



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

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Eagle Mountain - Woodfibre Gas Pipeline Project

BCER Waste Discharge Permit Weekly Report



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Appendix A: BC Rail Point of Discharge from Water Treatment System Documentation

Appendix B: BC Rail Receiving Environment Documentation

Appendix C: Woodfibre Point of Discharge from Water Treatment System Documentation

Appendix D: Woodfibre Receiving Environment Documentation

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Preamble

This weekly report for the British Columbia Energy Regulator (BCER) Waste Discharge Permit (BCER number PE-110163) for the FortisBC Eagle Mountain – Woodfibre Gas Pipeline (EGP) Project includes the results of water quality monitoring and sampling of the receiving environment (upstream and downstream) and point of discharge.

FortisBC has retained Triton Environmental Consultants Ltd. as the Qualified Professional to implement and oversee the monitoring and sampling program in the receiving environments. The data represented below, including laboratory reported exceedances, represent background conditions from the receiving environment sampling as shown on the Waste Discharge Permit.

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 Permit PE-110163 Section 4.2:

The Permittee 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 permit. 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 data 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 the subject permit, 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 Permit.

At the receiving environments, real time and daily readings are being monitored at the same time with one piece of equipment, allowing all the daily readings real time. Visible sheen will be monitored with visual inspections during times of discharge or sampling.

At the point of discharge from the WTP, the parameters are being monitored using field equipment 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.


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Table 1. Monitor Details for the Point of Discharge from the Water Treatment System-BC Rail and Woodfibre

Permit Frequency	Parameters	Details
Daily	Visible Sheen	Monitoring using 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 GF Dryloc pH Series NPT
	Temperature	Monitoring using YSI ProDSS
	NTU	Monitoring using Observer NEP9504GPI
	Electrical Conductivity	Monitoring using YSI ProDSS
Weekly (or per batch) Lab Samples	List prescribed in permit	Lab samples

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.

Table 2. Monitor Details for the Receiving Environment (upstream and downstream)-BC Rail and Woodfibre

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.

Summary-BC Rail Site

Site Activities

- No discharges occurred during this time period.

Point of Discharge from Water Treatment System Monitoring

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


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Table 3: Discharge from Water Treatment System Information

Location	Date of Discharge	Date of Lab Sample (for the discharge)	Real Time Monitored	Field Samples Taken	Discharge Rate (batch)	Discharge Volume (batch)	Results
BC Rail	No discharges during this time period						

Exceedance details

- No discharges during this reporting period.

Receiving Environment Monitoring

The receiving environment is being monitored as outlined in the permit.

Table 4: Upstream Monitoring Information

Location	Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
Squamish River Upstream	2024-04-24	Yes *	Yes	Full set of lab sample results, photo and documentation are provided in Appendix B.

Table 5: Downstream Monitoring Information

	Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
Squamish River Downstream	2023-04-24	Yes *	Yes	Full set of lab sample results, photo and documentation are provided in Appendix B.

* 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 conducted for days of discharge.
- All receiving environment lab results are in Appendix B.
- Any 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.



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Summary-Woodfibre

Site Activities

- No discharges during this reporting period. Water Treatment Plant still in the process of being constructed.

Point of Discharge from Water Treatment System Monitoring

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

Table 3: Discharge from Water Treatment System Information

Location	Date of Discharge	Date of Lab Sample (for the discharge)	Real Time Monitored	Field Samples Taken	Discharge Rate (batch)	Discharge Volume (batch)	Results
Woodfibre	No discharges this reporting period						

Exceedance details

- No discharges during this reporting period.

Receiving Environment Monitoring

The receiving environment is being monitored as outlined in the permit.


Table 4: Upstream Monitoring Information

Location	Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
Woodfibre Upstream	2024-04-22	Yes *	No	Field documentation in Appendix D

Table 5: Downstream Monitoring Information

	Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
Woodfibre Downstream	2024-04-22	Yes *	No	Field documentation in Appendix D

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

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Receiving Environment Monitoring Details

- Visual sheen checks are conducted during discharges.
- Any 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.



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Appendix A: BCR Site Point of Discharge from Water Treatment Plant Documentation



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BCR Site Batch Sample Analysis



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BCR Site Batch Sample Lab Documentation



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BCR Site WTP Discharge Field Notes and Logs



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Appendix B: BCR Site Receiving Environment Documentation



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BCR Site Receiving Environment Sample Analysis



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BCR Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order : **VA24A8834**
Client : **Triton Environmental Consultants Ltd.**
Contact :
Address :

Telephone :
Project : 11964
PO : 11964 - Task 20 - Phase 3C-4C
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : VA23-TRIT100-003
No. of samples received : 2
No. of samples analysed : 2

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Laboratory : ALS Environmental - Vancouver
Account Manager :
Address :

Telephone :
Date Samples Received : 24-Apr-2024 13:45
Date Analysis Commenced : 25-Apr-2024
Issue Date : 01-May-2024 16:12

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
	Lab Assistant	Metals, Burnaby, British Columbia
	Production/Validation Manager	Administration, Burnaby, British Columbia
	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
	Team Leader - Metals	Metals, Burnaby, British Columbia
	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).

<i>Unit</i>	<i>Description</i>
-	no units
°C	degrees celsius
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.



Analytical Results

Sub-Matrix: Water					Client sample ID	SQU US 1	SQU DS 1	---	---	---
(Matrix: Water)					Client sampling date / time	24-Apr-2024 10:28	24-Apr-2024 10:59	---	---	---
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8834-001	VA24A8834-002	-----	-----	-----	
					Result	Result	---	---	---	
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm	70.000	68.000	---	---	---	
pH, field	----	EF001/VA	0.10	pH units	7.20	7.22	---	---	---	
Temperature, field	----	EF001/VA	0.10	°C	7.40	7.60	---	---	---	
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	19.3	18.4	---	---	---	
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	20.0	19.0	---	---	---	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	51	41	---	---	---	
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	---	---	---	
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	17.5	16.7	---	---	---	
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.232	0.114	---	---	---	
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	2.28	2.29	---	---	---	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	---	---	---	
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	0.0432	0.0411	---	---	---	
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	0.0035	0.0016	---	---	---	
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.344	0.210	---	---	---	
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0396	0.0228	---	---	---	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	5.71	5.45	---	---	---	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	1.24	1.30	---	---	---	
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	<0.011	<0.011	---	---	---	
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L	<0.0049	<0.0049	---	---	---	
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	<0.010	<0.010	---	---	---	
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0586	0.0793	---	---	---	
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	---	---	---	



Analytical Results

Sub-Matrix: Water					Client sample ID	SQU US 1	SQU DS 1	----	----	----
(Matrix: Water)					Client sampling date / time	24-Apr-2024 10:28	24-Apr-2024 10:59	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8834-001	VA24A8834-002	-----	-----	-----	
					Result	Result	----	----	----	
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00018	0.00021	----	----	----	
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00800	0.00827	----	----	----	
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	----	----	----	
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	<0.010	<0.010	----	----	----	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000088	0.0000092	----	----	----	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	6.78	6.44	----	----	----	
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000024	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	0.00068	0.00071	----	----	----	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.127	0.169	----	----	----	
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	<0.0010	0.0012	----	----	----	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	0.753	0.720	----	----	----	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00662	0.00777	----	----	----	
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	0.000640	0.000620	----	----	----	
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	<0.050	----	----	----	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.666	0.656	----	----	----	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00109	0.00104	----	----	----	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	<0.000050	----	----	----	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	5.17	4.62	----	----	----	
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	2.52	2.41	----	----	----	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0441	0.0426	----	----	----	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	1.47	1.41	----	----	----	
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	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	SQU US 1	SQU DS 1	----	----	----
(Matrix: Water)					Client sampling date / time	24-Apr-2024 10:28	24-Apr-2024 10:59	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8834-001	VA24A8834-002	-----	-----	-----	
					Result	Result	----	----	----	
Total Metals										
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	0.00129	0.00290	----	----	----	
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	0.000031	0.000037	----	----	----	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00156	0.00140	----	----	----	
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	0.0242	0.0249	----	----	----	
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	0.00014	0.00015	----	----	----	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00730	0.00722	----	----	----	
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	<0.010	<0.010	----	----	----	
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000063	<0.0000050	----	----	----	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	6.57	6.26	----	----	----	
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000021	0.000019	----	----	----	
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	0.00053	0.00052	----	----	----	
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.066	0.071	----	----	----	
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	<0.0010	0.0011	----	----	----	
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	0.707	0.673	----	----	----	
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00535	0.00597	----	----	----	
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	0.000618	0.000587	----	----	----	
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	SQU US 1	SQU DS 1	----	----	----
(Matrix: Water)					Client sampling date / time	24-Apr-2024 10:28	24-Apr-2024 10:59	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8834-001	VA24A8834-002	-----	-----	-----	
					Result	Result	----	----	----	
Dissolved Metals										
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	0.642	0.617	----	----	----	
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00090	0.00094	----	----	----	
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	4.75	4.44	----	----	----	
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	2.40	2.31	----	----	----	
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0429	0.0408	----	----	----	
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	1.38	1.40	----	----	----	
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	<0.00030	<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	0.000026	0.000033	----	----	----	
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00134	0.00108	----	----	----	
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0010	<0.0010	----	----	----	
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], total	18540-29-9	E532/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----	
Chromium, trivalent [Cr III], total	16065-83-1	EC535/VA	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.

