Eagle Mountain - Woodfibre Gas Pipeline Project

BCER Waste Discharge Permit Weekly Report

Contents

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.

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 Observator 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.

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	2024-05-27	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	2023-05-27	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.

Summary-Woodfibre

Site Activities

- No discharges during this reporting period.

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	2024-05-29	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	2024-05-29	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.

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.

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

BCR Site Batch Sample Analysis

BCR Site Batch Sample Lab Documentation

BCR Site WTP Discharge Field Notes and Logs

Appendix B: BCR Site Receiving Environment Documentation

BCR Site Receiving Environment Sample Analysis

TRITON ENVIRONMENTAL CONSULTANTS	Sample ID	Reviewed and signed off by:			Miranda Lewis PAg, MSc	SQU US1 (Upstream)	SQU DS 1 (Downstream)	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24B1900-001	VA24B1900-002					
	Date Sampled					27-May-2024	27-May-2024					
	Time Sampled					9:23	9:46					
Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Water	Water					
						N/A	N/A			Guideline notes		
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.46	7.28		If natural pH < 6.5, no statistically significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	-	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	-	7.6	7.2		Guideline is species-dependent. Short-term daily temperature guideline is 19°C for streams with unknown fish distribution. Refer to footnote 4 for background temperature range for the Squamish River. Refer to BC Water Quality Guidelines for more information Hourly rate of change not to exceed 1°C. Calculation: BCR US value +/- 1 = guideline range		Guideline for marine waters are based on natural ambient conditions. Max and min. 1°C change from natural condition. Natural temperature cycle characteristic of the site should not be altered in amplitude or frequency by human activities. Max rate of any human-induced temperature change not to exceed 0.5°C hourly. Inwams with unknown fish distribution. Refer to footnote 4 for background temperature range for the Squamish River. Calculation: BCR US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	43	33					
Turbidity (field)	NTU	Varies with background, see note Lowest value for guideline is 3 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 3 NTU	5.71	6.94		Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 8 = BCR DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: BCR US value + 5 = BCR DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 8 = BCR DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: BCR US value + 5 = BCR DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.
General Parameters												
Hardness (as CaCO3) (total)	mg/L	-	-	-	-	15.1	14.2					
Total Dissolved Solids	mg/L	-	-	-	-	34	32					
Total Suspended Solids	mg/L	Varies with background, see note Lowest value for guideline is 6mg/L	Varies with background, see note Lowest value for guideline is 26mg/L	Varies with background, see note Lowest value for guideline is 26mg/L	Varies with background, see note Lowest value for guideline is 6mg/L	<3.0	<3.0		Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 25 = BCR DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: BCR US value + 10 = BCR DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.	Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 25 = BCR DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: BCR US value + 10 = BCR DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	1.4	1.49			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	13.1	11.3	The upstream and downstream locations have high sensitivity to acid inputs (i.e. low buffering capcity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs. Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	< 0.0015	< 0.0015					
Total Sulfide (un-ionized as H2S)	mg/L	0.002	-	-	-	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note.	Varies with pH and temperature. See note.	Varies with pH, temperature and salinity. See note.	Varies with pH, temperature and salinity. See note.	0.153	0.0947		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	1.08	0.98				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Fluoride	mg/L	-	Varies with hardness	1.5	-	< 0.20	< 0.020		Guideline has interim status Guideline is calculated with the following equation: Guideline = [- 51.73 + 92.57 log10 (hardness)] ^ 0.01			
Nitrate (as N)	mg/L	3	32.8	-	3.7	0.0161	0.0189					
Nitrite (as N)	mg/L	Varies with chloride. See note.	Varies with chloride. See note.	-	-	< 0.0010	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.232	0.16					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.0274	0.0241			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO4)	mg/L	Varies with hardness. See note.	-	-	-	3.22	3.09			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	Varies with pH, DOC, hardness	-	-	-	***0.230***	***0.230***	**The upstream and downstream location exceeds the long-term 5-week average BCWQ for FAL. Discharge from BCR has not begun full-time. These conditions may be characteristic of the Squamish River and the local geology**		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH)-9.868))/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.074	0.25	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00013	0.00014					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00888	0.00888			Working guideline status		
Beryllium (Be)-Total	mg/L	0.00013	-	-	0.100	< 0.000100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Total	mg/L	1.2	-	-	1.2	< 0.010	< 0.010					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000092	0.0000093					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	5.10	4.82					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000021	0.000022					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (CrIII)-Total	mg/L	0.0089	-	-	0.056	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (CrVI)-Total	mg/L	0.001	-	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	0.00011	0.00011					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00111	0.00109	Although the weekly downstream location exceeds long-term BCWQ for MAL, when entered in the long-term 5-week average, the downstream location is within guidelines.				
Iron (Fe)-Total	mg/L	-	1	-	-	0.226	0.212					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	0.000053	0.00005		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L Guideline uses equation EXP(1.273*ln(hardness)+1.460) where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP(1.273*ln(hardness)+4.704) applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.571	0.54					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.00891	0.00831		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.600) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	Varies with methyl mercury	-	-	-	< 0.0000050	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1(MeHg%total)g. When MeHg ≥ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	7.6	46	-	-	0.00046	0.000451					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	< 0.00050	< 0.00050			Working guideline status. Guideline varies with hardness. Refer to BC Water Quality Guidelines for more information. Hardness 0 ≤ 60: 0.025 Hardness > 60 ≤ 180: Guideline = (EXP((0.76 * (LN(hardness)) + 1.06))/1000) Hardness ≥ 180: 0.15		Working guideline status
Phosphorus (P)-Total	mg/L	0.005 to 0.015	-	-	-	< 0.050	< 0.050			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	0.483	0.475					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00074	0.00082					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	< 0.000050	< 0.000050			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	3.9	3.75					
Silver (Ag)-Total	mg/L	Varies with hardness, see note	Varies with hardness, see note	0.003	0.0015	< 0.000010	<0.000010		Varies with hardness Guideline ranges Hardness ≤ 100: 0.0001 Hardness > 100: 0.003	Varies with hardness Guideline ranges Hardness ≤ 100: 0.00005 Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	1.78	1.54					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0323	0.0300					
Sulfur (S)-Total	mg/L	-	-	-	-	1.09	0.93					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	< 0.000010	< 0.000010			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to trihe EGP site.		
Thorium (Th)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.00841	0.0111					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.000040	0.000044			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	0.050	0.00132	0.0013						Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0047	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	0.00026	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0605	0.0541					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00013	0.00014					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00858	0.00837					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	< 0.010	< 0.010					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note	Varies with hardness, see note	-	-	0.0000072	0.0000068		Guideline is hardness dependent. Guideline is applicable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274))/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guideline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	Categorical, see note	-	-	-	4.67	4.5	Both locations have high sensitivity to acid inputs (i.e. low buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is < 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000013	< 0.000010					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note	Guideline varies with other parameters, see note	-	-	***0.00068***	***0.00068***	**Both upstream and downstream locations exceed long-term BCWQ for FAL and have exceeded guidelines for 5 weeks on average. Discharge from BCR has not begun full-time. These conditions may be characteristic of the Squamish River and the local geology.**	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Iron (Fe)-Dissolved	mg/L	-	0.35	-	-	0.088	0.059					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.474	0.446					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00466	0.00414					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.00457	0.00424					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.467	0.455					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00069	0.00082					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	3.41	3.15					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.58	1.49					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0289	0.027					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	0.97	0.88					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	0.00128	0.00132					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.00034	0.00033					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00091	0.00083					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0014	0.0012		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/21000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/21000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, ammd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		**British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life**										
Color Key:		Exceeds BCAWWQG Short and Long-Term Guideline	***Exceeds BCAWWQG Long term Guideline***	**Exceeds BCAWWQG Short term Guideline**	Exceeds BCAWWQG MAL Short term Guideline	***Exceeds BCAWWQG MAL Long term Guideline***						
Color Key:					Exceeds BCAWWQG MAL Short and Long-term Guidelines	Exceeds both BCAWWQG FAL and MAL Guidelines						

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

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

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

[4]Background temperature ranges: Dec-Feb: 2.0-4.0C; Mar-Apr: 4.0-6.0C; May-June: 6.0-12.0C; Jul-Sept: 9.0-12.0C; Oct-Nov: 3.0-5.0

Reference: Triton Environmental Consulants Ltd. 2023. Memo - Background water quality values for the BC Rail Discharge to Squamish River

For guidelines dependent on other parameters, when hardness, pH or DOC are below the range stated in the guideline, the lowest value in the range is used to calculate the guideline.

