Eagle Mountain - Woodfibre Gas Pipeline Project

BCER Waste Discharge Approval Report—BC Rail Site Sampling and Monitoring

Report Period: February 26th to March 3rd, 2024

Contents

Preamble

This is a report for the British Columbia Energy Regulator (BCER) Waste Discharge Approval (BCER number AE 111824) for the FortisBC Eagle Mountain – Woodfibre Gas Pipeline (EGP) Project for the BC Rail Site. This report covers the period of February 26th to March 3rd, 2024 and includes the results of water quality monitoring and sampling of the receiving environment (upstream and downstream) in the Squamish River. During this timeframe one batch of treated water stored onsite was discharged by FortisBC's tunnel contractor Frontier-Kemper Michels Joint Venture (FKM) to the authorized point of discharge, from the BC Rail site water treatment plant. Tunnelling at the BC Rail site has not begun.

FortisBC has retained Triton Environmental Consultants Ltd. as the Qualified Professional to implement and oversee the monitoring and sampling program in the receiving environment. The data represented below, including laboratory reported exceedances, represent background conditions from the receiving environment sampling, and are not related to EGP Project activities. The data collected and reported on represents background water quality conditions at the two receiving environment sampling sites as shown on the approved Waste Discharge Approval AE-111824.

Water Treatment Plant Update

Since the issuance of the Waste Discharge Approval (AE 111824) on September 29, 2023, FortisBC's tunnel contractor Frontier-Kemper Michels Joint Venture (FKM) has completed setting up the water treatment plant (WTP) including the installing the plumbing, pumps & equipment, and treatment chemicals. The assembly of the WTP components were completed on October 22, 2023. The commissioning of the WTP occurred throughout January and February 2024 prior to the first batch discharge. Water was sampled by FKM and confirmed that the batch from the WTP meets the British Columbia Approved and Working Water Quality Guidelines for Freshwater & Marine Aquatic Life requirements prior to discharge as outlined in the Waste Discharge Approval.

Introduction

The results provided in this document are submitted to BC Energy Regulator (BCER) by FortisBC as per the requirements listed in the Waste Discharge Approval AE-111824 Section 4.2:

> The Approval Holder shall summarize the results of the discharge and receiving environment compliance sampling and monitoring program in a report that shall be submitted weekly over the term of this approval. The sampling and monitoring results shall be suitably tabulated and include comparison to the respective British Columbia Approved and Working Water Quality Guidelines for Freshwater & Marine Aquatic Life, as published by the Ministry of Environment & Climate Change Strategy. Any exceedance of regulatory guidelines shall be clearly highlighted, and any missed sampling events/missing date shall be identified with an explanation provided. Reporting frequency may be reduced upon a history of compliance and by written confirmation from the BCER. These reports shall be submitted to Waste.Management@bc-er.ca. A copy of

the reports shall be provided to each First Nation consulted with regarding this subject approval, and also made publicly available on the FortisBC Eagle Mountain-Woodfibre Gas Pipeline Project | Talking Energy webpage.

Sampling Methodology

The monitoring and sampling has been carried out in accordance with the procedures described in the most recent edition of the "British Columbia Field Sampling Manual" using field equipment and lab samples to meet daily and real time requirements for the Waste Discharge Approval.
At the receiving environment, real time daily field readings of pH, temperature, NTU, electrical conductivity, DO, ORP and salinity are being taken using an AquaTROLL 600 datalogger upstream and downstream in the river. Visible sheen will be monitored with visual inspections during times of discharge or sampling. Real time and daily readings are being monitored at the same time with one piece of equipment, allowing all the daily readings real time.
At the point of discharge from the WTP, the parameters are being monitored using field equipment (YSI ProDSS) and sondes/real time meters make and models to be confirmed by the contractor. Table 1 and Table 2 below show how each parameter is being monitored.

Table 1. Monitoring Process at Point of Discharge from Water Treatment System at the BC Rail Site

Permit Frequency	Parameters	Details
Daily	Visible Sheen	In field inspection
Daily (or per batch)	DO	Monitoring using YSI ProDSS
	ORP	Monitoring using YSI ProDSS
	Salinity	Monitoring using YSI ProDSS
Real Time (or per batch)	pH	Monitoring using YSI ProDSS
	Temperature	Monitoring using YSI ProDSS
	NTU	Monitoring using YSI ProDSS
	Electrical Conductivity	Monitoring using YSI ProDSS
Weekly (or per batch) Lab Samples	List prescribed in permit	Lab samples

Table 2. Receiving Environment (upstream and downstream) Monitoring Process

Permit Frequency	Parameters	Details
Daily	Visible Sheen	In field inspection
Daily	DO	Monitoring using Sonde- AquaTROLL 600 datalogger
	ORP	Monitoring using Sonde- AquaTROLL 600 datalogger
	Salinity	Monitoring using Sonde- AquaTROLL 600 datalogger
Real Time	pH	Monitoring using Sonde- AquaTROLL 600 datalogger
	Temperature	Monitoring using Sonde- AquaTROLL 600 datalogger
	NTU	Monitoring using Sonde- AquaTROLL 600 datalogger
	Electrical Conductivity	Monitoring using Sonde- AquaTROLL 600 datalogger
Weekly Lab Samples	List prescribed in permit	Lab samples

Receiving Environment equipment details: Sondes: Aqua-TROLL 600 made by In-Situ Inc. Sondes set up to log temperature, specific conductivity, salinity (in PSU), pH, ORP, DO (mg/L), and turbidity (NTU) at 10 minute intervals.
Point of Discharge from the WTP equipment details: YSI ProDSS with pH, conductivity, DO, ORP and turbidity probe that measure pH, temperature, NTU, electrical conductivity, ORP, DO and salinity

Summary

Activities

- There has been 1 batch test discharge on Friday, March 1st, 2024 to authorized point of discharge.

Point of Discharge from Water Treatment System (BC Rail Site) Summary

Table 3 below includes information on the batch test water quality and lab sampling. Appendix A includes a full set of lab results with real time/field samples from the batch discharge.

Table 3: Discharge from Water Treatment System Information

Date of Lab Sample	Real Time Monitored	Field Samples Taken	Discharge Rate (batch)	Discharge Volume (batch)	Results
2024-02-24	N/A- Batch Sample	Yes-YSI ProDSS for Batch Sample	123GPM	262.7m^3	Full set of lab samples results, photo, documentation are provided in Appendix A

Exceedance details

No exceedances with the batch test discharge

Receiving Environment Summary

The receiving environment is being monitored as outlined in the permit. One batch was discharged from the BC Rail Site WTP during this reporting period. The Batch discharge met the permitted discharge requirements and did not result in negative impacts to the receiving environment. All recorded exceedances from the receiving environment are existing background quality and not related to project activities.

Table 4: Upstream Monitoring Information

Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
2024-02-26	Yes *	Yes *	Full set of lab sample results, photo and documentation are provided in Appendix B. Sampling QP indicated records are not available on U/S sonde during discharge due to battery issue.
2024-03-01	Yes	Yes	Real time monitoring results are available. No visible sheen observed.

Table 5: Downstream Monitoring Information

Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
2023-02-26	Yes *	Yes *	Full set of lab sample results, photo and documentation are provided in Appendix B.
2024-03-01	Yes	Yes	Real time monitoring results available. No visible sheen observed.

***** Sondes set up to log temperature, specific conductivity, salinity (in PSU), pH, ORP, DO (mg/L), and turbidity (NTU) at 10 minute intervals.

Receiving Environment Monitoring Details

- Visual sheen checks were conducted in the receiving environment. No visual sheen was observed.
- All receiving environment lab results are in Appendix B.
- Recorded exceedances in the laboratory and field samples collected from the receiving environment (upstream and downstream) are indicative of the existing background water quality in the Squamish River, and are not related to the EGP Project activities.

Appendix A Point of Discharge from Water Treatment Plant Documentation

Batch Sample Analysis

EGP Woodfibre Gas Pipeline Project
Discharged Water Report

Analyte	Lowest Detection Limit	Units	WTP Discharge 24-Feb-2024, 12:15	1-March-2024 04:08	BCAWWQG-FAL-ST	BCAWWQG-MAL-ST
Physical Tests (Matrix: Water)						
Conductivity	2.0	µS/cm	417			
Alkalinity, total (as CaCO3)	2.0	mg/L	128			
Hardness (as CaCO3), dissolved	0.60	mg/L	1.57			
Hardness (as CaCO3), from total Ca/Mg	0.60	mg/L	1.60			
Solids, total dissolved [TDS]	10	mg/L	262			
Solids, total suspended [TSS]	3.0	mg/L	<3.0			
pH	0.10	pH units	8.02		6.5-9.0	7.0-8.7
In Situ Parameters						
pH		pH	8.22	8.3	6.5-9.0	7.0-8.7
Temperature		˚C	10.4	5.4		
Conductivity		µS/cm	422.7	421.9		
Turbidity		NTU	2.74	0.96		
DO		mg/L	9.97	11.53		
ORP		mV	140.1	133.0		
Salinity		ppt	0.20	0.20		
Visible sheen			NO	NO		
Organic / Inorganic Carbon (Matrix: Water)						
Carbon, dissolved organic [DOC]	0.50	mg/L	5.30			
Total Metals (Matrix: Water)						
Aluminum, total	0.0030	mg/L	0.0079			
Antimony, total	0.00010	mg/L	0.00099		0.25	
Arsenic, total	0.00010	mg/L	0.00052			
Barium, total	0.00010	mg/L	0.00254			
Beryllium, total	0.000020	mg/L	<0.000020			
Bismuth, total	0.000050	mg/L	<0.000050			
Boron, total	0.010	mg/L	0.026			
Cadmium, total	0.0000050	mg/L	<0.0000100			
Calcium, total	0.050	mg/L	0.643			
Chromium, total	0.00050	mg/L	<0.00050			
Cobalt, total	0.00010	mg/L	0.00010		0.11	
Copper, total	0.00050	mg/L	0.00109			0.003
Iron, total	0.010	mg/L	0.072		1	
Lead, total	0.000050	mg/L	<0.000050		0.003	0.14
Lithium, total	0.0010	mg/L	0.0019			
Magnesium, total	0.100	mg/L	<0.100			
Manganese, total	0.00010	mg/L	0.00929		0.558	
Mercury, total	0.0000050	mg/L	<0.0000050			
Molybdenum, total	0.000050	mg/L	0.0173		46	
Nickel, total	0.00050	mg/L	<0.00050			