QUALITY CONTROL INTERPRETIVE REPORT

<p>Work Order : VA24A8834</p> <p>Client : Triton Environmental Consultants Ltd.</p> <p>Contact : [Redacted]</p> <p>Address : [Redacted]</p> <p>Telephone : [Redacted]</p> <p>Project : 11964</p> <p>PO : 11964 - Task 20 - Phase 3C-4C</p> <p>C-O-C number : ----</p> <p>Sampler : ----</p> <p>Site : ----</p> <p>Quote number : VA23-TRIT100-003</p> <p>No. of samples received : 2</p> <p>No. of samples analysed : 2</p>	<p>Page : 1 of 15</p> <p>Laboratory : ALS Environmental - Vancouver</p> <p>Account Manager : [Redacted]</p> <p>Address : [Redacted]</p> <p>Telephone : [Redacted]</p> <p>Date Samples Received : 24-Apr-2024 13:45</p> <p>Issue Date : 01-May-2024 16:13</p>
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This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	Anonymous	Anonymous	Silver, dissolved	7440-22-4	E421	61.4 % ^{MES}	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

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



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) SQU DS 1	E298	24-Apr-2024	28-Apr-2024	28 days	4 days	✔	29-Apr-2024	28 days	6 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) SQU US 1	E298	24-Apr-2024	28-Apr-2024	28 days	4 days	✔	29-Apr-2024	28 days	6 days	✔	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE SQU DS 1	E235.Br-L	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE SQU US 1	E235.Br-L	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Chloride in Water by IC											
HDPE SQU DS 1	E235.Cl	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Chloride in Water by IC											
HDPE SQU US 1	E235.Cl	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Fluoride in Water by IC											
HDPE SQU DS 1	E235.F	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-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		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Fluoride in Water by IC											
HDPE SQU US 1	E235.F	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE SQU DS 1	E235.NO3-L	24-Apr-2024	27-Apr-2024	3 days	3 days	✔	27-Apr-2024	3 days	3 days	✔	
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE SQU US 1	E235.NO3-L	24-Apr-2024	27-Apr-2024	3 days	3 days	✔	27-Apr-2024	3 days	3 days	✔	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SQU DS 1	E235.NO2-L	24-Apr-2024	27-Apr-2024	3 days	3 days	✔	27-Apr-2024	3 days	3 days	✔	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE SQU US 1	E235.NO2-L	24-Apr-2024	27-Apr-2024	3 days	3 days	✔	27-Apr-2024	3 days	3 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE SQU DS 1	E235.SO4	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE SQU US 1	E235.SO4	24-Apr-2024	27-Apr-2024	28 days	3 days	✔	27-Apr-2024	28 days	3 days	✔	
Anions and Nutrients : Total Nitrogen by Colourimetry											
Amber glass total (sulfuric acid) SQU DS 1	E366	24-Apr-2024	28-Apr-2024	28 days	4 days	✔	01-May-2024	28 days	7 days	✔	
Anions and Nutrients : Total Nitrogen by Colourimetry											
Amber glass total (sulfuric acid) SQU US 1	E366	24-Apr-2024	28-Apr-2024	28 days	4 days	✔	01-May-2024	28 days	7 days	✔	



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SQU DS 1	E372-U	24-Apr-2024	28-Apr-2024	28 days	4 days	✓	30-Apr-2024	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SQU US 1	E372-U	24-Apr-2024	28-Apr-2024	28 days	4 days	✓	30-Apr-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) SQU DS 1	E509	24-Apr-2024	25-Apr-2024	28 days	1 days	✓	25-Apr-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) SQU US 1	E509	24-Apr-2024	25-Apr-2024	28 days	1 days	✓	25-Apr-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SQU DS 1	E421	24-Apr-2024	25-Apr-2024	180 days	1 days	✓	26-Apr-2024	180 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SQU US 1	E421	24-Apr-2024	25-Apr-2024	180 days	1 days	✓	26-Apr-2024	180 days	2 days	✓
Field Tests : Field pH,EC,Salinity,Cl2,CIO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) SQU DS 1	EF001	24-Apr-2024	----	----	----		30-Apr-2024	----	6 days	
Field Tests : Field pH,EC,Salinity,Cl2,CIO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) SQU US 1	EF001	24-Apr-2024	----	----	----		30-Apr-2024	----	6 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) SQU DS 1	E358-L	24-Apr-2024	28-Apr-2024	28 days	4 days	✓	28-Apr-2024	28 days	4 days	✓



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) SQU US 1	E358-L	24-Apr-2024	28-Apr-2024	28 days	4 days	✓	28-Apr-2024	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU DS 1	E290	24-Apr-2024	27-Apr-2024	14 days	3 days	✓	27-Apr-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU US 1	E290	24-Apr-2024	27-Apr-2024	14 days	3 days	✓	27-Apr-2024	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU DS 1	E162	24-Apr-2024	----	----	----		30-Apr-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU US 1	E162	24-Apr-2024	----	----	----		30-Apr-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SQU DS 1	E160	24-Apr-2024	----	----	----		30-Apr-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SQU US 1	E160	24-Apr-2024	----	----	----		30-Apr-2024	7 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide) SQU DS 1	E532	24-Apr-2024	----	----	----		26-Apr-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide) SQU US 1	E532	24-Apr-2024	----	----	----		26-Apr-2024	28 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		
Total Metals : Total Mercury in Water by CVAAS											
Glass vial - total (lab preserved) SQU DS 1	E508	24-Apr-2024	26-Apr-2024	28 days	2 days	✔	26-Apr-2024	28 days	2 days	✔	
Total Metals : Total Mercury in Water by CVAAS											
Glass vial - total (lab preserved) SQU US 1	E508	24-Apr-2024	26-Apr-2024	28 days	2 days	✔	26-Apr-2024	28 days	2 days	✔	
Total Metals : Total Metals in Water by CRC ICPMS											
HDPE - total (lab preserved) SQU DS 1	E420	24-Apr-2024	25-Apr-2024	180 days	1 days	✔	26-Apr-2024	180 days	2 days	✔	
Total Metals : Total Metals in Water by CRC ICPMS											
HDPE - total (lab preserved) SQU US 1	E420	24-Apr-2024	25-Apr-2024	180 days	1 days	✔	26-Apr-2024	180 days	2 days	✔	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)											
HDPE total (zinc acetate+sodium hydroxide) SQU DS 1	E395-H	24-Apr-2024	----	----	----		01-May-2024	7 days	7 days	✔	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)											
HDPE total (zinc acetate+sodium hydroxide) SQU US 1	E395-H	24-Apr-2024	----	----	----		01-May-2024	7 days	7 days	✔	

[Legend & Qualifier Definitions](#)