Parameters Used to Calculate Guidelines

Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Values SQU US1 (Upstream)	Values SQU DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.46	7.28
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				7.6	7.2
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				5.71	6.94
Hardness (as CaCO3) (total)	mg/L	Laboratory tested total hardness taken at each respective sample site on the day of sampling used in guideline calculations				15.1	14.2
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				1.4	1.49
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				13.1	11.3
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.08	0.98

BCR Site Receiving Environment Lab Documentation

ALS Canada Ltd.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **VA24B1900**	Page	: 1 of 7
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Account Manager	
Address	:	Address	
Telephone	:	Telephone	
Project	: 11964	Date Samples Received	: 27-May-2024 12:40
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 28-May-2024
C-O-C number	: ----	Issue Date	: 04-Jun-2024 15:32
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Daniela Ruiz	Account Manager Assistant	Administration, Burnaby, British Columbia
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

No Breaches Found

General Comments

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

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

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

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

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

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

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

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

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	27-May-2024 09:23	27-May-2024 09:46	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B1900-001	VA24B1900-002	--------	--------	--------	--------	--------
Field Tests											
Conductivity, field	----	EF001/VA	µS/cm		43.000	33.000	----	----	----	----	----
pH, field	----	EF001/VA	pH units		7.46	7.28	----	----	----	----	----
Temperature, field	----	EF001/VA	°C		7.60	7.20	----	----	----	----	----
Physical Tests											
Hardness (as CaCO3), dissolved	----	EC100/VA	mg/L		13.6	13.1	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L		15.1	14.2	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L		34	32	----	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	mg/L		<3.0	<3.0	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L		13.1	11.3	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L		0.153	0.0947	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L		1.08	0.98	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L		<0.020	<0.020	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L		0.0161	0.0189	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	mg/L		0.232	0.160	----	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	mg/L		0.0274	0.0241	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L		3.22	3.09	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/CG	mg/L		1.40	1.49	----	----	----	----	----
Total Sulfides											
Sulfide, total (as S)	18496-25-8	E395/VA	mg/L		<0.0015	<0.0015	----	----	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	mg/L		<0.0015	<0.0015	----	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	mg/L		<0.0016	<0.0016	----	----	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/VA	mg/L		0.230	0.230	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	27-May-2024 09:23	27-May-2024 09:46	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B1900-001	VA24B1900-002	--------	--------	--------	--------	--------
Total Metals											
Antimony, total	7440-36-0	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L		0.00013	0.00014	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L		0.00886	0.00888	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	mg/L		<0.000100	<0.000100	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L		<0.010	<0.010	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L		0.0000092	0.0000093	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L		5.10	4.82	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L		0.000021	0.000022	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	mg/L		0.00011	0.00011	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00111	0.00109	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.226	0.212	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		0.000053	<0.000050	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		0.571	0.540	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.00891	0.00831	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.000460	0.000451	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		0.483	0.475	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00074	0.00082	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		3.90	3.75	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		1.78	1.54	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.0323	0.0300	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		1.09	0.93	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	27-May-2024 09:23	27-May-2024 09:46	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B1900-001	VA24B1900-002	--------	--------	--------	--------	--------
Total Metals											
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	mg/L		0.00941	0.0111	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L		0.000040	0.000044	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L		0.00132	0.00130	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L		0.0047	<0.0030	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	mg/L		0.00026	<0.00020	----	----	----	----	----
Dissolved Metals											
Aluminum, dissolved	7429-90-5	E421/VA	mg/L		0.0605	0.0541	----	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	mg/L		0.00013	0.00014	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	mg/L		0.00656	0.00637	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	mg/L		<0.000100	<0.000100	----	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	mg/L		<0.010	<0.010	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	mg/L		0.0000072	0.0000068	----	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	mg/L		4.67	4.50	----	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	mg/L		0.000013	<0.000010	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	mg/L		0.00068	0.00068	----	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	mg/L		0.088	0.059	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	mg/L		0.474	0.445	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	27-May-2024 09:23	27-May-2024 09:46	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B1900-001	VA24B1900-002	--------	--------	--------	--------	--------
Dissolved Metals											
Manganese, dissolved	7439-96-5	E421/VA	mg/L		0.00466	0.00414	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	mg/L		0.000467	0.000424	----	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	mg/L		0.467	0.455	----	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	mg/L		0.00069	0.00062	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	mg/L		3.41	3.15	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	mg/L		1.58	1.49	----	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	mg/L		0.0289	0.0270	----	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	mg/L		0.97	0.68	----	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	mg/L		0.00126	0.00132	----	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	mg/L		0.000034	0.000033	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	mg/L		0.00091	0.00083	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	mg/L		0.0014	0.0012	----	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-		Field	Field	----	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-		Field	Field	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----

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

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

Key:

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **VA24B1900**	Page	: 1 of 6
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 27-May-2024 12:40
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 28-May-2024
C-O-C number	: ----	Issue Date	: 04-Jun-2024 15:32
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Daniela Ruiz	Account Manager Assistant	Administration, Burnaby, British Columbia
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°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**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	27-May-2024 09:23	27-May-2024 09:46	----	----	----
						VA24B1900-001	VA24B1900-002	--------	--------	--------
						Result	Result	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		43.000	33.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.46	7.28	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		7.60	7.20	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		13.6	13.1	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		15.1	14.2	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		34	32	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		13.1	11.3	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.153	0.0947	----	----	----
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		1.08	0.98	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.020	<0.020	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0161	0.0189	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.232	0.160	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0274	0.0241	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		3.22	3.09	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/CG	0.50	mg/L		1.40	1.49	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.230	0.230	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	27-May-2024 09:23	27-May-2024 09:46	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B1900-001	VA24B1900-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00013	0.00014	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00886	0.00888	----	----	----
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	0.0000093	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		5.10	4.82	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000021	0.000022	----	----	----
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		0.00011	0.00011	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00111	0.00109	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.226	0.212	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000053	<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		0.571	0.540	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00891	0.00831	----	----	----
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		0.000460	0.000451	----	----	----
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		0.483	0.475	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00074	0.00082	----	----	----
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		3.90	3.75	----	----	----
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		1.78	1.54	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0323	0.0300	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.09	0.93	----	----	----
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 (Matrix: Water)					Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	27-May-2024 09:23	27-May-2024 09:46	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B1900-001	VA24B1900-002	--------	--------	--------
						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		0.00941	0.0111	----	----	----
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		0.000040	0.000044	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00132	0.00130	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0047	<0.0030	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		0.00026	<0.00020	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0605	0.0541	----	----	----
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		0.00013	0.00014	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00656	0.00637	----	----	----
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		0.0000072	0.0000068	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		4.67	4.50	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000013	<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		0.00068	0.00068	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.088	0.059	----	----	----
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		0.474	0.445	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00466	0.00414	----	----	----
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		0.000467	0.000424	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	27-May-2024 09:23	27-May-2024 09:46	----	----	----
						VA24B1900-001	VA24B1900-002	--------	--------	--------
						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		0.467	0.455	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00069	0.00062	----	----	----
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		3.41	3.15	----	----	----
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		1.58	1.49	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0289	0.0270	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		0.97	0.68	----	----	----
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		0.00126	0.00132	----	----	----
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		0.000034	0.000033	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00091	0.00083	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0014	0.0012	----	----	----
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/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----

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

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

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B1900**	Page	: 1 of 14
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Account Manager	
Address	:	Address	
Telephone	:	Telephone	
Project	: 11964	Date Samples Received	: 27-May-2024 12:40
PO	: 11964 - Task 20 - Phase 3C-4C	Issue Date	: 04-Jun-2024 15:33
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU DS 1	E298	27-May-2024	31-May-2024	28 days	4 days	✓	01-Jun-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US 1	E298	27-May-2024	31-May-2024	28 days	5 days	✓	01-Jun-2024	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US 1	E235.Br-L	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU US 1	E235.F	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	27-May-2024	30-May-2024	3 days	3 days	✓	30-May-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	27-May-2024	30-May-2024	3 days	3 days	✓	30-May-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO2-L	27-May-2024	30-May-2024	3 days	3 days	✓	30-May-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO2-L	27-May-2024	30-May-2024	3 days	3 days	✓	30-May-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	27-May-2024	31-May-2024	28 days	4 days	✓	03-Jun-2024	28 days	7 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	27-May-2024	31-May-2024	28 days	5 days	✓	03-Jun-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU DS 1	E372-U	27-May-2024	31-May-2024	28 days	4 days	✓	03-Jun-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	27-May-2024	31-May-2024	28 days	5 days	✓	03-Jun-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	27-May-2024	31-May-2024	28 days	4 days	✓	31-May-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	27-May-2024	31-May-2024	28 days	4 days	✓	31-May-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	27-May-2024	28-May-2024	180 days	1 days	✓	01-Jun-2024	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	27-May-2024	28-May-2024	180 days	1 days	✓	01-Jun-2024	180 days	5 days	✓
Field Tests : Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU DS 1	EF001	27-May-2024	----	----	----		29-May-2024	----	2 days	
Field Tests : Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU US 1	EF001	27-May-2024	----	----	----		29-May-2024	----	2 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU US 1	E358-L	27-May-2024	30-May-2024	28 days	3 days	✓	30-May-2024	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU DS 1	E290	27-May-2024	30-May-2024	14 days	3 days	✓	31-May-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU US 1	E290	27-May-2024	30-May-2024	14 days	3 days	✓	31-May-2024	14 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU DS 1	E162	27-May-2024	----	----	----		02-Jun-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU US 1	E162	27-May-2024	----	----	----		02-Jun-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	27-May-2024	----	----	----		02-Jun-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	27-May-2024	----	----	----		02-Jun-2024	7 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	27-May-2024	----	----	----		30-May-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	27-May-2024	----	----	----		30-May-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU DS 1	E508	27-May-2024	31-May-2024	28 days	4 days	✓	31-May-2024	28 days	4 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	27-May-2024	31-May-2024	28 days	4 days	✓	31-May-2024	28 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	27-May-2024	28-May-2024	180 days	1 days	✓	01-Jun-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU US 1	E420	27-May-2024	28-May-2024	180 days	1 days	✓	01-Jun-2024	180 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU DS 1	E395	27-May-2024	----	----	----		01-Jun-2024	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU US 1	E395	27-May-2024	----	----	----		01-Jun-2024	7 days	5 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1466231	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1470558	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1466237	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1466236	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1470446	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1462310	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1468061	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1466235	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1466233	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1466234	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1466232	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1471712	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1466337	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1469275	2	27	7.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1462315	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1470556	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1470557	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1471301	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1471710	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1466231	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1470558	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1466237	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1466236	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1470446	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1462310	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1468061	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1466235	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1466233	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1466234	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1466232	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1471712	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1466337	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1469275	2	27	7.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1462315	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1470556	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1470557	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1471301	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1471710	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1466231	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1470558	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1466237	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1466236	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1470446	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1462310	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1468061	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1466235	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1466233	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1466234	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1466232	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1471712	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1466337	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1469275	2	27	7.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1462315	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1470556	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1470557	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1471301	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1471710	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1470558	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1466237	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1466236	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1470446	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1462310	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1468061	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1466235	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1466233	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1466234	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1466232	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1466337	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1469275	2	27	7.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1462315	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1470556	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1470557	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1471301	1	8	12.5	5.0	✓