Phosphorus, total	0.050	mg/L	<0.050			
Potassium, total	0.100	mg/L	3.12			
Selenium, total	0.000050	mg/L	0.000206			
Silicon, total	0.10	mg/L	4.28			
Silver, total	0.000010	mg/L	<0.000010		0.0001	0.003
Sodium, total	0.050	mg/L	94.5			
Strontium, total	0.00020	mg/L	0.00305			
Sulfur, total	0.50	mg/L	6.96			
Thallium, total	0.000010	mg/L	<0.000010			
Tin, total	0.00010	mg/L	<0.00010			
Titanium, total	0.00030	mg/L	<0.00030			
Uranium, total	0.000010	mg/L	<0.000010			
Vanadium, total	0.00050	mg/L	<0.00050			
Zinc, total	0.0030	mg/L	0.0040		0.0112	0.055
Zirconium, total	0.00020	mg/L	<0.00020			
Dissolved Metals (Matrix: Water)						
Aluminum, dissolved	0.0010	mg/L	0.0058			
Antimony, dissolved	0.00010	mg/L	0.00090			
Arsenic, dissolved	0.00010	mg/L	0.00046			
Barium, dissolved	0.00010	mg/L	0.00245			
Beryllium, dissolved	0.000020	mg/L	<0.000020			
Bismuth, dissolved	0.000050	mg/L	<0.000050			
Boron, dissolved	0.010	mg/L	0.023			
Cadmium, dissolved	0.0000050	mg/L	<0.0000050		0.00002	
Calcium, dissolved	0.050	mg/L	0.628			
Chromium, dissolved	0.00050	mg/L	<0.00050			
Cobalt, dissolved	0.00010	mg/L	<0.00010			
Copper, dissolved	0.00020	mg/L	0.00102		0.011	0.003
Iron, dissolved	0.010	mg/L	0.025		0.35	
Lead, dissolved	0.000050	mg/L	<0.000050			
Lithium, dissolved	0.0010	mg/L	0.0018			
Magnesium, dissolved	0.100	mg/L	<0.100			
Manganese, dissolved	0.00010	mg/L	0.00835			
Mercury, dissolved	0.0000050	mg/L	<0.0000050			
Molybdenum, dissolved	0.000050	mg/L	0.0164			
Nickel, dissolved	0.00050	mg/L	<0.00050			
Phosphorus, dissolved	0.050	mg/L	<0.050			
Potassium, dissolved	0.100	mg/L	2.97			
Selenium, dissolved	0.000050	mg/L	0.000164			
Silicon, dissolved	0.050	mg/L	3.96			
Silver, dissolved	0.000010	mg/L	<0.000010			
Sodium, dissolved	0.050	mg/L	88.5			
Strontium, dissolved	0.00020	mg/L	0.00281			
Sulfur, dissolved	0.50	mg/L	7.17			
Thallium, dissolved	0.000010	mg/L	<0.000010			

Tin, dissolved	0.00010	mg/L	<0.00010			
Titanium, dissolved	0.00030	mg/L	<0.00030			
Uranium, dissolved	0.000010	mg/L	<0.000010			
Vanadium, dissolved	0.00050	mg/L	<0.00050			
Zinc, dissolved	0.0010	mg/L	0.0036		0.0112	
Zirconium, dissolved	0.00020	mg/L	<0.00020			
Aggregate Organics (Matrix: Water)						
Phenols, total (4AAP)	0.0010	mg/L	<0.0010		0.05	
Volatile Organic Compounds (Matrix: Water)						
Chlorobenzene	0.50	µg/L	<0.50			
Chloromethane	5.0	µg/L	<5.0			
Dichlorobenzene, 1,2-	0.50	µg/L	<0.50			
Dichlorobenzene, 1,3-	0.50	µg/L	<0.50			
Dichlorobenzene, 1,4-	0.50	µg/L	<0.50			
Dichloropropane, 1,2-	0.50	µg/L	<0.50			
Dichloropropylene, cis+trans-1,3-	0.75	µg/L	<0.75			
Dichloropropylene, cis-1,3-	0.50	µg/L	<0.50			
Tetrachloroethane, 1,1,1,2-	0.50	µg/L	<0.50			
Tetrachloroethane, 1,1,2,2-	0.20	µg/L	<0.20			
Trichloroethane, 1,1,2-	0.50	µg/L	<0.50			
Trichlorofluoromethane	0.50	µg/L	<0.50			
Volatile Organic Compounds [Drycleaning] (Matrix: Water)						
Carbon tetrachloride	0.50	µg/L	<0.50			
Chloroethane	0.50	µg/L	<0.60			
Dichloroethane, 1,1-	0.50	µg/L	<0.50			
Dichloroethane, 1,2-	0.50	µg/L	<0.50			
Dichloroethylene, 1,1-	0.50	µg/L	<0.50			
Dichloroethylene, cis-1,2-	0.50	µg/L	<0.50			
Dichloroethylene, trans-1,2-	0.50	µg/L	<0.50			
Dichloromethane	1.0	µg/L	<1.0			
Dichloropropylene, trans-1,3-	0.50	µg/L	<0.50			
Tetrachloroethylene	0.50	µg/L	<0.50			
Trichloroethane, 1,1,1-	0.50	µg/L	<0.50			
Trichloroethylene	0.50	µg/L	<0.50			
Vinyl chloride	0.40	µg/L	<0.40			
Volatile Organic Compounds [Fuels] (Matrix: Water)						
Benzene	0.50	µg/L	<0.50			
Ethylbenzene	0.50	µg/L	<0.50			
Methyl-tert-butyl ether [MTBE]	0.50	µg/L	<0.50		3400	440
Styrene	0.50	µg/L	<0.50			
Toluene	0.40	µg/L	<0.40			

Xylene, m+p-	0.40	µg/L	<0.40			
Xylene, o-	0.30	µg/L	<0.30			
Xylenes, total	0.50	µg/L	<0.50			
Volatile Organic Compounds [THMs] (Matrix: Water)						
Bromodichloromethane	0.50	µg/L	<0.50			
Bromoform	0.50	µg/L	<0.50			
Chloroform	0.50	µg/L	<0.50			
Dibromochloromethane	0.50	µg/L	<0.50			
Hydrocarbons (Matrix: Water)						
EPH (C10-C19)	250	µg/L	<250			
EPH (C19-C32)	250	µg/L	<250			
LEPHw	250	µg/L	<250			
HEPHw	250	µg/L	<250			
Hydrocarbons Surrogates (Matrix: Water)						
Bromobenzotrifluoride, 2- (EPH surrogate)	1.0	%	98.7			
Volatile Organic Compounds Surrogates (Matrix: Water)						
Bromofluorobenzene, 4-	1.0	%	97.2			
Difluorobenzene, 1,4-	1.0	%	102			
Polycyclic Aromatic Hydrocarbons (Matrix: Water)						
Acenaphthene	0.010	µg/L	<0.010			
Acenaphthylene	0.010	µg/L	<0.010			
Acridine	0.010	µg/L	<0.010			
Anthracene	0.010	µg/L	<0.010		0.1	
Benz(a)anthracene	0.010	µg/L	<0.010		0.1	
Benzo(a)pyrene	0.0050	µg/L	<0.0050			
Benzo(b+j) fluoranthene	0.010	µg/L	<0.010			
Benzo(b+j+k) fluoranthene	0.015	µg/L	<0.015			
Benzo(g,h,i)perylene	0.010	µg/L	<0.010			
Benzo(k)fluoranthene	0.010	µg/L	<0.010			
Chrysene	0.010	µg/L	<0.010			
Dibenz(a,h)anthracene	0.0050	µg/L	<0.0050			
Fluoranthene	0.010	µg/L	<0.010		0.2	
Fluorene	0.010	µg/L	<0.010			
Indeno(1,2,3-c,d)pyrene	0.010	µg/L	<0.010			
Methylnaphthalene, 1-	0.010	µg/L	<0.010			
Methylnaphthalene, 2-	0.010	µg/L	<0.010			
Naphthalene	0.050	µg/L	<0.050			
Phenanthrene	0.020	µg/L	<0.020			
Pyrene	0.010	µg/L	<0.010		0.02	
Quinoline	0.050	µg/L	<0.050			

