	1.0	µg/L	20.1		109	70-130			
Methyl tert-butyl ether	24.2	1.0	µg/L	20.0		121	70-130			
Styrene	22.5	1.0	µg/L	20.1		112	70-130			
1,1,2,2-Tetrachloroethane	22.7	0.5	µg/L	20.1		113	70-130			
Tetrachloroethylene	23.7	1.0	µg/L	20.1		118	70-130			
Toluene	23.9	1.0	µg/L	20.1		119	70-130			
1,1,1-Trichloroethane	23.4	1.0	µg/L	20.1		116	70-130			
1,1,2-Trichloroethane	24.6	1.0	µg/L	20.1		122	70-130			
Trichloroethylene	24.5	1.0	µg/L	20.1		122	70-130			
Trichlorofluoromethane	21.1	1.0	µg/L	20.1		105	60-140			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B3C0843, Continued										
LCS (B3C0843-BS1), Continued				Prepared: 2023-03-08, Analyzed: 2023-03-08						
Vinyl chloride	18.1	1.0	µg/L	20.1		90	60-140			
Xylenes (total)	66.1	2.0	µg/L	60.3		110	70-130			
Surrogate: Toluene-d8	*25.4*		*µg/L*	25.0		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.5*		*µg/L*	24.9		*98*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*23.8*		*µg/L*	25.0		*95*	*70-130*			
LCS (B3C0843-BS3)				Prepared: 2023-03-08, Analyzed: 2023-03-08						
Benzene	22.0	0.5	µg/L	20.1		110	70-130			
Bromodichloromethane	23.3	1.0	µg/L	20.1		116	70-130			
Bromoform	21.1	1.0	µg/L	20.1		105	70-130			
Carbon tetrachloride	23.9	0.5	µg/L	20.1		119	70-130			
Chlorobenzene	20.9	1.0	µg/L	20.1		104	70-130			
Chloroethane	18.4	2.0	µg/L	20.1		92	60-140			
Chloroform	23.4	1.0	µg/L	20.1		116	70-130			
Dibromochloromethane	23.6	1.0	µg/L	20.1		117	70-130			
1,2-Dibromoethane	23.3	0.3	µg/L	20.1		116	70-130			
Dibromomethane	21.9	1.0	µg/L	20.1		109	70-130			
1,2-Dichlorobenzene	21.6	0.5	µg/L	20.1		108	70-130			
1,3-Dichlorobenzene	21.5	1.0	µg/L	20.1		107	70-130			
1,4-Dichlorobenzene	21.6	1.0	µg/L	20.1		107	70-130			
1,1-Dichloroethane	21.8	1.0	µg/L	20.1		108	70-130			
1,2-Dichloroethane	21.9	1.0	µg/L	20.1		109	70-130			
1,1-Dichloroethylene	22.1	1.0	µg/L	20.1		110	70-130			
cis-1,2-Dichloroethylene	22.3	1.0	µg/L	20.1		111	70-130			
trans-1,2-Dichloroethylene	22.0	1.0	µg/L	20.1		109	70-130			
Dichloromethane	21.5	3.0	µg/L	20.1		107	70-130			
1,2-Dichloropropane	22.6	1.0	µg/L	20.1		112	70-130			
1,3-Dichloropropene (cis + trans)	46.5	1.0	µg/L	40.2		116	70-130			
Ethylbenzene	21.7	1.0	µg/L	20.1		108	70-130			
Methyl tert-butyl ether	23.3	1.0	µg/L	20.0		116	70-130			
Styrene	21.8	1.0	µg/L	20.1		109	70-130			
1,1,2,2-Tetrachloroethane	22.0	0.5	µg/L	20.1		110	70-130			
Tetrachloroethylene	23.7	1.0	µg/L	20.1		118	70-130			
Toluene	23.3	1.0	µg/L	20.1		116	70-130			
1,1,1-Trichloroethane	24.0	1.0	µg/L	20.1		119	70-130			
1,1,2-Trichloroethane	23.2	1.0	µg/L	20.1		115	70-130			
Trichloroethylene	23.5	1.0	µg/L	20.1		117	70-130			
Trichlorofluoromethane	22.1	1.0	µg/L	20.1		110	60-140			
Vinyl chloride	17.7	1.0	µg/L	20.1		88	60-140			
Xylenes (total)	65.1	2.0	µg/L	60.3		108	70-130			
Surrogate: Toluene-d8	*26.5*		*µg/L*	25.0		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*24.8*		*µg/L*	24.9		*100*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*24.3*		*µg/L*	25.0		*97*	*70-130*			
Duplicate (B3C0843-DUP1)		**Source: 23C0154-07**		Prepared: 2023-03-09, Analyzed: 2023-03-09						
Benzene	< 0.5	0.5	µg/L		< 0.5				30	
Bromodichloromethane	< 1.0	1.0	µg/L		< 1.0				30	
Bromoform	< 1.0	1.0	µg/L		< 1.0				30	
Carbon tetrachloride	< 0.5	0.5	µg/L		< 0.5				30	
Chlorobenzene	< 1.0	1.0	µg/L		< 1.0				30	
Chloroethane	< 2.0	2.0	µg/L		< 2.0				30	
Chloroform	< 1.0	1.0	µg/L		< 1.0				30	
Dibromochloromethane	< 1.0	1.0	µg/L		< 1.0				30	
1,2-Dibromoethane	< 0.3	0.3	µg/L		< 0.3				30	
Dibromomethane	< 1.0	1.0	µg/L		< 1.0				30	
1,2-Dichlorobenzene	< 0.5	0.5	µg/L		< 0.5				30	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B3C0843, Continued										
Duplicate (B3C0843-DUP1), Continued	**Source: 23C0154-07**			Prepared: 2023-03-09, Analyzed: 2023-03-09						
1,3-Dichlorobenzene	< 1.0	1.0	µg/L		< 1.0				30	
1,4-Dichlorobenzene	< 1.0	1.0	µg/L		< 1.0				30	
1,1-Dichloroethane	< 1.0	1.0	µg/L		< 1.0				30	
1,2-Dichloroethane	< 1.0	1.0	µg/L		< 1.0				30	
1,1-Dichloroethylene	< 1.0	1.0	µg/L		< 1.0				30	
cis-1,2-Dichloroethylene	< 1.0	1.0	µg/L		< 1.0				30	
trans-1,2-Dichloroethylene	< 1.0	1.0	µg/L		< 1.0				30	
Dichloromethane	< 3.0	3.0	µg/L		< 3.0				30	
1,2-Dichloropropane	< 1.0	1.0	µg/L		< 1.0				30	
1,3-Dichloropropene (cis + trans)	< 1.0	1.0	µg/L		< 1.0				30	
Ethylbenzene	< 1.0	1.0	µg/L		< 1.0				30	
Methyl tert-butyl ether	< 1.0	1.0	µg/L		< 1.0				30	
Styrene	< 1.0	1.0	µg/L		< 1.0				30	
1,1,2,2-Tetrachloroethane	< 0.5	0.5	µg/L		< 0.5				30	
Tetrachloroethylene	< 1.0	1.0	µg/L		< 1.0				30	
Toluene	< 1.0	1.0	µg/L		< 1.0				30	
1,1,1-Trichloroethane	< 1.0	1.0	µg/L		< 1.0				30	
1,1,2-Trichloroethane	< 1.0	1.0	µg/L		< 1.0				30	
Trichloroethylene	< 1.0	1.0	µg/L		< 1.0				30	
Trichlorofluoromethane	< 1.0	1.0	µg/L		< 1.0				30	
Vinyl chloride	< 1.0	1.0	µg/L		< 1.0				30	
Xylenes (total)	< 2.0	2.0	µg/L		< 2.0				30	
Surrogate: Toluene-d8	*26.3*		*µg/L*	25.0		*105*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*19.9*		*µg/L*	24.9		*80*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*20.6*		*µg/L*	25.0		*83*	*70-130*			
Matrix Spike (B3C0843-MS1)	**Source: 23C0154-07**			Prepared: 2023-03-08, Analyzed: 2023-03-08						
Benzene	26.0	0.5	µg/L	20.1	< 0.5	129	70-130			
Bromodichloromethane	24.7	1.0	µg/L	20.1	< 1.0	123	70-130			
Bromoform	22.4	1.0	µg/L	20.1	< 1.0	111	70-130			
Carbon tetrachloride	24.9	0.5	µg/L	20.1	< 0.5	124	70-130			
Chlorobenzene	21.9	1.0	µg/L	20.1	< 1.0	109	70-130			
Chloroethane	19.2	2.0	µg/L	20.1	< 2.0	95	60-140			
Chloroform	24.6	1.0	µg/L	20.1	< 1.0	122	70-130			
Dibromochloromethane	24.8	1.0	µg/L	20.1	< 1.0	123	70-130			
1,2-Dibromoethane	24.8	0.3	µg/L	20.1	< 0.3	123	70-130			
Dibromomethane	23.1	1.0	µg/L	20.1	< 1.0	115	70-130			
1,2-Dichlorobenzene	23.7	0.5	µg/L	20.1	< 0.5	118	70-130			
1,3-Dichlorobenzene	23.0	1.0	µg/L	20.1	< 1.0	114	70-130			
1,4-Dichlorobenzene	22.8	1.0	µg/L	20.1	< 1.0	114	70-130			
1,1-Dichloroethane	23.0	1.0	µg/L	20.1	< 1.0	114	70-130			
1,2-Dichloroethane	23.2	1.0	µg/L	20.1	< 1.0	116	70-130			
1,1-Dichloroethylene	22.8	1.0	µg/L	20.1	< 1.0	114	70-130			
cis-1,2-Dichloroethylene	23.3	1.0	µg/L	20.1	< 1.0	116	70-130			
trans-1,2-Dichloroethylene	22.8	1.0	µg/L	20.1	< 1.0	114	70-130			
Dichloromethane	22.5	3.0	µg/L	20.1	< 3.0	111	70-130			
1,2-Dichloropropane	23.9	1.0	µg/L	20.1	< 1.0	119	70-130			
1,3-Dichloropropene (cis + trans)	49.4	1.0	µg/L	40.2	< 1.0	123	70-130			
Ethylbenzene	25.7	1.0	µg/L	20.1	< 1.0	128	70-130			
Methyl tert-butyl ether	27.8	1.0	µg/L	20.0	< 1.0	139	70-130			MS1
Styrene	22.7	1.0	µg/L	20.1	< 1.0	113	70-130			
1,1,2,2-Tetrachloroethane	23.6	0.5	µg/L	20.1	< 0.5	117	70-130			
Tetrachloroethylene	24.5	1.0	µg/L	20.1	< 1.0	122	70-130			
Toluene	27.6	1.0	µg/L	20.1	< 1.0	136	70-130			MS1
1,1,1-Trichloroethane	25.1	1.0	µg/L	20.1	< 1.0	125	70-130			
1,1,2-Trichloroethane	24.6	1.0	µg/L	20.1	< 1.0	123	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23C0154
PROJECT	Marine Avenue Site	**REPORTED**	2023-03-10 08:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B3C0843, Continued										
Matrix Spike (B3C0843-MS1), Continued	**Source: 23C0154-07**			Prepared: 2023-03-08, Analyzed: 2023-03-08						
Trichloroethylene	24.1	1.0	µg/L	20.1	< 1.0	120	70-130			
Trichlorofluoromethane	22.9	1.0	µg/L	20.1	< 1.0	114	60-140			
Vinyl chloride	18.3	1.0	µg/L	20.1	< 1.0	91	60-140			
Xylenes (total)	77.6	2.0	µg/L	60.3	< 2.0	129	70-130			
Surrogate: Toluene-d8	*29.0*		*µg/L*	25.0		*116*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*27.4*		*µg/L*	24.9		*110*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*26.8*		*µg/L*	25.0		*107*	*70-130*			

QC Qualifiers:

MS1	The matrix spike recovery was outside of control limits due to a matrix effect and/or interference.
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.
SPK	The recovery of this analyte was outside of established control limits.

CARO ANALYTICAL SERVICES
Caring About Results... Obviously

110-4011 Viking Way, Richmond, BC V6V 2K9
5C3
S 1H7

23C0154

Clear Form | Print a Copy | Save a Copy | CARO Website | CARO BC COC, Rev 2015-0

CHAIN OF CUSTODY RECORD

COC# | PAGE OF

RELINQUISHED BY:	DATE: Feb 28	RECEIVED BY:	DATE: 3/1
CK	TIME: 3:00	BTA (Texada)	TIME: 10:23

PROJECT: Marine Avenue Site

PROJECT INFO:

REPORT TO:
COMPANY: Tetra Tech Canada
ADDRESS: Suite 1000-885 Dunsmuir Street
Vancouver, BC V8G 0A7
CONTACT: Jeremy Reid
TEL/FAX: 604.916.3902
DELIVERY METHOD: EMAIL [x] MAIL [ ] OTHER* [ ]
DATA FORMAT: EXCEL [x] WATERTRAX [ ] ESdat [x] EQuIS [ ] BC EMS [ ] OTHER* [ ]
EMAIL 1: jeremy.reid@tetratech.com
EMAIL 2: mike.gallo@tetratech.com
EMAIL 3: lauren.quan@tetratech.com

INVOICE TO: [ ] TO
COMPANY: Tetra Tech Canada
ADDRESS: Accounts Payable Department
Edmonton, AB
CONTACT:
TEL/FAX:
DELIVERY METHOD: EMAIL [x] MAIL [ ] OTHER* [ ]
EMAIL 1: Accounts.Payable@tetratech.com
EMAIL 2:
EMAIL 3:
PO #: 704-SWM.SWOP03663-10

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) [x]
Rush: 1 Day* [ ] 2 Day* [ ] 3 Day* [ ]
Other*
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines [ ]
BC Drinking Water Protection Act / Reg. [ ]
BC CSR [x] AB TIER 1 [ ] CCME [ ] OTHER* [ ]
AL [ ] PL [ ] RL [ ] CL [ ] IL [ ] AW [ ] IW [ ] LW [ ]
Regs on Report? [ ]

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: [ ]

SAMPLED BY: Regan Keil

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
MW13-01		✓									
MW13-02		✓									
MW13-03		✓									
MW19-04		✓									
SW1		✓									
SW2		✓									
SW3		✓									
SW4		✓									
DUP1		✓									

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	BTEX [ ]	VOC [ ]	EPH [x]	PAH [x]	PHENOLS Chlorinated [ ]	PCB [ ]	PESTICIDES [ ]	METALS - WATER TOTAL [ ]	METALS - WATER DISSOLVED [ ]	METALS - SOIL (SALM) [ ]	pH [x]	TSS [ ]	BOD [ ]	TOG [ ]	FECAL COLIFORMS [ ]	TOTAL COLIFORMS [ ]	ASBESTOS	Resins and Fatty Acids	Low Level Sulphide	NH2, Cl, SO4, F, NO3, N2	Total Phenols	Volatile Hydrocarbons	HOLD
MW13-01			✓	✓							✓							✓	✓	✓	✓	✓	
MW13-02			✓	✓							✓							✓	✓	✓	✓	✓	
MW13-03			✓	✓							✓							✓	✓	✓	✓	✓	
MW19-04			✓	✓							✓							✓	✓	✓	✓	✓	
SW1			✓	✓							✓							✓	✓	✓	✓	✓	
SW2			✓	✓							✓							✓	✓	✓	✓	✓	
SW3			✓	✓							✓							✓	✓	✓	✓	✓	
SW4			✓	✓							✓							✓	✓	✓	✓	✓	
DUP1											✓									✓			

SHIPPING INSTRUCTIONS: Return Cooler(s) [ ]
Supplies Needed:
-

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days [ ] 90 Days [x] Longer Date (Surcharges will Apply):

*** OTHER INSTRUCTIONS:**
Please analyse all four foliar samples for presence of glyphosate/AMPA. Invoice will be paid upon receipt via credit.

Orig + COC + 223 + 10 + Copy
223 + 2x CSH + Phenols.

PAYMENT:
CHEQUE [ ]
CREDIT [x]
DEBIT [ ]
CASH [ ]
INVOICE [ ]

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 2.2 ICE: Y [ ] N [ ]
COOLER 2 (°C): ____ ICE: Y [ ] N [ ]
COOLER 3 (°C): ____ ICE: Y [ ] N [ ]
CUSTODY SEALS INTACT: NA [ ] Y [ ] N [ ]

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW13-01
LOCATION: Powell River Landfill Closure
WEATHER: Clear
TEMPERATURE: -1

JOB NO.: SWM.SWOP03663-06
COMPLETED BY: Regan
DATE: Feb 28, 2023 ☐ Development
TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 4.47 (metres)
Depth to Bottom of Well Below Top of Casing: B 7.86 (metres)
Diameter Standpipe: C 2" (mm)

One well volume:
(B-A)*2.0 = 6.78 litres -for a 51mm (2.0 inch) diameter well 20.34
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv) (2)	TEMP (oC) (1)	pH (UNITS) (4)	COND. (uS/cm) (5)	TDS (mg/L)	DIS.O_2 (mg/L) or % (3)	REMARKS (colour, odour, sheen, brittle film, etc.)
11:01	6.78	51.7	9.7	6.05	75.1	69.55	9.46	clear
11:15	13.56	-45.9	9.6	6.16	74.8	69.55	16.07	clear
11:30	20.34	22.4	9.7	6.21	76.2	70.20	9.91	clear
11:32	Samples	taken	-					

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW13-02
LOCATION: Powell River Landfill Closure
WEATHER: Clear
TEMPERATURE: -1

JOB NO.: SWM.SWOP03663-06
COMPLETED BY: Regan
DATE: Feb 28, 2023 ☐ Development
TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 7.83 (metres)
Depth to Bottom of Well Below Top of Casing: B 11.7 (metres)
Diameter Standpipe: C 2" (mm)

One well volume:
(B-A)*2.0 = 7.74 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

23.22

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
12:50	7.74	114.6	12.0	6.30	1125	975	0.47	Clear
1:03	15.48	162.7	12.3	6.35	1147	981.5	0.42	Clear
1:18	23.22	94.1	12.2	6.4	1151	988	0.41	Clear.
1:20	Samples	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW13-03 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Regan
WEATHER: Clear | DATE: Feb 28, 2023 ☐ Development
TEMPERATURE: -1 | TIME: 8.54 ☒ Purge/Sample

MONITORING WELL INFORMATION
Depth to Water Below Top of Casing: A 13.98 (metres)
Depth to Bottom of Well Below Top of Casing: B 15.78 (metres)
Diameter Standpipe: C 2" (mm)

One well volume: 10.8
(B-A)*2.0 = 3.6 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST
pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING
Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
8:58	10.8							~~clear~~ cloudy
1:39	3.6	110.4	10.9	5.88	324.2	289.25	5.84	cloudy
1:34	Sample	taken.						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
2	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
3	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
4	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
5	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
6	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
7	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW19-04 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Regan
WEATHER: Clear | DATE: Feb 28, 2023 ☐ Development
TEMPERATURE: -1 | TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 2.0 (metres)
Depth to Bottom of Well Below Top of Casing: B 4.26 (metres)
Diameter Standpipe: C 2" (mm)

One well volume: 4.52 13.56
(B-A)*2.0 = [illegible] litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
9:30	4.52	108.2	6.4	6.06	218.6	219.70	1.25	Murky
9:41	9.04	68.6	6.5	6.17	223.6	224.9	2.31	Murky
9:53	13.56	43.8	6.8	6.17	209.2	208.0	5.39	Murky
10:05	18.08	32.5	7.1	6.18	208.9	207.35	4.80	Murky
10:06	Sample	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
2	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
3	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
4	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
5	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
6	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
7	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW1
LOCATION: Powell River Landfill Closure
WEATHER: Clear
TEMPERATURE: -1

JOB NO.: SWM.SWOP03663-06
COMPLETED BY: Regan
DATE: Feb 28, 2023 ☐ Development
TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☒ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:50		76.8	4.0	7.29	51.40	55.9	12.29	clear
2:50	Samples taken.							