Methodology References and Summaries

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

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Calgary	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	Chinchilla Scientific Nitrate Method, 2011	Following digestion, total nitrogen is is determined colourimetrically using a discrete analyzer utilizing the vanadium chloride reduction method. This method of analysis is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
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 - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 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 - Calgary	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.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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	: **VA24B1900**	Page	: 1 of 17
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 27-May-2024 12:40
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 28-May-2024
C-O-C number	: ----	Issue Date	: 04-Jun-2024 15:33
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

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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: 1466231)											
KS2401941-012	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	214	208	2.46%	20%	----
Physical Tests (QC Lot: 1471710)											
VA24B1890-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1471712)											
VA24B1890-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	284	278	2.14%	20%	----
Anions and Nutrients (QC Lot: 1466232)											
KS2401941-010	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	12.9	12.8	0.638%	20%	----
Anions and Nutrients (QC Lot: 1466233)											
KS2401941-010	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1466234)											
KS2401941-010	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1466235)											
KS2401941-010	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.061	0.059	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1466236)											
KS2401941-010	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	0.59	0.56	0.03	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1466237)											
KS2401941-010	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1470556)											
VA24B1900-001	SQU US 1	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.232	0.232	0.00002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1470557)											
VA24B1900-001	SQU US 1	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0274	0.0273	0.475%	20%	----
Anions and Nutrients (QC Lot: 1470558)											
VA24B1900-001	SQU US 1	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.153	0.154	0.945%	20%	----
Organic / Inorganic Carbon (QC Lot: 1468061)											
VA24B1594-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	16.9	16.6	1.77%	20%	----
Total Sulfides (QC Lot: 1471301)											
VA24B1900-001	SQU US 1	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1462315)											
VA24B1883-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

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: 1462315) - continued											
VA24B1883-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		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	<0.050	<0.050	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	0.00010	0.000005	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	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	<0.10	<0.10	0	Diff <2x LOR	----
		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	<0.050	<0.050	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		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	<0.00030	<0.00030	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	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1462315) - continued											
VA24B1883-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	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: 1469275)											
KS2401893-016	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1469276)											
VA24B1900-002	SQU DS 1	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1462310)											
VA24B1891-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0441	0.0430	2.56%	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	0.00055	0.00051	0.00004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00774	0.00771	0.399%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	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	6.26	6.50	3.68%	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	0.00324	0.00335	0.00011	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	0.00097	0.00092	0.00005	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.197	0.206	4.49%	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	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	10.2	9.82	3.83%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00471	0.00466	1.06%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000212	0.000214	0.000002	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.0176	0.0177	0.618%	20%	----
		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	0.290	0.292	0.001	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000066	0.000071	0.000006	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.59	3.68	2.42%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1462310) - continued											
VA24B1891-001	Anonymous	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.687	0.682	0.674%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0258	0.0278	7.42%	20%	----
		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	0.00142	0.00150	0.00008	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	0.000011	0.0000006	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0015	0.0015	0.00008	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1470446)											
KS2401879-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1466337)											
KS2401876-001	Anonymous	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: 1466231)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1471710)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1471712)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1466232)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1466233)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1466234)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1466235)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1466236)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1466237)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1470556)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1470557)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1470558)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1468061)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1471301)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1462315)						
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: 1462315) - 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: 1469275)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1469276)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1462310)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1462310) - continued						
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1470446)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1466337)						
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: 1466231)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1471710)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	98.0	85.0	115	----
Physical Tests (QCLot: 1471712)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1466232)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1466233)									
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: 1466234)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1466235)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1466236)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	98.6	90.0	110	----
Anions and Nutrients (QCLot: 1466237)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	110	85.0	115	----
Anions and Nutrients (QCLot: 1470556)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	95.8	75.0	125	----
Anions and Nutrients (QCLot: 1470557)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	96.9	80.0	120	----
Anions and Nutrients (QCLot: 1470558)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1468061)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	109	80.0	120	----
Total Sulfides (QCLot: 1471301)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	84.7	80.0	120	----
Total Metals (QCLot: 1462315)									

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: 1462315) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.9	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	112	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	92.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	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	105	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	100.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	94.1	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	103	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.6	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.2	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.5	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	113	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.5	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	111	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	90.9	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	109	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	105	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.9	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	103	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1462315) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	103	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	110	80.0	120	----
Total Metals (QCLot: 1469275)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	98.2	80.0	120	----
Total Metals (QCLot: 1469276)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	99.6	80.0	120	----
Dissolved Metals (QCLot: 1462310)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.2	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.6	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.2	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.0	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.6	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	108	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	99.7	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	94.0	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	107	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	93.3	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 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
Dissolved Metals (QCLot: 1462310) - continued									
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	99.7	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	92.1	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	104	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.9	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	99.8	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	99.8	80.0	120	----
Speciated Metals (QCLot: 1466337)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	98.8	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: 1466232)										
KS2401941-011	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	98.5 mg/L	100 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 1466233)										
KS2401941-011	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.54 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1466234)										
KS2401941-011	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.501 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1466235)										
KS2401941-011	Anonymous	Fluoride	16984-48-8	E235.F	0.979 mg/L	1 mg/L	97.9	75.0	125	----
Anions and Nutrients (QCLot: 1466236)										
KS2401941-011	Anonymous	Chloride	16887-00-6	E235.Cl	98.7 mg/L	100 mg/L	98.7	75.0	125	----
Anions and Nutrients (QCLot: 1466237)										
KS2401941-011	Anonymous	Bromide	24959-67-9	E235.Br-L	0.546 mg/L	0.5 mg/L	109	75.0	125	----
Anions and Nutrients (QCLot: 1470556)										
VA24B1900-002	SQU DS 1	Nitrogen, total	7727-37-9	E366	0.394 mg/L	0.4 mg/L	98.6	70.0	130	----
Anions and Nutrients (QCLot: 1470557)										
VA24B1900-002	SQU DS 1	Phosphorus, total	7723-14-0	E372-U	0.0505 mg/L	0.05 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 1470558)										
VA24B1900-002	SQU DS 1	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1468061)										
VA24B1594-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1471301)										
VA24B1900-002	SQU DS 1	Sulfide, total (as S)	18496-25-8	E395	0.171 mg/L	0.2 mg/L	85.6	75.0	125	----
Total Metals (QCLot: 1462315)										
VA24B1883-002	Anonymous	Aluminum, total	7429-90-5	E420	0.185 mg/L	0.2 mg/L	92.3	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Barium, total	7440-39-3	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0103 mg/L	0.01 mg/L	103	70.0	130	----
		Boron, total	7440-42-8	E420	0.091 mg/L	0.1 mg/L	90.8	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	----
		Calcium, total	7440-70-2	E420	4.18 mg/L	4 mg/L	104	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1462315) - continued										
VA24B1883-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		Iron, total	7439-89-6	E420	1.94 mg/L	2 mg/L	96.8	70.0	130	----
		Lead, total	7439-92-1	E420	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Lithium, total	7439-93-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Magnesium, total	7439-95-4	E420	0.976 mg/L	1 mg/L	97.6	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	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.62 mg/L	10 mg/L	96.2	70.0	130	----
		Potassium, total	7440-09-7	E420	3.78 mg/L	4 mg/L	94.4	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
		Silicon, total	7440-21-3	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Silver, total	7440-22-4	E420	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		Sodium, total	7440-23-5	E420	2.10 mg/L	2 mg/L	105	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	----
		Sulfur, total	7704-34-9	E420	20.5 mg/L	20 mg/L	102	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00400 mg/L	0.004 mg/L	100.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Tin, total	7440-31-5	E420	0.0196 mg/L	0.02 mg/L	98.3	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00404 mg/L	0.004 mg/L	101	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0979 mg/L	0.1 mg/L	97.9	70.0	130	----
		Zinc, total	7440-66-6	E420	0.388 mg/L	0.4 mg/L	97.0	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0430 mg/L	0.04 mg/L	108	70.0	130	----
Total Metals (QCLot: 1469275)										
KS2401893-017	Anonymous	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	----
Total Metals (QCLot: 1469276)										
VA24B1904-001	Anonymous	Mercury, total	7439-97-6	E508	0.000468 mg/L	0 mg/L	93.6	70.0	130	----
Dissolved Metals (QCLot: 1462310)										
VA24B1891-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.185 mg/L	0.2 mg/L	92.7	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00912 mg/L	0.01 mg/L	91.2	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.089 mg/L	0.1 mg/L	89.1	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00939 mg/L	0.01 mg/L	93.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1462310) - continued										
VA24B1891-002	Anonymous	Chromium, dissolved	7440-47-3	E421	0.0389 mg/L	0.04 mg/L	97.4	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.93 mg/L	2 mg/L	96.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0961 mg/L	0.1 mg/L	96.1	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	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.0 mg/L	10 mg/L	100	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.91 mg/L	4 mg/L	97.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.77 mg/L	10 mg/L	97.7	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00380 mg/L	0.004 mg/L	95.0	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	2.11 mg/L	2 mg/L	106	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	19.8 mg/L	20 mg/L	98.8	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00380 mg/L	0.004 mg/L	95.0	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0381 mg/L	0.04 mg/L	95.4	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0972 mg/L	0.1 mg/L	97.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.414 mg/L	0.4 mg/L	104	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
Dissolved Metals (QCLot: 1470446)										
KS2401879-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0 mg/L	104	70.0	130	----
Speciated Metals (QCLot: 1466337)										
KS2401876-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0400 mg/L	0.04 mg/L	100.0	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of