Anions and Nutrients (Matrix: Water)						
Ammonia	0.0050	mg/L ammonia-N	0.189		3.56	
Ammonium (as NH4), field	0.0010	mg/L	0.236			
Bromide	0.050	mg/L	<0.050			
Chloride	0.50	mg/L	45.4		600	
Fluoride	0.020	mg/L	0.096			1.5
Nitrate (as N)	0.0050	mg/L	0.880		32.8	
Nitrite (as N)	0.0010	mg/L	0.0411		0.06	
Sulfate (as SO4)	0.30	mg/L	19.4			
Total Nitrogen	0.030	mg/L	1.42			
G+A208:G211+A208:F213lycols (Matrix: Water)						
Diethylene glycol	5.0	mg/L	<5.0			
Ethylene glycol	5.0	mg/L	<5.0			
Propylene glycol, 1,2-	5.0	mg/L	<5.0			
Triethylene glycol	5.0	mg/L	<5.0			
Glycols, total (EG+DEG+PG)	10	mg/L	<10			

Discharge Volume (m^3)	Discharge Volume (gal)	Flow Rate (m^3/sec)	Discharge Time
262.7	69400	0.00772	17:45 to 03:14

Batch Sample Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24A3759**	Page	: 1 of 5
Client	: **Frontier-Kemper Michels Joint Venture**	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 150 EGP	Date Samples Received	: 24-Feb-2024 14:25
PO	: CO 018	Date Analysis Commenced	: 25-Feb-2024
C-O-C number	: 20-1070618	Issue Date	: 27-Feb-2024 13:07
Sampler	: ----		
Site	: BC Rail		
Quote number	: VA23-FMJV100-002		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

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

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

Sample Comments

Sample	Client Id	*Comment*
VA24A3759-001	WTP Discharge	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
VA24A3759-001	WTP Discharge	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: WTP Discharge	----	----	----	----
					Client sampling date / time: 24-Feb-2024 12:15	----	----	----	----
					VA24A3759-001	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Conductivity	----	E100/VA	2.0	µS/cm	417	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	1.57	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	1.60	----	----	----	----
pH	----	E108/VA	0.10	pH units	8.02	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	262	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	128	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	5.30	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0079	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00099	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00052	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00254	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L	<0.000020	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.026	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000100 DLM	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	0.643	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00109	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.072	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0019	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.100	mg/L	<0.100	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00929	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.0173	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WTP Discharge	----	----	----	----
					Client sampling date / time	24-Feb-2024 12:15	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24A3759-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.100	mg/L		3.12	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000206	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		4.28	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		94.5	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.00305	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		6.96	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0040	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0058	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		0.00090	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00046	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00245	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L		<0.000020	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.023	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		0.628	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00102	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.025	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WTP Discharge	----	----	----	----
					Client sampling date / time	24-Feb-2024 12:15	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24A3759-001	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0018	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.100	mg/L		<0.100	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00835	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0164	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.100	mg/L		2.97	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000164	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		3.96	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		88.5	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.00281	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		7.17	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0036	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	----	----	----	----

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

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

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL REPORT

Work Order	: **VA24A3759**	Page	: 1 of 14
Client	: Frontier-Kemper Michels Joint Venture	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 150 EGP	Date Samples Received	: 24-Feb-2024 14:25
PO	: CO 018	Date Analysis Commenced	: 25-Feb-2024
C-O-C number	: 20-1070618	Issue Date	: 27-Feb-2024 13:05
Sampler	: ---- ----		
Site	: BC Rail		
Quote number	: VA23-FMJV100-002		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1345049)											
VA24A3416-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1345055)											
VA24A3416-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	63	54	9	Diff <2x LOR	----
Physical Tests (QC Lot: 1345551)											
VA24A3759-001	WTP Discharge	pH	----	E108	0.10	pH units	8.02	7.99	0.375%	4%	----
Physical Tests (QC Lot: 1345553)											
VA24A3759-001	WTP Discharge	Conductivity	----	E100	2.0	µS/cm	417	410	1.69%	10%	----
Organic / Inorganic Carbon (QC Lot: 1344126)											
VA24A3439-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	31.6	33.0	4.28%	20%	----
Total Metals (QC Lot: 1344090)											
VA24A3028-004	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00026	0.00024	0.00002	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.00258	0.00255	1.28%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.019	0.019	0.0004	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	9.89	9.83	0.604%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	3.96	3.90	1.56%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000619	0.000628	1.46%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	0.052	0.002	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1344090) - continued											
VA24A3028-004	Anonymous	Potassium, total	7440-09-7	E420	0.050	mg/L	1.38	1.37	0.911%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000240	0.000215	0.000024	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	8.26	8.16	1.21%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	6.79	6.73	0.955%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0250	0.0253	1.17%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	0.60	0.56	0.03	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000114	0.000116	2.07%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00490	0.00486	0.00004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1344854)											
VA24A3197-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1344148)											
VA24A3696-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0028	0.0023	0.0005	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00017	0.00016	0.00001	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.0116	0.0119	2.56%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	2.73	2.81	2.82%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	1.26	1.28	1.80%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	155	152	1.65%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	13.0	13.2	1.59%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0466	0.0466	0.0661%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	63.0	63.5	0.722%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.360	0.367	1.98%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1344148) - continued											
VA24A3696-001	Anonymous	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00153	0.00153	0.165%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00063	0.00060	0.00003	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.104	0.097	0.007	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	16.2	16.3	0.896%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	9.40	9.82	4.44%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	278	281	1.09%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.82	1.82	0.339%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0015	0.0014	0.00006	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1344890)											
VA24A3164-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1345049)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1345055)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1345552)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1345553)						
Conductivity	----	E100	1	µS/cm	1.1	----
Organic / Inorganic Carbon (QCLot: 1344126)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1344090)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1344090) - continued						
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1344854)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1344148)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1344148) - continued						
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1344890)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1345049)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	95.2	85.0	115	----
Physical Tests (QCLot: 1345055)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1345551)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 1345552)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	112	85.0	115	----
Physical Tests (QCLot: 1345553)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	98.3	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1344126)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.8	80.0	120	----
Total Metals (QCLot: 1344090)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.2	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	105	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1344090) - continued									
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	109	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	112	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.6	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	94.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	106	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.6	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Total Metals (QCLot: 1344854)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	105	80.0	120	----
Dissolved Metals (QCLot: 1344148)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.6	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	100.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	95.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.8	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.4	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.1	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.2	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1344148) - continued									
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.0	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.7	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.1	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	103	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	104	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.9	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.0	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.3	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	98.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	98.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	102	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1344126)										
VA24A3439-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.84 mg/L	5 mg/L	96.7	70.0	130	----
Total Metals (QCLot: 1344090)										
VA24A3028-005	Anonymous	Aluminum, total	7429-90-5	E420	0.187 mg/L	0.2 mg/L	93.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Barium, total	7440-39-3	E420	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00993 mg/L	0.01 mg/L	99.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.095 mg/L	0.1 mg/L	95.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00405 mg/L	0.004 mg/L	101	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Copper, total	7440-50-8	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Iron, total	7439-89-6	E420	1.97 mg/L	2 mg/L	98.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0934 mg/L	0.1 mg/L	93.4	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.45 mg/L	10 mg/L	94.5	70.0	130	----
		Potassium, total	7440-09-7	E420	3.73 mg/L	4 mg/L	93.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0394 mg/L	0.04 mg/L	98.4	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	10 mg/L	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.1 mg/L	20 mg/L	95.4	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00392 mg/L	0.004 mg/L	98.1	70.0	130	----
		Tin, total	7440-31-5	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1344090) - continued										
VA24A3028-005	Anonymous	Titanium, total	7440-32-6	E420	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0983 mg/L	0.1 mg/L	98.3	70.0	130	----
		Zinc, total	7440-66-6	E420	0.386 mg/L	0.4 mg/L	96.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
Total Metals (QCLot: 1344854)										
VA24A3347-001	Anonymous	Mercury, total	7439-97-6	E508	0.000102 mg/L	0.0001 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1344148)										
VA24A3696-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.187 mg/L	0.2 mg/L	93.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00823 mg/L	0.01 mg/L	82.3	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00351 mg/L	0.004 mg/L	87.8	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0171 mg/L	0.02 mg/L	85.6	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0168 mg/L	0.02 mg/L	84.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0170 mg/L	0.02 mg/L	85.0	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0899 mg/L	0.1 mg/L	89.9	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0339 mg/L	0.04 mg/L	84.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.54 mg/L	10 mg/L	95.4	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	10 mg/L	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	21.2 mg/L	20 mg/L	106	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1344148) - continued										
VA24A3696-002	Anonymous	Thallium, dissolved	7440-28-0	E421	0.00340 mg/L	0.004 mg/L	85.0	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00360 mg/L	0.004 mg/L	90.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.339 mg/L	0.4 mg/L	84.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0416 mg/L	0.04 mg/L	104	70.0	130	----
Dissolved Metals (QCLot: 1344890)										
VA24A3485-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000106 mg/L	0.0001 mg/L	106	70.0	130	----