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
2	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
3	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
4	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
5	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
6	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
7	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW2
LOCATION: Powell River Landfill Closure
WEATHER: Clear
TEMPERATURE: -1

JOB NO.: SWM.SWOP03663-06
COMPLETED BY: Regan
DATE: Feb 28, 2023 ☐ Development
TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:30		59.4	3.8	7.42	59.4	59.15	12.51	
2:30	Samples	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW3
LOCATION: Powell River Landfill Closure
WEATHER: Clear
TEMPERATURE: -1

JOB NO.: SWM.SWOP03663-06
COMPLETED BY: Regan
DATE: Feb 28, 2023 ☐ Development
TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:11		76.6	3.9	7.08	58.5	63.7	12.53	Clear.
2:11	Sample	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
2	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
3	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
4	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
5	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
6	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
7	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW4 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Regan
WEATHER: Clear | DATE: Feb 28, 2023 ☐ Development
TEMPERATURE: -1 | TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
12:01		89.8	8.9	6.72	103.4	97.5	8.91	clear
12:01	Samples	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: Dup
LOCATION: Powell River Landfill Closure
WEATHER: Clear
TEMPERATURE: -1

JOB NO.: SWM.SWOP03663-06
COMPLETED BY: Regan
DATE: Feb 28, 2023 ☐ Development
TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:11		76.6	3.9	7.08	58.5	63.7	12.53	Clear
2:11	Sample	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
2	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
3	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
4	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
5	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
6	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____
7	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	_____

CERTIFICATE OF ANALYSIS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver) 1000 - 885 Dunsmuir Street Vancouver, BC V6C 1N5		
ATTENTION	Jeremy Reid	**WORK ORDER**	23E2913
PO NUMBER	704-SWM.SWOP03663-11	**RECEIVED / TEMP**	2023-05-24 10:15 / 3.8°C
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30
PROJECT INFO		**COC NUMBER**	No #

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at rpshyk@caro.ca

Authorized By:

Regan Pshyk
Account Manager

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23E2913-01) | Matrix: Water | Sampled: 2023-05-23 11:40					
Anions					
Chloride	**6.28**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	**0.470**	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**6.0**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**42.7**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Barium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Boron, dissolved	< 0.0500	0.0500	mg/L	2023-05-30	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2023-05-30	
Calcium, dissolved	**12.8**	0.20	mg/L	2023-05-30	
Chromium, dissolved	**0.00105**	0.00050	mg/L	2023-05-30	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Copper, dissolved	< 0.00040	0.00040	mg/L	2023-05-30	
Iron, dissolved	< 0.010	0.010	mg/L	2023-05-30	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Lithium, dissolved	**0.00084**	0.00010	mg/L	2023-05-30	
Magnesium, dissolved	**2.60**	0.010	mg/L	2023-05-30	
Manganese, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-05-31	
Molybdenum, dissolved	**0.00012**	0.00010	mg/L	2023-05-30	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2023-05-30	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2023-05-30	
Potassium, dissolved	**1.33**	0.10	mg/L	2023-05-30	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Silicon, dissolved	**13.8**	1.0	mg/L	2023-05-30	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-05-30	
Sodium, dissolved	**7.43**	0.10	mg/L	2023-05-30	
Strontium, dissolved	**0.0715**	0.0010	mg/L	2023-05-30	
Sulfur, dissolved	< 3.0	3.0	mg/L	2023-05-30	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-05-30	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-05-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23E2913-01) | Matrix: Water | Sampled: 2023-05-23 11:40, Continued					
Dissolved Metals, Continued					
Uranium, dissolved	**0.000058**	0.000020	mg/L	2023-05-30	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-05-30	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Field Parameters					
Conductivity (EC)	**92**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	**1.1**	1.0	mg/L	2023-05-23	
pH	**6.9**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**53**	-200	millivolts	2023-05-23	
Temperature, field	**11.6**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**46.4**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**46.4**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-05-26	
BOD, 5-day	< 4.8	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	< 20	20	mg/L	2023-05-28	
Conductivity (EC)	**116**	2.0	µS/cm	2023-05-28	
pH	**6.55**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**102**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
MW13-02 (23E2913-02) | Matrix: Water | Sampled: 2023-05-23 11:40					
Anions					
Chloride	**7.39**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**352**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**719**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0167**	0.0050	mg/L	2023-05-30	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Arsenic, dissolved	**0.00661**	0.00050	mg/L	2023-05-30	
Barium, dissolved	**0.151**	0.0050	mg/L	2023-05-30	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23E2913-02) | Matrix: Water | Sampled: 2023-05-23 11:40, Continued					
Dissolved Metals, Continued					
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Boron, dissolved	**0.365**	0.0500	mg/L	2023-05-30	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2023-05-30	
Calcium, dissolved	**244**	0.20	mg/L	2023-05-30	
Chromium, dissolved	**0.00277**	0.00050	mg/L	2023-05-30	
Cobalt, dissolved	**0.00290**	0.00010	mg/L	2023-05-30	
Copper, dissolved	< 0.00040	0.00040	mg/L	2023-05-30	
Iron, dissolved	**99.1**	0.010	mg/L	2023-05-30	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Lithium, dissolved	**0.00079**	0.00010	mg/L	2023-05-30	
Magnesium, dissolved	**26.2**	0.010	mg/L	2023-05-30	
Manganese, dissolved	**2.17**	0.00020	mg/L	2023-05-30	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-05-31	
Molybdenum, dissolved	**0.00119**	0.00010	mg/L	2023-05-30	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2023-05-30	
Phosphorus, dissolved	**0.104**	0.050	mg/L	2023-05-30	
Potassium, dissolved	**28.3**	0.10	mg/L	2023-05-30	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Silicon, dissolved	**11.9**	1.0	mg/L	2023-05-30	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-05-30	
Sodium, dissolved	**30.2**	0.10	mg/L	2023-05-30	
Strontium, dissolved	**1.40**	0.0010	mg/L	2023-05-30	
Sulfur, dissolved	**123**	3.0	mg/L	2023-05-30	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-05-30	
Thorium, dissolved	**0.00012**	0.00010	mg/L	2023-05-30	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-05-30	
Uranium, dissolved	**0.000708**	0.000020	mg/L	2023-05-30	
Vanadium, dissolved	**0.0075**	0.0050	mg/L	2023-05-30	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-05-30	
Zirconium, dissolved	**0.00060**	0.00010	mg/L	2023-05-30	
Field Parameters					
Conductivity (EC)	**13**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	**1.3**	1.0	mg/L	2023-05-23	
pH	**6.6**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**26**	-200	millivolts	2023-05-23	
Temperature, field	**13.2**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**488**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23E2913-02) | Matrix: Water | Sampled: 2023-05-23 11:40, Continued					
General Parameters, Continued					
Alkalinity, Bicarbonate (as CaCO3)	**488**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	**8.94**	0.050	mg/L	2023-05-26	
BOD, 5-day	**5.0**	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	**73**	20	mg/L	2023-05-28	
Conductivity (EC)	**1470**	2.0	µS/cm	2023-05-28	
pH	**6.74**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**1180**	10	mg/L	2023-05-24	
Sulfide, Total	**0.041**	0.020	mg/L	2023-05-26	
MW13-03 (23E2913-03) | Matrix: Water | Sampled: 2023-05-23 11:40					
Anions					
Chloride	**22.6**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	**2.13**	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**43.0**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**180**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0112**	0.0050	mg/L	2023-05-30	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Barium, dissolved	**0.0170**	0.0050	mg/L	2023-05-30	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Boron, dissolved	**0.104**	0.0500	mg/L	2023-05-30	
Cadmium, dissolved	**0.000012**	0.000010	mg/L	2023-05-30	
Calcium, dissolved	**54.5**	0.20	mg/L	2023-05-30	
Chromium, dissolved	**0.00101**	0.00050	mg/L	2023-05-30	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Copper, dissolved	**0.00238**	0.00040	mg/L	2023-05-30	
Iron, dissolved	< 0.010	0.010	mg/L	2023-05-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Lithium, dissolved	**0.00221**	0.00010	mg/L	2023-05-30	
Magnesium, dissolved	**10.7**	0.010	mg/L	2023-05-30	
Manganese, dissolved	**0.00076**	0.00020	mg/L	2023-05-30	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-05-31	
Molybdenum, dissolved	**0.00018**	0.00010	mg/L	2023-05-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23E2913-03) | Matrix: Water | Sampled: 2023-05-23 11:40, Continued					
Dissolved Metals, Continued					
Nickel, dissolved	< 0.00040	0.00040	mg/L	2023-05-30	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2023-05-30	
Potassium, dissolved	**4.59**	0.10	mg/L	2023-05-30	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Silicon, dissolved	**13.5**	1.0	mg/L	2023-05-30	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-05-30	
Sodium, dissolved	**31.3**	0.10	mg/L	2023-05-30	
Strontium, dissolved	**0.401**	0.0010	mg/L	2023-05-30	
Sulfur, dissolved	**14.6**	3.0	mg/L	2023-05-30	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-05-30	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-05-30	
Uranium, dissolved	**0.00329**	0.000020	mg/L	2023-05-30	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-05-30	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Field Parameters					
Conductivity (EC)	**371**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	< 1.0	1.0	mg/L	2023-05-23	
pH	**6.6**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**102**	-200	millivolts	2023-05-23	
Temperature, field	**11.7**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**175**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**175**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	**0.070**	0.050	mg/L	2023-05-26	
BOD, 5-day	< 1.4	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	**45**	20	mg/L	2023-05-28	
Conductivity (EC)	**505**	2.0	µS/cm	2023-05-28	
pH	**6.67**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**322**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
MW19-04 (23E2913-04) | Matrix: Water | Sampled: 2023-05-23 11:40					

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-04 (23E2913-04) | Matrix: Water | Sampled: 2023-05-23 11:40, Continued					
Anions					
Chloride	**6.14**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**1.7**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**140**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0173**	0.0050	mg/L	2023-05-30	
Antimony, dissolved	**0.00038**	0.00020	mg/L	2023-05-30	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Barium, dissolved	**0.0243**	0.0050	mg/L	2023-05-30	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Boron, dissolved	**0.0528**	0.0500	mg/L	2023-05-30	
Cadmium, dissolved	**0.000083**	0.000010	mg/L	2023-05-30	
Calcium, dissolved	**43.3**	0.20	mg/L	2023-05-30	
Chromium, dissolved	**0.00099**	0.00050	mg/L	2023-05-30	
Cobalt, dissolved	**0.00290**	0.00010	mg/L	2023-05-30	
Copper, dissolved	**0.00739**	0.00040	mg/L	2023-05-30	
Iron, dissolved	**1.50**	0.010	mg/L	2023-05-30	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Lithium, dissolved	**0.00240**	0.00010	mg/L	2023-05-30	
Magnesium, dissolved	**7.59**	0.010	mg/L	2023-05-30	
Manganese, dissolved	**1.58**	0.00020	mg/L	2023-05-30	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-05-31	
Molybdenum, dissolved	**0.00026**	0.00010	mg/L	2023-05-30	
Nickel, dissolved	**0.00042**	0.00040	mg/L	2023-05-30	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2023-05-30	
Potassium, dissolved	**8.87**	0.10	mg/L	2023-05-30	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Silicon, dissolved	**17.4**	1.0	mg/L	2023-05-30	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-05-30	
Sodium, dissolved	**8.64**	0.10	mg/L	2023-05-30	
Strontium, dissolved	**0.284**	0.0010	mg/L	2023-05-30	
Sulfur, dissolved	< 3.0	3.0	mg/L	2023-05-30	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-05-30	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-05-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-04 (23E2913-04) | Matrix: Water | Sampled: 2023-05-23 11:40, Continued					
Dissolved Metals, Continued					
Uranium, dissolved	**0.000380**	0.000020	mg/L	2023-05-30	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-05-30	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Field Parameters					
Conductivity (EC)	**253**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	< 1.0	1.0	mg/L	2023-05-23	
pH	**6.7**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**56**	-200	millivolts	2023-05-23	
Temperature, field	**13.5**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**149**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**149**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	**0.158**	0.050	mg/L	2023-05-26	
BOD, 5-day	< 1.4	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	**36**	20	mg/L	2023-05-28	
Conductivity (EC)	**312**	2.0	µS/cm	2023-05-28	
pH	**6.67**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**235**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
SW1 (23E2913-05) | Matrix: Water | Sampled: 2023-05-23					
Anions					
Chloride	**9.44**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	**0.123**	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**3.0**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Total (as CaCO3)	**33.3**	0.500	mg/L	N/A	
Field Parameters					
Conductivity (EC)	**81**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	**8.7**	1.0	mg/L	2023-05-23	
pH	**7.7**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**72**	-200	millivolts	2023-05-23	
Temperature, field	**14.2**		°C	2023-05-23	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23E2913-05) | Matrix: Water | Sampled: 2023-05-23, Continued					
General Parameters					
Alkalinity, Total (as CaCO3)	**33.3**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**33.3**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-05-26	
BOD, 5-day	< 1.4	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	< 20	20	mg/L	2023-05-28	
Conductivity (EC)	**98.0**	2.0	µS/cm	2023-05-28	
pH	**6.59**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**70**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
Total Metals					
Aluminum, total	**0.137**	0.0050	mg/L	2023-05-29	
Antimony, total	< 0.00020	0.00020	mg/L	2023-05-29	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-05-29	
Barium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Bismuth, total	< 0.00010	0.00010	mg/L	2023-05-29	
Boron, total	< 0.0500	0.0500	mg/L	2023-05-29	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-05-29	
Calcium, total	**10.1**	0.20	mg/L	2023-05-29	
Chromium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-05-29	
Copper, total	**0.00058**	0.00040	mg/L	2023-05-29	
Iron, total	**0.612**	0.010	mg/L	2023-05-29	
Lead, total	< 0.00020	0.00020	mg/L	2023-05-29	
Lithium, total	**0.00047**	0.00010	mg/L	2023-05-29	
Magnesium, total	**1.97**	0.010	mg/L	2023-05-29	
Manganese, total	**0.0324**	0.00020	mg/L	2023-05-29	
Mercury, total	< 0.000010	0.000010	mg/L	2023-05-29	
Molybdenum, total	**0.00017**	0.00010	mg/L	2023-05-29	
Nickel, total	< 0.00040	0.00040	mg/L	2023-05-29	
Phosphorus, total	< 0.050	0.050	mg/L	2023-05-29	
Potassium, total	**1.01**	0.10	mg/L	2023-05-29	
Selenium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Silicon, total	**5.9**	1.0	mg/L	2023-05-29	
Silver, total	< 0.000050	0.000050	mg/L	2023-05-29	
Sodium, total	**7.43**	0.10	mg/L	2023-05-29	
Strontium, total	**0.0615**	0.0010	mg/L	2023-05-29	
Sulfur, total	< 3.0	3.0	mg/L	2023-05-29	
Tellurium, total	< 0.00050	0.00050	mg/L	2023-05-29	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23E2913-05) | Matrix: Water | Sampled: 2023-05-23, Continued					
Total Metals, Continued					
Thallium, total	< 0.000020	0.000020	mg/L	2023-05-29	
Thorium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Tin, total	< 0.00020	0.00020	mg/L	2023-05-29	
Titanium, total	**0.0071**	0.0050	mg/L	2023-05-29	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-05-29	
Uranium, total	**0.000024**	0.000020	mg/L	2023-05-29	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Zinc, total	**0.0040**	0.0040	mg/L	2023-05-29	
Zirconium, total	< 0.00010	0.00010	mg/L	2023-05-29	
SW2 (23E2913-06) | Matrix: Water | Sampled: 2023-05-23					
Anions					
Chloride	**10.2**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	**0.156**	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**3.6**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Total (as CaCO3)	**38.1**	0.500	mg/L	N/A	
Field Parameters					
Conductivity (EC)	**88**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	**9.5**	1.0	mg/L	2023-05-23	
pH	**7.7**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**71**	-200	millivolts	2023-05-23	
Temperature, field	**13.3**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**37.2**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**37.2**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-05-26	
BOD, 5-day	< 1.4	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	< 20	20	mg/L	2023-05-28	
Conductivity (EC)	**110**	2.0	µS/cm	2023-05-28	
pH	**6.59**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**65**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
Total Metals					

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW2 (23E2913-06) | Matrix: Water | Sampled: 2023-05-23, Continued					
Total Metals, Continued					
Aluminum, total	**0.176**	0.0050	mg/L	2023-05-29	
Antimony, total	< 0.00020	0.00020	mg/L	2023-05-29	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-05-29	
Barium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Bismuth, total	< 0.00010	0.00010	mg/L	2023-05-29	
Boron, total	< 0.0500	0.0500	mg/L	2023-05-29	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-05-29	
Calcium, total	**11.4**	0.20	mg/L	2023-05-29	
Chromium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-05-29	
Copper, total	**0.00061**	0.00040	mg/L	2023-05-29	
Iron, total	**0.568**	0.010	mg/L	2023-05-29	
Lead, total	< 0.00020	0.00020	mg/L	2023-05-29	
Lithium, total	**0.00056**	0.00010	mg/L	2023-05-29	
Magnesium, total	**2.31**	0.010	mg/L	2023-05-29	
Manganese, total	**0.0254**	0.00020	mg/L	2023-05-29	
Mercury, total	< 0.000010	0.000010	mg/L	2023-05-29	
Molybdenum, total	**0.00018**	0.00010	mg/L	2023-05-29	
Nickel, total	< 0.00040	0.00040	mg/L	2023-05-29	
Phosphorus, total	< 0.050	0.050	mg/L	2023-05-29	
Potassium, total	**1.11**	0.10	mg/L	2023-05-29	
Selenium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Silicon, total	**7.0**	1.0	mg/L	2023-05-29	
Silver, total	< 0.000050	0.000050	mg/L	2023-05-29	
Sodium, total	**8.10**	0.10	mg/L	2023-05-29	
Strontium, total	**0.0702**	0.0010	mg/L	2023-05-29	
Sulfur, total	< 3.0	3.0	mg/L	2023-05-29	
Tellurium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Thallium, total	< 0.000020	0.000020	mg/L	2023-05-29	
Thorium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Tin, total	< 0.00020	0.00020	mg/L	2023-05-29	
Titanium, total	**0.0116**	0.0050	mg/L	2023-05-29	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-05-29	
Uranium, total	**0.000042**	0.000020	mg/L	2023-05-29	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Zinc, total	< 0.0040	0.0040	mg/L	2023-05-29	
Zirconium, total	< 0.00010	0.00010	mg/L	2023-05-29	
SW3 (23E2913-07) | Matrix: Water | Sampled: 2023-05-23					
Anions					
Chloride	**10.1**	0.10	mg/L	2023-05-25	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23E2913-07) | Matrix: Water | Sampled: 2023-05-23, Continued					
Anions, Continued					
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	**0.153**	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**4.7**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Total (as CaCO3)	**39.9**	0.500	mg/L	N/A	
Field Parameters					
Conductivity (EC)	**43**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	**11.3**	1.0	mg/L	2023-05-23	
pH	**7.5**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**67**	-200	millivolts	2023-05-23	
Temperature, field	**13.2**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**38.3**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**38.3**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-05-26	
BOD, 5-day	< 1.4	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	< 20	20	mg/L	2023-05-28	
Conductivity (EC)	**117**	2.0	µS/cm	2023-05-28	
pH	**6.63**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**75**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
Total Metals					
Aluminum, total	**0.197**	0.0050	mg/L	2023-05-29	
Antimony, total	< 0.00020	0.00020	mg/L	2023-05-29	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-05-29	
Barium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Bismuth, total	< 0.00010	0.00010	mg/L	2023-05-29	
Boron, total	< 0.0500	0.0500	mg/L	2023-05-29	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-05-29	
Calcium, total	**12.0**	0.20	mg/L	2023-05-29	
Chromium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Cobalt, total	**0.00010**	0.00010	mg/L	2023-05-29	
Copper, total	**0.00072**	0.00040	mg/L	2023-05-29	
Iron, total	**0.590**	0.010	mg/L	2023-05-29	
Lead, total	**0.00020**	0.00020	mg/L	2023-05-29	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23E2913-07) | Matrix: Water | Sampled: 2023-05-23, Continued					
Total Metals, Continued					
Lithium, total	**0.00057**	0.00010	mg/L	2023-05-29	
Magnesium, total	**2.38**	0.010	mg/L	2023-05-29	
Manganese, total	**0.0291**	0.00020	mg/L	2023-05-29	
Mercury, total	< 0.020	0.020	µg/L	2023-05-30	HG1
Molybdenum, total	**0.00024**	0.00010	mg/L	2023-05-29	
Nickel, total	< 0.00040	0.00040	mg/L	2023-05-29	
Phosphorus, total	< 0.050	0.050	mg/L	2023-05-29	
Potassium, total	**1.24**	0.10	mg/L	2023-05-29	
Selenium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Silicon, total	**7.0**	1.0	mg/L	2023-05-29	
Silver, total	< 0.000050	0.000050	mg/L	2023-05-29	
Sodium, total	**8.80**	0.10	mg/L	2023-05-29	
Strontium, total	**0.0736**	0.0010	mg/L	2023-05-29	
Sulfur, total	< 3.0	3.0	mg/L	2023-05-29	
Tellurium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Thallium, total	< 0.000020	0.000020	mg/L	2023-05-29	
Thorium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Tin, total	< 0.00020	0.00020	mg/L	2023-05-29	
Titanium, total	**0.0100**	0.0050	mg/L	2023-05-29	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-05-29	
Uranium, total	**0.000047**	0.000020	mg/L	2023-05-29	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Zinc, total	< 0.0040	0.0040	mg/L	2023-05-29	
Zirconium, total	< 0.00010	0.00010	mg/L	2023-05-29	
SW4 (23E2913-08) | Matrix: Water | Sampled: 2023-05-23					
Anions					
Chloride	**9.47**	0.10	mg/L	2023-05-25	
Fluoride	< 0.10	0.10	mg/L	2023-05-25	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-05-25	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-05-25	
Sulfate	**6.4**	1.0	mg/L	2023-05-25	
Calculated Parameters					
Hardness, Total (as CaCO3)	**59.0**	0.500	mg/L	N/A	
Field Parameters					
Conductivity (EC)	**12**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	< 1.0	1.0	mg/L	2023-05-23	
pH	**7.2**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**61**	-200	millivolts	2023-05-23	
Temperature, field	**14.3**		°C	2023-05-23	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23E2913-08) | Matrix: Water | Sampled: 2023-05-23, Continued					
General Parameters					
Alkalinity, Total (as CaCO3)	**55.3**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**55.3**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-05-26	
BOD, 5-day	< 1.4	2.0	mg/L	2023-05-30	
Chemical Oxygen Demand	< 20	20	mg/L	2023-05-28	
Conductivity (EC)	**152**	2.0	µS/cm	2023-05-28	
pH	**6.67**	0.10	pH units	2023-05-28	HT2
Solids, Total Dissolved	**108**	10	mg/L	2023-05-24	
Sulfide, Total	< 0.020	0.020	mg/L	2023-05-26	
Total Metals					
Aluminum, total	**0.0843**	0.0050	mg/L	2023-05-29	
Antimony, total	< 0.00020	0.00020	mg/L	2023-05-29	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-05-29	
Barium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Bismuth, total	< 0.00010	0.00010	mg/L	2023-05-29	
Boron, total	< 0.0500	0.0500	mg/L	2023-05-29	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-05-29	
Calcium, total	**17.6**	0.20	mg/L	2023-05-29	
Chromium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-05-29	
Copper, total	**0.00066**	0.00040	mg/L	2023-05-29	
Iron, total	**0.440**	0.010	mg/L	2023-05-29	
Lead, total	**0.00027**	0.00020	mg/L	2023-05-29	
Lithium, total	**0.00115**	0.00010	mg/L	2023-05-29	
Magnesium, total	**3.63**	0.010	mg/L	2023-05-29	
Manganese, total	**0.0284**	0.00020	mg/L	2023-05-29	
Mercury, total	< 0.000010	0.000010	mg/L	2023-05-29	
Molybdenum, total	**0.00019**	0.00010	mg/L	2023-05-29	
Nickel, total	< 0.00040	0.00040	mg/L	2023-05-29	
Phosphorus, total	< 0.050	0.050	mg/L	2023-05-29	
Potassium, total	**1.64**	0.10	mg/L	2023-05-29	
Selenium, total	< 0.00050	0.00050	mg/L	2023-05-29	
Silicon, total	**12.1**	1.0	mg/L	2023-05-29	
Silver, total	< 0.000050	0.000050	mg/L	2023-05-29	
Sodium, total	**8.83**	0.10	mg/L	2023-05-29	
Strontium, total	**0.0969**	0.0010	mg/L	2023-05-29	
Sulfur, total	< 3.0	3.0	mg/L	2023-05-29	
Tellurium, total	< 0.00050	0.00050	mg/L	2023-05-29	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23E2913-08) | Matrix: Water | Sampled: 2023-05-23, Continued					
Total Metals, Continued					
Thallium, total	< 0.000020	0.000020	mg/L	2023-05-29	
Thorium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Tin, total	< 0.00020	0.00020	mg/L	2023-05-29	
Titanium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-05-29	
Uranium, total	**0.000060**	0.000020	mg/L	2023-05-29	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-05-29	
Zinc, total	< 0.0040	0.0040	mg/L	2023-05-29	
Zirconium, total	< 0.00010	0.00010	mg/L	2023-05-29	
Dup1 (23E2913-09) | Matrix: Water | Sampled: 2023-05-23					
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**144**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0163**	0.0050	mg/L	2023-05-30	
Antimony, dissolved	**0.00035**	0.00020	mg/L	2023-05-30	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Barium, dissolved	**0.0245**	0.0050	mg/L	2023-05-30	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Boron, dissolved	**0.0525**	0.0500	mg/L	2023-05-30	
Cadmium, dissolved	**0.000079**	0.000010	mg/L	2023-05-30	
Calcium, dissolved	**45.1**	0.20	mg/L	2023-05-30	
Chromium, dissolved	**0.00115**	0.00050	mg/L	2023-05-30	
Cobalt, dissolved	**0.00289**	0.00010	mg/L	2023-05-30	
Copper, dissolved	**0.00736**	0.00040	mg/L	2023-05-30	
Iron, dissolved	**1.50**	0.010	mg/L	2023-05-30	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Lithium, dissolved	**0.00241**	0.00010	mg/L	2023-05-30	
Magnesium, dissolved	**7.64**	0.010	mg/L	2023-05-30	
Manganese, dissolved	**1.58**	0.00020	mg/L	2023-05-30	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-05-31	
Molybdenum, dissolved	**0.00025**	0.00010	mg/L	2023-05-30	
Nickel, dissolved	**0.00041**	0.00040	mg/L	2023-05-30	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2023-05-30	
Potassium, dissolved	**9.04**	0.10	mg/L	2023-05-30	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Silicon, dissolved	**17.9**	1.0	mg/L	2023-05-30	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-05-30	
Sodium, dissolved	**8.58**	0.10	mg/L	2023-05-30	
Strontium, dissolved	**0.286**	0.0010	mg/L	2023-05-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Analyzed	Qualifier
Dup1 (23E2913-09) | Matrix: Water | Sampled: 2023-05-23, Continued					
Dissolved Metals, Continued					
Sulfur, dissolved	< 3.0	3.0	mg/L	2023-05-30	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2023-05-30	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-05-30	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-05-30	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-05-30	
Uranium, dissolved	**0.000389**	0.000020	mg/L	2023-05-30	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-05-30	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-05-30	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2023-05-30	
Field Parameters					
Conductivity (EC)	**253**	2	µS/cm	2023-05-23	
Oxygen, Dissolved	< 1.0	1.0	mg/L	2023-05-23	
pH	**6.7**	0.1	pH units	2023-05-23	
Oxidation/Reduction Potential	**56**	-200	millivolts	2023-05-23	
Temperature, field	**13.5**		°C	2023-05-23	
General Parameters					
Alkalinity, Total (as CaCO3)	**145**	1.0	mg/L	2023-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Bicarbonate (as CaCO3)	**145**	1.0	mg/L	2023-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-05-28	
Conductivity (EC)	**314**	2.0	µS/cm	2023-05-28	
pH	**6.65**	0.10	pH units	2023-05-28	HT2