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

Report Format / Distribution

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

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

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

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

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐
EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

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

Oil and Gas Required Fields (client use)

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

ALS Lab Work Order # (lab use only): B1900

ALS Contact: Can Dang Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
						F					P	P			F/P							
	SQU US 1	27 May 24	09:23	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.46 cond: 43 temp: 7.6																					
	SQU DS 1	27 May 24	09:46	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.28 cond: 33 temp: 7.2																					
	Duplicate n/a			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Field Blank n/a			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Trip Blank n/a			Water	R		R	R	R	R	R	R	R	R							N	6

Environmental Division
Vancouver
Work Order Reference
VA24B1900

Telephone : +1 604 253 4188

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

Are samples taken from a Regulated DW System? ☐ ☑ NO
Are samples for human consumption/ use? ☐ ☑ NO

Special Instructions / Specif

Triton Project # 11964

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				8°C			

SHIPMENT RELEASE (client use)

Relea Time: 13:00

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by: ZH Date: May 27 Time: 12:40

Icepack

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

BCR Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-5-27-Britz-D5F28

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	05/27/2024	**Location:**	BC Rail Site
Triton QP:	Wade Britz	**Latitude/Longitude:**	49.725282 -123.165175
Temperature(c):	Low 9 High 15	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 09:43:44 **Flow Volume (visual):** moderate

Notes: Flow higher than normal

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

Logger Maintenance

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

Describe Logger Maintenance

Cleaned sensor and scrubbed casing

Photos

Photo: 1

Location: SQU DS1

Description: Downstream view

Photo: 2

Location: SQU DS1

Description: Across view

Photos

Photo: 3

Location: SQU DS1

Description: Upstream view

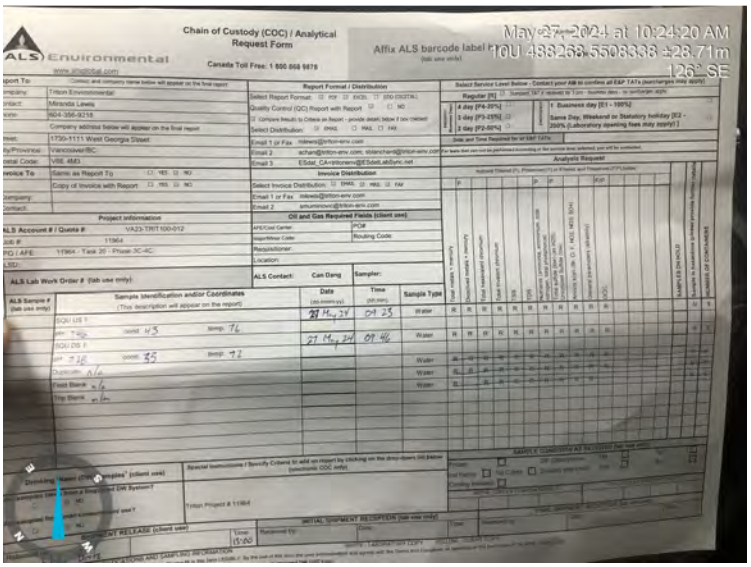

Photo: 4

Location: SQU DS1

Description: CoC

Sign Off

Report Prepared By:	Wade Britz	**Report Reviewed:**	
Report Reviewer:		**Professional(s) of Record:**	
Name:			
Designation:			
Designation Number:			

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-5-27-Britz-996DD

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	05/27/2024	**Location:**	BC Rail Site
Triton QP:	Wade Britz	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 9 High 15	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 09:06:56 **Flow Volume (visual):** moderate

Notes: Flow higher than normal

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

Logger Maintenance

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

Describe Logger Maintenance

Cleaned sensor and scrubbed casing

Photos

Photo: 1

Location: SQU US1

Description: Downstream view

Photo: 2

Location: SQU US1

Description: Across view

Photos

Photo: 3

Location: SQU US1

Description: Upstream view

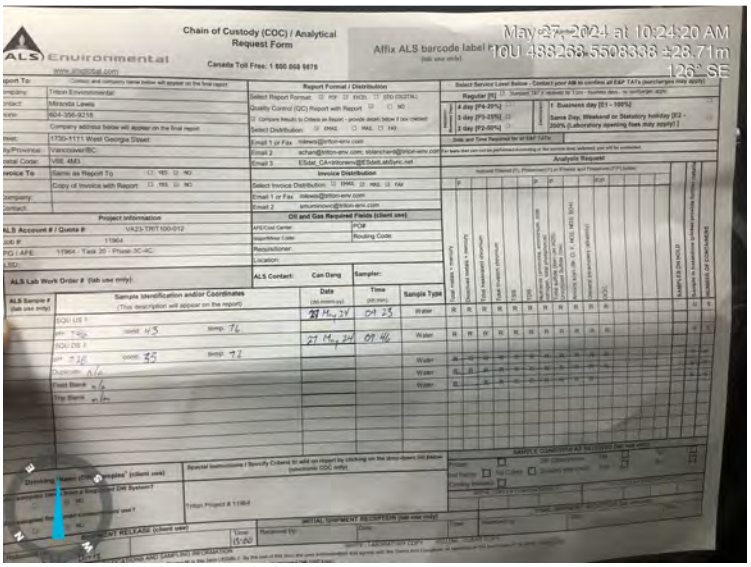

Photo: 4

Location: SQU US1

Description: CoC

Sign Off

Report Prepared By:	Wade Britz	**Report Reviewed:**	
Report Reviewer:		**Professional(s) of Record:**	
Name:			
Designation:			
Designation Number:			