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



Quality Control Parameter Frequency Compliance

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

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

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1419227	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1420018	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1419232	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	1419231	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1417503	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1415601	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1420019	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1419230	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1419228	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1419229	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1419233	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1422672	1	6	16.6	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1417743	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1419003	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1415418	1	18	5.5	5.0	✓
Total Nitrogen by Colourimetry	E366	1420021	1	8	12.5	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1420017	1	17	5.8	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1423598	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1422657	1	6	16.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1419227	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1420018	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1419232	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	1419231	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1417503	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1415601	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1420019	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1419230	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1419228	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1419229	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1419233	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1422672	1	6	16.6	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1417743	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1419003	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1415418	1	18	5.5	5.0	✓
Total Nitrogen by Colourimetry	E366	1420021	1	8	12.5	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1420017	1	17	5.8	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1423598	1	11	9.0	5.0	✔
TSS by Gravimetry	E160	1422657	1	6	16.6	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1419227	1	17	5.8	5.0	✔
Ammonia by Fluorescence	E298	1420018	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1419232	1	16	6.2	5.0	✔
Chloride in Water by IC	E235.Cl	1419231	1	18	5.5	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1417503	1	14	7.1	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1415601	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1420019	1	18	5.5	5.0	✔
Fluoride in Water by IC	E235.F	1419230	1	17	5.8	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1419228	1	18	5.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1419229	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1419233	1	18	5.5	5.0	✔
TDS by Gravimetry	E162	1422672	1	6	16.6	5.0	✔
Total Hexavalent Chromium (Cr VI) by IC	E532	1417743	1	7	14.2	5.0	✔
Total Mercury in Water by CVAAS	E508	1419003	1	20	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1415418	1	18	5.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1420021	1	8	12.5	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1420017	1	17	5.8	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1423598	1	11	9.0	5.0	✔
TSS by Gravimetry	E160	1422657	1	6	16.6	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1420018	1	19	5.2	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1419232	1	16	6.2	5.0	✔
Chloride in Water by IC	E235.Cl	1419231	1	18	5.5	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1417503	1	14	7.1	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1415601	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1420019	1	18	5.5	5.0	✔
Fluoride in Water by IC	E235.F	1419230	1	17	5.8	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1419228	1	18	5.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1419229	1	20	5.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1419233	1	18	5.5	5.0	✔
Total Hexavalent Chromium (Cr VI) by IC	E532	1417743	1	7	14.2	5.0	✔
Total Mercury in Water by CVAAS	E508	1419003	1	20	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1415418	1	18	5.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1420021	1	8	12.5	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1420017	1	17	5.8	5.0	✔



Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1423598	1	11	9.0	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
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 $104 \pm 1^\circ\text{C}$, 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 $180 \pm 2^\circ\text{C}$ 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)
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 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-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ ⁻) and reports it as Total Sulphide as (H ₂ S)
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
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.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Vancouver	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 Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ 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 CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ 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 - Vancouver	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.
Field pH,EC,Salinity,Cl ₂ ,ClO ₂ ,ORP,DO, Turbidity,T,T-P,o-PO ₄ ,NH ₃ ,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity,Cl ₂ ,ClO ₂ ,ORP,DO, Turbidity,T,T-P,o-PO ₄ ,NH ₃ or Chloramine measurements provided by client and recorded on ALS report may affect the validity of 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 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.



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
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 : **VA24A8834**
Client : Triton Environmental Consultants Ltd.
Contact :
Address :

Telephone :
Project : 11964
PO : 11964 - Task 20 - Phase 3C-4C
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : VA23-TRIT100-003
No. of samples received : 2
No. of samples analysed : 2

Page : 1 of 17
Laboratory : ALS Environmental - Vancouver
Account Manager :
Address :

Telephone :
Date Samples Received : 24-Apr-2024 13:45
Date Analysis Commenced : 25-Apr-2024
Issue Date : 01-May-2024 16:13

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
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Production/Validation Manager	Vancouver Administration, Burnaby, British Columbia
	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 17
Work Order : VA24A8834
Client : Triton Environmental Consultants Ltd.
Project : 11964



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: 1419227)											
VA24A8977-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	126	128	1.03%	20%	----
Physical Tests (QC Lot: 1422657)											
VA24A8827-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1422672)											
VA24A8827-001	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	43	43	0.5	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1419228)											
VA24A8834-001	SQU US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0432	0.0469	0.0036	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1419229)											
VA24A8834-001	SQU US 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0035	0.0032	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1419230)											
VA24A8834-001	SQU US 1	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1419231)											
VA24A8834-001	SQU US 1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	2.28	2.32	0.04	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1419232)											
VA24A8834-001	SQU US 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: 1419233)											
VA24A8834-001	SQU US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.71	5.74	0.489%	20%	----
Anions and Nutrients (QC Lot: 1420017)											
VA24A8823-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0400	mg/L	3.61	3.55	1.63%	20%	----
Anions and Nutrients (QC Lot: 1420018)											
VA24A8819-006	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.321	0.330	2.70%	20%	----
Anions and Nutrients (QC Lot: 1420021)											
KS2401418-001	Anonymous	Nitrogen, total	7727-37-9	E366	1.50	mg/L	51.0	48.1	5.88%	20%	----
Organic / Inorganic Carbon (QC Lot: 1420019)											
VA24A8819-006	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.89	0.91	0.01	Diff <2x LOR	----
Total Sulfides (QC Lot: 1423598)											
VA24A8834-001	SQU US 1	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 1415418)											
VA24A8829-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.102	0.0997	2.06%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	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
Total Metals (QC Lot: 1415418) - continued											
VA24A8829-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00027	0.00025	0.00002	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0238	0.0243	2.28%	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	<0.010	<0.010	0	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	12.1	12.3	1.56%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.000050	mg/L	<0.000050	0.00067	0.00017	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	0.0244	0.0246	0.498%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.072	0.077	0.005	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	2.60	2.51	3.53%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00075	0.00076	0.00001	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00227	0.00235	3.49%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00053	0.00053	0.000003	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	0.953	0.950	0.328%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00062	0.00066	0.00003	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	9.93	10.0	0.984%	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	2.37	2.35	0.712%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0583	0.0592	1.62%	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	0.00374	0.00331	12.2%	20%	----
		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	0.000201	0.000199	1.12%	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
Total Metals (QC Lot: 1415418) - continued											
VA24A8829-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00191	0.00198	0.00008	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	0.00075	0.00073	0.00001	Diff <2x LOR	----
Total Metals (QC Lot: 1419003)											
VA24A8829-008	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1415601)											
VA24A8829-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0496	0.0511	3.05%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00022	0.00023	0.0000008	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0231	0.0232	0.540%	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	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	11.9	11.8	0.607%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	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	0.0225	0.0224	0.109%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.038	0.037	0.0002	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	2.41	2.48	2.87%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00046	0.00045	0.00001	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00216	0.00215	0.295%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.934	0.948	1.49%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00068	0.00060	0.00009	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000057	<0.000050	0.000007	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	9.42	9.41	0.0897%	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	2.39	2.35	1.62%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0572	0.0562	1.73%	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: 1415601) - continued											
VA24A8829-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	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	0.00188	0.00207	0.00019	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	0.000194	0.000182	6.21%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00173	0.00175	0.00002	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	0.00074	0.00083	0.00009	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1417503)											
VA24A8829-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1417743)											
VA24A8834-001	SQU US 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	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: 1419227)						
Alkalinity, total (as CaCO3)	---	E290	1	mg/L	<1.0	---
Physical Tests (QCLot: 1422657)						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
Physical Tests (QCLot: 1422672)						
Solids, total dissolved [TDS]	---	E162	10	mg/L	<10	---
Anions and Nutrients (QCLot: 1419228)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	---
Anions and Nutrients (QCLot: 1419229)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	---
Anions and Nutrients (QCLot: 1419230)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 1419231)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
Anions and Nutrients (QCLot: 1419232)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	---
Anions and Nutrients (QCLot: 1419233)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
Anions and Nutrients (QCLot: 1420017)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	---
Anions and Nutrients (QCLot: 1420018)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	---
Anions and Nutrients (QCLot: 1420021)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	---
Organic / Inorganic Carbon (QCLot: 1420019)						
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	<0.50	---
Total Sulfides (QCLot: 1423598)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	---
Total Metals (QCLot: 1415418)						
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	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1415418) - continued						
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	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1419003)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1415601)						
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	----
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	----