Sample Qualifiers:

HG1	Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Richmond
Chemical Oxygen Demand in Water	SM 5220 D* (2022)	Closed Reflux, Colorimetry	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 2540 C* (2020)	Gravimetry (Dried at 103-105C)		Richmond
Sulfide, Total in Water	SM 4500-S2 D* (2021)	Colorimetry (Methylene Blue)	✓	Edmonton
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B3E2693										
Blank (B3E2693-BLK1)				Prepared: 2023-05-25, Analyzed: 2023-05-25						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B3E2693-BLK2)				Prepared: 2023-05-25, Analyzed: 2023-05-25						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B3E2693-BS1)				Prepared: 2023-05-25, Analyzed: 2023-05-25						
Chloride	16.0	0.10	mg/L	16.0		100	90-110			
Fluoride	4.05	0.10	mg/L	4.00		101	88-108			
Nitrate (as N)	3.99	0.010	mg/L	4.00		100	90-110			
Nitrite (as N)	2.06	0.010	mg/L	2.00		103	85-115			
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
LCS (B3E2693-BS2)				Prepared: 2023-05-25, Analyzed: 2023-05-25						
Chloride	16.1	0.10	mg/L	16.0		101	90-110			
Fluoride	4.02	0.10	mg/L	4.00		100	88-108			
Nitrate (as N)	3.97	0.010	mg/L	4.00		99	90-110			
Nitrite (as N)	2.09	0.010	mg/L	2.00		104	85-115			
Sulfate	16.0	1.0	mg/L	16.0		100	90-110			
Duplicate (B3E2693-DUP1)		**Source: 23E2913-08**		Prepared: 2023-05-25, Analyzed: 2023-05-25						
Chloride	9.44	0.10	mg/L		9.47			< 1	10	
Fluoride	< 0.10	0.10	mg/L		< 0.10				10	
Nitrate (as N)	< 0.010	0.010	mg/L		< 0.010				10	
Nitrite (as N)	< 0.010	0.010	mg/L		< 0.010				15	
Sulfate	6.4	1.0	mg/L		6.4			< 1	10	
Matrix Spike (B3E2693-MS1)		**Source: 23E2913-08**		Prepared: 2023-05-25, Analyzed: 2023-05-25						
Chloride	25.5	0.10	mg/L	16.0	9.47	100	75-125			
Fluoride	4.00	0.10	mg/L	4.00	< 0.10	100	75-125			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B3E2693, Continued										
Matrix Spike (B3E2693-MS1), Continued		**Source: 23E2913-08**		Prepared: 2023-05-25, Analyzed: 2023-05-25						
Nitrate (as N)	4.04	0.010	mg/L	4.00	< 0.010	101	75-125			
Nitrite (as N)	2.17	0.010	mg/L	2.00	< 0.010	109	80-120			
Sulfate	22.2	1.0	mg/L	16.0	6.4	99	75-125			
Dissolved Metals, Batch B3E3148										
Blank (B3E3148-BLK1)				Prepared: 2023-05-31, Analyzed: 2023-05-31						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
LCS (B3E3148-BS1)				Prepared: 2023-05-31, Analyzed: 2023-05-31						
Mercury, dissolved	0.000254	0.000010	mg/L	0.000250		102	80-120			
Dissolved Metals, Batch B3E3189										
Blank (B3E3189-BLK1)				Prepared: 2023-05-30, Analyzed: 2023-05-30						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Beryllium, dissolved	< 0.00010	0.00010	mg/L							
Bismuth, dissolved	< 0.00010	0.00010	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Lithium, dissolved	< 0.00010	0.00010	mg/L							
Magnesium, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Phosphorus, dissolved	< 0.050	0.050	mg/L							
Potassium, dissolved	< 0.10	0.10	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Silicon, dissolved	< 1.0	1.0	mg/L							
Silver, dissolved	< 0.000050	0.000050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							
Sulfur, dissolved	< 3.0	3.0	mg/L							
Tellurium, dissolved	< 0.00050	0.00050	mg/L							
Thallium, dissolved	< 0.000020	0.000020	mg/L							
Thorium, dissolved	< 0.00010	0.00010	mg/L							
Tin, dissolved	< 0.00020	0.00020	mg/L							
Titanium, dissolved	< 0.0050	0.0050	mg/L							
Tungsten, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Vanadium, dissolved	< 0.0050	0.0050	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							
Zirconium, dissolved	< 0.00010	0.00010	mg/L							
LCS (B3E3189-BS1)				Prepared: 2023-05-30, Analyzed: 2023-05-30						
Aluminum, dissolved	4.00	0.0050	mg/L	4.00		100	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B3E3189, Continued										
LCS (B3E3189-BS1), Continued				Prepared: 2023-05-30, Analyzed: 2023-05-30						
Antimony, dissolved	0.0406	0.00020	mg/L	0.0400		102	80-120			
Arsenic, dissolved	0.403	0.00050	mg/L	0.400		101	80-120			
Barium, dissolved	0.0394	0.0050	mg/L	0.0400		98	80-120			
Beryllium, dissolved	0.0404	0.00010	mg/L	0.0400		101	80-120			
Bismuth, dissolved	0.0390	0.00010	mg/L	0.0400		98	80-120			
Boron, dissolved	0.415	0.0500	mg/L	0.400		104	80-120			
Cadmium, dissolved	0.0401	0.000010	mg/L	0.0400		100	80-120			
Calcium, dissolved	3.99	0.20	mg/L	4.00		100	80-120			
Chromium, dissolved	0.0393	0.00050	mg/L	0.0400		98	80-120			
Cobalt, dissolved	0.0402	0.00010	mg/L	0.0400		100	80-120			
Copper, dissolved	0.0409	0.00040	mg/L	0.0400		102	80-120			
Iron, dissolved	3.98	0.010	mg/L	4.00		99	80-120			
Lead, dissolved	0.0394	0.00020	mg/L	0.0400		98	80-120			
Lithium, dissolved	0.0408	0.00010	mg/L	0.0400		102	80-120			
Magnesium, dissolved	4.04	0.010	mg/L	4.00		101	80-120			
Manganese, dissolved	0.0406	0.00020	mg/L	0.0400		101	80-120			
Molybdenum, dissolved	0.0381	0.00010	mg/L	0.0400		95	80-120			
Nickel, dissolved	0.0404	0.00040	mg/L	0.0400		101	80-120			
Phosphorus, dissolved	3.95	0.050	mg/L	4.00		99	80-120			
Potassium, dissolved	4.03	0.10	mg/L	4.00		101	80-120			
Selenium, dissolved	0.401	0.00050	mg/L	0.400		100	80-120			
Silicon, dissolved	4.1	1.0	mg/L	4.00		102	80-120			
Silver, dissolved	0.0397	0.000050	mg/L	0.0400		99	80-120			
Sodium, dissolved	4.09	0.10	mg/L	4.00		102	80-120			
Strontium, dissolved	0.0405	0.0010	mg/L	0.0400		101	80-120			
Sulfur, dissolved	41.2	3.0	mg/L	40.0		103	80-120			
Tellurium, dissolved	0.0392	0.00050	mg/L	0.0400		98	80-120			
Thallium, dissolved	0.0398	0.000020	mg/L	0.0400		100	80-120			
Thorium, dissolved	0.0400	0.00010	mg/L	0.0400		100	80-120			
Tin, dissolved	0.0397	0.00020	mg/L	0.0400		99	80-120			
Titanium, dissolved	0.0414	0.0050	mg/L	0.0400		103	80-120			
Tungsten, dissolved	0.0400	0.0010	mg/L	0.0400		100	80-120			
Uranium, dissolved	0.0400	0.000020	mg/L	0.0400		100	80-120			
Vanadium, dissolved	0.0399	0.0050	mg/L	0.0400		100	80-120			
Zinc, dissolved	0.403	0.0040	mg/L	0.400		101	80-120			
Zirconium, dissolved	0.0402	0.00010	mg/L	0.0400		101	80-120			
General Parameters, Batch B3E2684										
Blank (B3E2684-BLK1)				Prepared: 2023-05-24, Analyzed: 2023-05-24						
Solids, Total Dissolved	< 10	10	mg/L							
LCS (B3E2684-BS1)				Prepared: 2023-05-24, Analyzed: 2023-05-24						
Solids, Total Dissolved	42	10	mg/L	50.0		85	85-115			
LCS (B3E2684-BS2)				Prepared: 2023-05-24, Analyzed: 2023-05-24						
Solids, Total Dissolved	485	10	mg/L	500		97	85-115			
General Parameters, Batch B3E2740										
Blank (B3E2740-BLK1)				Prepared: 2023-05-25, Analyzed: 2023-05-30						
BOD, 5-day	< 2.0	2.0	mg/L							
LCS (B3E2740-BS1)				Prepared: 2023-05-25, Analyzed: 2023-05-30						
BOD, 5-day	207	23.8	mg/L	198		105	85-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3E2740, Continued										
Duplicate (B3E2740-DUP1)		**Source: 23E2913-01**		Prepared: 2023-05-25, Analyzed: 2023-05-30						
BOD, 5-day	< 1.4	2.0	mg/L		< 4.8				23	
Reference (B3E2740-SRM1)				Prepared: 2023-05-25, Analyzed: 2023-05-30						
BOD, 5-day	567	47.7	mg/L	500		113	85-115			
General Parameters, Batch B3E2887										
Blank (B3E2887-BLK1)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B3E2887-BLK2)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B3E2887-BLK3)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B3E2887-BLK4)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
Blank (B3E2887-BLK5)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	< 0.050	0.050	mg/L							
LCS (B3E2887-BS1)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	0.934	0.050	mg/L	1.00		93	85-115			
LCS (B3E2887-BS2)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	0.923	0.050	mg/L	1.00		92	85-115			
LCS (B3E2887-BS3)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	0.936	0.050	mg/L	1.00		94	85-115			
LCS (B3E2887-BS4)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	0.931	0.050	mg/L	1.00		93	85-115			
LCS (B3E2887-BS5)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Ammonia, Total (as N)	0.915	0.050	mg/L	1.00		92	85-115			
General Parameters, Batch B3E2939										
Blank (B3E2939-BLK1)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Sulfide, Total	< 0.020	0.020	mg/L							
LCS (B3E2939-BS1)				Prepared: 2023-05-26, Analyzed: 2023-05-26						
Sulfide, Total	0.445	0.020	mg/L	0.450		99	80-120			
Duplicate (B3E2939-DUP1)		**Source: 23E2913-02**		Prepared: 2023-05-26, Analyzed: 2023-05-26						
Sulfide, Total	0.047	0.020	mg/L		0.041				15	
Matrix Spike (B3E2939-MS1)		**Source: 23E2913-07**		Prepared: 2023-05-26, Analyzed: 2023-05-26						
Sulfide, Total	0.423	0.020	mg/L	0.450	< 0.020	94	70-130			
General Parameters, Batch B3E3081										
Blank (B3E3081-BLK1)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3E3081, Continued										
Blank (B3E3081-BLK1), Continued				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B3E3081-BLK2)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B3E3081-BS1)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Alkalinity, Total (as CaCO3)	97.3	1.0	mg/L	100		97	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	73.5	1.0	mg/L	50.0		147	0-200			
LCS (B3E3081-BS2)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Alkalinity, Total (as CaCO3)	96.4	1.0	mg/L	100		96	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	72.5	1.0	mg/L	50.0		145	0-200			
LCS (B3E3081-BS3)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Conductivity (EC)	1400	2.0	µS/cm	1410		99	95-105			
LCS (B3E3081-BS4)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Conductivity (EC)	1400	2.0	µS/cm	1410		99	95-105			
Reference (B3E3081-SRM1)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
pH	7.02	0.10	pH units	7.01		100	98-102			
Reference (B3E3081-SRM2)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
pH	7.02	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B3E3083										
Blank (B3E3083-BLK1)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Chemical Oxygen Demand	< 20	20	mg/L							
LCS (B3E3083-BS1)				Prepared: 2023-05-28, Analyzed: 2023-05-28						
Chemical Oxygen Demand	513	20	mg/L	500		103	89-115			
Total Metals, Batch B3E3028										
Blank (B3E3028-BLK1)				Prepared: 2023-05-27, Analyzed: 2023-05-29						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3E3028-BLK2)				Prepared: 2023-05-27, Analyzed: 2023-05-29						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B3E3028-BS1)				Prepared: 2023-05-27, Analyzed: 2023-05-29						
Mercury, total	0.000239	0.000010	mg/L	0.000250		96	80-120			
LCS (B3E3028-BS2)				Prepared: 2023-05-27, Analyzed: 2023-05-29						
Mercury, total	0.000228	0.000010	mg/L	0.000250		91	80-120			
Total Metals, Batch B3E3087										

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3E3087, Continued										
Blank (B3E3087-BLK1)				Prepared: 2023-05-28, Analyzed: 2023-05-29						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Beryllium, total	< 0.00010	0.00010	mg/L							
Bismuth, total	< 0.00010	0.00010	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Lithium, total	< 0.00010	0.00010	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Phosphorus, total	< 0.050	0.050	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Silicon, total	< 1.0	1.0	mg/L							
Silver, total	< 0.000050	0.000050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Sulfur, total	< 3.0	3.0	mg/L							
Tellurium, total	< 0.00050	0.00050	mg/L							
Thallium, total	< 0.000020	0.000020	mg/L							
Thorium, total	< 0.00010	0.00010	mg/L							
Tin, total	< 0.00020	0.00020	mg/L							
Titanium, total	< 0.0050	0.0050	mg/L							
Tungsten, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Vanadium, total	< 0.0050	0.0050	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
Zirconium, total	< 0.00010	0.00010	mg/L							
LCS (B3E3087-BS1)				Prepared: 2023-05-28, Analyzed: 2023-05-29						
Aluminum, total	3.83	0.0050	mg/L	4.00		96	80-120			
Antimony, total	0.0380	0.00020	mg/L	0.0400		95	80-120			
Arsenic, total	0.382	0.00050	mg/L	0.400		96	80-120			
Barium, total	0.0375	0.0050	mg/L	0.0400		94	80-120			
Beryllium, total	0.0385	0.00010	mg/L	0.0400		96	80-120			
Bismuth, total	0.0373	0.00010	mg/L	0.0400		93	80-120			
Boron, total	0.400	0.0500	mg/L	0.400		100	80-120			
Cadmium, total	0.0375	0.000010	mg/L	0.0400		94	80-120			
Calcium, total	3.99	0.20	mg/L	4.00		100	80-120			
Chromium, total	0.0383	0.00050	mg/L	0.0400		96	80-120			
Cobalt, total	0.0384	0.00010	mg/L	0.0400		96	80-120			
Copper, total	0.0388	0.00040	mg/L	0.0400		97	80-120			
Iron, total	3.85	0.010	mg/L	4.00		96	80-120			
Lead, total	0.0374	0.00020	mg/L	0.0400		93	80-120			
Lithium, total	0.0386	0.00010	mg/L	0.0400		96	80-120			
Magnesium, total	3.83	0.010	mg/L	4.00		96	80-120			
Manganese, total	0.0384	0.00020	mg/L	0.0400		96	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23E2913
PROJECT	Marine Avenue Site	**REPORTED**	2023-05-31 13:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3E3087, Continued										
LCS (B3E3087-BS1), Continued				Prepared: 2023-05-28, Analyzed: 2023-05-29						
Molybdenum, total	0.0367	0.00010	mg/L	0.0400		92	80-120			
Nickel, total	0.0384	0.00040	mg/L	0.0400		96	80-120			
Phosphorus, total	3.84	0.050	mg/L	4.00		96	80-120			
Potassium, total	3.84	0.10	mg/L	4.00		96	80-120			
Selenium, total	0.378	0.00050	mg/L	0.400		95	80-120			
Silicon, total	4.2	1.0	mg/L	4.00		104	80-120			
Silver, total	0.0383	0.000050	mg/L	0.0400		96	80-120			
Sodium, total	3.92	0.10	mg/L	4.00		98	80-120			
Strontium, total	0.0386	0.0010	mg/L	0.0400		97	80-120			
Sulfur, total	39.1	3.0	mg/L	40.0		98	80-120			
Tellurium, total	0.0370	0.00050	mg/L	0.0400		93	80-120			
Thallium, total	0.0380	0.000020	mg/L	0.0400		95	80-120			
Thorium, total	0.0380	0.00010	mg/L	0.0400		95	80-120			
Tin, total	0.0374	0.00020	mg/L	0.0400		94	80-120			
Titanium, total	0.0397	0.0050	mg/L	0.0400		99	80-120			
Tungsten, total	0.0387	0.0010	mg/L	0.0400		97	80-120			
Uranium, total	0.0381	0.000020	mg/L	0.0400		95	80-120			
Vanadium, total	0.0380	0.0050	mg/L	0.0400		95	80-120			
Zinc, total	0.377	0.0040	mg/L	0.400		94	80-120			
Zirconium, total	0.0390	0.00010	mg/L	0.0400		98	80-120			
Total Metals, Batch B3E3278										
Blank (B3E3278-BLK1)				Prepared: 2023-05-30, Analyzed: 2023-05-30						
Mercury, total	< 0.020	0.020	µg/L							
LCS (B3E3278-BS1)				Prepared: 2023-05-30, Analyzed: 2023-05-30						
Mercury, total	4.08	0.020	µg/L	4.00		102	80-120			
Duplicate (B3E3278-DUP1)		**Source: 23E2913-07**		Prepared: 2023-05-30, Analyzed: 2023-05-30						
Mercury, total	< 0.020	0.020	µg/L		< 0.020				20	

CARO ANALYTICAL SERVICES
Caring About Results... Obviously

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[ ]

23E2913

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CHAIN OF CUSTODY RECORD

COC# _____ PAGE OF

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE: 12/4
	TIME:	BIA loomis	TIME: 10:15

PROJECT: Marine Avenue Site

PROJECT INFO:

REPORT TO:
COMPANY: Tetra Tech Canada
ADDRESS: Suite 1000-885 Dunsmuir Street
Vancouver, BC V8G 0A7
CONTACT: Jeremy Reid
TEL/FAX: 604.916.3902
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
DATA FORMAT: EXCEL [X] WATERTRAX [ ] ESdat [X] EQuIS [ ] BC EMS [ ] OTHER* [ ]
EMAIL 1: jeremy.reid@tetratech.com
EMAIL 2: mike.gallo@tetratech.com
EMAIL 3: lauren.quan@tetratech.com