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

Woodfibre Site Batch Sample Analysis

Woodfibre Site Batch Sample Lab Documentation

Woodfibre Site WTP Discharge Field Notes and Logs

Appendix D: Woodfibre Site Receiving Environment Documentation

Woodfibre Site Receiving Environment Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:	[Seal: British Columbia Institute of Agrologists, 3144, Miranda Lewis, P.Ag.]		Miranda Lewis PAg, MSc	WLNG US1 (Upstream)	WLNG DS 1 (Downstream)	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24B2395-001	VA24B2395-002					
	Date Sampled					29-May-2024	29-May-2024					
	Time Sampled					8:37	9:35					
Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Water	Water					
						N/A	N/A		Guideline notes			
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.26	7.29		If natural pH < 6.5, no statisticaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	-	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	-	8.9	9.3		Guideline is species-dependent. Short-term daily temperature guideline is 19°C for streams with unknown fish distribution. Refer to footnote 4 for background temperature range for the Squamish River. Refer to BC Water Quality Guidelines for more information Hourly rate of change not to exceed 1°C. Calculation: BCR US value +/- 1 = guideline range		Guideline for marine waters are based on natural ambient conditions. Max and min. 1°C change from natural condition. Natural temperature cycle characteristic of the site should not be altered in amplitude or frequency by human activities. Max rate of any human-induced temperature change not to exceed 0.5°C hourly. treams with unknown fish distribution. Refer to footnote 4 for background temperature range for the Squamish River. Calculation: BCR US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	51	34.1					
Turbidity (field)	NTU	Varies with background, see note Lowest value for guideline is 3 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 3 NTU	8.42	2.66		Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 8 = BCR DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: BCR US value + 5 = BCR DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 8 = BCR DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: BCR US value + 5 = BCR DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.
General Parameters												
Hardness (as CaCO3) (total)	mg/L	-	-	-	-	22.2	12.2					
Total Dissolved Solids	mg/L	-	-	-	-	46	28					
Total Suspended Solids	mg/L	Varies with background, see note Lowest value for guideline is 6mg/L	Varies with background, see note Lowest value for guideline is 26mg/L	Varies with background, see note Lowest value for guideline is 26mg/L	Varies with background, see note Lowest value for guideline is 6mg/L	11.3	3.9		Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 25 = BCR DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: BCR US value + 10 = BCR DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.	Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: BCR US value + 25 = BCR DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: BCR US value + 10 = BCR DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: BCR US value + (BCR US value*0.1) = BCR DS guideline	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of BCR US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using BCR US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	3.81	2.82			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	8.3	7.9	The upstream and downstream locations have high sensitivity to acid inputs (i.e. low buffering capacity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs. Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	< 0.0015	< 0.0015					
Total Sulfide (un-ionized as H2S)	mg/L	0.002	-	-	-	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note.	Varies with pH and temperature. See note.	Varies with pH, temperature and salinity. See note.	Varies with pH, temperature and salinity. See note.	0.0363	0.0056		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	1.00	0.69				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Fluoride	mg/L	-	Varies with hardness	1.5	-	< 0.020	0.021		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	3	32.8	-	3.7	0.191	0.103					
Nitrite (as N)	mg/L	Varies with chloride. See note.	Varies with chloride. See note.	-	-	0.0013	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.549	0.184					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.0898	0.0202			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO4)	mg/L	Varies with hardness. See note.	-	-	-	12.6	6.28			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	Varies with pH, DOC, hardness	-	-	-	***1.31***	***0.282***	**Results from May 29 sampling exceed long-term BCWG or FAL. When entered in the 5-week rolling average LT excel spreadsheet, the upstream location remains exceeding the long-term BCWG for FAL.** Discharge from WLNG has not begun full-time. These impacts are not attributable to WLNG discharge activities and may be characteristic of East Creek and the local geology.		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.074	0.25	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00056	0.00022					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00967	0.00513			Working guideline status		
Beryllium (Be)-Total	mg/L	0.00013	-	-	0.100	< 0.000100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Total	mg/L	1.2	-	-	1.2	< 0.010	< 0.010					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000209	0.0000102					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	6.54	3.89					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000048	< 0.000010					
Chromium (Cr) - Total	mg/L	-	-	-	-	0.00051	< 0.00050					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	0.00051	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	0.00036	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	**0.00320**	0.00106	**Total copper exceeds MAL LT and ST guidelines.**				
Iron (Fe)-Total	mg/L	-	1	-	-	0.759	0.134					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	0.00113	0.000182		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation EXP[1.273*on(hardness)-1.460] where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP[1.273*on(hardness)-4.704] applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.42	0.617					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.0194	0.00486		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	Varies with methyl mercury	-	-	-	0.0000062	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1/[MeHg/totalHg]. When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	7.6	46	-	-	0.000966	0.000832					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	0.00129	0.00058			Working guideline status. Guideline varies with hardness. Refer to BC Water Quality Guidelines for more information. Hardness 0 ≤ 60: 0.025 Hardness > 60 ≤ 180: Guideline = (EXP((0.76 * (LN(hardness)) + 1.06))/1000) Hardness ≥ 180: 0.15		Working guideline status
Phosphorus (P)-Total	mg/L	0.005 to 0.015	-	-	-	0.080	< 0.050			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	0.556	0.254					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00092	0.00040					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	< 0.000050	< 0.000050			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	5.26	4.38					
Silver (Ag)-Total	mg/L	Varies with hardness, see note	Varies with hardness, see note	0.003	0.0015	0.000013	< 0.000010		Varies with hardness Guideline ranges: Hardness ≤ 100: 0.0001 Hardness > 100: 0.003	Varies with hardness Guideline ranges: Hardness ≤ 100: 0.00005 Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	2.51	1.72					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0270	0.0161					
Sulfur (S)-Total	mg/L	-	-	-	-	4.10	1.77					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	< 0.000010	< 0.000010			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to tnhe EGP site.		
Thorium (Th)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.0341	0.00576					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.000495	0.000188			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	0.00161	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0048	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0958	0.0756					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00029	0.00016					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00386	0.00406					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	< 0.010	< 0.010					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note	Varies with hardness, see note	-	-	0.0000072	0.0000084		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	Categorical, see note	-	-	-	5.93	3.57	The upstream location has high sensitivity to acid inputs (i.e. low buffering capacity), while the downstream location has a moderate sensitivity to acid inputs.		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Dissolved	mg/L	-	-	-	-	-	-					
Chromium (Cr(VI))-Dissolved	mg/L	-	-	-	-	-	-					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note	Guideline varies with other parameters, see note	-	-	***0.00138***	***0.00078***	**May 29 results, as well as upstream and downstream locations exceed the 5-week rolling average long-term BCWG for FAL. Discharge from WLNG has not begun full-time. These impacts are not attributable to WLNG discharge activities and may be characteristic of East Creek and the local geology.**	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Iron (Fe)-Dissolved	mg/L	-	0.35	-	-	0.033	0.024					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.22	0.575					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00450	0.00250					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000778	0.000791					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	0.00092	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.529	0.265					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00050	0.00031					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	0.000052	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	3.98	3.99					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	2.47	1.71					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0233	0.0156					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	4.35	1.95					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	0.00074	0.00039					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000175	0.000133					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0016	0.0019		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		**British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life**										
Color Key:	**Exceeds BCAWWQG Short and Long-Term Guideline**	***Exceeds BCAWWQG Long term Guideline***	**Exceeds BCAWWQG Short term Guideline**	**Exceeds BCAWWQG MAL Short term Guideline**	***Exceeds BCAWWQG MAL Long term Guideline***							
Color Key:				**Exceeds BCAWWQG MAL Short and Long-term Guidelines**	**Exceeds both BCAWWQG FAL and MAL Guidelines**							

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

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

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

[4]Background temperature ranges: Dec-Feb: 2.0-4.0C; Mar-Apr: 4.0-6.0C; May-June: 6.0-12.0C; Jul-Sept: 9.0-12.0C; Oct-Nov: 3.0-5.0

Reference: Triton Environmental Consulants Ltd. 2023. Memo - Background water quality values for the BC Rail Discharge to Squamish River
For guidelines dependent on other parameters, when hardness, pH or DOC are below the range stated in the guideline, the lowest value in the range is used to calculate the guideline.

Parameters Used to Calculate Guidelines

Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Values: WLNG US1 (Upstream)	Values: WLNG DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.26	7.29
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				8.9	9.3
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				8.42	2.66
Hardness (as CaCO3) (total)	mg/L	Laboratory tested total hardness taken at each respective sample site on the day of sampling used in guideline calculations				22.2	12.2
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				3.81	2.82
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				8.3	7.9
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1	0.69

Woodfibre Site Receiving Environment Lab Documentation

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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **VA24B2395**	Page	: 1 of 7
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 29-May-2024 17:30
PO	: 11964-task 20-Phase 3C-4C	Date Analysis Commenced	: 31-May-2024
C-O-C number	: ----	Issue Date	: 07-Jun-2024 17:50
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Paolo Obillo	Account Manager Assistant	Administration, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