Sub-Matrix: **Water**

<i>Analyte</i>	<i>CAS Number</i>	<i>Method</i>	<i>LOR</i>	<i>Unit</i>	<i>Result</i>	<i>Qualifier</i>
Dissolved Metals (QCLot: 1415601) - continued						
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: 1417503)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1417743)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	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	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1419227)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 1422657)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	85.2	85.0	115	----
Physical Tests (QCLot: 1422672)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.0	85.0	115	----
Anions and Nutrients (QCLot: 1419228)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1419229)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 1419230)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.2	90.0	110	----
Anions and Nutrients (QCLot: 1419231)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1419232)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 1419233)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1420017)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 1420018)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	109	85.0	115	----
Anions and Nutrients (QCLot: 1420021)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	101	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1420019)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.4	80.0	120	----
Total Sulfides (QCLot: 1423598)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	101	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	101	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1415418)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	109	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	111	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	117	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	109	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	103	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	110	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	108	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	109	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	116	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	111	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	116	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	112	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	109	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	108	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	110	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	104	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	109	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	107	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	117	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	112	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	110	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	107	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	105	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1415418) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	111	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	112	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Total Metals (QCLot: 1419003)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	105	80.0	120	----
Dissolved Metals (QCLot: 1415601)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.0	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	102	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	96.8	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	96.0	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	96.9	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.2	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	95.9	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.3	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.6	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	96.1	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	101	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	94.7	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	97.8	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.3	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	99.8	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	95.1	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	95.3	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.0	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	83.4	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1415601) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	94.9	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.6	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.2	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.0	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	97.5	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	99.9	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	99.9	80.0	120	----
Speciated Metals (QCLot: 1417743)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	101	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: 1419228)										
VA24A8834-002	SQU DS 1	Nitrate (as N)	14797-55-8	E235.NO3-L	2.63 mg/L	2.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1419229)										
VA24A8834-002	SQU DS 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.522 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1419230)										
VA24A8834-002	SQU DS 1	Fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1419231)										
VA24A8834-002	SQU DS 1	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1419232)										
VA24A8834-002	SQU DS 1	Bromide	24959-67-9	E235.Br-L	0.552 mg/L	0.5 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 1419233)										
VA24A8834-002	SQU DS 1	Sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1420017)										
VA24A8833-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0526 mg/L	0.05 mg/L	105	70.0	130	----
Anions and Nutrients (QCLot: 1420018)										
VA24A8832-006	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1420021)										
VA24A8833-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.384 mg/L	0.4 mg/L	96.0	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1420019)										
VA24A8832-006	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.85 mg/L	5 mg/L	97.0	70.0	130	----
Total Sulfides (QCLot: 1423598)										
VA24A8834-002	SQU DS 1	Sulfide, total (as S)	18496-25-8	E395-H	0.899 mg/L	1 mg/L	89.9	75.0	125	----
Total Metals (QCLot: 1415418)										
VA24A8829-002	Anonymous	Aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	95.1	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0389 mg/L	0.04 mg/L	97.4	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00923 mg/L	0.01 mg/L	92.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00998 mg/L	0.01 mg/L	99.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0381 mg/L	0.04 mg/L	95.3	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: 1415418) - continued										
VA24A8829-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Iron, total	7439-89-6	E420	1.94 mg/L	2 mg/L	96.9	70.0	130	----
		Lead, total	7439-92-1	E420	0.0187 mg/L	0.02 mg/L	93.3	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0970 mg/L	0.1 mg/L	97.0	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00387 mg/L	0.004 mg/L	96.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00372 mg/L	0.004 mg/L	93.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0161 mg/L	0.02 mg/L	80.7	70.0	130	----
		Tin, total	7440-31-5	E420	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, total	7440-66-6	E420	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
Total Metals (QCLot: 1419003)										
VA24A8830-001	Anonymous	Mercury, total	7439-97-6	E508	0.000103 mg/L	0 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 1415601)										
VA24A8829-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.183 mg/L	0.2 mg/L	91.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0368 mg/L	0.04 mg/L	91.9	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00845 mg/L	0.01 mg/L	84.5	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.092 mg/L	0.1 mg/L	91.9	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00360 mg/L	0.004 mg/L	89.9	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00935 mg/L	0.01 mg/L	93.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0351 mg/L	0.04 mg/L	87.7	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0176 mg/L	0.02 mg/L	88.3	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: 1415601) - continued										
VA24A8829-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0166 mg/L	0.02 mg/L	83.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.76 mg/L	2 mg/L	88.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0172 mg/L	0.02 mg/L	86.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0906 mg/L	0.1 mg/L	90.6	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0175 mg/L	0.02 mg/L	87.6	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	ND mg/L	----	ND	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0344 mg/L	0.04 mg/L	86.1	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.58 mg/L	10 mg/L	95.8	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0176 mg/L	0.02 mg/L	88.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0370 mg/L	0.04 mg/L	92.4	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00245 mg/L	0.004 mg/L	61.4	70.0	130	MES
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00347 mg/L	0.004 mg/L	86.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0144 mg/L	0.02 mg/L	72.3	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0184 mg/L	0.02 mg/L	92.1	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0177 mg/L	0.02 mg/L	88.6	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00352 mg/L	0.004 mg/L	88.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0905 mg/L	0.1 mg/L	90.5	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.363 mg/L	0.4 mg/L	90.7	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
Dissolved Metals (QCLot: 1417503)										
VA24A8829-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000995 mg/L	0 mg/L	99.5	70.0	130	----
Speciated Metals (QCLot: 1417743)										
VA24A8834-002	SQU DS 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.255 mg/L	0.25 mg/L	102	70.0	130	----

Qualifiers

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



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix B	B-4

BCR Site Receiving Environment Field Notes and Logs



FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-4-24-Blanchard-4E558

Project Component:	Tunnel	Site Name:	Receiving Environment - Downstream of Discharge	
Inspection Date:	04/24/2024	Location:	BC Rail Site	
Triton QP:	Sam Blanchard	Latitude/Longitude:	49.725282	-123.165175
Temperature(c):	Low 6	High 10	Permit:	AE 111824
Weather Conditions:	Light Rain		Ground Conditions:	Damp

Observations

Time: 10:59:00 **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 Metals + Mercury	Yes	Total Sulfide, Unionized Sulfide	Yes		Total CrVI.
TSS	Yes	Anions	Yes		
TDS	Yes	VOC/VPH	N/A	QA Samples:	No
Nutrients	Yes	EPH, PAH, LEPH/HEPH	N/A		Total CrVI.
DOC	Yes	Trout LC50	N/A		

Logger Maintenance

Logger Maintenance Performed?	Yes	Photo of COC with Lab Signature?	Yes
--------------------------------------	-----	---	-----

Describe Logger Maintenance

Wiped sensors and scrubbed logger casing.

Photos



Photo: 1
Location: SQU DS1
Description: US View

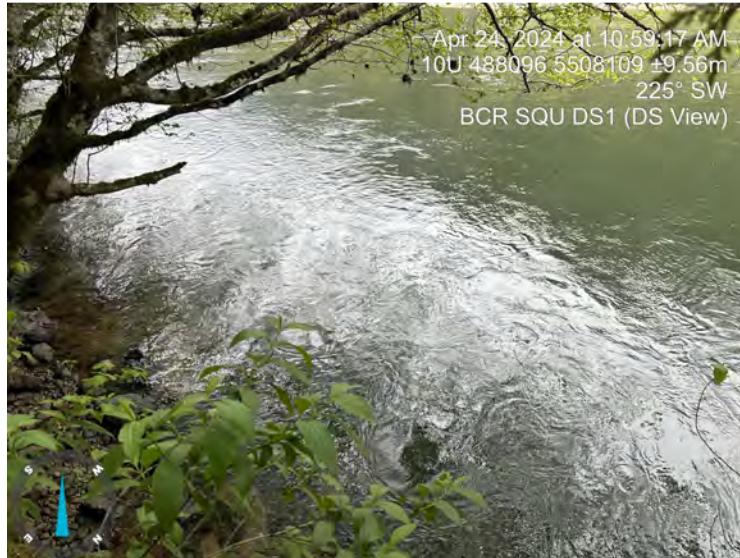


Photo: 2
Location: SQU DS1
Description: DS View

Photos



Photo: 3
Location: SQU DS1
Description: Across View

Sample ID	Sample Description	Date	Time	Sample Type
SQU DS1	Water - 10.0 L, 278° W	4/24/2024	10:59 AM	Water
SQU DS2	Water - 10.0 L, 278° W	4/24/2024	10:59 AM	Water