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24A3759**	Page	: 1 of 8
Client	: **Frontier-Kemper Michels Joint Venture**	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 150 EGP	Date Samples Received	: 24-Feb-2024 14:25
PO	: CO 018	Issue Date	: 27-Feb-2024 13:05
C-O-C number	: 20-1070618		
Sampler	: ----		
Site	: BC Rail		
Quote number	: VA23-FMJV100-002		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE dissolved (nitric acid) WTP Discharge	E509	24-Feb-2024	26-Feb-2024	0 hrs	46 hrs	× UCP	26-Feb-2024	0 hrs	46 hrs	× UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WTP Discharge	E421	24-Feb-2024	25-Feb-2024	180 days	1 days	✓	26-Feb-2024	180 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) WTP Discharge	E358-L	24-Feb-2024	25-Feb-2024	3 days	1 days	✓	25-Feb-2024	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WTP Discharge	E290	24-Feb-2024	27-Feb-2024	14 days	2 days	✓	27-Feb-2024	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WTP Discharge	E100	24-Feb-2024	27-Feb-2024	28 days	2 days	✓	27-Feb-2024	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE WTP Discharge	E108	24-Feb-2024	27-Feb-2024	0.25 hrs	59 hrs	× EHTR-FM	27-Feb-2024	0.25 hrs	65 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE WTP Discharge	E162	24-Feb-2024	----	----	----		26-Feb-2024	7 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : TSS by Gravimetry										
HDPE										
WTP Discharge	E160	24-Feb-2024	----	----	----		26-Feb-2024	7 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
HDPE total (nitric acid)										
WTP Discharge	E508	24-Feb-2024	26-Feb-2024	0 hrs	46 hrs	✗ UCP	26-Feb-2024	0 hrs	46 hrs	✗ UCP
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WTP Discharge	E420	24-Feb-2024	25-Feb-2024	180 days	1 days	✓	26-Feb-2024	180 days	2 days	✓

Legend & Qualifier Definitions

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

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

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1345552	0	2	0.0	5.0	✗
Conductivity in Water	E100	1345553	1	2	50.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1344890	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1344148	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1344126	1	20	5.0	5.0	✓
pH by Meter	E108	1345551	1	13	7.6	5.0	✓
TDS by Gravimetry	E162	1345055	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1344854	1	17	5.8	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1344090	1	4	25.0	5.0	✓
TSS by Gravimetry	E160	1345049	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1345552	1	2	50.0	5.0	✓
Conductivity in Water	E100	1345553	1	2	50.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1344890	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1344148	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1344126	1	20	5.0	5.0	✓
pH by Meter	E108	1345551	1	13	7.6	5.0	✓
TDS by Gravimetry	E162	1345055	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1344854	1	17	5.8	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1344090	1	4	25.0	5.0	✓
TSS by Gravimetry	E160	1345049	1	7	14.2	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1345552	1	2	50.0	5.0	✓
Conductivity in Water	E100	1345553	1	2	50.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1344890	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1344148	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1344126	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1345055	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1344854	1	17	5.8	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1344090	1	4	25.0	5.0	✓
TSS by Gravimetry	E160	1345049	1	7	14.2	5.0	✓
Matrix Spikes (MS)							
Dissolved Mercury in Water by CVAAS	E509	1344890	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1344148	1	3	33.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1344126	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	1344854	1	17	5.8	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1344090	1	4	25.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1070618

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page of

Report To	Contact and company name below will appear on the final report
Company:	FKM
Contact:	Sara Derakhshi
Phone:	314 891 2223
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

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

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

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

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: SaraDerakhshi@MichelsCanada.com

Email 2: BradClarke@MichelsCanada.com

Email 3:

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: jkriwokon@frontierenergy.ca

Email 2:

Turnaround Time (TAT) Requested

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

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

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

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

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

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

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

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

Project Information

ALS Account # / Quote #:	150 EGP
Job #:	
PO / AFE:	Co 018
LSD:	BC Rail

Oil and Gas Required Fields (client use)

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

ALS Lab Work Order # (ALS use only):

ALS Contact: Sampler:

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	P physical test	P Doc / Toc	P phenols	FP Total metals	P Dissolved metals	P Hydrocarbons	P VOC	P organics	P Anions & nutrients	P HEPH, Glycols	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	WTP discharge	24/2/24	12:15	water		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

Environmental Division
Vancouver
Work Order Reference
VA24A3759

Telephone : +1 604 253 4188

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

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

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

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

Compare with guidelines: *first run metals and DOC and phenols
Freshwater (short term and long term)
Marine (short term and long term)

SAMPLE RECEIPT DETAILS (ALS use only)

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

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							10C

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Sara Derakhshi		

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
SP	24/2/24	2:25 PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

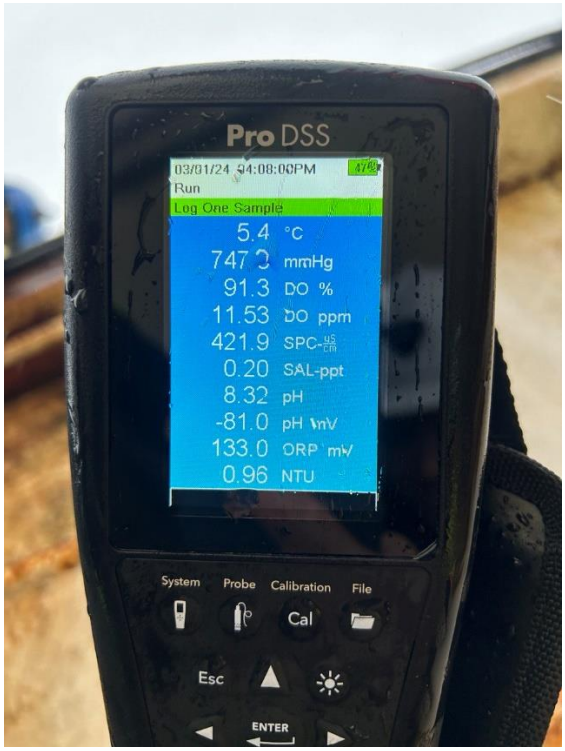
1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC** form.

WTP Discharge Field Notes and Logs

Appendix A Point of Discharge from Water Treatment Plant Documentation

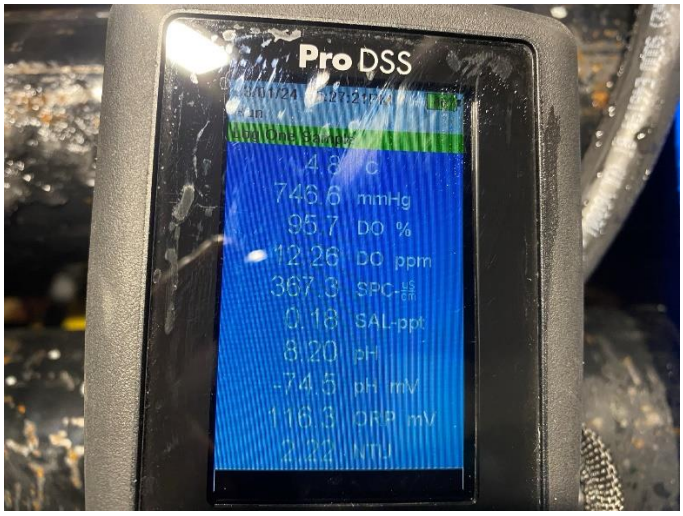
Discharge Volume (m^3)	Discharge Volume (gal)	Flow Rate (m^3/sec)	Discharge Time
262.7	69400	0.007571	17:45 to 03:14

We started discharging at 17:45, 01-03-2024 and completed discharge at 03:14, 02-03-2024 (9.4hrs). Flow meter start reading was 30750700. Flow meter reading at end of discharge was 30820100. Total discharge was 69400 gallons (262.7m3).
Average flow rate during discharge was 123GPM.
We took additional in-situ readings at 10:27 and at 00:14 (please see the attached pictures).