No Breaches Found

General Comments

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

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

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

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

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

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

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

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

Qualifiers

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

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----	----	----
				Sampling date/time	29-May-2024 08:37	29-May-2024 09:35	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B2395-001	VA24B2395-002	--------	--------	--------	--------	--------
Field Tests											
Conductivity, field	----	EF001/VA	µS/cm		51.000	34.100	----	----	----	----	----
pH, field	----	EF001/VA	pH units		7.26	7.29	----	----	----	----	----
Temperature, field	----	EF001/VA	°C		8.90	9.30	----	----	----	----	----
Physical Tests											
Hardness (as CaCO3), dissolved	----	EC100/VA	mg/L		19.8	11.3	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L		22.2	12.2	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L		46	28	----	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	mg/L		11.3	3.9	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L		8.3	7.9	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L		0.0363	0.0056	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L		1.00	0.69	----	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	mg/L		<0.020	0.021	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	mg/L		0.191	0.103	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	mg/L		0.0013	<0.0010	----	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	mg/L		0.549	0.184	----	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	mg/L		0.0898	0.0202	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L		12.6	6.28	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/VA	mg/L		3.81	2.82	----	----	----	----	----
Total Sulfides											
Sulfide, total (as S)	18496-25-8	E395/VA	mg/L		<0.0015	<0.0015	----	----	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	mg/L		<0.0015	<0.0015	----	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	mg/L		<0.0016	<0.0016	----	----	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/VA	mg/L		1.31	0.282	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----	----	----
				Sampling date/time	29-May-2024 08:37	29-May-2024 09:35	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B2395-001	VA24B2395-002	--------	--------	--------	--------	--------
Total Metals											
Antimony, total	7440-36-0	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L		0.00056	0.00022	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L		0.00967	0.00513	----	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	mg/L		<0.000100	<0.000100	----	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Boron, total	7440-42-8	E420/VA	mg/L		<0.010	<0.010	----	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	mg/L		0.0000209	0.0000102	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L		6.54	3.89	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L		0.000048	<0.000010	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L		0.00051	<0.00050	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	mg/L		0.00036	<0.00010	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00328	0.00106	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.759	0.134	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		0.00113	0.000182	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		1.42	0.617	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.0194	0.00486	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		0.0000062	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.000966	0.000832	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		0.00129	0.00058	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		0.080	<0.050	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		0.556	0.254	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00092	0.00040	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		5.26	4.38	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		0.000013	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		2.51	1.72	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.0270	0.0161	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		4.10	1.77	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----	----	----
				Sampling date/time	29-May-2024 08:37	29-May-2024 09:35	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
				VA24B2395-	001	002	--------	--------	--------	--------	--------
Total Metals											
Tellurium, total	13494-80-9	E420/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Thallium, total	7440-28-0	E420/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Thorium, total	7440-29-1	E420/VA	mg/L		<0.00020 DLM	<0.00010	----	----	----	----	----
Tin, total	7440-31-5	E420/VA	mg/L		0.00010	<0.00010	----	----	----	----	----
Titanium, total	7440-32-6	E420/VA	mg/L		0.0341	0.00576	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L		0.000495	0.000188	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L		0.00161	<0.00050	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L		0.0048	<0.0030	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	mg/L		0.00020	<0.00020	----	----	----	----	----
Dissolved Metals											
Aluminum, dissolved	7429-90-5	E421/VA	mg/L		0.0958	0.0756	----	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	mg/L		0.00029	0.00016	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	mg/L		0.00386	0.00406	----	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	mg/L		<0.000100	<0.000100	----	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	mg/L		<0.010	<0.010	----	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	mg/L		0.0000072	0.0000084	----	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	mg/L		5.93	3.57	----	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	mg/L		0.00138	0.00078	----	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	mg/L		0.033	0.024	----	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	mg/L		1.22	0.575	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----	----	----
				Sampling date/time	29-May-2024 08:37	29-May-2024 09:35	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
				VA24B2395-	001	002	--------	--------	--------	--------	--------
Dissolved Metals											
Manganese, dissolved	7439-96-5	E421/VA	mg/L		0.00450	0.00250	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	mg/L		0.000778	0.000791	----	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	mg/L		0.00092	<0.00050	----	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	mg/L		0.529	0.265	----	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	mg/L		0.00050	0.00031	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	mg/L		0.000052	<0.000050	----	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	mg/L		3.98	3.99	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	mg/L		2.47	1.71	----	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	mg/L		0.0233	0.0156	----	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	mg/L		4.35	1.95	----	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	mg/L		0.00074	0.00039	----	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	mg/L		0.000175	0.000133	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	mg/L		<0.00050	<0.00050	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	mg/L		0.0016	0.0019	----	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-		Field	Field	----	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-		Field	Field	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	mg/L		<0.00050	<0.00050	----	----	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	mg/L		0.00051	<0.00050	----	----	----	----	----

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

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

Key:

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **VA24B2395**	Page	: 1 of 6
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 29-May-2024 17:30
PO	: 11964-task 20-Phase 3C-4C	Date Analysis Commenced	: 31-May-2024
C-O-C number	: ----	Issue Date	: 07-Jun-2024 17:50
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Paolo Obillo	Account Manager Assistant	Administration, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time: 29-May-2024 08:37	29-May-2024 09:35	----	----	----
					VA24B2395-001	VA24B2395-002	--------	--------	--------
					Result	Result	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	51.000	34.100	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.26	7.29	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	8.90	9.30	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	19.8	11.3	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	22.2	12.2	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	46	28	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	11.3	3.9	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	8.3	7.9	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0363	0.0056	----	----	----
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	1.00	0.69	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	0.021	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.191	0.103	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0013	<0.0010	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.549	0.184	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0898	0.0202	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	12.6	6.28	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	3.81	2.82	----	----	----
Total Sulfides									
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L	<0.0015	<0.0015	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L	<0.0015	<0.0015	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L	<0.0016	<0.0016	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	1.31	0.282	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	29-May-2024 08:37	29-May-2024 09:35	----	----	----
						VA24B2395-001	VA24B2395-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00056	0.00022	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00967	0.00513	----	----	----
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		0.0000209	0.0000102	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		6.54	3.89	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000048	<0.000010	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00051	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00036	<0.00010	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00328	0.00106	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.759	0.134	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.00113	0.000182	----	----	----
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		1.42	0.617	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0194	0.00486	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		0.0000062	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000966	0.000832	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00129	0.00058	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.080	<0.050	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.556	0.254	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00092	0.00040	----	----	----
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		5.26	4.38	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		0.000013	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		2.51	1.72	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0270	0.0161	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		4.10	1.77	----	----	----
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**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	29-May-2024 08:37	29-May-2024 09:35	----	----	----
						VA24B2395-001	VA24B2395-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00020 DLM	<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		0.0341	0.00576	----	----	----
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		0.000495	0.000188	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00161	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0048	<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		0.0958	0.0756	----	----	----
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		0.00029	0.00016	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00386	0.00406	----	----	----
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		0.0000072	0.0000084	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		5.93	3.57	----	----	----
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		0.00138	0.00078	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.033	0.024	----	----	----
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		1.22	0.575	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00450	0.00250	----	----	----
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		0.000778	0.000791	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00092	<0.00050	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	29-May-2024 08:37	29-May-2024 09:35	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B2395-001	VA24B2395-002	--------	--------	--------
						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		0.529	0.265	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00050	0.00031	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000052	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		3.98	3.99	----	----	----
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		2.47	1.71	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0233	0.0156	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		4.35	1.95	----	----	----
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		0.00074	0.00039	----	----	----
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		0.000175	0.000133	----	----	----
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		0.0016	0.0019	----	----	----
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/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		0.00051	<0.00050	----	----	----