INV... [ ] TTO
COMPANY: Tetra Tech Canada
ADDRESS: Accounts Payable Department
Edmonton, AB
CONTACT:
TEL/FAX:
DELIVERY METHOD: EMAIL [X] MAIL [ ] OTHER* [ ]
EMAIL 1: Accounts.Payable@tetratech.com
EMAIL 2:
EMAIL 3:
PO #: 704-SWM.SWOP03663-11

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) [X]
Rush: 1 Day* [ ] 2 Day* [ ] 3 Day* [ ]
Other* _____
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines [ ] Regs on Report? [ ]
BC Drinking Water Protection Act / Reg. [ ]
BC CSR [X] AB TIER 1 [ ] CCME [ ] OTHER* [ ]
AL [ ] PL [ ] RL [ ] CL [ ] IL [ ] AW [ ] IW [ ] LW [ ]

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SAMPLED BY: Regan Keil

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	BTEX [ ]	VPH [ ]	PHC F1 [ ]	VOC [ ]	VPH [ ]	PHC F2-F4 [ ]	EPH [ ]	L/HEPH [ ]	PAH [ ]	PHENOLS Chlorinated [ ]	Non-Chlor. [ ]	PCB [ ]	GLYCOLS [ ]	HAA [ ]	PESTICIDES [ ]	ACID HERBICIDES [ ]	METALS - WATER TOTAL Hg [X]	METALS - WATER DISSOLVED Hg [X]	METALS - SOIL (SALM) [ ]	inc. pH [ ]	pH [X]	EC [X]	ALK [X]	TSS [ ]	VSS [ ]	TDS [X]	BOD [X]	COD [X]	TOG [ ]	MOG [ ]	FECAL COLIFORMS [ ]	HPC [ ]	TOTAL COLIFORMS [ ]	E. coli [ ]	ASBESTOS	Low Level Sulphide	NH2, Cl, SO4, F, NO3, N2, Hardness as CaCO3	HOLD
MW13-01 C11-C13-C23-C10 S05-S06		✓																									✓			✓	✓	✓												✓	✓	
MW13-02 " " "		✓																									✓			✓	✓	✓												✓	✓	
MW13-03 " "		✓																									✓			✓	✓	✓												✓	✓	
MW19-04 C11-C13-C23-C10 S05-S06		✓																									✓			✓	✓	✓												✓	✓	
SW1 " " " C05-C06		✓																									✓			✓	✓	✓												✓	✓	
SW2 " " " C05-C06		✓																									✓			✓	✓	✓												✓	✓	
SW3 " " " C05-C06		✓																									✓			✓	✓	✓												✓	✓	
SW4 " " " C05-C06		✓																									✓			✓	✓	✓												✓	✓	
DUP1 C08-S05-S06		✓																										✓			✓															

SHIPPING INSTRUCTIONS: Return Cooler(s) [ ]
Supplies Needed:
-

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days [ ] 90 Days [X] Longer Date (Surcharges will Apply): _____

*** OTHER INSTRUCTIONS:**
K1 → C11-C13-

PAYMENT:
CHEQUE [ ]
CREDIT [ ]
DEBIT [ ]
CASH [ ]
INVOICE [X]

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 3.8 ICE: Y [ ] N [ ]
COOLER 2 (°C): _____ ICE: Y [ ] N [ ]
COOLER 3 (°C): _____ ICE: Y [ ] N [ ]
CUSTODY SEALS INTACT: NA [ ] Y [ ] N [ ]

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW13-01 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: 11:05 ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 4.98 (metres)
Depth to Bottom of Well Below Top of Casing: B 7.84 (metres)
Diameter Standpipe: C 51 (mm)

One well volume:
2.86 (B-A)*2.0 = 5.72 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 3 volumes = 17.16 litres Method: pump
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
11:16	5.75	49.4	11.8	6.95	97.0	84.2	1.07	clear
11:26	5.75	48.6	11.5	6.97	89.4	78.4	1.08	
11:37	5.75	62.2	11.7	6.81	89.2	77.9	1.06	
11:40	Sample	taken						

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW13-02 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: 9:30 am ☒ Purge/Sample

MONITORING WELL INFORMATION
Depth to Water Below Top of Casing: A 8.1 (metres)
Depth to Bottom of Well Below Top of Casing: B 11.57 (metres)
Diameter Standpipe: C 51 (mm)

One well volume:
(B-A)*2.0 = 6.94 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST
pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING
Purge volume: Well vol x 3 volumes = 20.82 litres Method: pump
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
10:15 am	7	26.2	13.6	6.63	1248	1040	6.34	brownish / slight sheen
10:26	7	24.0	13.0	6.54	1266	1068	1.23	Subtle sheen
10:40	7	27.0	13.1	6.64	1285	1083	1.23	
10:40	Sample Taken							

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW13-03 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 13.0 (metres)
Depth to Bottom of Well Below Top of Casing: B 15.82 (metres)
Diameter Standpipe: C 51 (mm)

One well volume:
2.82 (B-A)*2.0 = 5.64 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump:	☐ none	☐ Waterra	☐ Peristaltic	☐ Submersible
Bailer:	☐ none	☐ Stainless Steel	☐ Teflon	☐ PVC
Filter:	☐ none	☐ Waterra in-line	☐ Vacuum (disposal)	☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 3 volumes = 16.92 litres Method: bailer
Flow Rate _____ L/min Volume: 16.92 Start: 9:15 am Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
~~9:15 am~~								
12:20	6	102.3	11.7	6.56	370.6	323.6	0.93	murky

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: MW19-04 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: 12:48 ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 2.06 (metres)
Depth to Bottom of Well Below Top of Casing: B 4.26 (metres)
Diameter Standpipe: C 51 (mm)

One well volume:
(B-A)*2.0 = 4.4 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 3 [redacted] volumes = 13.2 litres Method: Pump
Flow Rate _____ L/min Volume: _____ Start: _____ *Finish:* _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
12:48	4.5 L	57.6	14.3	6.6	245.3	201.1	0.81	reddish brown murky
12:52	4.5 L	53.2	13.6	6.67	274.4	227.5	0.75	some color - clearer
1:05	4.5 L	55.6	12.6	6.73	239.3	204.6	0.81	" "

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW1 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:36		71.8	14.2	7.68	80.8	66.1	8.74	clear

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW2 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:16		71.1	13.3	7.72	87.9	73.6	9.48	clear

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
2	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
3	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
4	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
5	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
6	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	
7	Plastic	Glass		___	___	___	___	___	___	___	Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW3 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: 2:05 ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____
Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ *Start:* _____ *Finish:* _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
2:05		67.9	13.2	7.46	92.9	78.0	11.3	clear

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: SW4 | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A _____ (metres)
Depth to Bottom of Well Below Top of Casing: B _____ (metres)
Diameter Standpipe: C _____ (mm)

One well volume:
(B-A)*2.0 = _____ litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x _____ volumes = _____ litres Method: _____
Flow Rate _____ L/min Volume: _____ Start: _____ Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
17:55		60.7	14.3	7.18	1246	101.8	0.85	Clear.

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

TETRA TECH

GROUNDWATER DEVELOPMENT AND PURGING/SAMPLING SHEET

WELL NO.: Duplicate | JOB NO.: SWM.SWOP03663-06
LOCATION: Powell River Landfill Closure | COMPLETED BY: Garrett
WEATHER: Clear | DATE: May 23, 2023 ☐ Development
TEMPERATURE: 12 | TIME: 12:45 ☒ Purge/Sample

MONITORING WELL INFORMATION

Depth to Water Below Top of Casing: A 2.06 (metres)
Depth to Bottom of Well Below Top of Casing: B 4.26 (metres)
Diameter Standpipe: C 51 (mm)

One well volume:
(B-A)*2.0 = 4.4 litres -for a 51mm (2.0 inch) diameter well
(B-A)*1.1 = _____ litres -for a 38mm (1.5 inch) diameter well
Product Thickness: _____ (by probe or paste?)

EQUIPMENT LIST

pH and Temp. Meter: Model YSI + Quatro Serial No. _____ Calibration Buffers: 4 7 10
Conductivity Meter: Model _____ Serial No. _____ Calibration Solutions: _____ and _____
Dissolved Oxygen Meter: Model _____ Serial No. _____
Turbidity Meter: Model _____ Serial No. _____

Pump: ☐ none ☐ Waterra ☐ Peristaltic ☐ Submersible
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☐ PVC
Filter: ☐ none ☐ Waterra in-line ☐ Vacuum (disposal) ☐ Vacuum (re-usable)

WELL DEVELOPMENT/PURGING

Purge volume: Well vol x 3 volumes = 13.2 litres Method: pump
Flow Rate _____ L/min Volume: _____ Start: 12:45 Finish: _____

TIME	VOLUME REMOVED (L)	ORP (mv)	TEMP (oC)	pH (UNITS)	COND. (uS/cm)	TDS (mg/L)	DIS.O_2 (mg/L) or %	REMARKS (colour, odour, sheen, brittle film, etc.)
12:48	4.5 L	57.8	14.3	6.6	245.3	201.1	0.81	red/brown murky
12:56	4.5 L	53.2	13.6	6.67	274.4	227.5	0.75	" " → clearer
1:05	4.5 L	55.6	12.6	6.73	239.3	204.6	0.81	" "

Comments (Recovery rate, etc.):

SAMPLING Water Odour: no yes (describe) _____ Sheen no yes (describe) _____
Turbidity: _____ NTU Clear: 1 2 3 4 5 6 7 8 9 10 Very Silty
or 1 – 10 relative scale (circle as appropriate):
Other: _____
NAPL Information (odour, colour, etc.) _____

BOTTLE			Size:	40ml	100mL	250mL	500mL	1L	2L	4L	Filtered		Preservatives
1	Plastic	Glass									Yes	No	
2	Plastic	Glass									Yes	No	
3	Plastic	Glass									Yes	No	
4	Plastic	Glass									Yes	No	
5	Plastic	Glass									Yes	No	
6	Plastic	Glass									Yes	No	
7	Plastic	Glass									Yes	No	

CERTIFICATE OF ANALYSIS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver) 1000 - 885 Dunsmuir Street Vancouver, BC V6C 1N5		
ATTENTION	Jeremy Reid	**WORK ORDER**	23I3541
PO NUMBER	704-SWM.SWOP03663-11	**RECEIVED / TEMP**	2023-09-28 11:05 / 5.1°C
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57
PROJECT INFO		**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at aquesada@caro.ca

Authorized By:

Adrian Quesada
Junior Account Manager

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23I3541-01) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 10:08					
Anions					
Chloride	**6.73**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	**0.223**	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**6.0**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**53.2**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**53.2**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	
Conductivity (EC)	**125**	2.0	µS/cm	2023-10-03	
pH	**6.71**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
MW13-02 (23I3541-02) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 12:10					
Anions					
Chloride	**8.74**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**344**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**501**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**501**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	**6.97**	0.050	mg/L	2023-10-02	
Conductivity (EC)	**1410**	2.0	µS/cm	2023-10-03	
pH	**6.87**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
MW13-03 (23I3541-03) | Matrix: Water | Sampled: 2023-09-27 12:55					
Anions					
Chloride	**22.7**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	**1.80**	0.010	mg/L	2023-09-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23I3541-03) | Matrix: Water | Sampled: 2023-09-27 12:55, Continued					
Anions, Continued					
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**50.0**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**194**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**194**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	
Conductivity (EC)	**495**	2.0	µS/cm	2023-10-03	
pH	**7.01**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
MW19-04 (23I3541-04) | Matrix: Water | Sampled: 2023-09-27 13:25					
Anions					
Chloride	**6.95**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**1.6**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**144**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**144**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	**0.158**	0.050	mg/L	2023-10-02	
Conductivity (EC)	**258**	2.0	µS/cm	2023-10-03	
pH	**6.83**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
SW1 (23I3541-05) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 07:20					
Anions					
Chloride	**9.55**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	**0.075**	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**2.6**	1.0	mg/L	2023-09-30	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23I3541-05) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 07:20, Continued					
General Parameters					
Alkalinity, Total (as CaCO3)	**37.5**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**37.5**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	
Conductivity (EC)	**102**	2.0	µS/cm	2023-10-03	
pH	**6.77**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
SW2 (23I3541-06) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 07:30					
Anions					
Chloride	**10.8**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	**0.131**	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**3.0**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**39.9**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**39.9**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	
Conductivity (EC)	**104**	2.0	µS/cm	2023-10-03	
pH	**6.75**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
SW3 (23I3541-07) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 07:40					
Anions					
Chloride	**10.6**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	**0.132**	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**4.7**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**43.7**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**43.7**	1.0	mg/L	2023-10-03	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23I3541-07) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 07:40, Continued					
General Parameters, Continued					
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	
Conductivity (EC)	**113**	2.0	µS/cm	2023-10-03	
pH	**6.78**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
SW4 (23I3541-08) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 10:30					
Anions					
Chloride	**9.89**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**8.2**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**59.5**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**59.5**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	
Conductivity (EC)	**156**	2.0	µS/cm	2023-10-03	
pH	**6.91**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	
DUP1 (23I3541-09) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 12:55					
Anions					
Chloride	**23.4**	0.10	mg/L	2023-09-30	
Fluoride	< 0.10	0.10	mg/L	2023-09-30	
Nitrate (as N)	**1.74**	0.010	mg/L	2023-09-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-09-30	
Sulfate	**49.8**	1.0	mg/L	2023-09-30	
General Parameters					
Alkalinity, Total (as CaCO3)	**197**	1.0	mg/L	2023-10-03	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Bicarbonate (as CaCO3)	**197**	1.0	mg/L	2023-10-03	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-10-03	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-10-02	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP1 (23I3541-09) | Matrix: Water | Sampled: 2023-09-27 00:00 To 2023-09-27 12:55, Continued					
General Parameters, Continued					
Conductivity (EC)	**497**	2.0	µS/cm	2023-10-03	
pH	**6.95**	0.10	pH units	2023-10-03	HT2
Sulfide, Total	< 0.020	0.020	mg/L	2023-10-03	

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Sulfide, Total in Water	SM 4500-S2 D* (2021)	Colorimetry (Methylene Blue)	✓	Edmonton

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B3I3031										
Blank (B3I3031-BLK1)				Prepared: 2023-09-30, Analyzed: 2023-09-30						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B3I3031-BS1)				Prepared: 2023-09-30, Analyzed: 2023-09-30						
Chloride	16.1	0.10	mg/L	16.0		101	90-110			
Fluoride	4.14	0.10	mg/L	4.00		103	88-108			
Nitrate (as N)	4.15	0.010	mg/L	4.00		104	90-110			
Nitrite (as N)	2.01	0.010	mg/L	2.00		100	85-115			
Sulfate	16.1	1.0	mg/L	16.0		101	90-110			
Duplicate (B3I3031-DUP1)		**Source: 23I3541-01**		Prepared: 2023-09-30, Analyzed: 2023-09-30						
Chloride	6.76	0.10	mg/L		6.73			< 1	10	
Fluoride	< 0.10	0.10	mg/L		< 0.10				10	
Nitrate (as N)	0.226	0.010	mg/L		0.223			1	10	
Nitrite (as N)	< 0.010	0.010	mg/L		< 0.010				15	
Sulfate	6.1	1.0	mg/L		6.0			< 1	10	
Matrix Spike (B3I3031-MS1)		**Source: 23I3541-01**		Prepared: 2023-09-30, Analyzed: 2023-09-30						
Chloride	23.0	0.10	mg/L	16.0	6.73	102	75-125			
Fluoride	4.08	0.10	mg/L	4.00	< 0.10	102	75-125			
Nitrate (as N)	3.94	0.010	mg/L	4.00	0.223	93	75-125			
Nitrite (as N)	2.06	0.010	mg/L	2.00	< 0.010	103	80-120			
Sulfate	22.4	1.0	mg/L	16.0	6.0	102	75-125			
General Parameters, Batch B3J0026										
Blank (B3J0026-BLK1)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.024	0.010	mg/L							
Blank (B3J0026-BLK2)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	< 0.010	0.010	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J0026, Continued										
Blank (B3J0026-BLK3)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	< 0.010	0.010	mg/L							
Blank (B3J0026-BLK4)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	< 0.010	0.010	mg/L							
Blank (B3J0026-BLK5)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.030	0.010	mg/L							
Blank (B3J0026-BLK6)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.029	0.010	mg/L							
LCS (B3J0026-BS1)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.982	0.010	mg/L	1.00		98	85-115			
LCS (B3J0026-BS2)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.981	0.010	mg/L	1.00		98	85-115			
LCS (B3J0026-BS3)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.974	0.010	mg/L	1.00		97	85-115			
LCS (B3J0026-BS4)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.993	0.010	mg/L	1.00		99	85-115			
LCS (B3J0026-BS5)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.971	0.010	mg/L	1.00		97	85-115			
LCS (B3J0026-BS6)				Prepared: 2023-10-02, Analyzed: 2023-10-02						
Ammonia, Total (as N)	0.947	0.010	mg/L	1.00		95	85-115			
General Parameters, Batch B3J0045										
Blank (B3J0045-BLK1)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B3J0045-BLK2)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B3J0045-BLK3)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B3J0045-BLK4)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J0045, Continued										
Blank (B3J0045-BLK4), Continued				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B3J0045-BS1)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	120	1.0	mg/L	100		120	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	79.6	1.0	mg/L	50.0		159	0-200			
LCS (B3J0045-BS2)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	110	1.0	mg/L	100		110	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	45.0	1.0	mg/L	50.0		90	0-200			
LCS (B3J0045-BS3)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	107	1.0	mg/L	100		107	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	53.7	1.0	mg/L	50.0		107	0-200			
LCS (B3J0045-BS4)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	110	1.0	mg/L	100		110	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	53.9	1.0	mg/L	50.0		108	0-200			
LCS (B3J0045-BS5)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Conductivity (EC)	1380	2.0	µS/cm	1410		98	95-105			
LCS (B3J0045-BS6)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Conductivity (EC)	1400	2.0	µS/cm	1410		99	95-105			
LCS (B3J0045-BS7)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
LCS (B3J0045-BS8)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Conductivity (EC)	1400	2.0	µS/cm	1410		99	95-105			
Duplicate (B3J0045-DUP3)	**Source: 23I3541-01**			Prepared: 2023-10-03, Analyzed: 2023-10-03						
Alkalinity, Total (as CaCO3)	54.9	1.0	mg/L		53.2			3	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	54.9	1.0	mg/L		53.2			3	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Conductivity (EC)	124	2.0	µS/cm		125			< 1	5	
pH	6.71	0.10	pH units		6.71			< 1	4	HT2
Reference (B3J0045-SRM1)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
pH	7.03	0.10	pH units	7.01		100	98-102			
Reference (B3J0045-SRM2)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
pH	7.04	0.10	pH units	7.01		100	98-102			
Reference (B3J0045-SRM3)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
pH	7.04	0.10	pH units	7.01		100	98-102			
Reference (B3J0045-SRM4)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
pH	7.04	0.10	pH units	7.01		100	98-102			

General Parameters, Batch B3J0114

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23I3541
PROJECT	Marine Avenue Site	**REPORTED**	2023-10-05 08:57

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3J0114, Continued										
Blank (B3J0114-BLK1)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Sulfide, Total	< 0.020	0.020	mg/L							
LCS (B3J0114-BS1)				Prepared: 2023-10-03, Analyzed: 2023-10-03						
Sulfide, Total	0.413	0.020	mg/L	0.500		83	80-120			
Duplicate (B3J0114-DUP1)			**Source: 23I3541-02**	Prepared: 2023-10-03, Analyzed: 2023-10-03						
Sulfide, Total	< 0.020	0.020	mg/L		< 0.020				15	
Matrix Spike (B3J0114-MS1)			**Source: 23I3541-08**	Prepared: 2023-10-03, Analyzed: 2023-10-03						
Sulfide, Total	0.462	0.020	mg/L	0.500	< 0.020	92	70-130			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES
Caring About Results... Obviously

2K9 (5C3 iS 1H7

Clear Form | Print a Copy | Save a Copy | CARO Website | CARO BC COC, Rev 2015-09

CHAIN OF CUSTODY RECORD

COC# _____ PAGE _____ OF _____

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE: 09-28
	TIME:	3SD Texada	TIME: 11:05

PROJECT: Marine Avenue Site

PROJECT INFO:

REPORT TO:
COMPANY: Tetra Tech Canada
ADDRESS: Suite 1000-885 Dunsmuir Street, Vancouver, BC V8G 0A7
CONTACT: Jeremy Reid
TEL/FAX: 604.916.3902
DELIVERY METHOD: EMAIL [x] MAIL [ ] OTHER* [ ]
DATA FORMAT: EXCEL [x] WATERTRAX [ ] ESdat [x] EQuIS [ ] BC EMS [ ] OTHER* [ ]
EMAIL 1: jeremy.reid@tetratech.com
EMAIL 2: mike.gallo@tetratech.com
EMAIL 3: lauren.quan@tetratech.com

INVOICE TO: SAME AS REPORT TO [ ]
COMPANY: Tetra Tech Canada
ADDRESS: Accounts Payable Department, Edmonton, AB
CONTACT:
TEL/FAX:
DELIVERY METHOD: EMAIL [x] MAIL [ ] OTHER* [ ]
EMAIL 1: Accounts.Payable@tetratech.com
EMAIL 2:
EMAIL 3:
PO #: 704-SWM.SWOP03663-11

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) [x]
Rush: 1 Day* [ ] 2 Day* [ ] 3 Day* [ ]
Other* _____
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines [ ] Regs on Report? [ ]
BC Drinking Water Protection Act / Reg. [ ]
BC CSR [x] AB TIER 1 [ ] CCME [ ] OTHER* [ ]
AL [ ] PL [ ] RL [ ] CL [ ] IL [ ] AW [ ] IW [ ] LW [ ]

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: [ ]