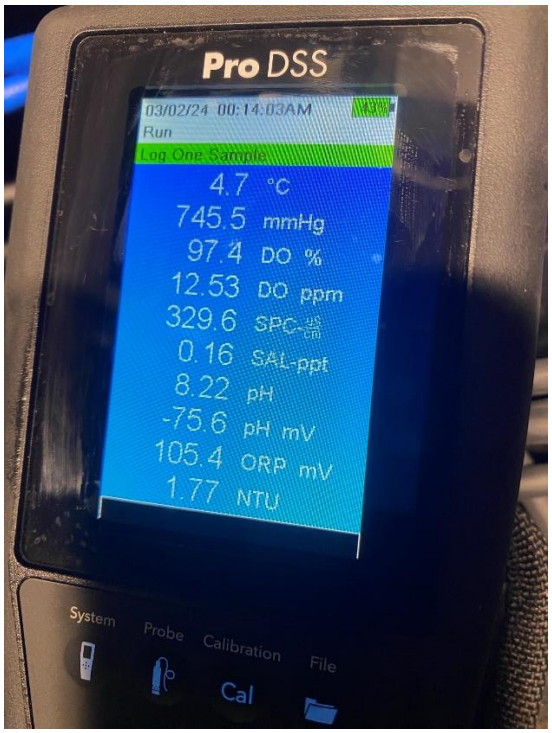


In-Situ parameter at 04:08 PM 01-03-2024

Start discharging at 17:45, 01-03-2024



Checked In-Situ parameters during discharging at 10:27, 01-03-2024



Checked In-Situ parameters during discharging at 00:14, 02-03-2024

Finish discharging at 03:14, 02-03-2024

No visible sheen on discharging water

Appendix B Receiving Environment Documentation

Receiving Environment Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:			Miranda Lewis PAg, MSc	BCR US1 (Upstream)	BCR DS 1 (Downstream)	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24A3849-002	VA24A3849-001					
	Date Sampled					26-Feb-2024	26-Feb-2024					
	Time Sampled					10:33	10:54					
Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Water	Water					
						N/A	N/A		Guideline notes			
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.12	7.20		If natural pH < 6.5, no statistiocaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	-	19, hourly rate of change <1°C	Max +/- from BKG 1°C, hourly rate of change <0.5°C	-	4.4	4.6		Guideline is species-dependent. Short-term daily temperature guideline is 19°C for streams with unknown fish distribution. Refer to BC Water Quality Guidelines for more information on incubation and spawning temperature guidelines, and for those with different fish distributions. Hourly rate of change not to exceed 1°C.		Guideline for marine waters are based on natural ambient conditions. Max and min. 1°C change from natural condition. Natural temperature cycle characteristic of the site should not be altered in amplitude or frequency by human activities. Max rate of any human-induced temperature change not to exceed 0.5°C hourly.	
Conductivity (field)	µS/cm	-	-	-	-	79	82					
Turbidity (field)	NTU	Varies with background, see note Lowest value for guideline is 3 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 3 NTU	1.67	2.08		Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters.	Change from background of 2 NTU at any one time for 30 days in clear flows.	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters.	Change from background of 2 NTU at any one time for 30 days in clear flows.
Dissolved Oxygen (field)	mg/L	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	11.59	11.59		Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.
General Parameters												
Hardness (as CaCO3) (total)	mg/L	-	-	-	-	21.6	20.7					
Total Dissolved Solids	mg/L	-	-	-	-	54	54					
Total Suspended Solids	mg/L	Varies with background, see note Lowest value for guideline is 6mg/L	Varies with background, see note Lowest value for guideline is 26mg/L	Varies with background, see note Lowest value for guideline is 26mg/L	Varies with background, see note Lowest value for guideline is 6mg/L	< 3.0	< 3.0		Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters.	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow.	Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters.	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow.
Total Organic Carbon (TOC)	mg/L	-	-	-	-	1.64	1.49			Long-term (30-day) median within 20% of background median		
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	1.61	1.44			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	19.6	18.6	The upstream and downstream locations have a moderate sensitivity to acid inputs (i.e. moderate buffering capcity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs.Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	< 0.0015	< 0.0015					
Total Sulfide (un-ionized as H2S)	mg/L	0.002	-	-	-	< 0.0015	< 0.0015	LT guideline not applicable [3]		Working guideline		
Total Sulfide (as H2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	pH and temperature dependent	pH and temperature dependent	pH, temperature, and salinity dependent	pH, temperature, and salinity dependent	0.479	0.238		Guideline for ammonia as N. pH and temperature dependent. Refer to BC Water Quality Guidelines for more information.	Guideline for ammonia as N. pH and temperature dependent. Refer to BC Water Quality Guidelines for more information.	Guideline for ammonia as N. pH, salinity, and temperature dependent. Refer to BC Water Quality Guidelines for more information. Guideline not applicable to freshwater EGP samples.	Guideline for ammonia as N. pH, salinity, and temperature dependent. Refer to BC Water Quality Guidelines for more information. Guideline not applicable to freshwater EGP samples.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	3.62	3.05				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Fluoride	mg/L	-	Varies with hardness	1.5	-	0.025	0.022		Guideline has interim status.			
Nitrate (as N)	mg/L	3	32.8	-	3.7	0.0477	0.0458					
Nitrite (as N)	mg/L	Varies with chloride	0.06	-	-	< 0.0010	< 0.0010					
Total Nitrogen	mg/L	-	-	-	-	0.592	0.346					
Total Phosphorus	mg/L	0.005 to 0.015	-	-	-	0.0367	0.0226			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO4)	mg/L	Varies with hardness	-	-	-	6.11	5.69					
Total Metals												
Aluminum (Al)-Total	mg/L	Varies with pH, DOC, hardness	-	-	-	***0.0747***	***0.0876***	**Both locations exceed BCWQ long-term guideline for FAL.** LT guideline not applicable at this time (no continous discharge) [3]	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Refer to BC Water Quality Guidelines for more information.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Refer to BC Water Quality Guidelines for more information.		
Antimony (Sb)-Total	mg/L	0.074	0.25	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00017	0.00018					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00866	0.00974			Working guideline status		
Beryllium (Be)-Total	mg/L	0.00013	-	-	0.100	< 0.000100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Total	mg/L	1.2	-	-	1.2	0.015	0.016					
Cadmium (Cd)-Total	mg/L	-	-	-	0.000152	0.000152	0.0000084					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	7.2	6.92					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000024	0.000023					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00092	0.00088					
Iron (Fe)-Total	mg/L	-	1	-	-	0.15	0.168					
Lead (Pb)-Total	mg/L	Varies with hardness	Varies with hardness	0.14	0.002	< 0.000050	< 0.000050		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation $e^{(1.273*ln(hardness)+1.46)}$ where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation $e^{(1.273*ln(hardness)+1.46)}$ applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	0.0012	0.0015					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.85	0.834					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.00846	0.01		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation 0.01102*hardness+0.54 and applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation 0.0044*hardness+0.605 and applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L.		
Mercury (Hg)-Total	mg/L	Varies with methyl mercury	-	-	-	< 0.0000050	< 0.0000050			Guideline is calculated as follows: 0.1(MeHg/total Hg). When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	7.6	46	-	-	0.000693	0.000675					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	< 0.00050	< 0.00050			Working guideline status. Guideline varies with hardness. Guideline is 0.025 mg/L at water hardness ≤90mg/L, at hardness 60-180 use equation $e^{(0.76*ln(hardness)+1.06)}$, guideline at hardness ≥180 mg/L is 0.15 mg/L. Refer to BC Water Quality Guidelines for more information.		Working guideline status
Phosphorus (P)-Total	mg/L	0.005 to 0.015	-	-	-	0.051	< 0.050			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	0.751	0.738					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00116	0.00113					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	0.000057	0.000053			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	6.15	5.63					
Silver (Ag)-Total	mg/L	Varies with hardness	Varies with hardness	0.003	0.0015	< 0.000010	< 0.000010		Varies with hardness. Guideline is 0.0001 mg/L at hardness ≤100 mg/L, and 0.003 at Hardness > 100 mg/L	Varies with hardness. Guideline is 0.00005 mg/L at hardness ≤100 mg/L, and 0.0015 at Hardness > 100 mg/L		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	3.63	3.29					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0452	0.0441					
Sulfur (S)-Total	mg/L	-	-	-	-	1.81	1.88					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	< 0.0000010	< 0.0000010			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to Inke EGP site.		
Thorium (Th)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.00161	0.00265					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.00033	0.000339			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	0.00163	0.00152					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.038	0.010	< 0.0030	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0331	0.0312					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00014	0.00016					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00806	0.00852					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.012	0.012					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness	Varies with hardness	-	-	0.0000082	0.000008		Guideline is hardness dependent, refer to BC Water Quality Guidelines for more information. Guideline is applicable to water hardness between 7.0 and 455 mg/L. Guideline uses equation $e^{(0.86*ln(hardness)-3.2)}$. Lowest value for guideline is 0.000018 mg/L	Guideline is hardness dependent, refer to BC Water Quality Guidelines for more information. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline uses equation $e^{(0.72*ln(hardness)-5.69)}$. Lowest value for guideline is 0.00004		
Calcium (Ca)-Dissolved	mg/L	Categorical	-	-	-	6.82	6.52	Both locations have moderate sensitivity to acid inputs (i.e. medium buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000018	0.000018					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(VI))-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with pH, DOC, hardness	-	-	***0.00074***	***0.00072***	**Upstream and downstream locations exceed the long term BCWQ for FAL.** LT guideline not applicable [3]	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Refer to BC Water Quality Guidelines for more information. Guideline uses lookup table incorporating sample pH, hardness and DOC.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Refer to BC Water Quality Guidelines for more information. Guideline uses lookup table incorporating sample pH, hardness and DOC.		
Iron (Fe)-Dissolved	mg/L	-	0.35	-	-	0.056	0.054					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	0.0011					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.847	0.828					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00774	0.0092					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000632	0.000589					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.730	0.737					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00113	0.0011					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	6.02	5.56					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	3.48	3.2					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0426	0.0416					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.99	1.79					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030	0.00038					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.00003	0.000035					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00138	0.00114					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0014	0.0011		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Refer to BC Water Quality Guidelines for more information.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Refer to BC Water Quality Guidelines for more information.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		**British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life** **British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life**										
Color Key:	Exceeds BCAWWQG Short and Long-Term Guideline	*Exceeds BCAWWQG Long term Guideline*	Exceeds BCAWWQG Short term Guideline	Exceeds BCAWWQG MAL Short term Guideline	*Exceeds BCAWWQG MAL Long term Guideline*							
Color Key:				Exceeds BCAWWQG MAL Short and Long-term Guidelines	Exceeds both BCAWWQG FAL and MAL Guidelines							

[1] BC MOECCS. 2023. BC Water Quality Guidelines for the Protection of Aquatic Life, Wildlife & Agriculture. Accessed from: appl_summary_aquaticlife_wildlife_agri.pdf (gov.bc.ca)

[2] BC MOECCS. 2021. BC Working Water Quality Guidelines for the Protection of Aquatic Life, Wildlife & Agriculture. Accessed from: bc_wq_working_water_quality_guidelines.pdf (gov.bc.ca)

[3] Note that long-term guidelines apply to averaged data to account for chronic impacts to aquatic life. Ideally, five samples collected at evenly spaced intervals over 30 days is considered to be the minimum number needed to calculate the long-term average of any parameter, though this may vary by parameter and site conditions. Long-term guidelines applied here are for reference only and may not indicate chronic impacts to aquatic life if exceedances occur in the short term.

Receiving Environment Lab Documentation

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: VA24A3849	Page	: 1 of 7
Client		Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 26-Feb-2024 12:35
PO	: 11964-Task 20 -Phase 3C-4C	Date Analysis Commenced	: 28-Feb-2024
C-O-C number	: ----	Issue Date	: 05-Mar-2024 14:25
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Metals, Waterloo, Ontario
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

No Breaches Found

General Comments

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----	----	----
				Sampling date/time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24A3849-001	VA24A3849-002	--------	--------	--------	--------	--------
Physical Tests											
Hardness (as CaCO3), dissolved	----	EC100/VA	mg/L		19.7	20.5	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L		20.7	21.5	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L		54	54	----	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	mg/L		<3.0	<3.0	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L		18.6	19.6	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L		0.238	0.479	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L		3.05	3.62	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L		0.022	0.025	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L		0.0458	0.0477	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	mg/L		0.346	0.592	----	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	mg/L		0.0226	0.0367	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L		5.69	6.11	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/VA	mg/L		1.44	1.61	----	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	mg/L		1.49	1.64	----	----	----	----	----
Total Sulfides											
Sulfide, total (as S)	18496-25-8	E395/VA	mg/L		<0.0015	<0.0015	----	----	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	mg/L		<0.0015	<0.0015	----	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	mg/L		<0.0016	<0.0016	----	----	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/VA	mg/L		0.0876	0.0747	----	----	----	----	----
Antimony, total	7440-36-0	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L		0.00018	0.00017	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L		0.00974	0.00866	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----	----	----
				Sampling date/time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
				VA24A3849	VA24A3849-001	VA24A3849-002	--------	--------	--------	--------	--------
Total Metals											
Beryllium, total	7440-41-7	E420/VA	mg/L		<0.000100	<0.000100	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L		0.016	0.015	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L		0.0000084	0.0000102	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L		6.92	7.20	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L		0.000023	0.000024	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00088	0.00092	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.168	0.150	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		0.0015	0.0012	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		0.834	0.850	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.0100	0.00846	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.000675	0.000693	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		<0.050	0.051	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		0.738	0.751	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00113	0.00116	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		0.000053	0.000057	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		5.63	6.15	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		3.29	3.63	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.0441	0.0452	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		1.88	1.81	----	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----	----	----
				Sampling date/time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24A3849-001	VA24A3849-002	--------	--------	--------	--------	--------
Total Metals											
Tin, total	7440-31-5	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	mg/L		0.00265	0.00161	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L		0.000039	0.000033	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L		0.00152	0.00163	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L		<0.0030	<0.0030	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Dissolved Metals											
Aluminum, dissolved	7429-90-5	E421/VA	mg/L		0.0312	0.0331	----	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	mg/L		0.00016	0.00014	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	mg/L		0.00852	0.00806	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	mg/L		<0.000100	<0.000100	----	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	mg/L		0.012	0.012	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	mg/L		0.0000080	0.0000082	----	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	mg/L		6.52	6.82	----	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	mg/L		0.000018	0.000018	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	mg/L		0.00072	0.00074	----	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	mg/L		0.094	0.093	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	mg/L		0.0011	<0.0010	----	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	mg/L		0.828	0.847	----	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	mg/L		0.00920	0.00774	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	mg/L		0.000589	0.000632	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----	----	----
				Sampling date/time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24A3849-001	VA24A3849-002	--------	--------	--------	--------	--------
Dissolved Metals											
Nickel, dissolved	7440-02-0	E421/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	mg/L		0.737	0.755	----	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	mg/L		0.00110	0.00113	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	mg/L		5.56	6.02	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	mg/L		3.20	3.48	----	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	mg/L		0.0416	0.0426	----	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	mg/L		1.79	1.99	----	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	mg/L		0.00038	<0.00030	----	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	mg/L		0.000035	0.000030	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	mg/L		0.00114	0.00138	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	mg/L		0.0011	0.0014	----	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-		Field	Field	----	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-		Field	Field	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----
Chromium, trivalent [Cr III], dissolved	16065-83-1	EC535A/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----

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

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

Key:

CERTIFICATE OF ANALYSIS

Work Order	: **VA24A3849**	Page	: 1 of 6
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 26-Feb-2024 12:55
PO	: 11964-Task 20 -Phase 3C-4C	Date Analysis Commenced	: 28-Feb-2024
C-O-C number	: ----	Issue Date	: 05-Mar-2024 14:25
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Metals, Waterloo, Ontario
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----
					Client sampling date / time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----
						VA24A3849-001	VA24A3849-002	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		19.7	20.5	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		20.7	21.5	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		54	54	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		18.6	19.6	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.238	0.479	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		3.05	3.62	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.022	0.025	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0458	0.0477	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.346	0.592	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0226	0.0367	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		5.69	6.11	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		1.44	1.61	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.49	1.64	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0876	0.0747	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00018	0.00017	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00974	0.00866	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----
					Client sampling date / time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----
						VA24A3849-001	VA24A3849-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.016	0.015	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000084	0.0000102	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		6.92	7.20	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000023	0.000024	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00088	0.00092	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.168	0.150	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0015	0.0012	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.834	0.850	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0100	0.00846	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000675	0.000693	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	0.051	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.738	0.751	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00113	0.00116	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000053	0.000057	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		5.63	6.15	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		3.29	3.63	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0441	0.0452	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.88	1.81	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00265	0.00161	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU DS 1	SQU US 1	----	----	----
					Client sampling date / time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----
						VA24A3849-001	VA24A3849-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000039	0.000033	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00152	0.00163	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	<0.0030	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0312	0.0331	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00016	0.00014	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00852	0.00806	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.012	0.012	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.0000080	0.0000082	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		6.52	6.82	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000018	0.000018	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00072	0.00074	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.094	0.093	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0011	<0.0010	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.828	0.847	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00920	0.00774	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000589	0.000632	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		0.737	0.755	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00110	0.00113	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SQU DS 1	SQU US 1	----	----	----
					Client sampling date / time	26-Feb-2024 10:54	26-Feb-2024 10:33	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24A3849-001	VA24A3849-002	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		5.56	6.02	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		3.20	3.48	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0416	0.0426	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.79	1.99	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		0.00038	<0.00030	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000035	0.000030	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00114	0.00138	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0011	0.0014	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], dissolved	16065-83-1	EC535A/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----