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

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

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B2395**	Page	: 1 of 14
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 29-May-2024 17:30
PO	: 11964-task 20-Phase 3C-4C	Issue Date	: 07-Jun-2024 17:51
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG DS 1	E298	29-May-2024	05-Jun-2024	28 days	7 days	✓	06-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG US 1	E298	29-May-2024	05-Jun-2024	28 days	7 days	✓	06-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.Br-L	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG US 1	E235.Br-L	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG DS 1	E235.Cl	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG US 1	E235.Cl	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG DS 1	E235.F	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WLNG US 1	E235.F	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO3-L	29-May-2024	01-Jun-2024	3 days	3 days	✓	01-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO3-L	29-May-2024	01-Jun-2024	3 days	3 days	✓	01-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO2-L	29-May-2024	01-Jun-2024	3 days	3 days	✓	01-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO2-L	29-May-2024	01-Jun-2024	3 days	3 days	✓	01-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG DS 1	E235.SO4	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG US 1	E235.SO4	29-May-2024	01-Jun-2024	28 days	3 days	✓	01-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG DS 1	E366	29-May-2024	05-Jun-2024	28 days	7 days	✓	06-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG US 1	E366	29-May-2024	05-Jun-2024	28 days	7 days	✓	06-Jun-2024	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		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)										
WLNG DS 1	E372-U	29-May-2024	05-Jun-2024	28 days	7 days	✓	07-Jun-2024	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG US 1	E372-U	29-May-2024	05-Jun-2024	28 days	7 days	✓	07-Jun-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG DS 1	E509	29-May-2024	05-Jun-2024	28 days	7 days	✓	05-Jun-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG US 1	E509	29-May-2024	05-Jun-2024	28 days	7 days	✓	05-Jun-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG DS 1	E421	29-May-2024	01-Jun-2024	180 days	3 days	✓	02-Jun-2024	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG US 1	E421	29-May-2024	01-Jun-2024	180 days	3 days	✓	02-Jun-2024	180 days	4 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG DS 1	EF001	29-May-2024	----	----	----		31-May-2024	----	2 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG US 1	EF001	29-May-2024	----	----	----		31-May-2024	----	2 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG DS 1	E358-L	29-May-2024	05-Jun-2024	28 days	7 days	✓	05-Jun-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG US 1	E358-L	29-May-2024	05-Jun-2024	28 days	7 days	✓	05-Jun-2024	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG DS 1	E290	29-May-2024	01-Jun-2024	14 days	3 days	✓	01-Jun-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG US 1	E290	29-May-2024	01-Jun-2024	14 days	3 days	✓	01-Jun-2024	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	29-May-2024	----	----	----		05-Jun-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	29-May-2024	----	----	----		05-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	29-May-2024	----	----	----		05-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	29-May-2024	----	----	----		05-Jun-2024	7 days	7 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG DS 1	E532	29-May-2024	----	----	----		04-Jun-2024	28 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG US 1	E532	29-May-2024	----	----	----		04-Jun-2024	28 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG DS 1	E508	29-May-2024	05-Jun-2024	28 days	7 days	✓	05-Jun-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG US 1	E508	29-May-2024	05-Jun-2024	28 days	7 days	✓	05-Jun-2024	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG DS 1	E420	29-May-2024	01-Jun-2024	180 days	3 days	✓	03-Jun-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG US 1	E420	29-May-2024	01-Jun-2024	180 days	3 days	✓	03-Jun-2024	180 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG DS 1	E395	29-May-2024	----	----	----		04-Jun-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG US 1	E395	29-May-2024	----	----	----		04-Jun-2024	7 days	6 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1470694	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1478091	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1470698	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1470697	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1478051	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1470035	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1478092	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1470696	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1470699	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1470700	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1470701	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1476794	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1474865	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1476320	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469687	1	19	5.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1478089	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1478090	1	10	10.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1475134	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1476791	1	19	5.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1470694	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1478091	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1470698	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1470697	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1478051	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1470035	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1478092	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1470696	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1470699	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1470700	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1470701	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1476794	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1474865	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1476320	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469687	1	19	5.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1478089	1	7	14.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1478090	1	10	10.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1475134	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1476791	1	19	5.2	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1470694	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1478091	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1470698	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1470697	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1478051	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1470035	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1478092	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1470696	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1470699	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1470700	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1470701	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1476794	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1474865	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1476320	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469687	1	19	5.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1478089	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1478090	1	10	10.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1475134	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1476791	1	19	5.2	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1478091	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1470698	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1470697	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1478051	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1470035	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1478092	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1470696	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1470699	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1470700	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1470701	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1474865	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1476320	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1469687	1	19	5.2	5.0	✓
Total Nitrogen by Colourimetry	E366	1478089	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1478090	1	10	10.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1475134	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 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	Chinchilla Scientific Nitrate Method, 2011	Following digestion, total nitrogen is is determined colourimetrically using a discrete analyzer utilizing the vanadium chloride reduction method. This method of analysis is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
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 - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 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.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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	: **VA24B2395**	Page	: 1 of 17
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 29-May-2024 17:30
PO	: 11964-task 20-Phase 3C-4C	Date Analysis Commenced	: 31-May-2024
C-O-C number	: ----	Issue Date	: 07-Jun-2024 17:51
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario
Paolo Obillo	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
Sam Silveira	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1470694)											
FJ2401516-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	98.7	98.4	0.308%	20%	----
Physical Tests (QC Lot: 1476791)											
FJ2401542-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	9.1	8.9	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1476794)											
FJ2401542-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1200	1440	18.1%	20%	----
Anions and Nutrients (QC Lot: 1470696)											
FJ2401516-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.328	0.324	1.24%	20%	----
Anions and Nutrients (QC Lot: 1470697)											
FJ2401516-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	0.66	0.66	0.0010	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1470698)											
FJ2401516-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1470699)											
FJ2401516-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0170	0.0187	0.0017	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1470700)											
FJ2401516-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1470701)											
FJ2401516-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.01	4.00	0.0846%	20%	----
Anions and Nutrients (QC Lot: 1478089)											
VA24B2371-004	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1478090)											
VA24B2371-004	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1478091)											
VA24B2371-004	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: 1478092)											
VA24B2395-001	WLNG US 1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.81	3.89	0.08	Diff <2x LOR	----
Total Sulfides (QC Lot: 1475134)											
CG2407192-013	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1469687)											
VA24B2306-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	41.2 µg/L	0.0389	5.74%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.23 µg/L	0.00024	0.000006	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: 1469687) - continued											
VA24B2306-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.55 µg/L	0.00054	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	10.6 µg/L	0.0104	1.48%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	846 µg/L	0.863	1.96%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0439 µg/L	0.0000411	0.0000028	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	85600 µg/L	89.4	4.32%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.098 µg/L	0.000101	0.000003	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.76 µg/L	0.00076	0.000005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.62 µg/L	0.00061	0.000009	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	740 µg/L	0.744	0.600%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.104 µg/L	0.000121	0.000017	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	3.6 µg/L	0.0038	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	79200 µg/L	81.1	2.27%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	264 µg/L	0.263	0.568%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	3.08 µg/L	0.00318	3.41%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	2.95 µg/L	0.00293	0.00002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	2160 µg/L	2.21	2.34%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	37600 µg/L	37.6	0.229%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	32.0 µg/L	0.0311	3.06%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.050 µg/L	0.000074	0.000024	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6330 µg/L	6.09	3.86%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	154000 µg/L	158	2.48%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	405 µg/L	0.418	3.12%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	117000 µg/L	115	1.07%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	0.18 µg/L	0.00019	0.0000008	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00120	mg/L	<1.20 µg/L	<0.00120	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.14 µg/L	0.00015	0.00001	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.319 µg/L	0.000335	4.90%	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: 1469687) - continued											
VA24B2306-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	6.56 µg/L	0.00659	0.392%	20%	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	9.0 µg/L	0.0086	0.0004	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1476320)											
VA24B2372-006	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1470035)											
YL2400516-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	0.0022	0.0024	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	0.00690	0.00675	2.30%	20%	----
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	0.00780	0.00780	0.0538%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.0225	0.0232	3.06%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	0.235	0.223	5.05%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	0.00102	0.00106	3.50%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.100	mg/L	546	540	1.07%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000020	mg/L	0.000246	0.000249	1.04%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	0.0236	0.0235	0.393%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	0.00694	0.00671	3.30%	20%	----
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	0.0343	0.0347	1.06%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	122	117	4.07%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.397	0.404	1.74%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.00286	0.00276	3.80%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	0.0397	0.0398	0.260%	20%	----
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	10.9	10.7	2.53%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00040	mg/L	0.0117	0.0120	2.15%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	0.000154	0.000153	0.0000006	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	1.10	1.10	0.195%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	290	279	3.89%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	6.47	6.23	3.86%	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: 1470035) - continued											
YL2400516-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	297	301	1.51%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.00285	0.00282	1.27%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	0.0945	0.0945	0.0884%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1478051)											
VA24B2336-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1474865)											
VA24B2208-041	Anonymous	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: 1470694)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1476791)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1476794)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1470696)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1470697)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1470698)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1470699)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1470700)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1470701)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1478089)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1478090)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1478091)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1478092)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1475134)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1469687)						
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: 1469687) - 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: 1476320)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1470035)						
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: 1470035) - 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: 1478051)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1474865)						
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: 1470694)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 1476791)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	111	85.0	115	----
Physical Tests (QCLot: 1476794)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	92.6	85.0	115	----
Anions and Nutrients (QCLot: 1470696)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1470697)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1470698)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1470699)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1470700)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1470701)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1478089)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1478090)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	94.6	80.0	120	----
Anions and Nutrients (QCLot: 1478091)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	114	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1478092)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 1475134)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	96.4	80.0	120	----
Total Metals (QCLot: 1469687)									

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: 1469687) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	100	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	98.8	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	91.3	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	100.0	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	99.2	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	97.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	99.5	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	109	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.7	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.7	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.9	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	87.0	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.8	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	94.7	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	99.4	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.8	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	95.7	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1469687) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.1	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.5	80.0	120	----
Total Metals (QCLot: 1476320)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	96.2	80.0	120	----
Dissolved Metals (QCLot: 1470035)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	104	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.3	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.8	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	86.0	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.5	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	95.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	100	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.6	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	95.0	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	90.0	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	98.7	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	97.7	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	109	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	104	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	93.0	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	109	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.5	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	108	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: 1470035) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.8	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	104	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.0	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	98.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	89.4	80.0	120	----
Speciated Metals (QCLot: 1474865)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	95.8	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: 1470696)										
FJ2401516-002	Anonymous	Fluoride	16984-48-8	E235.F	1.00 mg/L	1 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1470697)										
FJ2401516-002	Anonymous	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1470698)										
FJ2401516-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.457 mg/L	0.5 mg/L	91.5	75.0	125	----
Anions and Nutrients (QCLot: 1470699)										
FJ2401516-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.50 mg/L	2.5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 1470700)										
FJ2401516-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.455 mg/L	0.5 mg/L	90.9	75.0	125	----
Anions and Nutrients (QCLot: 1470701)										
FJ2401516-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	99.2 mg/L	100 mg/L	99.2	75.0	125	----
Anions and Nutrients (QCLot: 1478089)										
VA24B2395-001	WLNG US 1	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1478090)										
VA24B2395-001	WLNG US 1	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1478091)										
VA24B2395-001	WLNG US 1	Ammonia, total (as N)	7664-41-7	E298	0.106 mg/L	0.1 mg/L	106	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1478092)										
VA24B2395-002	WLNG DS 1	Carbon, dissolved organic [DOC]	----	E358-L	5.05 mg/L	5 mg/L	101	70.0	130	----
Total Sulfides (QCLot: 1475134)										
CG2407192-014	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.220 mg/L	0.2 mg/L	110	75.0	125	----
Total Metals (QCLot: 1469687)										
VA24B2306-002	Anonymous	Aluminum, total	7429-90-5	E420	0.185 mg/L	0.2 mg/L	92.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		Barium, total	7440-39-3	E420	0.0179 mg/L	0.02 mg/L	89.3	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00897 mg/L	0.01 mg/L	89.7	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00958 mg/L	0.01 mg/L	95.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1469687) - continued										
VA24B2306-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Copper, total	7440-50-8	E420	0.0169 mg/L	0.02 mg/L	84.6	70.0	130	----
		Iron, total	7439-89-6	E420	1.79 mg/L	2 mg/L	89.6	70.0	130	----
		Lead, total	7439-92-1	E420	0.0179 mg/L	0.02 mg/L	89.7	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0995 mg/L	0.1 mg/L	99.5	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	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0352 mg/L	0.04 mg/L	87.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.93 mg/L	10 mg/L	99.3	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	ND mg/L	----	ND	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0428 mg/L	0.04 mg/L	107	70.0	130	----
		Silicon, total	7440-21-3	E420	10.5 mg/L	10 mg/L	105	70.0	130	----
		Silver, total	7440-22-4	E420	0.00380 mg/L	0.004 mg/L	95.1	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	0.0377 mg/L	0.04 mg/L	94.4	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00346 mg/L	0.004 mg/L	86.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Tin, total	7440-31-5	E420	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00367 mg/L	0.004 mg/L	91.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Zinc, total	7440-66-6	E420	0.370 mg/L	0.4 mg/L	92.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
Total Metals (QCLot: 1476320)										
VA24B2372-007	Anonymous	Mercury, total	7439-97-6	E508	0.0000933 mg/L	0 mg/L	93.3	70.0	130	----
Dissolved Metals (QCLot: 1470035)										
YL2400516-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0389 mg/L	0.04 mg/L	97.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	ND mg/L	----	ND	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0758 mg/L	0.08 mg/L	94.7	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0179 mg/L	0.02 mg/L	89.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00753 mg/L	0.008 mg/L	94.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0799 mg/L	0.08 mg/L	99.9	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0366 mg/L	0.04 mg/L	91.5	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: 1470035) - continued										
YL2400516-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0342 mg/L	0.04 mg/L	85.5	70.0	130	----
		Iron, dissolved	7439-89-6	E421	3.86 mg/L	4 mg/L	96.5	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0371 mg/L	0.04 mg/L	92.7	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.180 mg/L	0.2 mg/L	90.3	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	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0698 mg/L	0.08 mg/L	87.3	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	23.0 mg/L	20 mg/L	115	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0762 mg/L	0.08 mg/L	95.3	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	19.9 mg/L	20 mg/L	99.7	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00751 mg/L	0.008 mg/L	93.8	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	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0794 mg/L	0.08 mg/L	99.3	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00728 mg/L	0.008 mg/L	91.0	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0397 mg/L	0.04 mg/L	99.3	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0820 mg/L	0.08 mg/L	102	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00770 mg/L	0.008 mg/L	96.2	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.203 mg/L	0.2 mg/L	101	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.713 mg/L	0.8 mg/L	89.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0808 mg/L	0.08 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1478051)										
VA24B2336-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000888 mg/L	0 mg/L	88.8	70.0	130	----
Speciated Metals (QCLot: 1474865)										
VA24B2208-041	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0398 mg/L	0.04 mg/L	99.6	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of