SAMPLED BY: Regan Keil

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)	Low Level Sulphide	NH2, Cl, SO4, F, NO3, N2	HOLD
MW13-01		✓				Sept 27/23	10:05 am					✓	✓	
MW13-02		✓				Sept 27/23	12:10 pm					✓	✓	
MW13-03		✓				Sept 27/23	12:55 pm					✓	✓	
MW19-04		✓				Sept 27/23	1:25 pm					✓	✓	
SW1		✓				Sept 27/23	7:20 am					✓	✓	
SW2		✓				Sept 27/23	7:30 am					✓	✓	
SW3		✓				Sept 27/23	7:40 am					✓	✓	
SW4		✓				Sept 27/23	10:30 am					✓	✓	
DUP1		✓				Sept 27/23	12:55 pm						✓	

ANALYSES REQUESTED (columns): BTEX [ ] VPH [ ] PHC F1 [ ] | VOC [ ] VPH [ ] | EPH [ ] PHC F2-F4 [ ] | PAH [ ] L/HEPH [ ] | PHENOLS Chlorinated [ ] Non-Chlor. [ ] | PCB [ ] GLYCOLS [ ] HAA [ ] | PESTICIDES [ ] ACID HERBICIDES [ ] | METALS - WATER TOTAL Hg [x] | METALS - WATER DISSOLVED Hg [x] | METALS - SOIL (SALM) [ ] inc. pH [ ] | pH [x] EC [x] ALK [x] | TSS [ ] VSS [ ] TDS [ ] | BOD [ ] COD [ ] | TOG [ ] MOG [ ] | FECAL COLIFORMS [ ] HPC [ ] | TOTAL COLIFORMS [ ] E.coli [ ] | ASBESTOS | Low Level Sulphide | NH2, Cl, SO4, F, NO3, N2 | HOLD

SHIPPING INSTRUCTIONS: Return Cooler(s) [ ]
Supplies Needed:
-

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days [ ] 90 Days [x] Longer Date (Surcharges will Apply): _____
*** OTHER INSTRUCTIONS:**

PAYMENT:
CHEQUE [ ]
CREDIT [ ]
DEBIT [ ]
CASH [ ]
INVOICE [x]

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 5.1 ICE: Y [x] N [ ]
COOLER 2 (°C): _____ ICE: Y [ ] N [ ]
COOLER 3 (°C): _____
CUSTODY SEALS INTACT:

CERTIFICATE OF ANALYSIS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver) 1000 - 885 Dunsmuir Street Vancouver, BC V6C 1N5		
ATTENTION	Jeremy Reid	**WORK ORDER**	23L2282
PO NUMBER		**RECEIVED / TEMP**	2023-12-19 11:15 / 5.3°C
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46
PROJECT INFO	Marine Avenue Site		

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

If you have any questions or concerns, please contact me at aquesada@caro.ca

Authorized By:

Adrian Quesada
Junior Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23L2282-01) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**6.83**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**0.441**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**5.3**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**44.6**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Barium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-12-22	
Boron, dissolved	< 0.0500	0.0500	mg/L	2023-12-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2023-12-22	
Calcium, dissolved	**13.2**	0.20	mg/L	2023-12-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2023-12-22	
Copper, dissolved	< 0.00040	0.00040	mg/L	2023-12-22	
Iron, dissolved	< 0.010	0.010	mg/L	2023-12-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Lithium, dissolved	**0.00084**	0.00010	mg/L	2023-12-22	
Magnesium, dissolved	**2.80**	0.010	mg/L	2023-12-22	
Manganese, dissolved	**0.00150**	0.00020	mg/L	2023-12-27	RE2
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-12-21	
Molybdenum, dissolved	**0.00014**	0.00010	mg/L	2023-12-22	
Nickel, dissolved	**0.0157**	0.00040	mg/L	2023-12-27	RE2
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-12-22	
Sodium, dissolved	**7.77**	0.10	mg/L	2023-12-22	
Strontium, dissolved	**0.0697**	0.0010	mg/L	2023-12-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-12-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-12-22	
Uranium, dissolved	**0.000055**	0.000020	mg/L	2023-12-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-12-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**49.0**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-01 (23L2282-01) | Matrix: Water | Sampled: 2023-12-18, Continued					
General Parameters, Continued					
Alkalinity, Bicarbonate (as CaCO3)	**49.0**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	< 20	20	mg/L	2023-12-22	
Conductivity (EC)	**122**	2.0	µS/cm	2023-12-22	
pH	**6.58**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**100**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-20	
Total Metals					
Aluminum, total	< 0.0050	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-12-21	
Barium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	< 0.0500	0.0500	mg/L	2023-12-21	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-12-21	
Calcium, total	**11.8**	0.20	mg/L	2023-12-21	
Chromium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-12-21	
Copper, total	< 0.00040	0.00040	mg/L	2023-12-21	
Iron, total	< 0.010	0.010	mg/L	2023-12-21	
Lead, total	< 0.00020	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00070**	0.00010	mg/L	2023-12-21	
Magnesium, total	**2.67**	0.010	mg/L	2023-12-21	
Manganese, total	< 0.00020	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00017**	0.00010	mg/L	2023-12-21	
Nickel, total	< 0.00040	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**6.89**	0.10	mg/L	2023-12-21	
Strontium, total	**0.0663**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.000075**	0.000020	mg/L	2023-12-21	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Zinc, total	< 0.0040	0.0040	mg/L	2023-12-21	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23L2282-02) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**8.89**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**328**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**742**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0182**	0.0050	mg/L	2023-12-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Arsenic, dissolved	**0.00702**	0.00050	mg/L	2023-12-22	
Barium, dissolved	**0.154**	0.0050	mg/L	2023-12-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-12-22	
Boron, dissolved	**0.310**	0.0500	mg/L	2023-12-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2023-12-22	
Calcium, dissolved	**255**	0.20	mg/L	2023-12-22	
Chromium, dissolved	**0.00307**	0.00050	mg/L	2023-12-22	
Cobalt, dissolved	**0.00248**	0.00010	mg/L	2023-12-22	
Copper, dissolved	< 0.00040	0.00040	mg/L	2023-12-22	
Iron, dissolved	**91.7**	0.010	mg/L	2023-12-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Lithium, dissolved	**0.00095**	0.00010	mg/L	2023-12-22	
Magnesium, dissolved	**25.2**	0.010	mg/L	2023-12-22	
Manganese, dissolved	**2.15**	0.00020	mg/L	2023-12-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-12-21	
Molybdenum, dissolved	**0.00130**	0.00010	mg/L	2023-12-22	
Nickel, dissolved	**0.00049**	0.00040	mg/L	2023-12-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-12-22	
Sodium, dissolved	**28.3**	0.10	mg/L	2023-12-22	
Strontium, dissolved	**1.42**	0.0010	mg/L	2023-12-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-12-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-12-22	
Uranium, dissolved	**0.000587**	0.000020	mg/L	2023-12-22	
Vanadium, dissolved	**0.0064**	0.0050	mg/L	2023-12-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-12-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**520**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-02 (23L2282-02) | Matrix: Water | Sampled: 2023-12-18, Continued					
General Parameters, Continued					
Alkalinity, Bicarbonate (as CaCO3)	**520**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	**10.7**	0.050	mg/L	2023-12-20	
BOD, 5-day	**9.8**	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	**95**	20	mg/L	2023-12-22	
Conductivity (EC)	**1330**	2.0	µS/cm	2023-12-22	
pH	**6.69**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**1060**	10	mg/L	2023-12-22	
Sulfide, Total	**0.035**	0.020	mg/L	2023-12-20	
Total Metals					
Aluminum, total	**0.0280**	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	**0.00708**	0.00050	mg/L	2023-12-21	
Barium, total	**0.147**	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	**0.348**	0.0500	mg/L	2023-12-21	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-12-21	
Calcium, total	**254**	0.20	mg/L	2023-12-21	
Chromium, total	**0.00174**	0.00050	mg/L	2023-12-21	
Cobalt, total	**0.00253**	0.00010	mg/L	2023-12-21	
Copper, total	< 0.00040	0.00040	mg/L	2023-12-21	
Iron, total	**88.1**	0.010	mg/L	2023-12-21	
Lead, total	< 0.00020	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00105**	0.00010	mg/L	2023-12-21	
Magnesium, total	**25.9**	0.010	mg/L	2023-12-21	
Manganese, total	**2.04**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00141**	0.00010	mg/L	2023-12-21	
Nickel, total	**0.00042**	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**28.0**	0.10	mg/L	2023-12-21	
Strontium, total	**1.28**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.000630**	0.000020	mg/L	2023-12-21	
Vanadium, total	**0.0065**	0.0050	mg/L	2023-12-21	
Zinc, total	< 0.0040	0.0040	mg/L	2023-12-21	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23L2282-03) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**22.3**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**1.64**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**34.8**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**183**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0082**	0.0050	mg/L	2023-12-28	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-12-28	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-12-28	
Barium, dissolved	**0.0160**	0.0050	mg/L	2023-12-28	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-12-28	
Boron, dissolved	**0.0929**	0.0500	mg/L	2023-12-28	
Cadmium, dissolved	**0.000014**	0.000010	mg/L	2023-12-28	
Calcium, dissolved	**57.7**	0.20	mg/L	2023-12-28	
Chromium, dissolved	**0.00127**	0.00050	mg/L	2023-12-28	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2023-12-28	
Copper, dissolved	**0.00223**	0.00040	mg/L	2023-12-28	
Iron, dissolved	< 0.010	0.010	mg/L	2023-12-28	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-12-28	
Lithium, dissolved	**0.00219**	0.00010	mg/L	2023-12-28	
Magnesium, dissolved	**9.49**	0.010	mg/L	2023-12-28	
Manganese, dissolved	**0.00085**	0.00020	mg/L	2023-12-28	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-12-21	
Molybdenum, dissolved	**0.00017**	0.00010	mg/L	2023-12-28	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2023-12-28	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-12-28	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-12-28	
Sodium, dissolved	**29.6**	0.10	mg/L	2023-12-28	
Strontium, dissolved	**0.355**	0.0010	mg/L	2023-12-28	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-12-28	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-12-28	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-12-28	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-12-28	
Uranium, dissolved	**0.00185**	0.000020	mg/L	2023-12-28	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-12-28	
Zinc, dissolved	**0.0066**	0.0040	mg/L	2023-12-28	
General Parameters					
Alkalinity, Total (as CaCO3)	**151**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-03 (23L2282-03) | Matrix: Water | Sampled: 2023-12-18, Continued					
General Parameters, Continued					
Alkalinity, Bicarbonate (as CaCO3)	**151**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	**50**	20	mg/L	2023-12-22	
Conductivity (EC)	**422**	2.0	µS/cm	2023-12-22	
pH	**6.61**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**310**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-20	
Total Metals					
Aluminum, total	**4.21**	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	**0.00051**	0.00050	mg/L	2023-12-21	
Barium, total	**0.0471**	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	**0.0830**	0.0500	mg/L	2023-12-21	
Cadmium, total	**0.000024**	0.000010	mg/L	2023-12-21	
Calcium, total	**49.0**	0.20	mg/L	2023-12-21	
Chromium, total	**0.00268**	0.00050	mg/L	2023-12-21	
Cobalt, total	**0.00251**	0.00010	mg/L	2023-12-21	
Copper, total	**0.0108**	0.00040	mg/L	2023-12-21	
Iron, total	**4.18**	0.010	mg/L	2023-12-21	
Lead, total	**0.00089**	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00340**	0.00010	mg/L	2023-12-21	
Magnesium, total	**10.0**	0.010	mg/L	2023-12-21	
Manganese, total	**0.0966**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00031**	0.00010	mg/L	2023-12-21	
Nickel, total	**0.00225**	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Silver, total	**0.000062**	0.000050	mg/L	2023-12-21	
Sodium, total	**26.8**	0.10	mg/L	2023-12-21	
Strontium, total	**0.360**	0.0010	mg/L	2023-12-21	
Thallium, total	**0.000024**	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	**0.252**	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.00224**	0.000020	mg/L	2023-12-21	
Vanadium, total	**0.0091**	0.0050	mg/L	2023-12-21	
Zinc, total	**0.0369**	0.0040	mg/L	2023-12-21	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-04 (23L2282-04) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**7.25**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	< 0.010	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**2.6**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**174**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	**0.0116**	0.0050	mg/L	2023-12-22	
Antimony, dissolved	**0.00034**	0.00020	mg/L	2023-12-22	
Arsenic, dissolved	**0.00135**	0.00050	mg/L	2023-12-22	
Barium, dissolved	**0.0265**	0.0050	mg/L	2023-12-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-12-22	
Boron, dissolved	< 0.0500	0.0500	mg/L	2023-12-22	
Cadmium, dissolved	**0.000036**	0.000010	mg/L	2023-12-22	
Calcium, dissolved	**55.4**	0.20	mg/L	2023-12-22	
Chromium, dissolved	**0.00090**	0.00050	mg/L	2023-12-22	
Cobalt, dissolved	**0.00227**	0.00010	mg/L	2023-12-22	
Copper, dissolved	**0.00159**	0.00040	mg/L	2023-12-22	
Iron, dissolved	**5.96**	0.010	mg/L	2023-12-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Lithium, dissolved	**0.00197**	0.00010	mg/L	2023-12-22	
Magnesium, dissolved	**8.60**	0.010	mg/L	2023-12-22	
Manganese, dissolved	**1.42**	0.00020	mg/L	2023-12-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-12-21	
Molybdenum, dissolved	**0.00046**	0.00010	mg/L	2023-12-22	
Nickel, dissolved	**0.00073**	0.00040	mg/L	2023-12-22	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-12-22	
Sodium, dissolved	**9.25**	0.10	mg/L	2023-12-22	
Strontium, dissolved	**0.257**	0.0010	mg/L	2023-12-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-12-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-12-22	
Uranium, dissolved	**0.000544**	0.000020	mg/L	2023-12-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-12-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**162**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
MW13-04 (23L2282-04) | Matrix: Water | Sampled: 2023-12-18, Continued					
General Parameters, Continued					
Alkalinity, Bicarbonate (as CaCO3)	**162**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	**0.113**	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	**41**	20	mg/L	2023-12-22	
Conductivity (EC)	**322**	2.0	µS/cm	2023-12-22	
pH	**6.79**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**262**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-20	
Total Metals					
Aluminum, total	**0.254**	0.0050	mg/L	2023-12-21	
Antimony, total	**0.00030**	0.00020	mg/L	2023-12-21	
Arsenic, total	**0.00171**	0.00050	mg/L	2023-12-21	
Barium, total	**0.0274**	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	< 0.0500	0.0500	mg/L	2023-12-21	
Cadmium, total	**0.000042**	0.000010	mg/L	2023-12-21	
Calcium, total	**47.6**	0.20	mg/L	2023-12-21	
Chromium, total	**0.00056**	0.00050	mg/L	2023-12-21	
Cobalt, total	**0.00203**	0.00010	mg/L	2023-12-21	
Copper, total	**0.00327**	0.00040	mg/L	2023-12-21	
Iron, total	**6.49**	0.010	mg/L	2023-12-21	
Lead, total	**0.00021**	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00153**	0.00010	mg/L	2023-12-21	
Magnesium, total	**7.54**	0.010	mg/L	2023-12-21	
Manganese, total	**1.24**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00047**	0.00010	mg/L	2023-12-21	
Nickel, total	**0.00060**	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**8.01**	0.10	mg/L	2023-12-21	
Strontium, total	**0.247**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	**0.0132**	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.000564**	0.000020	mg/L	2023-12-21	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Zinc, total	**0.338**	0.0040	mg/L	2023-12-21	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23L2282-05) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**9.02**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**0.082**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**2.1**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Total (as CaCO3)	**27.7**	0.500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	**31.4**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Bicarbonate (as CaCO3)	**31.4**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	**28**	20	mg/L	2023-12-22	
Conductivity (EC)	**89.4**	2.0	µS/cm	2023-12-22	
pH	**6.59**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**92**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-22	
Total Metals					
Aluminum, total	**0.106**	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-12-21	
Barium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	< 0.0500	0.0500	mg/L	2023-12-21	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-12-21	
Calcium, total	**8.45**	0.20	mg/L	2023-12-21	
Chromium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-12-21	
Copper, total	**0.00052**	0.00040	mg/L	2023-12-21	
Iron, total	**0.664**	0.010	mg/L	2023-12-21	
Lead, total	< 0.00020	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00027**	0.00010	mg/L	2023-12-21	
Magnesium, total	**1.60**	0.010	mg/L	2023-12-21	
Manganese, total	**0.0160**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00015**	0.00010	mg/L	2023-12-21	
Nickel, total	< 0.00040	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (23L2282-05) | Matrix: Water | Sampled: 2023-12-18, Continued					
Total Metals, Continued					
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**6.76**	0.10	mg/L	2023-12-21	
Strontium, total	**0.0517**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Zinc, total	< 0.0040	0.0040	mg/L	2023-12-21	
SW2 (23L2282-06) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**9.20**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**0.095**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**2.3**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Total (as CaCO3)	**28.8**	0.500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	**30.8**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Bicarbonate (as CaCO3)	**30.8**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	**24**	20	mg/L	2023-12-22	
Conductivity (EC)	**92.2**	2.0	µS/cm	2023-12-22	
pH	**6.58**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**92**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-22	
Total Metals					
Aluminum, total	**0.152**	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-12-21	
Barium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	< 0.0500	0.0500	mg/L	2023-12-21	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
SW2 (23L2282-06) | Matrix: Water | Sampled: 2023-12-18, Continued					
Total Metals, Continued					
Cadmium, total	< 0.000010	0.000010	mg/L	2023-12-21	
Calcium, total	**8.69**	0.20	mg/L	2023-12-21	
Chromium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-12-21	
Copper, total	**0.00061**	0.00040	mg/L	2023-12-21	
Iron, total	**0.681**	0.010	mg/L	2023-12-21	
Lead, total	< 0.00020	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00031**	0.00010	mg/L	2023-12-21	
Magnesium, total	**1.71**	0.010	mg/L	2023-12-21	
Manganese, total	**0.0164**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00015**	0.00010	mg/L	2023-12-21	
Nickel, total	< 0.00040	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**6.89**	0.10	mg/L	2023-12-21	
Strontium, total	**0.0546**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	**0.0065**	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.000027**	0.000020	mg/L	2023-12-21	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Zinc, total	< 0.0040	0.0040	mg/L	2023-12-21	
SW3 (23L2282-07) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**9.15**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**0.094**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**2.7**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Total (as CaCO3)	**30.1**	0.500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	**33.0**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Bicarbonate (as CaCO3)	**33.0**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
SW3 (23L2282-07) | Matrix: Water | Sampled: 2023-12-18, Continued					
General Parameters, Continued					
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	**47**	20	mg/L	2023-12-22	
Conductivity (EC)	**97.1**	2.0	µS/cm	2023-12-22	
pH	**6.60**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**100**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-22	
Total Metals					
Aluminum, total	**0.161**	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-12-21	
Barium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	< 0.0500	0.0500	mg/L	2023-12-21	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-12-21	
Calcium, total	**9.16**	0.20	mg/L	2023-12-21	
Chromium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Cobalt, total	< 0.00010	0.00010	mg/L	2023-12-21	
Copper, total	**0.00059**	0.00040	mg/L	2023-12-21	
Iron, total	**0.668**	0.010	mg/L	2023-12-21	
Lead, total	< 0.00020	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00032**	0.00010	mg/L	2023-12-21	
Magnesium, total	**1.74**	0.010	mg/L	2023-12-21	
Manganese, total	**0.0166**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00016**	0.00010	mg/L	2023-12-21	
Nickel, total	< 0.00040	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**7.18**	0.10	mg/L	2023-12-21	
Strontium, total	**0.0582**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	**0.0074**	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.000030**	0.000020	mg/L	2023-12-21	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Zinc, total	< 0.0040	0.0040	mg/L	2023-12-21	
SW4 (23L2282-08) | Matrix: Water | Sampled: 2023-12-18					
Anions					

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23L2282-08) | Matrix: Water | Sampled: 2023-12-18, Continued					
Anions, Continued					
Chloride	**9.71**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**0.057**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**8.2**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Total (as CaCO3)	**61.4**	0.500	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	**66.1**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Bicarbonate (as CaCO3)	**66.1**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
BOD, 5-day	< 2.8	2.0	mg/L	2023-12-24	
Chemical Oxygen Demand	< 20	20	mg/L	2023-12-22	
Conductivity (EC)	**165**	2.0	µS/cm	2023-12-22	
pH	**6.87**	0.10	pH units	2023-12-22	HT2
Solids, Total Dissolved	**148**	10	mg/L	2023-12-22	
Sulfide, Total	< 0.020	0.020	mg/L	2023-12-22	
Total Metals					
Aluminum, total	**0.278**	0.0050	mg/L	2023-12-21	
Antimony, total	< 0.00020	0.00020	mg/L	2023-12-21	
Arsenic, total	< 0.00050	0.00050	mg/L	2023-12-21	
Barium, total	**0.0061**	0.0050	mg/L	2023-12-21	
Beryllium, total	< 0.00010	0.00010	mg/L	2023-12-21	
Boron, total	< 0.0500	0.0500	mg/L	2023-12-21	
Cadmium, total	< 0.000010	0.000010	mg/L	2023-12-21	
Calcium, total	**18.4**	0.20	mg/L	2023-12-21	
Chromium, total	< 0.00050	0.00050	mg/L	2023-12-21	
Cobalt, total	**0.00012**	0.00010	mg/L	2023-12-21	
Copper, total	**0.00094**	0.00040	mg/L	2023-12-21	
Iron, total	**0.445**	0.010	mg/L	2023-12-21	
Lead, total	**0.00021**	0.00020	mg/L	2023-12-21	
Lithium, total	**0.00118**	0.00010	mg/L	2023-12-21	
Magnesium, total	**3.75**	0.010	mg/L	2023-12-21	
Manganese, total	**0.0292**	0.00020	mg/L	2023-12-21	
Mercury, total	< 0.000010	0.000010	mg/L	2023-12-20	
Molybdenum, total	**0.00020**	0.00010	mg/L	2023-12-21	
Nickel, total	< 0.00040	0.00040	mg/L	2023-12-21	
Selenium, total	< 0.00050	0.00050	mg/L	2023-12-21	