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

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

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24A3849**	Page	: 1 of 14
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Miranda Lewis	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 631 2213	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 26-Feb-2024 12:55
PO	: 11964-Task 20 -Phase 3C-4C	Issue Date	: 05-Mar-2024 14:26
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU DS 1	E298	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	04-Mar-2024	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US 1	E298	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	04-Mar-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US 1	E235.Br-L	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU US 1	E235.F	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	26-Feb-2024	29-Feb-2024	3 days	3 days	✓	29-Feb-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	26-Feb-2024	29-Feb-2024	3 days	3 days	✓	29-Feb-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO2-L	26-Feb-2024	29-Feb-2024	3 days	3 days	✓	29-Feb-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO2-L	26-Feb-2024	29-Feb-2024	3 days	3 days	✓	29-Feb-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	05-Mar-2024	28 days	8 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	05-Mar-2024	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU DS 1	E372-U	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	04-Mar-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	04-Mar-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	26-Feb-2024	01-Mar-2024	28 days	4 days	✓	01-Mar-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	26-Feb-2024	01-Mar-2024	28 days	4 days	✓	01-Mar-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	26-Feb-2024	29-Feb-2024	180 days	3 days	✓	01-Mar-2024	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	26-Feb-2024	29-Feb-2024	180 days	3 days	✓	01-Mar-2024	180 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	03-Mar-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU US 1	E358-L	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	03-Mar-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
SQU DS 1	E355-L	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	03-Mar-2024	28 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
SQU US 1	E355-L	26-Feb-2024	03-Mar-2024	28 days	6 days	✓	03-Mar-2024	28 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU DS 1	E290	26-Feb-2024	29-Feb-2024	14 days	3 days	✓	29-Feb-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU US 1	E290	26-Feb-2024	29-Feb-2024	14 days	3 days	✓	29-Feb-2024	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU DS 1	E162	26-Feb-2024	----	----	----		02-Mar-2024	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU US 1	E162	26-Feb-2024	----	----	----		02-Mar-2024	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	26-Feb-2024	----	----	----		02-Mar-2024	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	26-Feb-2024	----	----	----		02-Mar-2024	7 days	5 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - dissolved (sodium hydroxide)										
SQU DS 1	E532A	26-Feb-2024	----	----	----		29-Feb-2024	28 days	3 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - dissolved (sodium hydroxide)										
SQU US 1	E532A	26-Feb-2024	----	----	----		29-Feb-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	26-Feb-2024	----	----	----		29-Feb-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	26-Feb-2024	----	----	----		29-Feb-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU DS 1	E508	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	26-Feb-2024	29-Feb-2024	28 days	3 days	✓	29-Feb-2024	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	26-Feb-2024	28-Feb-2024	180 days	2 days	✓	29-Feb-2024	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU US 1	E420	26-Feb-2024	28-Feb-2024	180 days	2 days	✓	29-Feb-2024	180 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU DS 1	E395	26-Feb-2024	----	----	----		03-Mar-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU US 1	E395	26-Feb-2024	----	----	----		03-Mar-2024	7 days	6 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1348621	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1352528	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1348619	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1348614	1	20	5.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1348955	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1351346	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1347985	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1352523	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1348618	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1348616	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1348617	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1348615	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1352002	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1348953	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1349345	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1346527	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1352525	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1352524	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1352526	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1352358	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1351994	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1348621	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1352528	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1348619	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1348614	1	20	5.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1348955	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1351346	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1347985	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1352523	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1348618	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1348616	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1348617	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1348615	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1352002	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1348953	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Mercury in Water by CVAAS	E508	1349345	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1346527	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1352525	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1352524	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1352526	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1352358	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1351994	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1348621	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1352528	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1348619	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1348614	1	20	5.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1348955	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1351346	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1347985	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1352523	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1348618	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1348616	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1348617	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1348615	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1352002	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1348953	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1349345	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1346527	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1352525	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1352524	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1352526	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1352358	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1351994	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1352528	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1348619	1	5	20.0	5.0	✓
Chloride in Water by IC	E235.Cl	1348614	1	20	5.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1348955	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1351346	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1347985	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1352523	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1348618	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1348616	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Nitrite in Water by IC (Low Level)	E235.NO2-L	1348617	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1348615	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1348953	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1349345	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1346527	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1352525	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1352524	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1352526	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1352358	1	17	5.8	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	Chinchilla Scientific Nitrate Method, 2011	Following digestion, total nitrogen is is determined colourimetrically using a discrete analyzer utilizing the vanadium chloride reduction method. This method of analysis is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H_2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H_2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Total Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. sample pretreatment involved field or lab filtration following by sample preservation.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Dissolved Trivalent Chromium (Cr III) by Calculation	EC535A ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Dissolved Chromium (III) is calculated as the difference between Dissolved Chromium and Dissolved Hexavalent Chromium (Cr VI) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples for total nitrogen analysis are digested using a heated persulfate digestion. Nitrogen compounds are converted to nitrate in this digestion.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA24A3849**	Page	: 1 of 18
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Miranda Lewis	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 26-Feb-2024 12:55
PO	: 11964-Task 20 -Phase 3C-4C	Date Analysis Commenced	: 28-Feb-2024
C-O-C number	: ----	Issue Date	: 05-Mar-2024 14:25
Sampler	: ---- 604 631 2213		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Waterloo Inorganics, Waterloo, Ontario
Kelly Fischer	Technical Specialist	Waterloo Metals, Waterloo, Ontario
Kim Jensen	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
Sam Silveira	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1348621)											
VA24A3842-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	342	343	0.265%	20%	----
Physical Tests (QC Lot: 1351994)											
FJ2400471-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1352002)											
FJ2400471-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1960	2060	4.70%	20%	----
Anions and Nutrients (QC Lot: 1348614)											
VA24A3849-001	SQU DS 1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.05	3.09	0.05	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1348615)											
VA24A3849-001	SQU DS 1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.69	5.77	1.53%	20%	----
Anions and Nutrients (QC Lot: 1348616)											
VA24A3849-001	SQU DS 1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0458	0.0474	0.0015	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1348617)											
VA24A3849-001	SQU DS 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1348618)											
VA24A3849-001	SQU DS 1	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.022	0.023	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1348619)											
VA24A3849-001	SQU DS 1	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1352525)											
VA24A3799-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.286	0.287	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1352526)											
FJ2400471-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0051	0.0052	0.00007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1352528)											
FJ2400471-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0426	0.0432	0.0006	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1352523)											
FJ2400472-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.03	3.06	0.03	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1352524)											
FJ2400488-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.96	1.08	0.11	Diff <2x LOR	----
Total Sulfides (QC Lot: 1352358)											
CG2402329-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1346527)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1346527) - continued											
FJ2400488-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0177	0.0161	0.0016	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00026	0.00025	0.000004	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.588	0.614	4.45%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.040	0.042	0.002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000151	0.0000151	0.00000002	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	58.4	60.0	2.73%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000044	0.000048	0.000004	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.626	0.618	1.26%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0151	0.0156	3.30%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	24.6	24.6	0.245%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0189	0.0190	0.423%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00159	0.00164	3.28%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	0.928	0.921	0.702%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00180	0.00193	0.00013	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.22	3.21	0.422%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	2.73	2.77	1.69%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.120	0.123	2.43%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00040	0.00052	0.00012	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1346527) - continued											
FJ2400488-001	Anonymous	Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000037	0.000036	0.0000009	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00062	0.00061	0.000009	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1349345)											
FJ2400472-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1347985)											
YL2400153-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0029	0.0031	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00024	0.00023	0.000010	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0177	0.0173	2.15%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.108	0.111	3.16%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	14.4	14.3	0.308%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000017	0.000014	0.000002	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00049	0.00049	0.000005	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0037	0.0037	0.00003	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	4.94	5.03	1.72%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00016	0.00017	0.00001	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000093	0.000100	0.000007	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00063	0.00065	0.00002	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	3.07	3.16	2.79%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00439	0.00438	0.390%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.144	0.141	0.002	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1347985) - continued											
YL2400153-001	Anonymous	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	11.7	11.8	0.906%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.165	0.164	0.541%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.08	2.92	0.15	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0011	0.0012	0.00009	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1351346)											
VA24A3843-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1348953)											
VA24A3849-001	SQU DS 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1348955)											
KS2400647-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1348621)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.3	----
Physical Tests (QCLot: 1351994)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1352002)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1348614)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1348615)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1348616)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1348617)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1348618)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1348619)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1352525)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1352526)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1352528)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1352523)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1352524)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1352358)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1346527)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1346527) - continued						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1346527) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1349345)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1347985)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1347985) - continued						
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1351346)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1348953)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Speciated Metals (QCLot: 1348955)						
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	<0.00050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1348621)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1351994)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	114	85.0	115	----
Physical Tests (QCLot: 1352002)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	99.3	85.0	115	----
Anions and Nutrients (QCLot: 1348614)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 1348615)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1348616)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.3	90.0	110	----
Anions and Nutrients (QCLot: 1348617)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.2	90.0	110	----
Anions and Nutrients (QCLot: 1348618)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.3	90.0	110	----
Anions and Nutrients (QCLot: 1348619)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	98.7	85.0	115	----
Anions and Nutrients (QCLot: 1352525)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	97.1	75.0	125	----
Anions and Nutrients (QCLot: 1352526)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	100.0	80.0	120	----
Anions and Nutrients (QCLot: 1352528)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.4	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1352523)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.1	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1352524)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	99.2	80.0	120	----
Total Sulfides (QCLot: 1352358)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1346527)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	106	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	100	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	96.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.8	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	105	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	99.8	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	96.9	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	94.0	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	97.1	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	88.1	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	106	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1346527) - continued									
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	108	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Total Metals (QCLot: 1349345)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	99.6	80.0	120	----
Dissolved Metals (QCLot: 1347985)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	100	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.3	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.7	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	95.5	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.7	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.1	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	95.9	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	104	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.7	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.0	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	99.7	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	110	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	93.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	97.0	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1347985) - continued									
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	96.8	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	100	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	97.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	98.0	80.0	120	----
Speciated Metals (QCLot: 1348953)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	100	80.0	120	----
Speciated Metals (QCLot: 1348955)									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	0.025 mg/L	98.0	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1348614)										
VA24A3849-002	SQU US 1	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1348615)										
VA24A3849-002	SQU US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	106 mg/L	100 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1348616)										
VA24A3849-002	SQU US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	2.62 mg/L	2.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1348617)										
VA24A3849-002	SQU US 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.510 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1348618)										
VA24A3849-002	SQU US 1	Fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1348619)										
VA24A3849-002	SQU US 1	Bromide	24959-67-9	E235.Br-L	0.535 mg/L	0.5 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 1352525)										
VA24A3799-002	Anonymous	Nitrogen, total	7727-37-9	E366	0.411 mg/L	0.4 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 1352526)										
FJ2400471-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	5.05 mg/L	5 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 1352528)										
FJ2400471-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1352523)										
FJ2400472-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.78 mg/L	5 mg/L	95.6	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1352524)										
VA24A3799-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.34 mg/L	5 mg/L	107	70.0	130	----
Total Sulfides (QCLot: 1352358)										
CG2402329-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.211 mg/L	0.2 mg/L	105	75.0	125	----
Total Metals (QCLot: 1346527)										
KS2400611-001	Anonymous	Aluminum, total	7429-90-5	E420	0.201 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1346527) - continued										
KS2400611-001	Anonymous	Beryllium, total	7440-41-7	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00825 mg/L	0.01 mg/L	82.5	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00408 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00961 mg/L	0.01 mg/L	96.1	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Iron, total	7439-89-6	E420	1.88 mg/L	2 mg/L	94.2	70.0	130	----
		Lead, total	7439-92-1	E420	0.0177 mg/L	0.02 mg/L	88.3	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0932 mg/L	0.1 mg/L	93.2	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Silicon, total	7440-21-3	E420	9.79 mg/L	10 mg/L	97.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.00367 mg/L	0.004 mg/L	91.8	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.4 mg/L	20 mg/L	96.9	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00363 mg/L	0.004 mg/L	90.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0154 mg/L	0.02 mg/L	77.2	70.0	130	----
		Tin, total	7440-31-5	E420	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	0.004 mg/L	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Zinc, total	7440-66-6	E420	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1349345)										
FJ2400472-002	Anonymous	Mercury, total	7439-97-6	E508	0.000105 mg/L	0.0001 mg/L	105	70.0	130	----
Dissolved Metals (QCLot: 1347985)										
YL2400149-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	1.94 mg/L	2 mg/L	96.9	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.374 mg/L	0.4 mg/L	93.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0911 mg/L	0.1 mg/L	91.1	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0989 mg/L	0.1 mg/L	98.9	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.385 mg/L	0.4 mg/L	96.4	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.186 mg/L	0.2 mg/L	93.1	70.0	130	----
		Iron, dissolved	7439-89-6	E421	18.8 mg/L	20 mg/L	94.2	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.183 mg/L	0.2 mg/L	91.7	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.941 mg/L	1 mg/L	94.1	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.200 mg/L	0.2 mg/L	100.0	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	101 mg/L	100 mg/L	101	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.189 mg/L	0.2 mg/L	94.7	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.386 mg/L	0.4 mg/L	96.5	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	95.3 mg/L	100 mg/L	95.3	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0366 mg/L	0.04 mg/L	91.4	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.411 mg/L	0.4 mg/L	103	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0359 mg/L	0.04 mg/L	89.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.197 mg/L	0.2 mg/L	98.3	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.186 mg/L	0.2 mg/L	93.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1347985) - continued										
YL2400149-001	Anonymous	Titanium, dissolved	7440-32-6	E421	0.394 mg/L	0.4 mg/L	98.6	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.186 mg/L	0.2 mg/L	93.0	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.965 mg/L	1 mg/L	96.5	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	3.94 mg/L	4 mg/L	98.5	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.404 mg/L	0.4 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1351346)										
VA24A3849-001	SQU DS 1	Mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0.0001 mg/L	101	70.0	130	----
Speciated Metals (QCLot: 1348953)										
VA24A3849-001	SQU DS 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
Speciated Metals (QCLot: 1348955)										
KS2400647-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0405 mg/L	0.04 mg/L	101	70.0	130	----