Photo: 4
Location: SQU DS1
Description: Lab COC



2024-4-24-Blanchard-4E558

Sign Off

Report Prepared By: Sam Blanchard

Report Reviewed:

Report Reviewer:

Professional(s) of Record:

Name:

Designation:

Designation Number:



FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-4-24-Blanchard-4950B

Project Component:	Tunnel	Site Name:	Receiving Environment - Upstream of Discharge
Inspection Date:	04/24/2024	Location:	BC Rail Site
Triton QP:	Sam Blanchard	Latitude/Longitude:	49.726866 -123.163912
Temperature(c):	Low 6 High 10	Permit:	AE 111824
Weather Conditions:	Light Rain	Ground Conditions:	Damp

Observations

Time: 10:28:00 **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 Metals + Mercury	Yes	Total Sulfide, Unionized Sulfide	Yes	Total CrVI.
TSS	Yes	Anions	Yes	
TDS	Yes	VOC/VPH	N/A	QA Samples: No
Nutrients	Yes	EPH, PAH, LEPH/HEPH	N/A	Total CrVI.
DOC	Yes	Trout LC50	N/A	

Logger Maintenance

Logger Maintenance Performed?	Yes	Photo of COC with Lab Signature?	Yes
--------------------------------------	-----	---	-----

Describe Logger Maintenance

Wiped sensors and scrubbed inside logger casing.

Photos



Photo: 1
Location: SQU US1
Description: US View



Photo: 2
Location: SQU US1
Description: DS View

Photos



Photo: 3
Location: SQU US1
Description: Across View

ALS Sample # (Sub use only)	Sample Identification and/or Coordinates (This description will appear on the report)	ALS Contact	Col. Temp	Sample	Sample Type
SQU US1	10.0				Water
SQU US1	10.0				Water
SQU US1	10.0				Water

Photo: 4
Location: SQU US1
Description: Lab COC



2024-4-24-Blanchard-4950B

Sign Off

Report Prepared By: Sam Blanchard

Report Reviewed:


Report Reviewer:

Professional(s) of Record:

Name:

Designation:

Designation Number:

 Eagle Mountain - Woodfibre Gas Pipeline Project Waste Discharge Permit PE-110163 Report	Reporting Week	April 22 nd to April 28 th , 2024
	Report #	5
	Appendix C	C-1

Appendix C: Woodfibre Site Point of Discharge from Water Treatment Plant Documentation



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix C	C-2

Woodfibre Site Batch Sample Analysis



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix C	C-3

Woodfibre Site Batch Sample Lab Documentation



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix C	C-4

Woodfibre Site WTP Discharge Field Notes and Logs



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix D	D-1

Appendix D: Woodfibre Site Receiving Environment Documentation



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix D	D-2

Woodfibre Site Receiving Environment Sample Analysis



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix D	D-3

Woodfibre Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: VA24A8617	Page	: 1 of 6
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	[Redacted]	Account Manager	[Redacted]
Address	[Redacted]	Address	[Redacted]
Telephone	[Redacted]	Telephone	[Redacted]
Project	: 11964	Date Samples Received	: 22-Apr-2024 17:50
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 23-Apr-2024
C-O-C number	: ---	Issue Date	: 30-Apr-2024 15:44
Sampler	: ---		
Site	: ---		
Quote number	: VA23-TRIT100-003		
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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
[Redacted]	Lab Assistant	Metals, Burnaby, British Columbia
[Redacted]	Analyst	Metals, Burnaby, British Columbia
[Redacted]	Account Manager Assistant	Administration, Burnaby, British Columbia
[Redacted]	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
[Redacted]	Department Manager - Metals	Inorganics, Burnaby, British Columbia
[Redacted]		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).

<i>Unit</i>	<i>Description</i>
-	no units
°C	degrees celsius
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.

Qualifiers

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



Analytical Results

Sub-Matrix: Water					Client sample ID	WLNG DS 1	WLNG US 1	----	----	----
(Matrix: Water)					Client sampling date / time	22-Apr-2024 09:53	22-Apr-2024 09:03	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8617-001	VA24A8617-002	-----	-----	-----	
					Result	Result	----	----	----	
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm	59.000	19.000	----	----	----	
pH, field	----	EF001/VA	0.10	pH units	7.60	6.50	----	----	----	
Temperature, field	----	EF001/VA	0.10	°C	7.50	7.19	----	----	----	
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	22.7	5.23	----	----	----	
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	23.7	5.37	----	----	----	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	46	19	----	----	----	
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	----	----	----	
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	24.7	5.4	----	----	----	
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
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	0.57	0.53	----	----	----	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	----	----	----	
Nitrate (as N)	14797-55-8	E235.NO3-L/V A	0.0050	mg/L	0.0908	<0.0050	----	----	----	
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	<0.0010	<0.0010	----	----	----	
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.089	<0.030	----	----	----	
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0056	0.0029	----	----	----	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	2.65	1.67	----	----	----	
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	1.75	1.67	----	----	----	
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	<0.011	<0.011	----	----	----	
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L	<0.0049	<0.0049	----	----	----	
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	<0.010	<0.010	----	----	----	
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0619	0.0608	----	----	----	
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	WLNG DS 1	WLNG US 1	----	----	----
(Matrix: Water)					Client sampling date / time	22-Apr-2024 09:53	22-Apr-2024 09:03	---	---	---
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8617-001	VA24A8617-002	-----	-----	-----	
					Result	Result	---	---	---	
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	<0.00010	0.00011	---	---	---	
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00508	0.00226	---	---	---	
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	---	---	---	
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	<0.010	<0.010	---	---	---	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000092	0.0000056	---	---	---	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	8.66	1.81	---	---	---	
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	<0.000010	---	---	---	
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	0.00065	<0.00050	---	---	---	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.082	0.023	---	---	---	
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000072	<0.000050	---	---	---	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	<0.0010	<0.0010	---	---	---	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	0.505	0.206	---	---	---	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00452	0.00168	---	---	---	
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	0.000648	0.000351	---	---	---	
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	<0.050	---	---	---	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.279	0.134	---	---	---	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00047	0.00023	---	---	---	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	<0.000050	---	---	---	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	3.95	3.89	---	---	---	
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	1.50	1.30	---	---	---	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0270	0.0102	---	---	---	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	0.66	<0.50	---	---	---	
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	---	---	---	



Analytical Results

Sub-Matrix: Water					Client sample ID	WLNG DS 1	WLNG US 1	----	----	----
(Matrix: Water)					Client sampling date / time	22-Apr-2024 09:53	22-Apr-2024 09:03	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8617-001	VA24A8617-002	-----	-----	-----	
					Result	Result	----	----	----	
Total Metals										
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	<0.00090 ^{DLM}	0.00047	----	----	----	
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	0.000084	0.000079	----	----	----	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----	
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	0.0387	0.0538	----	----	----	
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	<0.00010	<0.00010	----	----	----	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00455	0.00211	----	----	----	
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	<0.010	<0.010	----	----	----	
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000061	0.0000068	----	----	----	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	8.33	1.78	----	----	----	
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	<0.000010	<0.000010	----	----	----	
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	0.00052	0.00042	----	----	----	
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.016	0.013	----	----	----	
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	<0.0010	<0.0010	----	----	----	
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	0.463	0.190	----	----	----	
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00232	0.00122	----	----	----	
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	0.000533	0.000351	----	----	----	
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----	



Analytical Results

Sub-Matrix: Water					Client sample ID	WLNG DS 1	WLNG US 1	----	----	----
(Matrix: Water)					Client sampling date / time	22-Apr-2024 09:53	22-Apr-2024 09:03	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA24A8617-001	VA24A8617-002	-----	-----	-----	
					Result	Result	----	----	----	
Dissolved Metals										
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	0.270	0.137	----	----	----	
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00041	0.00022	----	----	----	
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	3.75	3.81	----	----	----	
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	1.37	1.21	----	----	----	
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0262	0.00940	----	----	----	
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	<0.50	<0.50	----	----	----	
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	<0.00030	<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	0.000074	0.000068	----	----	----	
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----	
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0017	0.0015	----	----	----	
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], total	18540-29-9	E532/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----	
Chromium, trivalent [Cr III], total	16065-83-1	EC535/VA	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.