TEST RESULTS

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PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
SW4 (23L2282-08) | Matrix: Water | Sampled: 2023-12-18, Continued					
Total Metals, Continued					
Silver, total	< 0.000050	0.000050	mg/L	2023-12-21	
Sodium, total	**9.20**	0.10	mg/L	2023-12-21	
Strontium, total	**0.107**	0.0010	mg/L	2023-12-21	
Thallium, total	< 0.000020	0.000020	mg/L	2023-12-21	
Tin, total	< 0.00020	0.00020	mg/L	2023-12-21	
Titanium, total	**0.0083**	0.0050	mg/L	2023-12-21	
Tungsten, total	< 0.0010	0.0010	mg/L	2023-12-21	
Uranium, total	**0.000109**	0.000020	mg/L	2023-12-21	
Vanadium, total	< 0.0050	0.0050	mg/L	2023-12-21	
Zinc, total	**0.0216**	0.0040	mg/L	2023-12-21	
DUP1 (23L2282-09) | Matrix: Water | Sampled: 2023-12-18					
Anions					
Chloride	**6.38**	0.10	mg/L	2023-12-20	
Fluoride	< 0.10	0.10	mg/L	2023-12-20	
Nitrate (as N)	**0.418**	0.010	mg/L	2023-12-20	
Nitrite (as N)	< 0.010	0.010	mg/L	2023-12-20	
Sulfate	**5.3**	1.0	mg/L	2023-12-20	
Calculated Parameters					
Hardness, Dissolved (as CaCO3)	**44.1**	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Barium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2023-12-22	
Boron, dissolved	< 0.0500	0.0500	mg/L	2023-12-22	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2023-12-22	
Calcium, dissolved	**13.1**	0.20	mg/L	2023-12-22	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2023-12-22	
Copper, dissolved	**0.00186**	0.00040	mg/L	2023-12-22	
Iron, dissolved	< 0.010	0.010	mg/L	2023-12-22	
Lead, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Lithium, dissolved	**0.00082**	0.00010	mg/L	2023-12-22	
Magnesium, dissolved	**2.78**	0.010	mg/L	2023-12-22	
Manganese, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2023-12-21	
Molybdenum, dissolved	**0.00016**	0.00010	mg/L	2023-12-22	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2023-12-22	

TEST RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Analyzed	Qualifier
DUP1 (23L2282-09) | Matrix: Water | Sampled: 2023-12-18, Continued					
Dissolved Metals, Continued					
Selenium, dissolved	< 0.00050	0.00050	mg/L	2023-12-22	
Silver, dissolved	< 0.000050	0.000050	mg/L	2023-12-22	
Sodium, dissolved	**7.74**	0.10	mg/L	2023-12-22	
Strontium, dissolved	**0.0685**	0.0010	mg/L	2023-12-22	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2023-12-22	
Tin, dissolved	< 0.00020	0.00020	mg/L	2023-12-22	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2023-12-22	
Uranium, dissolved	**0.000053**	0.000020	mg/L	2023-12-22	
Vanadium, dissolved	< 0.0050	0.0050	mg/L	2023-12-22	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2023-12-22	
General Parameters					
Alkalinity, Total (as CaCO3)	**48.6**	1.0	mg/L	2023-12-22	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Bicarbonate (as CaCO3)	**48.6**	1.0	mg/L	2023-12-22	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2023-12-22	
Ammonia, Total (as N)	< 0.050	0.050	mg/L	2023-12-20	
Conductivity (EC)	**120**	2.0	µS/cm	2023-12-22	
pH	**6.57**	0.10	pH units	2023-12-22	HT2

Sample Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

RE2 Result was confirmed by re-analysis prior to reporting.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Richmond
Biochemical Oxygen Demand in Water	SM 5210 B (2019)	Dissolved Oxygen Meter	✓	Richmond
Chemical Oxygen Demand in Water	SM 5220 D* (2022)	Closed Reflux, Colorimetry	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Hardness in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 2540 C* (2020)	Gravimetry (Dried at 103-105C)		Richmond
Sulfide, Total in Water	SM 4500-S2 D* (2021)	Colorimetry (Methylene Blue)	✓	Edmonton
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

General Comments:

The results in this report apply to the received samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline (s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B3L3019										
Blank (B3L3019-BLK1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B3L3019-BLK2)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B3L3019-BS1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Chloride	0.33	0.10	mg/L	0.300		110	85-115			
Fluoride	0.20	0.10	mg/L	0.200		99	85-115			
Nitrate (as N)	0.312	0.010	mg/L	0.300		104	85-115			
Nitrite (as N)	0.271	0.010	mg/L	0.300		90	85-115			
Sulfate	1.7	1.0	mg/L	1.50		113	85-115			
LCS (B3L3019-BS2)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Chloride	0.33	0.10	mg/L	0.300		111	85-115			
Fluoride	0.20	0.10	mg/L	0.200		100	85-115			
Nitrate (as N)	0.292	0.010	mg/L	0.300		97	85-115			
Nitrite (as N)	0.272	0.010	mg/L	0.300		91	85-115			
Sulfate	1.7	1.0	mg/L	1.50		112	85-115			
Dissolved Metals, Batch B3L3201										
Blank (B3L3201-BLK1)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
Blank (B3L3201-BLK2)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	< 0.000010	0.000010	mg/L							

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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B3L3201, Continued										
Blank (B3L3201-BLK3)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	< 0.000010	0.000010	mg/L							
LCS (B3L3201-BS1)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	0.000256	0.000010	mg/L	0.000250		103	80-120			
LCS (B3L3201-BS2)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	0.000260	0.000010	mg/L	0.000250		104	80-120			
LCS (B3L3201-BS3)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	0.000257	0.000010	mg/L	0.000250		103	80-120			
Calibration Blank (B3L3201-CCB1)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	0.00000009		mg/L							
Calibration Blank (B3L3201-CCB2)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	0.00000009		mg/L							
Calibration Blank (B3L3201-CCB3)				Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	0.0000003		mg/L							
Duplicate (B3L3201-DUP2)		**Source: 23L2282-02**		Prepared: 2023-12-21, Analyzed: 2023-12-21						
Mercury, dissolved	< 0.000010	0.000010	mg/L		< 0.000010				20	
Dissolved Metals, Batch B3L3283										
Blank (B3L3283-BLK1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Aluminum, dissolved	< 0.0050	0.0050	mg/L							
Antimony, dissolved	< 0.00020	0.00020	mg/L							
Arsenic, dissolved	< 0.00050	0.00050	mg/L							
Barium, dissolved	< 0.0050	0.0050	mg/L							
Beryllium, dissolved	< 0.00010	0.00010	mg/L							
Boron, dissolved	< 0.0500	0.0500	mg/L							
Cadmium, dissolved	< 0.000010	0.000010	mg/L							
Calcium, dissolved	< 0.20	0.20	mg/L							
Chromium, dissolved	< 0.00050	0.00050	mg/L							
Cobalt, dissolved	< 0.00010	0.00010	mg/L							
Copper, dissolved	< 0.00040	0.00040	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.00020	0.00020	mg/L							
Lithium, dissolved	< 0.00010	0.00010	mg/L							
Magnesium, dissolved	< 0.010	0.010	mg/L							
Manganese, dissolved	< 0.00020	0.00020	mg/L							
Molybdenum, dissolved	< 0.00010	0.00010	mg/L							
Nickel, dissolved	< 0.00040	0.00040	mg/L							
Selenium, dissolved	< 0.00050	0.00050	mg/L							
Silver, dissolved	< 0.000050	0.000050	mg/L							
Sodium, dissolved	< 0.10	0.10	mg/L							
Strontium, dissolved	< 0.0010	0.0010	mg/L							
Thallium, dissolved	< 0.000020	0.000020	mg/L							
Tin, dissolved	< 0.00020	0.00020	mg/L							
Titanium, dissolved	< 0.0050	0.0050	mg/L							
Tungsten, dissolved	< 0.0010	0.0010	mg/L							
Uranium, dissolved	< 0.000020	0.000020	mg/L							
Vanadium, dissolved	< 0.0050	0.0050	mg/L							
Zinc, dissolved	< 0.0040	0.0040	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

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PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B3L3283, Continued										
LCS (B3L3283-BS1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Aluminum, dissolved	4.09	0.0050	mg/L	4.00		102	80-120			
Antimony, dissolved	0.0403	0.00020	mg/L	0.0400		101	80-120			
Arsenic, dissolved	0.400	0.00050	mg/L	0.400		100	80-120			
Barium, dissolved	0.0406	0.0050	mg/L	0.0400		101	80-120			
Beryllium, dissolved	0.0413	0.00010	mg/L	0.0400		103	80-120			
Boron, dissolved	0.415	0.0500	mg/L	0.400		104	80-120			
Cadmium, dissolved	0.0399	0.000010	mg/L	0.0400		100	80-120			
Calcium, dissolved	4.16	0.20	mg/L	4.00		104	80-120			
Chromium, dissolved	0.0397	0.00050	mg/L	0.0400		99	80-120			
Cobalt, dissolved	0.0397	0.00010	mg/L	0.0400		99	80-120			
Copper, dissolved	0.0397	0.00040	mg/L	0.0400		99	80-120			
Iron, dissolved	4.07	0.010	mg/L	4.00		102	80-120			
Lead, dissolved	0.0409	0.00020	mg/L	0.0400		102	80-120			
Lithium, dissolved	0.0425	0.00010	mg/L	0.0400		106	80-120			
Magnesium, dissolved	4.06	0.010	mg/L	4.00		102	80-120			
Manganese, dissolved	0.0402	0.00020	mg/L	0.0400		101	80-120			
Molybdenum, dissolved	0.0405	0.00010	mg/L	0.0400		101	80-120			
Nickel, dissolved	0.0396	0.00040	mg/L	0.0400		99	80-120			
Selenium, dissolved	0.395	0.00050	mg/L	0.400		99	80-120			
Silver, dissolved	0.0401	0.000050	mg/L	0.0400		100	80-120			
Sodium, dissolved	4.21	0.10	mg/L	4.00		105	80-120			
Strontium, dissolved	0.0409	0.0010	mg/L	0.0400		102	80-120			
Thallium, dissolved	0.0405	0.000020	mg/L	0.0400		101	80-120			
Tin, dissolved	0.0396	0.00020	mg/L	0.0400		99	80-120			
Titanium, dissolved	0.0391	0.0050	mg/L	0.0400		98	80-120			
Tungsten, dissolved	0.0398	0.0010	mg/L	0.0400		100	80-120			
Uranium, dissolved	0.0406	0.000020	mg/L	0.0400		102	80-120			
Vanadium, dissolved	0.0398	0.0050	mg/L	0.0400		100	80-120			
Zinc, dissolved	0.398	0.0040	mg/L	0.400		100	80-120			
General Parameters, Batch B3L2937										
Blank (B3L2937-BLK1)				Prepared: 2023-12-19, Analyzed: 2023-12-24						
BOD, 5-day	< 2.0	2.0	mg/L							
LCS (B3L2937-BS1)				Prepared: 2023-12-19, Analyzed: 2023-12-24						
BOD, 5-day	182	55.8	mg/L	198		92	85-115			
Reference (B3L2937-SRM1)				Prepared: 2023-12-19, Analyzed: 2023-12-24						
BOD, 5-day	523	93.0	mg/L	500		105	85-115			
General Parameters, Batch B3L3043										
Blank (B3L3043-BLK1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B3L3043-BLK2)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Ammonia, Total (as N)	< 0.020	0.020	mg/L							
Blank (B3L3043-BLK3)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Ammonia, Total (as N)	0.020	0.020	mg/L							BLK
LCS (B3L3043-BS1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Ammonia, Total (as N)	0.989	0.020	mg/L	1.00		99	85-115			

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PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3L3043, Continued										
LCS (B3L3043-BS2)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Ammonia, Total (as N)	0.960	0.020	mg/L	1.00		96	85-115			
LCS (B3L3043-BS3)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Ammonia, Total (as N)	1.02	0.020	mg/L	1.00		102	85-115			
General Parameters, Batch B3L3071										
Blank (B3L3071-BLK1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Sulfide, Total	< 0.020	0.020	mg/L							
LCS (B3L3071-BS1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Sulfide, Total	0.436	0.020	mg/L	0.540		81	80-120			
General Parameters, Batch B3L3136										
Blank (B3L3136-BLK1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
pH	5.53	0.10	pH units							HT2
Blank (B3L3136-BLK2)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
pH	5.63	0.10	pH units							HT2
LCS (B3L3136-BS1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Alkalinity, Total (as CaCO3)	100	1.0	mg/L	100		100	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	71.9	1.0	mg/L	50.0		144	0-200			
LCS (B3L3136-BS2)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Alkalinity, Total (as CaCO3)	90.6	1.0	mg/L	100		91	80-120			
Alkalinity, Phenolphthalein (as CaCO3)	41.3	1.0	mg/L	50.0		83	0-200			
LCS (B3L3136-BS3)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
LCS (B3L3136-BS4)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Conductivity (EC)	1420	2.0	µS/cm	1410		100	95-105			
Reference (B3L3136-SRM1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
pH	7.02	0.10	pH units	7.01		100	98-102			
Reference (B3L3136-SRM2)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
pH	7.03	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B3L3187										

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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B3L3187, Continued										
Blank (B3L3187-BLK1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Solids, Total Dissolved	< 10	10	mg/L							
LCS (B3L3187-BS1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Solids, Total Dissolved	52	10	mg/L	54.0		97	85-115			
LCS (B3L3187-BS2)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Solids, Total Dissolved	227	10	mg/L	200		114	85-115			
Duplicate (B3L3187-DUP1)		**Source: 23L2282-01**		Prepared: 2023-12-22, Analyzed: 2023-12-22						
Solids, Total Dissolved	115	10	mg/L		100			14	20	
General Parameters, Batch B3L3338										
Blank (B3L3338-BLK1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Chemical Oxygen Demand	< 20	20	mg/L							
LCS (B3L3338-BS1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Chemical Oxygen Demand	519	20	mg/L	500		104	89-115			
General Parameters, Batch B3L3395										
Blank (B3L3395-BLK1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Sulfide, Total	< 0.020	0.020	mg/L							
LCS (B3L3395-BS1)				Prepared: 2023-12-22, Analyzed: 2023-12-22						
Sulfide, Total	0.465	0.020	mg/L	0.540		86	80-120			
Duplicate (B3L3395-DUP1)		**Source: 23L2282-07**		Prepared: 2023-12-22, Analyzed: 2023-12-22						
Sulfide, Total	< 0.020	0.020	mg/L		< 0.020				15	
Total Metals, Batch B3L3082										
Blank (B3L3082-BLK1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK2)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK3)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK4)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK5)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK6)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK7)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B3L3082-BLK8)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	< 0.000010	0.000010	mg/L							

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PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3L3082, Continued										
Blank (B3L3082-BLK9)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B3L3082-BS1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000204	0.000010	mg/L	0.000250		81	80-120			
LCS (B3L3082-BS2)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000245	0.000010	mg/L	0.000250		98	80-120			
LCS (B3L3082-BS3)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000238	0.000010	mg/L	0.000250		95	80-120			
LCS (B3L3082-BS4)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000288	0.000010	mg/L	0.000250		115	80-120			
LCS (B3L3082-BS5)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000252	0.000010	mg/L	0.000250		101	80-120			
LCS (B3L3082-BS6)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000257	0.000010	mg/L	0.000250		103	80-120			
LCS (B3L3082-BS7)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000249	0.000010	mg/L	0.000250		99	80-120			
LCS (B3L3082-BS8)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Mercury, total	0.000254	0.000010	mg/L	0.000250		102	80-120			
LCS (B3L3082-BS9)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Mercury, total	0.000225	0.000010	mg/L	0.000250		90	80-120			
Calibration Blank (B3L3082-CCB1)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	<		mg/L							
Calibration Blank (B3L3082-CCB2)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.0000005		mg/L							
Calibration Blank (B3L3082-CCB3)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.00		mg/L							
Calibration Blank (B3L3082-CCB4)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.00000009		mg/L							
Calibration Blank (B3L3082-CCB5)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.0000006		mg/L							
Calibration Blank (B3L3082-CCB6)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.0000004		mg/L							
Calibration Blank (B3L3082-CCB7)				Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.00000005		mg/L							
Calibration Blank (B3L3082-CCB8)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Mercury, total	0.0000002		mg/L							
Calibration Blank (B3L3082-CCB9)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Mercury, total	0.0000002		mg/L							
Matrix Spike (B3L3082-MS1)		**Source: 23L2282-08**		Prepared: 2023-12-20, Analyzed: 2023-12-20						
Mercury, total	0.000211	0.000010	mg/L	0.000250	< 0.000010	82	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3L3109										
Blank (B3L3109-BLK1)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Beryllium, total	< 0.00010	0.00010	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Lithium, total	< 0.00010	0.00010	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Silver, total	< 0.000050	0.000050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Thallium, total	< 0.000020	0.000020	mg/L							
Tin, total	< 0.00020	0.00020	mg/L							
Titanium, total	< 0.0050	0.0050	mg/L							
Tungsten, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Vanadium, total	< 0.0050	0.0050	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
LCS (B3L3109-BS1)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Aluminum, total	3.96	0.0050	mg/L	4.00		99	80-120			
Antimony, total	0.0396	0.00020	mg/L	0.0400		99	80-120			
Arsenic, total	0.393	0.00050	mg/L	0.400		98	80-120			
Barium, total	0.0385	0.0050	mg/L	0.0400		96	80-120			
Beryllium, total	0.0367	0.00010	mg/L	0.0400		92	80-120			
Boron, total	0.375	0.0500	mg/L	0.400		94	80-120			
Cadmium, total	0.0397	0.000010	mg/L	0.0400		99	80-120			
Calcium, total	3.76	0.20	mg/L	4.00		94	80-120			
Chromium, total	0.0402	0.00050	mg/L	0.0400		100	80-120			
Cobalt, total	0.0403	0.00010	mg/L	0.0400		101	80-120			
Copper, total	0.0405	0.00040	mg/L	0.0400		101	80-120			
Iron, total	4.09	0.010	mg/L	4.00		102	80-120			
Lead, total	0.0404	0.00020	mg/L	0.0400		101	80-120			
Lithium, total	0.0353	0.00010	mg/L	0.0400		88	80-120			
Magnesium, total	4.07	0.010	mg/L	4.00		102	80-120			
Manganese, total	0.0406	0.00020	mg/L	0.0400		101	80-120			
Molybdenum, total	0.0408	0.00010	mg/L	0.0400		102	80-120			
Nickel, total	0.0402	0.00040	mg/L	0.0400		101	80-120			
Selenium, total	0.389	0.00050	mg/L	0.400		97	80-120			
Silver, total	0.0397	0.000050	mg/L	0.0400		99	80-120			
Sodium, total	4.02	0.10	mg/L	4.00		100	80-120			
Strontium, total	0.0403	0.0010	mg/L	0.0400		101	80-120			
Thallium, total	0.0395	0.000020	mg/L	0.0400		99	80-120			
Tin, total	0.0406	0.00020	mg/L	0.0400		101	80-120			
Titanium, total	0.0404	0.0050	mg/L	0.0400		101	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3L3109, Continued										
LCS (B3L3109-BS1), Continued				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Tungsten, total	0.0423	0.0010	mg/L	0.0400		106	80-120			
Uranium, total	0.0415	0.000020	mg/L	0.0400		104	80-120			
Vanadium, total	0.0405	0.0050	mg/L	0.0400		101	80-120			
Zinc, total	0.396	0.0040	mg/L	0.400		99	80-120			
Total Metals, Batch B3L3110										
Blank (B3L3110-BLK1)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Beryllium, total	< 0.00010	0.00010	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Lithium, total	< 0.00010	0.00010	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Silver, total	< 0.000050	0.000050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Thallium, total	< 0.000020	0.000020	mg/L							
Tin, total	< 0.00020	0.00020	mg/L							
Titanium, total	< 0.0050	0.0050	mg/L							
Tungsten, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Vanadium, total	< 0.0050	0.0050	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
LCS (B3L3110-BS1)				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Aluminum, total	3.87	0.0050	mg/L	4.00		97	80-120			
Antimony, total	0.0389	0.00020	mg/L	0.0400		97	80-120			
Arsenic, total	0.390	0.00050	mg/L	0.400		98	80-120			
Barium, total	0.0382	0.0050	mg/L	0.0400		95	80-120			
Beryllium, total	0.0382	0.00010	mg/L	0.0400		96	80-120			
Boron, total	0.409	0.0500	mg/L	0.400		102	80-120			
Cadmium, total	0.0398	0.000010	mg/L	0.0400		99	80-120			
Calcium, total	3.99	0.20	mg/L	4.00		100	80-120			
Chromium, total	0.0395	0.00050	mg/L	0.0400		99	80-120			
Cobalt, total	0.0395	0.00010	mg/L	0.0400		99	80-120			
Copper, total	0.0393	0.00040	mg/L	0.0400		98	80-120			
Iron, total	3.91	0.010	mg/L	4.00		98	80-120			
Lead, total	0.0391	0.00020	mg/L	0.0400		98	80-120			
Lithium, total	0.0381	0.00010	mg/L	0.0400		95	80-120			
Magnesium, total	3.80	0.010	mg/L	4.00		95	80-120			
Manganese, total	0.0389	0.00020	mg/L	0.0400		97	80-120			
Molybdenum, total	0.0396	0.00010	mg/L	0.0400		99	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Tetra Tech EBA Inc. (Vancouver)	**WORK ORDER**	23L2282
PROJECT	704-SWM.SWOP03663-11	**REPORTED**	2023-12-28 15:46

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B3L3110, Continued										
LCS (B3L3110-BS1), Continued				Prepared: 2023-12-20, Analyzed: 2023-12-21						
Nickel, total	0.0393	0.00040	mg/L	0.0400		98	80-120			
Selenium, total	0.393	0.00050	mg/L	0.400		98	80-120			
Silver, total	0.0392	0.000050	mg/L	0.0400		98	80-120			
Sodium, total	3.86	0.10	mg/L	4.00		97	80-120			
Strontium, total	0.0394	0.0010	mg/L	0.0400		99	80-120			
Thallium, total	0.0386	0.000020	mg/L	0.0400		97	80-120			
Tin, total	0.0390	0.00020	mg/L	0.0400		98	80-120			
Titanium, total	0.0406	0.0050	mg/L	0.0400		101	80-120			
Tungsten, total	0.0396	0.0010	mg/L	0.0400		99	80-120			
Uranium, total	0.0395	0.000020	mg/L	0.0400		99	80-120			
Vanadium, total	0.0389	0.0050	mg/L	0.0400		97	80-120			
Zinc, total	0.389	0.0040	mg/L	0.400		97	80-120			

QC Qualifiers:

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

CARO ANALYTICAL SERVICES
Caring About Results.