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of

Report To	Contact and company name below will appear on the final report
Company:	Triton Environmental
Contact:	
Phone:	
Street:	
City/Province:	Vancouver/BC
Postal Code:	V6E 4M3
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☑ ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or F
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☑ MAIL ☑ FAX
Email 1 or Fa
Email 2

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] ☐

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

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	VA23-TRIT100-012
Job #:	11964
PO / AFE:	11964 - Task 20 - Phase 3C-4C
LSD:	

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

ALS Lab Work Order # (lab use only): A38449

ALS Contact: Can Dang Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus, TOC)	Total sulfide (as H2S), Unionized Sulfide	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC	Dissolved hexavalent and trivalent chromium				SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
					F						P	P			F/P	F						
	SQU DS 1	26-Feb-24	10:54	Water	R	R	R	R	R	R	R	R	R	R	R	R					N	12
	pH: 7.20 cond: 62mS/cm temp: 4.6°C																					
	SQU US 1	26-Feb-24	10:33	Water	R	R	R	R	R	R	R	R	R	R	R	R					N	12
	pH: 7.12 cond: 79mS/cm temp: 4.4°C																					
	Duplicate N/A			Water	R	R	R	R	R	R	R	R	R	R	R	R					N	12
	Field Blank N/A			Water	R	R	R	R	R	R	R	R	R	R	R	R					N	12
	Trip Blank N/A			ter	R	R			R	R	R	R	R	R							N	9

Environmental Division
Vancouver
Work Order Reference
VA24A3849

Telephone : +1 604 253 4188

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

Are samples taken from a Regulated DW System? ☐ ☑

Are samples for human consumption/ use? ☐ ☑

Special Instructions / Specify Criteria below

Triton Project # 11964

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
				6°C	

RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
	Date: Feb 26, 2024	Time: 12:50	Received by:	Date:	Time:	Received by: RK	Date: 2/26	Time: 12:55

TIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-2-26-Blanchard-179F7

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	02/26/2024	**Location:**	BC Rail Site
Triton QP:	Sam Blanchard	**Latitude/Longitude:**	49.725282 -123.165175
Temperature(c):	Low -7 High 1	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:54:52 **Flow Volume (visual):** moderate

Notes:

Odour Detected?:	No	**Notes:**	
Unusual Colour?	No	**Notes:**	
Unusual Observations?	No	**Notes:**	
Sheen on Water?	No	**Notes:**	

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Dissolved and total haxavalent and trivalent chromium.
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**VOC/VPH**	N/A	**QA Samples:** No Dissolved and total haxavalent and trivalent chromium.
Nutrients	Yes	**EPH, PAH, LEPH/HEPH**	N/A	
DOC	Yes	**Trout LC50**	N/A	

Logger Maintenance

Logger Maintenance Performed?	No	**Photo of COC with Lab Signature?**	Yes

Describe Logger Maintenance

Photos

Photo: 1

Location: SQU DS1

Description: US View

Photo: 2

Location: SQU DS1

Description: DS View

Photos

Photo: 3

Location: SQU DS1

Description: Across View

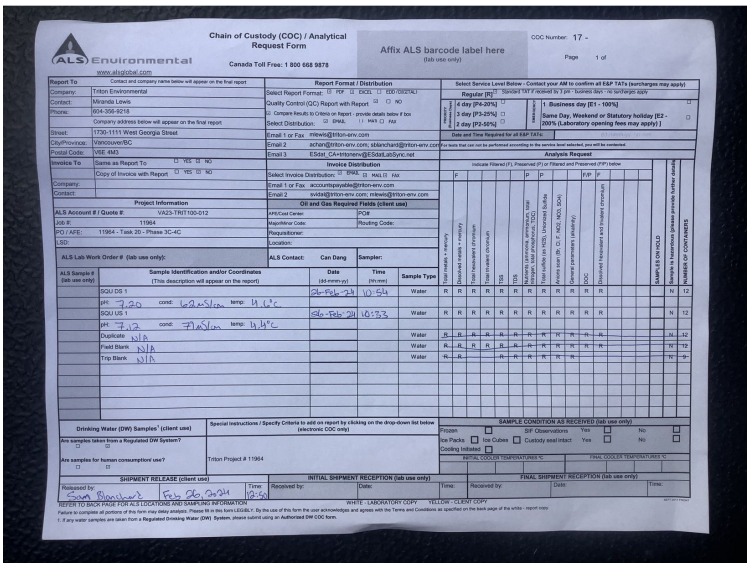


Photo: 4

Location: SQU DS1

Description: Lab COC

Sign Off

Report Prepared By:	Sam Blanchard	**Report Reviewed:**	Yes
Report Reviewer:	Miranda Lewis	**Professional(s) of Record:**	N/A
Name:			
Designation:			
Designation Number:			

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-2-26-Blanchard-46771

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	02/26/2024	**Location:**	BC Rail Site
Triton QP:	Sam Blanchard	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low -7 High 1	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:33:06 **Flow Volume (visual):** moderate

Notes:

Odour Detected?:	No	**Notes:**	
Unusual Colour?	No	**Notes:**	
Unusual Observations?	No	**Notes:**	
Sheen on Water?	No	**Notes:**	

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Dissolved and total haxavalent and trivalent chromium.
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**VOC/VPH**	N/A	**QA Samples:** No Dissolved and total haxavalent and trivalent chromium.
Nutrients	Yes	**EPH, PAH, LEPH/HEPH**	N/A	
DOC	Yes	**Trout LC50**	N/A	

Logger Maintenance

Logger Maintenance Performed?	No	**Photo of COC with Lab Signature?**	Yes

Describe Logger Maintenance

Photos

Photo: 1

Location: SQU US1

Description: US View

Photo: 2

Location: SQU US1

Description: DS View

2024-2-26-Blanchard-46771

Photos

Photo: 3

Location: SQU US1

Description: Across View

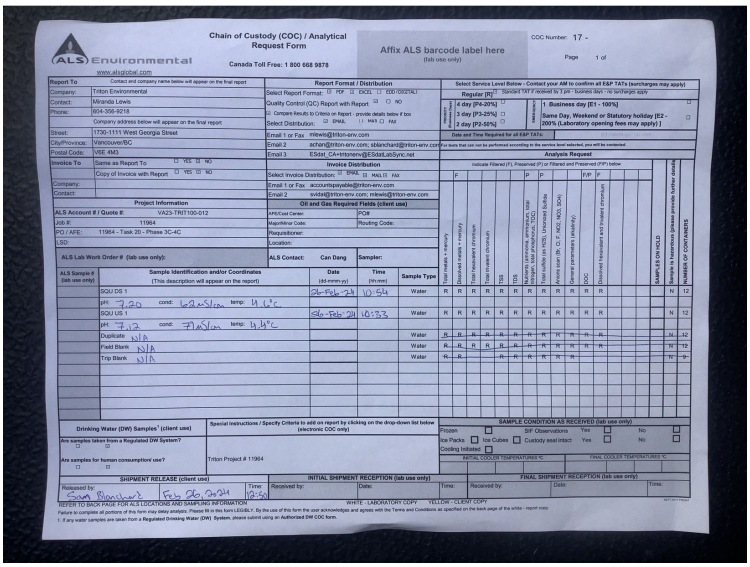


Photo: 4

Location: SQU US1

Description: Lab COC

Sign Off

Report Prepared By:	Sam Blanchard	**Report Reviewed:**	Yes
Report Reviewer:	Miranda Lewis	**Professional(s) of Record:**	N/A
Name:			
Designation:			
Designation Number:			