QUALITY CONTROL INTERPRETIVE REPORT

<p>Work Order : VA24A8617</p> <p>Client : Triton Environmental Consultants Ltd.</p> <p>Contact : [REDACTED]</p> <p>Address : [REDACTED]</p> <p>Telephone : [REDACTED]</p> <p>Project : 11964</p> <p>PO : 11964 - Task 20 - Phase 3C-4C</p> <p>C-O-C number : ----</p> <p>Sampler : ----</p> <p>Site : ----</p> <p>Quote number : VA23-TRIT100-003</p> <p>No. of samples received : 2</p> <p>No. of samples analysed : 2</p>	<p>Page : 1 of 15</p> <p>Laboratory : ALS Environmental - Vancouver</p> <p>Account Manager : [REDACTED]</p> <p>Address : [REDACTED]</p> <p>Telephone : [REDACTED]</p> <p>Date Samples Received : 22-Apr-2024 17:50</p> <p>Issue Date : 30-Apr-2024 15:44</p>
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This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	Anonymous	Anonymous	Thorium, dissolved	7440-29-1	E421	61.9 % ^{MES}	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

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



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) WLNG DS 1	E298	22-Apr-2024	26-Apr-2024	28 days	4 days	✔	26-Apr-2024	28 days	5 days	✔	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid) WLNG US 1	E298	22-Apr-2024	26-Apr-2024	28 days	4 days	✔	26-Apr-2024	28 days	5 days	✔	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE WLNG DS 1	E235.Br-L	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE WLNG US 1	E235.Br-L	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Chloride in Water by IC											
HDPE WLNG DS 1	E235.Cl	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Chloride in Water by IC											
HDPE WLNG US 1	E235.Cl	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Fluoride in Water by IC											
HDPE WLNG DS 1	E235.F	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Anions and Nutrients : Fluoride in Water by IC											
HDPE WLNG US 1	E235.F	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE WLNG DS 1	E235.NO3-L	22-Apr-2024	23-Apr-2024	3 days	1 days	✔	23-Apr-2024	3 days	1 days	✔	
Anions and Nutrients : Nitrate in Water by IC (Low Level)											
HDPE WLNG US 1	E235.NO3-L	22-Apr-2024	23-Apr-2024	3 days	1 days	✔	23-Apr-2024	3 days	1 days	✔	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE WLNG DS 1	E235.NO2-L	22-Apr-2024	23-Apr-2024	3 days	1 days	✔	23-Apr-2024	3 days	1 days	✔	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE WLNG US 1	E235.NO2-L	22-Apr-2024	23-Apr-2024	3 days	1 days	✔	23-Apr-2024	3 days	1 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE WLNG DS 1	E235.SO4	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Sulfate in Water by IC											
HDPE WLNG US 1	E235.SO4	22-Apr-2024	23-Apr-2024	28 days	1 days	✔	23-Apr-2024	28 days	1 days	✔	
Anions and Nutrients : Total Nitrogen by Colourimetry											
Amber glass total (sulfuric acid) WLNG DS 1	E366	22-Apr-2024	26-Apr-2024	28 days	4 days	✔	29-Apr-2024	28 days	7 days	✔	
Anions and Nutrients : Total Nitrogen by Colourimetry											
Amber glass total (sulfuric acid) WLNG US 1	E366	22-Apr-2024	26-Apr-2024	28 days	4 days	✔	29-Apr-2024	28 days	7 days	✔	



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) W LNG DS 1	E372-U	22-Apr-2024	26-Apr-2024	28 days	4 days	✓	29-Apr-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) W LNG US 1	E372-U	22-Apr-2024	26-Apr-2024	28 days	4 days	✓	29-Apr-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) W LNG DS 1	E509	22-Apr-2024	24-Apr-2024	28 days	2 days	✓	24-Apr-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) W LNG US 1	E509	22-Apr-2024	24-Apr-2024	28 days	2 days	✓	24-Apr-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) W LNG DS 1	E421	22-Apr-2024	23-Apr-2024	180 days	1 days	✓	24-Apr-2024	180 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) W LNG US 1	E421	22-Apr-2024	23-Apr-2024	180 days	1 days	✓	24-Apr-2024	180 days	2 days	✓
Field Tests : Field pH,EC,Salinity,Cl2,CIO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) W LNG DS 1	EF001	22-Apr-2024	----	----	----		24-Apr-2024	----	2 days	
Field Tests : Field pH,EC,Salinity,Cl2,CIO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) W LNG US 1	EF001	22-Apr-2024	----	----	----		24-Apr-2024	----	2 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W LNG DS 1	E358-L	22-Apr-2024	26-Apr-2024	28 days	4 days	✓	26-Apr-2024	28 days	4 days	✓



Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)											
Amber glass dissolved (sulfuric acid) WLNG US 1	E358-L	22-Apr-2024	26-Apr-2024	28 days	4 days	✓	26-Apr-2024	28 days	4 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE WLNG DS 1	E290	22-Apr-2024	23-Apr-2024	14 days	1 days	✓	23-Apr-2024	14 days	1 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE WLNG US 1	E290	22-Apr-2024	23-Apr-2024	14 days	1 days	✓	23-Apr-2024	14 days	1 days	✓	
Physical Tests : TDS by Gravimetry											
HDPE WLNG DS 1	E162	22-Apr-2024	----	----	----		29-Apr-2024	7 days	7 days	✓	
Physical Tests : TDS by Gravimetry											
HDPE WLNG US 1	E162	22-Apr-2024	----	----	----		29-Apr-2024	7 days	7 days	✓	
Physical Tests : TSS by Gravimetry											
HDPE WLNG DS 1	E160	22-Apr-2024	----	----	----		29-Apr-2024	7 days	7 days	✓	
Physical Tests : TSS by Gravimetry											
HDPE WLNG US 1	E160	22-Apr-2024	----	----	----		29-Apr-2024	7 days	7 days	✓	
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC											
UV-inhibited HDPE - total (sodium hydroxide) WLNG DS 1	E532	22-Apr-2024	----	----	----		26-Apr-2024	28 days	4 days	✓	
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC											
UV-inhibited HDPE - total (sodium hydroxide) WLNG US 1	E532	22-Apr-2024	----	----	----		26-Apr-2024	28 days	4 days	✓	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group : Analytical Method Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis				
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Total Metals : Total Mercury in Water by CVAAS											
Glass vial - total (lab preserved) WLNG DS 1	E508	22-Apr-2024	24-Apr-2024	28 days	2 days	✔	24-Apr-2024	28 days	2 days	✔	
Total Metals : Total Mercury in Water by CVAAS											
Glass vial - total (lab preserved) WLNG US 1	E508	22-Apr-2024	24-Apr-2024	28 days	2 days	✔	24-Apr-2024	28 days	2 days	✔	
Total Metals : Total Metals in Water by CRC ICPMS											
HDPE - total (lab preserved) WLNG DS 1	E420	22-Apr-2024	24-Apr-2024	180 days	2 days	✔	24-Apr-2024	180 days	2 days	✔	
Total Metals : Total Metals in Water by CRC ICPMS											
HDPE - total (lab preserved) WLNG US 1	E420	22-Apr-2024	24-Apr-2024	180 days	2 days	✔	24-Apr-2024	180 days	2 days	✔	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)											
HDPE total (zinc acetate+sodium hydroxide) WLNG DS 1	E395-H	22-Apr-2024	----	----	----		28-Apr-2024	7 days	6 days	✔	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)											
HDPE total (zinc acetate+sodium hydroxide) WLNG US 1	E395-H	22-Apr-2024	----	----	----		28-Apr-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	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1412347	1	7	14.2	5.0	✔
Ammonia by Fluorescence	E298	1418407	1	8	12.5	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1412342	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1412338	1	10	10.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1414499	2	22	9.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1413411	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1418408	1	6	16.6	5.0	✔
Fluoride in Water by IC	E235.F	1412341	1	9	11.1	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1412339	1	7	14.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1412340	1	9	11.1	5.0	✔
Sulfate in Water by IC	E235.SO4	1412335	1	13	7.6	5.0	✔
TDS by Gravimetry	E162	1421108	1	20	5.0	5.0	✔
Total Hexavalent Chromium (Cr VI) by IC	E532	1417739	1	15	6.6	5.0	✔
Total Mercury in Water by CVAAS	E508	1414045	1	14	7.1	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1413478	1	18	5.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1418404	1	12	8.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1418405	1	20	5.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1419993	1	20	5.0	5.0	✔
TSS by Gravimetry	E160	1421104	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1412347	1	7	14.2	5.0	✔
Ammonia by Fluorescence	E298	1418407	1	8	12.5	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1412342	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1412338	1	10	10.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1414499	2	22	9.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1413411	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1418408	1	6	16.6	5.0	✔
Fluoride in Water by IC	E235.F	1412341	1	9	11.1	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1412339	1	7	14.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1412340	1	9	11.1	5.0	✔
Sulfate in Water by IC	E235.SO4	1412335	1	13	7.6	5.0	✔
TDS by Gravimetry	E162	1421108	1	20	5.0	5.0	✔
Total Hexavalent Chromium (Cr VI) by IC	E532	1417739	1	15	6.6	5.0	✔
Total Mercury in Water by CVAAS	E508	1414045	1	14	7.1	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1413478	1	18	5.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1418404	1	12	8.3	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1418405	1	20	5.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1419993	1	20	5.0	5.0	✔
TSS by Gravimetry	E160	1421104	1	20	5.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1412347	1	7	14.2	5.0	✔
Ammonia by Fluorescence	E298	1418407	1	8	12.5	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1412342	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1412338	1	10	10.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1414499	2	22	9.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1413411	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1418408	1	6	16.6	5.0	✔
Fluoride in Water by IC	E235.F	1412341	1	9	11.1	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1412339	1	7	14.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1412340	1	9	11.1	5.0	✔
Sulfate in Water by IC	E235.SO4	1412335	1	13	7.6	5.0	✔
TDS by Gravimetry	E162	1421108	1	20	5.0	5.0	✔
Total Hexavalent Chromium (Cr VI) by IC	E532	1417739	1	15	6.6	5.0	✔
Total Mercury in Water by CVAAS	E508	1414045	1	14	7.1	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1413478	1	18	5.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1418404	1	12	8.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1418405	1	20	5.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1419993	1	20	5.0	5.0	✔
TSS by Gravimetry	E160	1421104	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1418407	1	8	12.5	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1412342	1	6	16.6	5.0	✔
Chloride in Water by IC	E235.Cl	1412338	1	10	10.0	5.0	✔
Dissolved Mercury in Water by CVAAS	E509	1414499	2	22	9.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1413411	1	20	5.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1418408	1	6	16.6	5.0	✔
Fluoride in Water by IC	E235.F	1412341	1	9	11.1	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1412339	1	7	14.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1412340	1	9	11.1	5.0	✔
Sulfate in Water by IC	E235.SO4	1412335	1	13	7.6	5.0	✔
Total Hexavalent Chromium (Cr VI) by IC	E532	1417739	1	15	6.6	5.0	✔
Total Mercury in Water by CVAAS	E508	1414045	1	14	7.1	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1413478	1	18	5.5	5.0	✔
Total Nitrogen by Colourimetry	E366	1418404	1	12	8.3	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1418405	1	20	5.0	5.0	✔



Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1419993	1	20	5.0	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
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 $104 \pm 1^\circ\text{C}$, 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 $180 \pm 2^\circ\text{C}$ 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)
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 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-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ ⁻) and reports it as Total Sulphide as (H ₂ S)
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
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.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Vancouver	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 Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ 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 CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ 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 - Vancouver	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.
Field pH,EC,Salinity,Cl ₂ ,ClO ₂ ,ORP,DO, Turbidity,T,T-P,o-PO ₄ ,NH ₃ ,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity,Cl ₂ ,ClO ₂ ,ORP,DO, Turbidity,T,T-P,o-PO ₄ ,NH ₃ or Chloramine measurements provided by client and recorded on ALS report may affect the validity of 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 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.



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
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 : **VA24A8617**

Client : Triton Environmental Consultants Ltd.

Contact : [Redacted]

Address : [Redacted]

Telephone : [Redacted]

Project : 11964

PO : 11964 - Task 20 - Phase 3C-4C

C-O-C number : ----

Sampler : ----

Site : ----

Quote number : VA23-TRIT100-003

No. of samples received : 2

No. of samples analysed : 2

Page : 1 of 17

Laboratory : ALS Environmental - Vancouver

Account Manager : [Redacted]

Address : [Redacted]

Telephone : [Redacted]

Date Samples Received : 22-Apr-2024 17:50

Date Analysis Commenced : 23-Apr-2024

Issue Date : 30-Apr-2024 15:44

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
[Redacted]	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
[Redacted]	Analyst	Vancouver Metals, Burnaby, British Columbia
[Redacted]	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
[Redacted]	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
[Redacted]	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
[Redacted]		Vancouver Metals, Burnaby, British Columbia

Page : 2 of 17
Work Order : VA24A8617
Client : Triton Environmental Consultants Ltd.
Project : 11964