110-4011 Viking Way, Richmond, BC V6V 2K9
Fax: (604) 279-1599
97N, Kelowna, BC V1X 5C3
Fax: (250) 765-3893
NW, Edmonton, AB T5S 1H7
Fax: (780) 489-9700

* 2 3 L 2 2 8 2 *

Clear Form | Print a Copy | Save a Copy | CARO Website | CARO BC COC, Rev 2015-09

CHAIN OF CUSTODY RECORD

COC# _____ PAGE _____ OF _____

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Garrett Huber	Dec 19/23	OTHER TT	12/19
	TIME: 2:00pm		TIME: 1115

PROJECT: Marine Avenue Site

PROJECT INFO:

TURNAROUND TIME REQUESTED:
Routine: (5-7 Days) ☒
Rush: 1 Day* ☐ 2 Day* ☐ 3 Day* ☐
Other* _____
*Contact Lab To Confirm. Surcharge May Apply

REGULATORY APPLICATION:
Canadian Drinking Water Quality Guidelines ☐ Regs on Report? ☐
BC Drinking Water Protection Act / Reg. ☐
BC CSR ☒ AB TIER 1 ☐ CCME ☐ OTHER* ☐
AL ☐ PL ☐ RL ☐ CL ☐ IL ☐ AW ☐ IW ☐ LW ☐

REPORT TO:

COMPANY: Tetra Tech Canada
ADDRESS: Suite 1000-885 Dunsmuir Street
Vancouver, BC V8G 0A7
CONTACT: Jeremy Reid
TEL/FAX: 604.916.3902
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☒ WATERTRAX ☐ ESdat ☒ EQuIS ☐ BC EMS ☐ OTHER* ☐
EMAIL 1: jeremy.reid@tetratech.com
EMAIL 2: mike.gallo@tetratech.com
EMAIL 3: lauren.quan@tetratech.com

SAME AS REPORT TO ☐

COMPANY: Tetra Tech Canada
ADDRESS: Accounts Payable Department
Edmonton, AB
CONTACT:
TEL/FAX:
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
EMAIL 1: Accounts.Payable@tetratech.com
EMAIL 2:
EMAIL 3:
PO #: 704-SWM.SWOP03663-11

** NEW ** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, check here: ☐

SAMPLED BY: Regan Keil

CLIENT SAMPLE ID:	MATRIX: DRINKING WATER	OTHER WATER	SOIL	OTHER	# CONTAINERS	SAMPLING: DATE	TIME	COMMENTS: CHLORINATED	FILTERED	PRESERVED	(e.g. flow/volume media ID/notes)
MW13-01		✓									
MW13-02		✓									
MW13-03		✓									
MW19-04		✓									
SW1		✓									
SW2		✓									
SW3		✓									
SW4		✓									
DUP1		✓									

ANALYSES REQUESTED:

CLIENT SAMPLE ID:	BTEX ☐ VPH ☐ PHC F1 ☐	VOC ☐ VPH ☐	EPH ☐ PHC F2-F4 ☐	PAH ☐ L/HEPH ☐	PHENOLS Chlorinated ☐ Non-Chlor. ☐	PCB ☐ GLYCOLS ☐ HAA ☐	PESTICIDES ☐ ACID HERBICIDES ☐	METALS - WATER TOTAL Hg ☒	METALS - WATER DISSOLVED Hg ☒	METALS - SOIL (SALM) ☐ inc. pH ☐	pH ☒ EC ☒ ALK ☒	TSS ☐ VSS ☐ TDS ☒	BOD ☒ COD ☒	TOG ☐ MOG ☐	FECAL COLIFORMS ☐ HPC ☐	TOTAL COLIFORMS ☐ E.coli ☐	ASBESTOS	Low Level Sulphide	NH2, Cl, SO4, F, NO3, N2, Hardness as CaCO3	HOLD
MW13-01								✓	✓		✓	✓	✓					✓	✓	
MW13-02								✓	✓		✓	✓	✓					✓	✓	
MW13-03								✓	✓		✓	✓	✓					✓	✓	
MW19-04								✓	✓		✓	✓	✓					✓	✓	
SW1								✓			✓	✓	✓					✓	✓	
SW2								✓			✓	✓	✓					✓	✓	
SW3								✓			✓	✓	✓					✓	✓	
SW4								✓			✓	✓	✓					✓	✓	
DUP1									✓		✓								✓	

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:
-

SAMPLE RETENTION INSTRUCTIONS (Discarded 30 days after Report unless otherwise specified):
60 Days ☐ 90 Days ☒ Longer Date (Surcharges will Apply): _____

*** OTHER INSTRUCTIONS:**
C11, C13, C05, C06, C10, C23

PAYMENT:
CHEQUE ☐
CREDIT ☐
DEBIT ☐
CASH ☐
INVOICE ☒

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 5.3 ICE: Y ☑ N ☐
COOLER 2 (°C): _____ ICE: Y ☐ N ☐
COOLER 3 (°C): _____ ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: _____

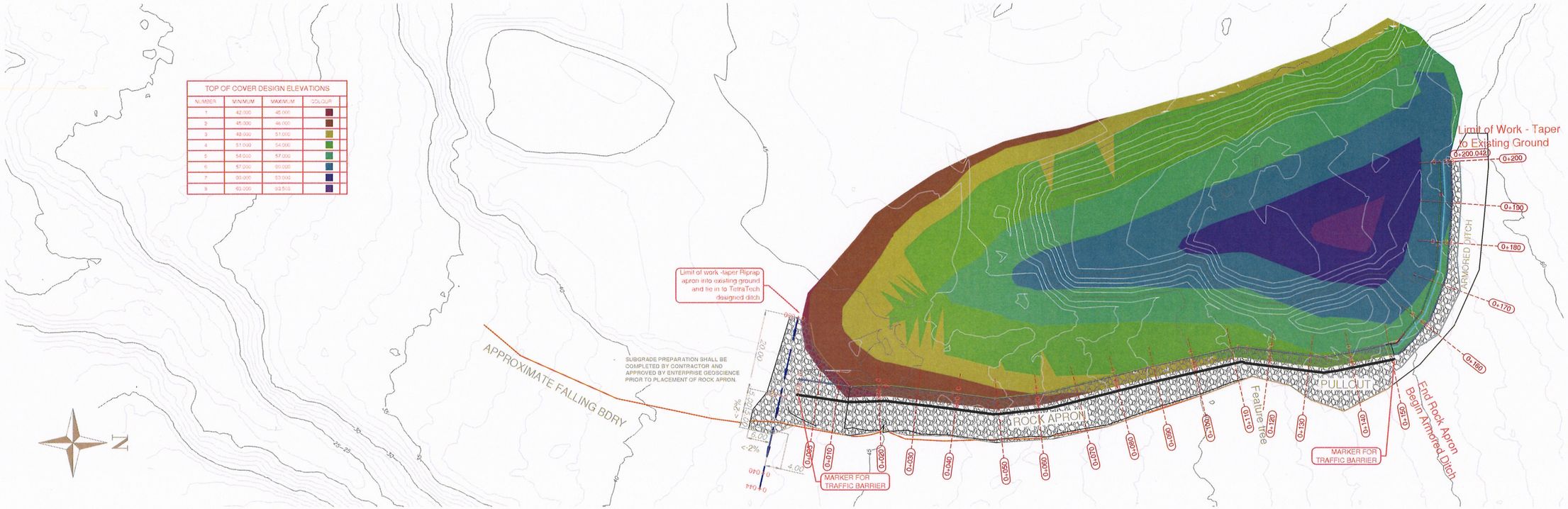
APPENDIX C

LANDFILL CLOSURE AND RELATED WORKS DRAWINGS

APPENDIX D

SURFACE WATER DESIGNS (ENTERPRISE GEOSCIENCE SERVICES)

TOP OF COVER DESIGN ELEVATIONS			
NUMBER	MINIMUM	MAXIMUM	COLOUR
1	42.000	45.000	
2	45.000	48.000	
3	48.000	51.000	
4	51.000	54.000	
5	54.000	57.000	
6	57.000	60.000	
7	60.000	63.000	
8	63.000	63.503	



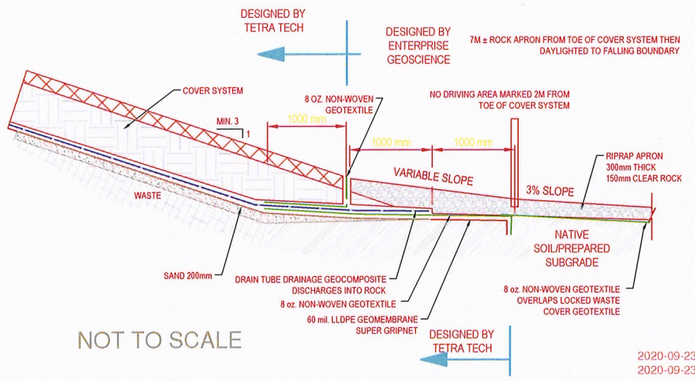
Riprap 150mm Minus Volume Table			
Station	Area	Volume	Cumulative Volume
0+000.000	2.59	0.00	0.00
0+011.000	1.36	22.72	22.72
0+020.000	2.68	18.15	40.76
0+030.000	2.95	28.06	68.82
0+040.000	2.77	28.52	118.16
0+050.000	2.79	27.82	145.98
0+060.000	2.90	28.41	174.10
0+070.000	2.95	29.43	203.53
0+080.000	2.93	29.43	232.96
0+090.000	2.64	27.79	260.66
0+100.000	2.44	25.40	286.06
0+110.000	2.09	22.60	308.66
0+120.000	1.78	19.52	327.86
0+130.000	2.89	21.52	349.50
0+140.000	3.29	28.09	373.59

Riprap 150mm Minus Volume Table			
Station	Area	Volume	Cumulative Volume
0+150.000	1.69	21.41	+93.06
0+160.000	1.85	16.89	+118.99
0+170.000	1.73	17.17	+136.06
0+180.000	1.11	14.34	+151.26
0+190.000	1.11	11.13	+162.39
0+200.000	1.11	11.13	+173.45
0+200.042	1.11	0.05	+173.50

Contractor to provide 10kg sample of 150mm Riprap for approval prior to use.

Add 120 cubic m to Riprap volume to create apron tie in: Total 593 cubic m.

ROCK APRON DETAIL

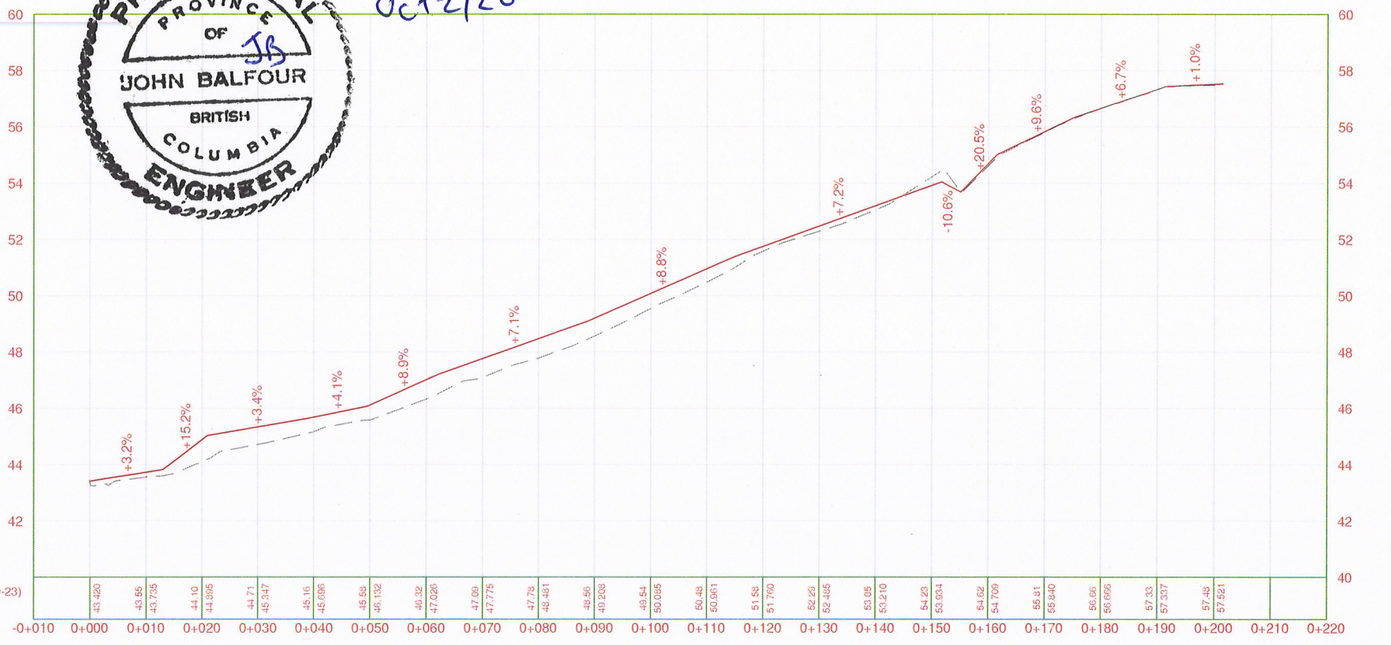


NOT TO SCALE

2020-09-23 (Original Ground 2020-09-23)
2020-09-23 Staked Toe of Waste

PROFESSIONAL ENGINEER — PROVINCE OF JB — JOHN BALFOUR — BRITISH COLUMBIA

Oct 2/20



►IFC

DESIGN NO. C002701

REV NO	REVISIONS	DATE	DRAWN	APPRD
1	Preliminary East Side Cross Sections	8/27/2020	CDA	
2	Remove Southern Ditch Add typical Section for tie in Add Swale Plan View	9/11/2020	CDA	
3	Remove Swale Plan View/ Add Northern Armored Ditch/Adjust Typical Section Add No Drive Marking System	9/15/2020	CDA	
4	Revised Toe Location and Grading of Subgrade Added Notes IFC	9/30/2020	CDA	JB

STORM DRAINAGE

Resource Recovery Centre

Landfill East Side Apron Plan/ Profile

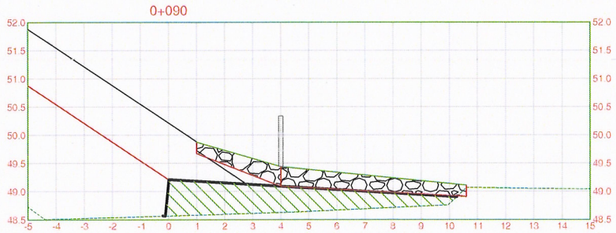
Enterprise Geoscience Services Ltd.

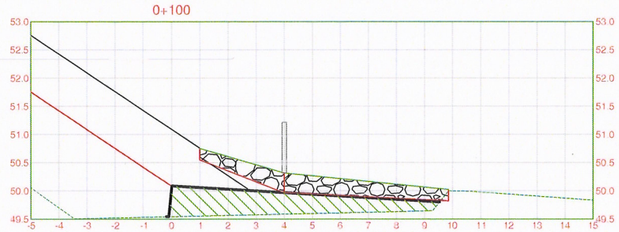
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DRAWN BY	CDA	DESIGN BY	JB
CHECKED BY	JB	APPROVED BY	JB

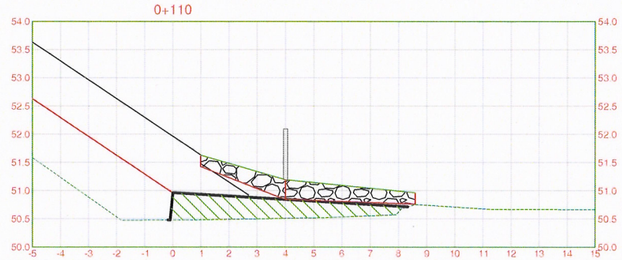
DWG. NO. 1 OF 3

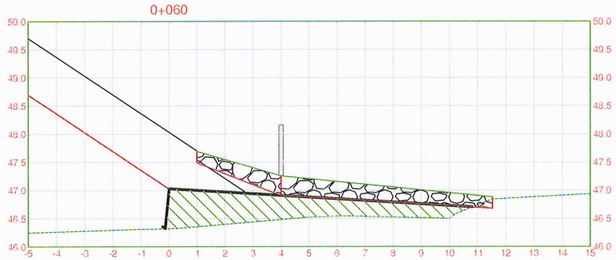
REV. 4

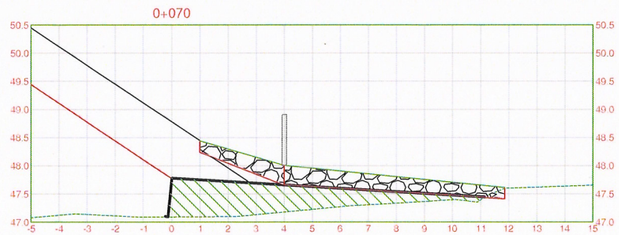
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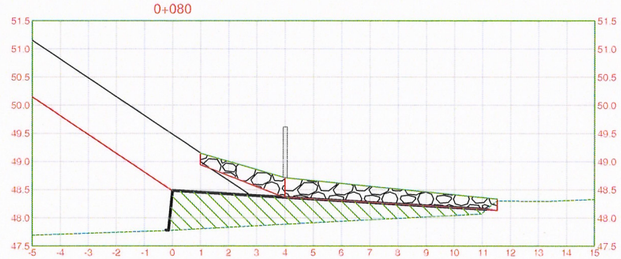


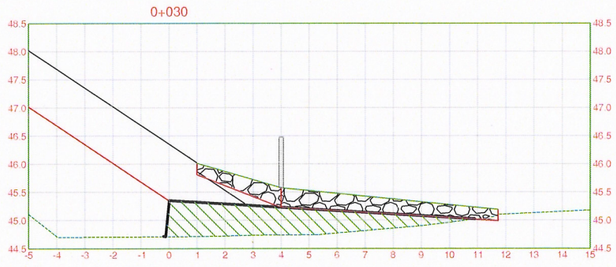


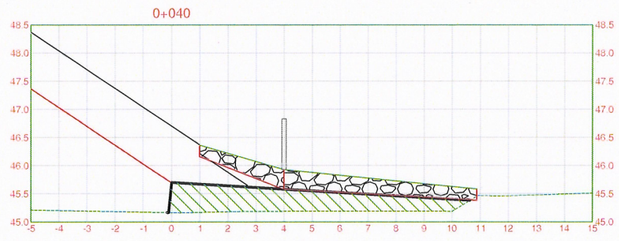


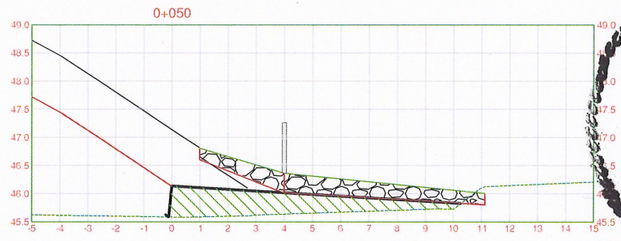


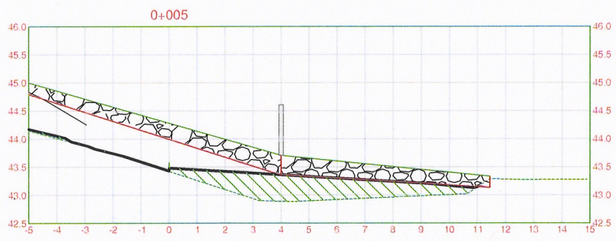


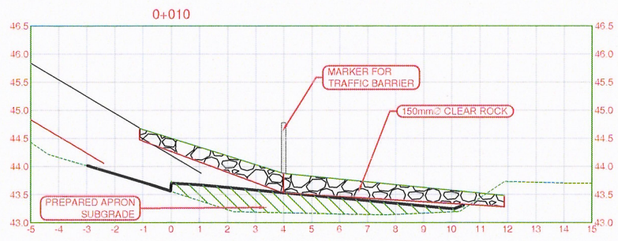


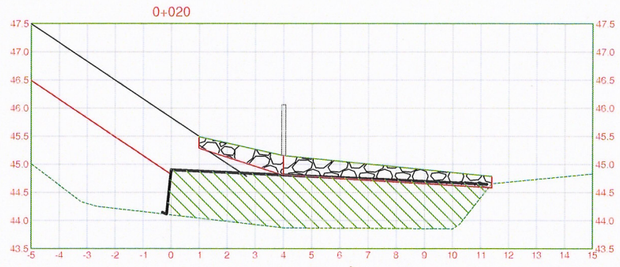












PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
JOHN BALFOUR
JB
Oct 2/20

►IFC

DESIGN NO. C002702

REV NO	REVISIONS	DATE	DRAWN	APPRD
1	Preliminary East Side Cross Sections	8/27/2020	CDA	
2	Remove Southern Ditch Add typical Section for tie in Add Swale Plan View	9/11/2020	CDA	
3	Remove Swale Plan View/ Add Northern Armored Ditch/Adjust Typical Section Add No Drive Marking System	9/15/2020	CDA	
4	Revised Toe Location and Grading of Subgrade Added Notes IFC	9/30/2020	CDA	JB

STORM DRAINAGE

Resource Recovery Centre

Landfill East Side Drainage Apron Sections

Enterprise Geoscience Services Ltd.

SCALE	1:100H 1:50V	DATE	2020-09-30
DRAWN BY	CDA	DESIGN BY	JB
CHECKED BY	JB	APPROVED BY	JB
		REV.	4

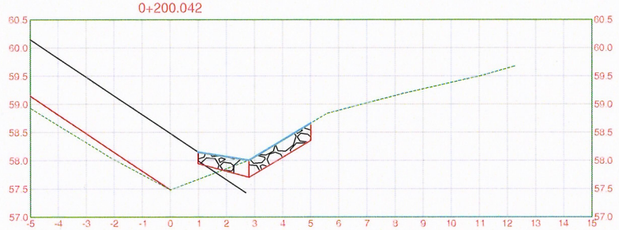
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PLOT DATE: October 1, 2020 - D:_rjRD\C0027\Enterprise GeoScience\Apron Base 2020-09-25-Rev-4.dwg

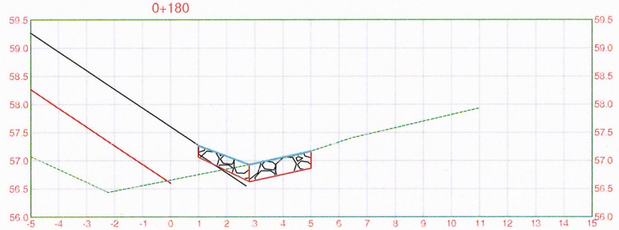
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
JOHN BALFOUR

Oct 2/20

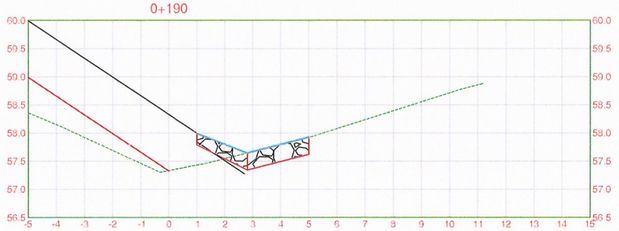
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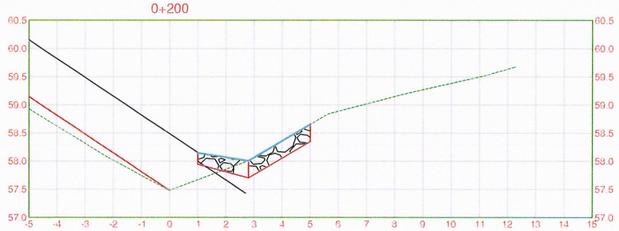
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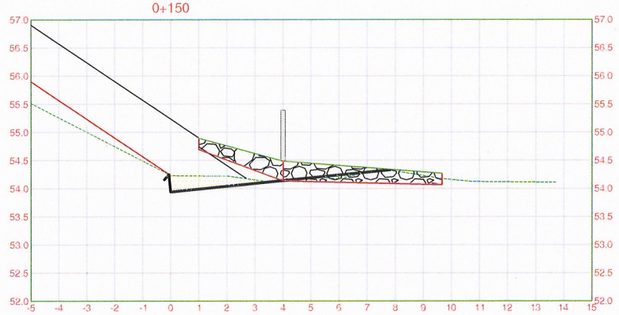
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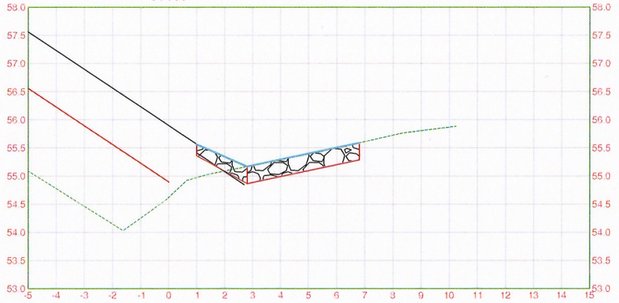
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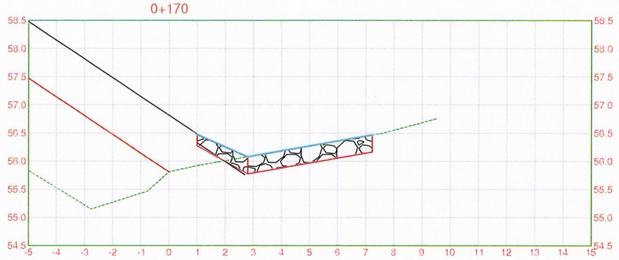
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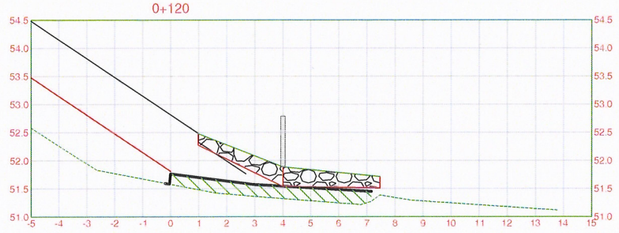
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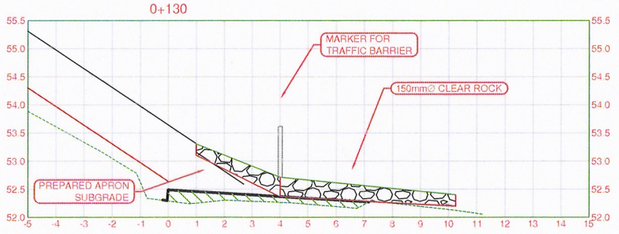
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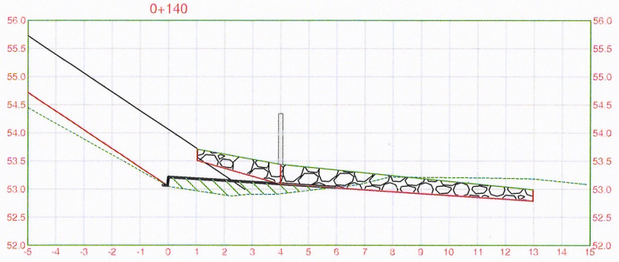
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0+130



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►IFC

DESIGN NO. C002703

REV NO	REVISIONS	DATE	DRAWN	APPR'D
1	Preliminary East Side Cross Sections	8/27/2020	CDA	
2	Remove Southern Ditch Add typical Section for tie in Add Swale Plan View	9/11/2020	CDA	
3	Remove Swale Plan View/ Add Northern Armored Ditch/Adjust Typical Section Add No Drive Marking System	9/15/2020	CDA	
4	Revised Toe Location and Grading of Subgrade Added Notes IFC	9/30/2020	CDA	JB

STORM DRAINAGE

Resource Recovery Centre

Landfill East Side Drainage Apron Sections

Enterprise Geoscience Services Ltd.

SCALE	1:100H 1:50V	DATE	2020-09-30
DRAWN BY	CDA	DESIGN BY	JB
CHECKED BY	JB	APPROVED BY	JB
		REV.	4

DWG. NO. 3 OF 3

PLOT DATE: October 1, 2020 - D:_qHD\C0027\Enterprise GeoScience\Apron Base 2020-09-25-Rev-4.dwg

APPENDIX E

PERMIT PR-509

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF LANDS, FORESTS, AND WATER RESOURCES
WATER RESOURCES SERVICE

POLLUTION CONTROL BRANCH

PROVISIONAL PERMIT

Under the Provisions of Section 5 (1) of the Pollution Control Act, 1967

The Corporation of the District of Powell River
(Name.)

of 6910 Duncan Street, Powell River, British Columbia
(Address.)

is hereby authorized to discharge ~~effluent~~ refuse from an incinerator
(Plant, factory, municipality, etc.)

located at Powell River, B.C., subject to the conditions set out below and to the conditions set forth in any appendix attached hereto.

(*a*) The approximate point of discharge to a parcel of land on portion of Block 36, District Lot 450, Group 1, New Westminster District, Plan 8096 is located as shown on the attached plan.

(*b*) The quantity of ~~effluent~~ refuse which may be discharged is a maximum of 5 cubic yards per day

(*c*) The characteristics of the ~~effluent~~ refuse shall be ~~equivalent to or better than~~ those of substantially inert incinerator residue

(*d*) The works authorized to be constructed are an incinerator and residue storage facilities approximately located as shown on the attached plan.

(*e*) The land from which the ~~effluent~~ refuse originates and to which this permit is appurtenant is the area of the Powell River Regional District

(x) ~~The appendix attached hereto contains items dealing with~~

~~, which are an integral part of this permit.~~

(x)

(f) The incinerator shall be operated in such a manner that the emission of air contaminants does not create a health hazard or a nuisance condition, or contravene any provision of the Pollution Control Act, 1967, or Regulations.

(g) The authority to discharge under this Permit is contingent upon the works authorized having been constructed as per final construction plans approved in accordance with the Pollution Control Act, 1967.

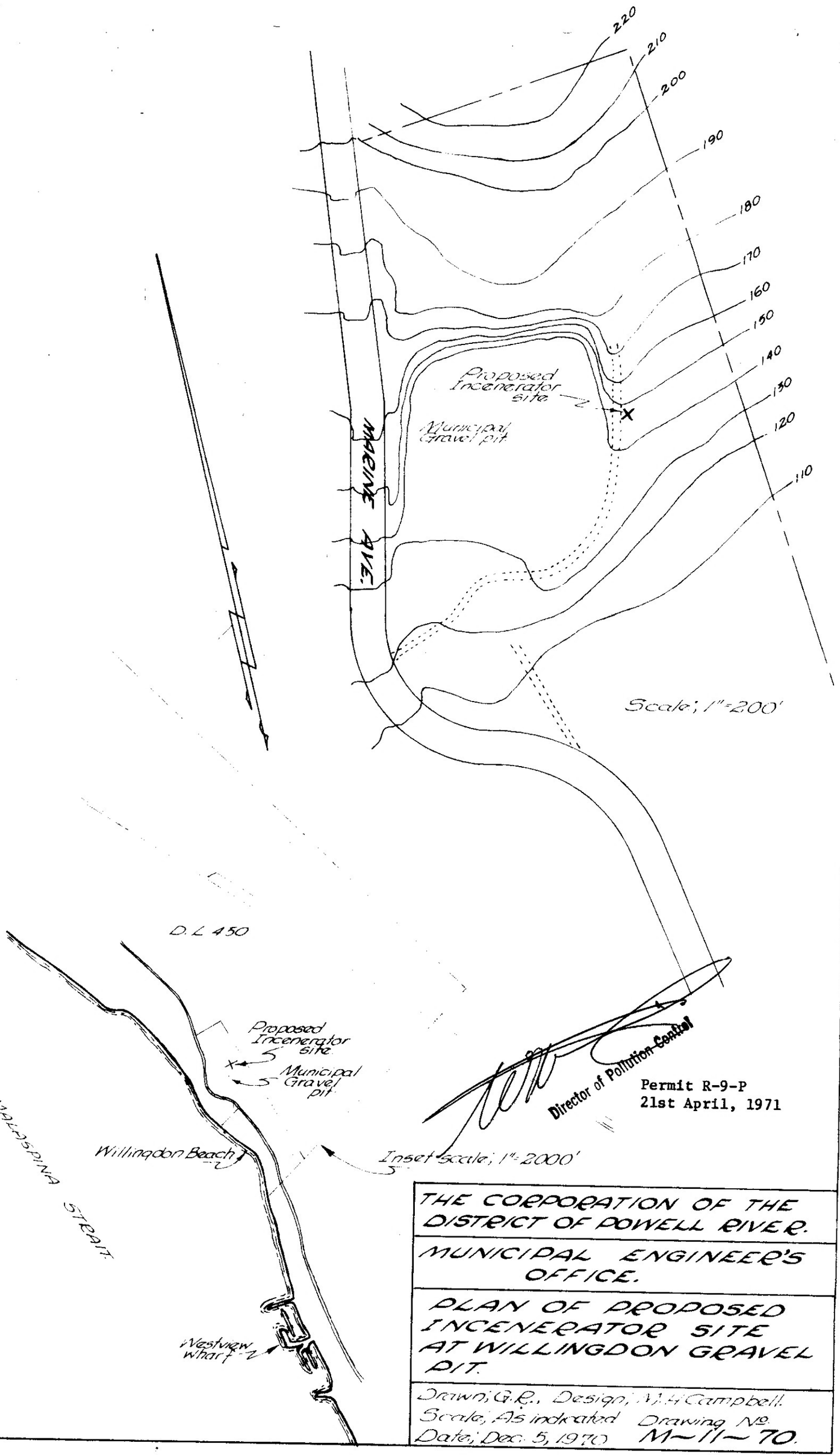
(h) The works are to be constructed on or before June 30, 1972.

This permit, or any of the conditions contained herein, may be amended, varied, or rescinded by order, at any time.

Director of Pollution Control.

Date issued 21st April, 1971

Permit No. R-9-P


220
210
200
190
180
170
160
150
140
130
120
110
Proposed Incinerator site
Municipal Gravel pit
MARINE AVE.
Scale; 1"=200'
D.L 450
Proposed Incinerator site
Municipal Gravel pit
Willingdon Beach
Inset Scale; 1"=2000'
MALASPINA STRAIT
Westview wharf
Director of Pollution Control
Permit R-9-P
21st April, 1971
THE CORPORATION OF THE DISTRICT OF POWELL RIVER.
MUNICIPAL ENGINEER'S OFFICE.
PLAN OF PROPOSED INCENERATOR SITE AT WILLINGDON GRAVEL PIT.
Drawn; G.R., Design; W.H. Campbell.
Scale; As indicated Drawing No.
Date; Dec. 5, 1970 M-11-70.

Province of
British Columbia

MINISTRY OF
ENVIRONMENT,
LANDS AND PARKS

BC Environment
LOWER MAINLAND REGION

Environmental Protection
15326 — 103A Avenue
Surrey, British Columbia
V3R 7A2
Telephone: (604) 582-5200
Facsimile: (604) 584-9751

APR 0 1 1993

File: PR-509

DOUBLE REGISTERED

THE CORPORATION OF THE
DISTRICT OF POWELL RIVER
6910 Duncan Street
Powell River, B. C.
V8A 1V2

Dear Permittee:

AMENDED PERMIT NO. PR-509

Pursuant to Section 11 of the Waste Management Act, Permit PR-509, issued to the Corporation of the District of Powell River on April 21, 1971 and amended December 17, 1992 authorizing the discharge of refuse to land and contaminants to air,is hereby amended as follows:

1. Add the following line to clause (b) of the permit

   Effective February 28, 1994, the quantity of refuse that may be discharged is zero (0) cubic metres per day.

2. Add the following line to clause (f) of the permit

   Effective February 28, 1994, the incinerator shall comply with BACT (Best Available Control Technology) which is as outlined in the document "Emission Criteria for Municipal Solid Waste Incinerators" published by B.C. Environment, June 1991.

All other terms of the Permit shall remain in full force and effect.

Yours very truly,

E. M. Lawson

E.M. Lawson
Assistant Regional Waste Manager

EML/fo

c.c. Environment Canada
Powell River Regional District

Printed on Recycled Paper

British Columbia
Handle with care

Province of
British Columbia

MINISTRY OF
ENVIRONMENT,
LANDS AND PARKS

BC Environment
LOWER MAINLAND REGION

Environmental Protection
15326 — 103A Avenue
Surrey, British Columbia
V3R 7A2
Telephone: (604) 582-5200
Facsimile: (604) 584-9751

DOUBLE REGISTERED

Our File: PR-509

Date: FEB 02 1994

THE CORPORATION OF THE
DISTRICT OF POWELL RIVER
6910 Duncan Street
Powell River, British Columbia
V8A 1V2

Attention: V. H. Petersen
Administrator

Dear Permittee:

AMENDMENT TO PERMIT

Pursuant to Section 11 of the Waste Management Act, Permit PR-509 issued to **THE CORPORATION OF THE DISTRICT OF POWELL RIVER** on April 21, 1971 and last amended April 1, 1993 authorizing the discharge of refuse to land and contaminants to air, is hereby amended as follows:

1. Effective October 15, 1994, all discharge shall cease and the existing refuse burner shall be closed.

2. Progress reports outlining your activities and action in a form suitable for public release shall be submitted on:

   i April 15, 1994;
   ii May 31, 1994;
   iii July 15, 1994;
   iv August 31, 1994;
   v October 14, 1994.

We look forward to your cooperation and strict compliance.

Yours very truly,

E. M. Lawson

E. M. Lawson
Assistant Regional Waste Manager

Enc.

cc: Environment Canada
Powell River Regional District

Printed on Recycled Paper

British Columbia
Handle with care

September 23, 2019 File Number: PR-509

qathet Regional District
#202 – 4675 Marine Avenue
Powell River, BC V8A 2L2

Dear: Mike Wall,

Re: Approval of Powell River Marine Avenue Site Closure Plan

Site:
This approval pertains to the former municipal solid waste incinerator site located on a parcel of land on portion of Block 36, District Lot 450, Group 1, New Westminster District, Plan 8096 (Marine Avenue Site) for which the Ministry of Environment and Climate Change Strategy (ENV) received a closure plan and amendments.

Permittee:
As stated in the approved solid waste management plan for the qathet Regional District (qRD) entitled "Powell River Regional District, Solid Waste Management and Resource Recovery Plan" dated November 22, 2017 (2017 SWMP), the qRD has assumed full responsibility for the waste export system in the region. Therefore, in accordance with the approved plan, this approval considers the permittee to be the qathet Regional District while agreements between the Corporation of the City of Powell River and the qathet Regional District apportion liability for environmental emissions from past and future site activities.

Closure Plan Documents Reviewed (Marine Site Avenue Closure Plan):
The landfill closure plan, "Powell River Marine Avenue Site Closure Plan Final Report" prepared by Sperling Hansen Associates and dated October 2014 (Closure Plan) is approved by the Director with the following amendments:

- Section 6.2 is replaced with "Updated End-use Plan for the Marine Avenue Site" prepared by Tetra Tech and dated September 19, 2018 (Updated End-Use Plan); and
- Section 12 is replaced with "Updated Environmental Monitoring Plan for the Powell River Marine Avenue Site Closure Plan" prepared by Tetra Tech and dated September 19, 2018 (Updated Monitoring Plan).

Ministry of Environment and Climate Change Strategy
Authorizations - South
Regional Operations Branch
Environmental Protection Division
Mailing Address:
2080-A Labieux Road
Nanaimo BC V9T 6J9
Telephone: 250 751-3100
Facsimile: 250 751-3103
Website: www.gov.bc.ca/en

Requirements to Implement Marine Site Avenue Closure Plan

It is noted that, as per an amendment to PR-509 on February 2, 1994, all discharges at the Marine Avenue Site were to cease on October 15, 1994. It is further noted that on September 12, 2018, the 2017 SWMP received the approval of the Minister of Environment and Climate Change Strategy. The closure of the Marine Avenue Site and transformation of a portion of the site into a Resource Recovery Centre is a prominent segment of the 2017 SWMP. Therefore, in agreement with the approved 2017 SWMP and pursuant to Section 16(4)(j) of the *Environmental Management Act*, the Director requires the qathet Regional District to implement the Marine Avenue Closure Plan, along with the following requirements:

1. An application must be made to transfer PR-509 from the Corporation of the District of Powell River to the qathet Regional District.
2. The landfill closure must be carried out in accordance with the approved plans with the following requirements:
    a. As much recyclable material as practical must be recovered from the solid waste on the Marine Avenue Site prior to landfilling.
    b. The waste eligible for landfilling is limited to that which was present on the Marine Avenue Site detailed at the time of the Closure Plan on October 2014.
    c. Landfilling of waste is limited to the Marine Avenue Site.
    d. A 50 metre buffer zone, as defined in the "Landfill Criteria for Municipal Solid Waste", second edition, June 2016 (Criteria), must be maintained between the landfill footprint and the landfill site boundary unless those wastes are already documented as in place at closer than 50 metres from the site boundary.
3. Only bottom ash which has been determined to not meet the definition of hazardous waste as defined in the "Hazardous Waste Regulation" is eligible for reuse as a construction material substitute such as road base material. The bottom ash must be sampled and characterized by a qualified professional (QP).
4. For one year starting the day construction is complete, the final cover must be inspected by the qRD at least once every three (3) months. Any damage to the final cover must be repaired within 30 days of discovery. Causes of damage include, but are not limited to, settlement, cracks, erosion and sloughing.
5. The groundwater and surface water sampling must be carried out or supervised by a QP in accordance with the Updated Monitoring Plan.
6. An annual report for the preceding calendar year must be submitted by March 31 of each year. The annual report must be certified by a QP and meet the conditions set out in Section 10.6 of the Criteria. The first annual report is due on March 31, 2020.
7. In addition to the requirements set out in Section 10.6 of the Criteria, the first annual report is to include the following (to be updated at each subsequent report until works are completed):
    a. The date landfilling ceased at the Marine Avenue Site.
    b. A section detailing the sampling and characterizing of any bottom ash used as a construction material substitute as outlined in requirement #3 above.

c. A section detailing the constructed modifications to the Marine Avenue Site. This section is to include all inspection and quality assurance/quality control testing results of applicable closure elements including the final cover system, and as-built record drawings showing the lines, grades, and elevations of the landfill.

8. The qRD must carry out any future additional requirements that the Director imposes respecting restoration of the environment or the control and monitoring of the waste discharged.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

If you have any questions or concerns, please contact Luc Lachance at Luc.Lachance@gov.bc.ca.

Yours truly,

Luc Lachance, P.Eng
for Director, *Environmental Management Act*
South Authorizations

October 19, 2020 File: PR-509

VIA EMAIL: MWall@qathet.ca

Attn: Mike Wall
qathet Regional District
#202 – 4675 Marine Avenue
Powell River, BC V8A 2L2

Dear: Mike Wall

Re: **Amendment to Approval of Powell River Marine Avenue Site Closure Plan**

Thank you for submitting the October 2, 2020 letter report prepared by TetraTech and issued to you regarding proposed changes to the Powell River Marine Avenue Site Closure Plan previously approved by myself on September 23, 2020.

Pursuant to Section 16(4)(j) of the *Environmental Management Act*, I hereby amend the September 23, 2020 approval to include recommendations listed in Section 4.0 of the letter report by TetraTech referred to above.

This letter shall not be construed as a waiver of any lawful requirement pertaining to any unauthorized discharge of waste to the environment and is without prejudice to any further legal action that the Ministry may take under the *Environmental Management Act*. All other conditions of the September 23, 2020 approval letter are unchanged and remain in full force.

This letter should be appended to the permit PR-509 as it is now part of the authorization.

Yours truly,

Luc Lachance, P.Eng.
for Director
Environmental Management Act
cc: Lauren Quan, TetraTech (Lauren.Quan@tetratech.com)