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

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☑ YES ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fa	[redacted]
Email 2	
Email 3	
Select Invoice	
Email 1 or Fa	
Email 2	

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

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

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4-20%] ☐		1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

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

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

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA23-TRIT100-012	AFE/Cost Center:	PO#
Job #:	11964	Major/Minor Code:	Routing Code:
PO / AFE:	11964 - Task 20 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	B 2395	ALS Contact: Can Dang	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury (F)	Dissolved metals + mercury (F)	Total hexavalent chromium (F)	Total trivalent chromium (F)	TSS (P)	TDS (P)	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus) (P)	Total sulfide (low) (as H2S), Unionized Sulfide (low) (P)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC (F/P)	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	WLNG US 1	29-May-24	08:37	Water	R	R	R	R	R	R	R	R	R	R	R		N	9
	pH: 7.26 cond: 51.0 mS/cm temp: 8.9°C																	
	WLNG DS 1	29-May-24	09:35	Water	R	R	R	R	R	R	R	R	R	R	R		N	9
	pH: 7.29 cond: 34.1 mS/cm temp: 9.3°C																	
	Duplicate N/A			Water	R	R	R	R	R	R	R	R	R	R	R		N	9
	Field Blank N/A			Water	R	R	R	R	R	R	R	R	R	R	R		N	9
	Trip Blank N/A			Water	R	R	R	R	R	R	R	R	R	R			N	6

Environmental Division
Vancouver
Work Order Reference
VA24B2395

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify
Are samples taken from a Regulated DW System?	
☐ YES ☐ NO	
Are samples for human consumption/ use?	Triton project # 11964
☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C				
					12				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	May 29, 2024	17:30				RJ	May 29	17:30

LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SCPT 2017 FRONT

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

[1] For Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Woodfibre Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-5-29-Blanchard-25E59

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	05/29/2024	**Location:**	WLNG
Triton QP:	Sam Blanchard	**Latitude/Longitude:**	49.6683 -123.247958
Temperature(c):	Low 6 High 13	**Permit:**	PE 110136
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 09:35:00 **Flow Volume (visual):** moderate

Notes: Turbid water from upstream had cleared before sampling at EAS DS1.

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:**	Total CrVI
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**VOC/VPH**	N/A	**QA Samples:**	No
					Total CrVI
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

Photos

Photo: 3

Location: EAS DS1

Description: Across View

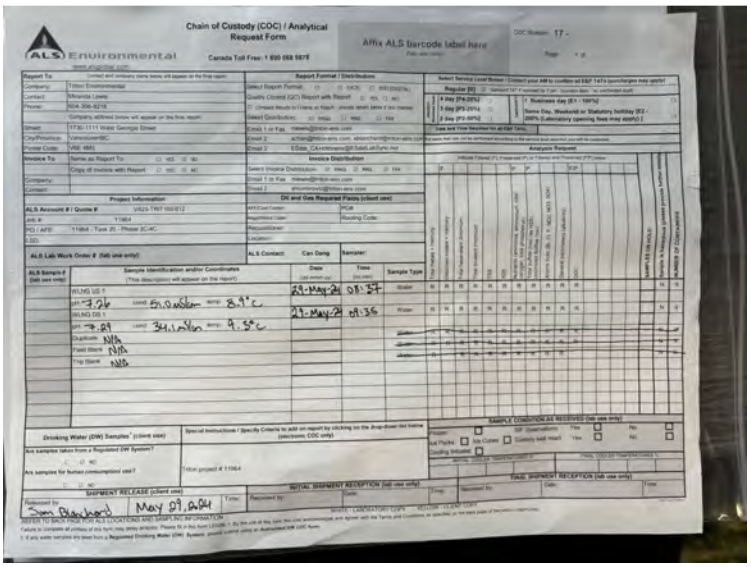

Photo: 4

Location: EAS DS1

Description: Lab CoC

Sign Off

Report Prepared By: Sam Blanchard

Report Reviewer: Miranda Lewis

Name:

Designation:

Designation Number:

Report Reviewed: Yes

Professional(s) of Record: N/A

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-5-29-Blanchard-C9445

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	05/29/2024	**Location:**	WLNG
Triton QP:	Sam Blanchard	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 6 High 13	**Permit:**	PE 110136
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 08:37:00 **Flow Volume (visual):** moderate

Notes: Turbid road runoff during rainfall caused turbid water to enter East Creek upstream of EAS US1. Turbidity levels rose up to 27.5NTU. Dissolved metals, nutrients, and mercury were collected during this period of higher turbidity.

Odour Detected?:	No	**Notes:**	
Unusual Colour?	Yes	**Notes:**	Slightly turbid due to road runoff entering East Creek upstream.
Unusual Observations?	No	**Notes:**	
Sheen on Water?	No	**Notes:**	

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	Total CrVI
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**VOC/VPH**	N/A	**QA Samples:**	No
					Total CrVI
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

Photos

Photo: 3

Location: EAS US1

Description: Across View

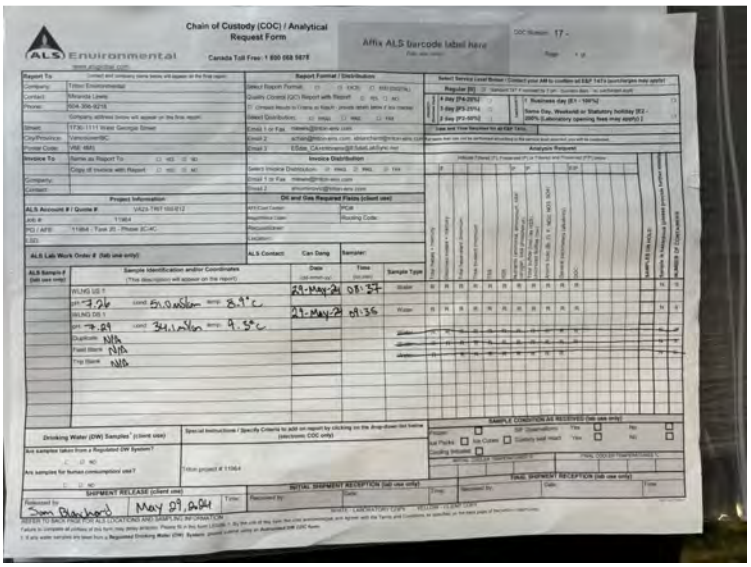

Photo: 4

Location: EAS US1

Description: Lab CoC

Sign Off

Report Prepared By: Sam Blanchard

Report Reviewer: Miranda Lewis

Name:

Designation:

Designation Number:

Report Reviewed: Yes

Professional(s) of Record: N/A