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: 1412347)											
VA24A8597-002	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	76.8	77.7	1.16%	20%	----
Physical Tests (QC Lot: 1421104)											
FJ2401125-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1421108)											
FJ2401125-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	240	246	2.68%	20%	----
Anions and Nutrients (QC Lot: 1412335)											
VA24A8597-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	466	467	0.144%	20%	----
Anions and Nutrients (QC Lot: 1412338)											
VA24A8597-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	2.94	2.88	0.05	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1412339)											
VA24A8597-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1412340)											
VA24A8597-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1412341)											
VA24A8597-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1412342)											
VA24A8597-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1418404)											
FJ2401110-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.415	0.404	2.62%	20%	----
Anions and Nutrients (QC Lot: 1418405)											
FJ2401109-003	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0651	0.0650	0.184%	20%	----
Anions and Nutrients (QC Lot: 1418407)											
FJ2401109-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1418408)											
FJ2401110-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.96	4.24	0.29	Diff <2x LOR	----
Total Sulfides (QC Lot: 1419993)											
FJ2401125-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 1413478)											
VA24A8667-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0163	0.0192	0.0029	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00011	0.00011	0.0000005	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: 1413478) - continued											
VA24A8667-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00086	0.00084	0.00002	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0578	0.0591	2.24%	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	0.028	0.028	0.0001	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	114	115	0.754%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00011	0.00011	0.0000004	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00292	0.00299	0.00008	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.044	0.046	0.003	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	0.0072	0.0072	0.00003	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	37.8	38.7	2.38%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0422	0.0434	3.02%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0315	0.0313	0.458%	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	0.300	mg/L	<0.300	<0.300	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	8.10	8.37	3.21%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00129	0.00134	0.00005	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000737	0.000775	4.98%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	9.43	9.61	1.88%	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	56.4	58.0	2.81%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.818	0.814	0.563%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	123	125	1.86%	20%	----
		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	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		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	0.00279	0.00278	0.267%	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
Total Metals (QC Lot: 1413478) - continued											
VA24A8667-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00210	0.00220	0.00011	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: 1414045)											
FJ2401088-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1413411)											
FJ2401088-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0040	0.0045	0.0004	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	0.00126	0.00123	2.71%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.349	0.346	0.848%	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	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	66.4	65.8	0.977%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	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	0.00242	0.00243	0.446%	20%	----
		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	4.43	4.52	1.91%	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	0.0011	0.0011	0.00001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	14.7	15.0	1.91%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	1.18	1.18	0.304%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000514	0.000546	5.93%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00403	0.00412	0.00009	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	0.488	0.495	0.007	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00030	0.00025	0.00005	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	0.000052	0.000002	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.63	2.62	0.225%	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	2.33	2.31	0.713%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.106	0.107	1.46%	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: 1413411) - continued											
FJ2401088-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	7.60	8.06	5.86%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000149	0.000151	1.22%	20%	----
		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	0.0011	0.000008	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: 1414499)											
FJ2401088-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1414500)											
VA24A8617-002	WLNG US 1	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1417739)											
VA24A8617-001	WLNG DS 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	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: 1412347)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1421104)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1421108)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1412335)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1412338)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1412339)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1412340)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1412341)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1412342)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1418404)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1418405)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1418407)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1418408)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1419993)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 1413478)						
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	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1413478) - continued						
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	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1414045)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1413411)						
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	----
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	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1413411) - continued						
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: 1414499)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1414500)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1417739)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	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	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1412347)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	110	85.0	115	----
Physical Tests (QCLot: 1421104)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	87.3	85.0	115	----
Physical Tests (QCLot: 1421108)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.2	85.0	115	----
Anions and Nutrients (QCLot: 1412335)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1412338)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 1412339)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1412340)									
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: 1412341)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.5	90.0	110	----
Anions and Nutrients (QCLot: 1412342)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 1418404)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	94.2	75.0	125	----
Anions and Nutrients (QCLot: 1418405)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	98.0	80.0	120	----
Anions and Nutrients (QCLot: 1418407)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.3	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1418408)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	120	80.0	120	----
Total Sulfides (QCLot: 1419993)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	101	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	101	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1413478)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	106	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	111	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	105	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	108	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	102	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	107	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	110	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	119	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	110	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	109	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	108	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	108	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	118	80.0	120	----
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	107	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	105	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	106	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	105	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	109	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.1	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	107	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	109	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	108	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	104	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	112	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1413478) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	107	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	108	80.0	120	----
Total Metals (QCLot: 1414045)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	104	80.0	120	----
Dissolved Metals (QCLot: 1413411)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.4	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.8	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	100	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	94.3	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.8	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.0	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.6	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.8	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	96.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	96.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	95.5	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	93.4	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	92.5	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	95.7	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.6	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.0	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	95.2	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.9	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.3	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.8	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.8	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	94.7	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	90.8	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1413411) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	94.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.8	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	88.3	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.8	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	94.0	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	92.4	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.4	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	91.3	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	90.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	104	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	101	80.0	120	----
Speciated Metals (QCLot: 1417739)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 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
Anions and Nutrients (QCLot: 1412335)										
VA24A8597-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1412338)										
VA24A8597-002	Anonymous	Chloride	16887-00-6	E235.Cl	99.5 mg/L	100 mg/L	99.5	75.0	125	----
Anions and Nutrients (QCLot: 1412339)										
VA24A8597-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.49 mg/L	2.5 mg/L	99.7	75.0	125	----
Anions and Nutrients (QCLot: 1412340)										
VA24A8597-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.487 mg/L	0.5 mg/L	97.4	75.0	125	----
Anions and Nutrients (QCLot: 1412341)										
VA24A8597-002	Anonymous	Fluoride	16984-48-8	E235.F	0.980 mg/L	1 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1412342)										
VA24A8597-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.519 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1418404)										
FJ2401110-002	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1418405)										
FJ2401109-004	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0529 mg/L	0.05 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 1418407)										
FJ2401109-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0984 mg/L	0.1 mg/L	98.4	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1418408)										
FJ2401110-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.08 mg/L	5 mg/L	102	70.0	130	----
Total Sulfides (QCLot: 1419993)										
FJ2401125-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	1.10 mg/L	1 mg/L	110	75.0	125	----
Total Metals (QCLot: 1413478)										
VA24A8667-002	Anonymous	Aluminum, total	7429-90-5	E420	0.180 mg/L	0.2 mg/L	90.0	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0371 mg/L	0.04 mg/L	92.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00974 mg/L	0.01 mg/L	97.4	70.0	130	----
		Boron, total	7440-42-8	E420	0.089 mg/L	0.1 mg/L	89.0	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00398 mg/L	0.004 mg/L	99.6	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0389 mg/L	0.04 mg/L	97.3	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: 1413478) - continued										
VA24A8667-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Copper, total	7440-50-8	E420	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Iron, total	7439-89-6	E420	1.93 mg/L	2 mg/L	96.6	70.0	130	----
		Lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0907 mg/L	0.1 mg/L	90.7	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.81 mg/L	10 mg/L	98.1	70.0	130	----
		Potassium, total	7440-09-7	E420	3.94 mg/L	4 mg/L	98.5	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0180 mg/L	0.02 mg/L	89.8	70.0	130	----
		Tin, total	7440-31-5	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0393 mg/L	0.04 mg/L	98.4	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00391 mg/L	0.004 mg/L	97.7	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0994 mg/L	0.1 mg/L	99.4	70.0	130	----
		Zinc, total	7440-66-6	E420	0.384 mg/L	0.4 mg/L	95.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0398 mg/L	0.04 mg/L	99.5	70.0	130	----
Total Metals (QCLot: 1414045)										
FJ2401088-004	Anonymous	Mercury, total	7439-97-6	E508	0.000103 mg/L	0 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 1413411)										
FJ2401088-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.196 mg/L	0.2 mg/L	97.8	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00838 mg/L	0.01 mg/L	83.8	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.093 mg/L	0.1 mg/L	93.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00938 mg/L	0.01 mg/L	93.8	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0186 mg/L	0.02 mg/L	93.0	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: 1413411) - continued										
FJ2401088-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0180 mg/L	0.02 mg/L	89.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0179 mg/L	0.02 mg/L	89.3	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0928 mg/L	0.1 mg/L	92.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.98 mg/L	4 mg/L	99.6	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	8.99 mg/L	10 mg/L	89.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00302 mg/L	0.004 mg/L	75.5	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	20.4 mg/L	20 mg/L	102	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00356 mg/L	0.004 mg/L	89.0	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0124 mg/L	0.02 mg/L	61.9	70.0	130	MES
		Tin, dissolved	7440-31-5	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00354 mg/L	0.004 mg/L	88.6	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.356 mg/L	0.4 mg/L	89.1	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	----
Dissolved Metals (QCLot: 1414499)										
VA24A8493-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000106 mg/L	0 mg/L	106	70.0	130	----
Dissolved Metals (QCLot: 1414500)										
VA24A8658-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0 mg/L	104	70.0	130	----
Speciated Metals (QCLot: 1417739)										
VA24A8617-002	WLNG US 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.256 mg/L	0.25 mg/L	102	70.0	130	----

Qualifiers

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



**Eagle Mountain - Woodfibre Gas Pipeline Project
Waste Discharge Permit PE-110163 Report**

Reporting Week	April 22 nd to April 28 th , 2024
Report #	5
Appendix D	D-4

Woodfibre Site Receiving Environment Field Notes and Logs



FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-4-22-Blanchard-E2C08

Project Component:	Tunnel	Site Name:	Receiving Environment - Downstream of Discharge
Inspection Date:	04/22/2024	Location:	WLNG
Triton QP:	Sam Blanchard	Latitude/Longitude:	49.6683 -123.247958
Temperature(c):	Low 5 High 18	Permit:	PE 110136
Weather Conditions:	Clear	Ground Conditions:	Dry

Observations

Time: 09:53:00 **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 Metals + Mercury	Yes	Total Sulfide, Unionized Sulfide	Yes	
TSS	Yes	Anions	Yes	
TDS	Yes	VOC/VPH	N/A	QA Samples: No
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: EAS DS1
Description: US View



Photo: 2
Location: EAS DS1
Description: DS View



Sign Off

Report Prepared By: Sam Blanchard

Report Reviewed:

Report Reviewer:

Professional(s) of Record:

Name:

Designation:

Designation Number:



FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-4-22-Blanchard-CDA09

Project Component:	Tunnel	Site Name:	Receiving Environment - Upstream of Discharge
Inspection Date:	04/22/2024	Location:	WLNG
Triton QP:	Sam Blanchard	Latitude/Longitude:	49.669455 -123.25087
Temperature(c):	Low 18 High 3	Permit:	PE 110136
Weather Conditions:	Clear	Ground Conditions:	Dry

Observations

Time: 09:03:00 **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 Metals + Mercury	Yes	Total Sulfide, Unionized Sulfide	Yes	
TSS	Yes	Anions	Yes	
TDS	Yes	VOC/VPH	N/A	QA Samples: No
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: EAS US1
Description: US View



Photo: 2
Location: EAS US1
Description: DS View



Sign Off

Report Prepared By: Sam Blanchard

Report Reviewed:

Report Reviewer:

Professional(s) of Record:

Name:

Designation:

Designation Number: