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	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 LevelPro PT100 Temperature and Signet 2350 Temp sensor
	NTU	Monitoring using Observator NEP9504GPI
	Electrical Conductivity	Monitoring using ProCon C450
Weekly (or per batch) Lab Samples	List prescribed in permit	Lab samples

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

Summary-BC Rail Site

Site Activities

- No discharges during this reporting 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	Real Time Monitored	Field Samples Taken	Discharge Rate (batch)	Discharge Volume (batch)	Results

		the discharge)					
BC Rail	No Discharge during this time period.						

Exceedances

No exceedances 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	2024-06-10	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	2023-06-10	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

- Woodfibre has commenced active discharge operations onsite on June 14th, 2024, this is Day 1 of 7 of daily sampling phase change as per the Permit requirements.

Point of Discharge from Water Treatment System Monitoring

Table 3 below includes information on the continuous discharge water quality and lab sampling. Appendix C includes a full set of lab results with real time/field samples from discharges 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	Discharge Volume	Results
Woodfibre	2024-06-14	2024-06-14	Yes	Yes	68-393 GPM	19.76 m3	Full set of lab sample results, photo and documentation are provided in Appendix D.

Exceedance details

- Nothing to report

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	2024-06-11	Yes *	No	Full set of lab sample results, photo and documentation are provided in Appendix D.

Table 5: Downstream Monitoring Information

	Date of Lab Sample	Real Time Monitored	Field Samples Taken	Results
Woodfibre Downstream	2024-06-11	Yes *	No	Full set of lab sample results, photo and documentation are provided 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:	BRITISH COLUMBIA INSTITUTE OF AGROLOGISTS 3144 Miranda Lewis PAg		Miranda Lewis PAg, M.Sc.	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					VA24B3435-001	VA24B3435-002					
	Date Sampled					10-Jun-2024	10-Jun-2024					
	Time Sampled					10:22	10:57					
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	7.18	7.09		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]	-	8.7	8.8		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	-	-	-	-	29.0	27.0					
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	23.5	28.9		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	-	-	-	-	11.4	12.1					
Total Dissolved Solids	mg/L	-	-	-	-	29	35					
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	18.9	26.9		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	-	-	-	-	1.37	1.35			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	10.0	8.2	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.	0.0414	0.0306		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	0.55	0.55				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	< 0.020		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	0.0126	0.0139					
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	-	-	-	-	0.086	0.092					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.0381	0.0534			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.	-	-	-	2.19	2.09			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	-	-	-	***0.931***	***1.43***	**The upstream and downstream locations exceed the long-term 5-week average BCWG for FAL; thus there is a risk for chronic effects to FAL. Discharge from BCR has not begun full-time. These impacts are not attributable to BCR construction activities and 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))-9.898)/3/1000) 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	< 0.000100					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00016	0.00023					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.0143	0.0208			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	0.0000093	0.0000103					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	3.67	3.65					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000034	0.000066					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	0.00065					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	< 0.00050	0.00065			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	-	-	0.00028	0.00053					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	***0.00202***	<u>**0.00303**</u>	**Both upstream and downstream locations exceed the MAL LT guidelines for total copper. The downstream location exceeds the short term BCWQ guideline to marine aquatic life. The rolling 5-week average for both sites is below LT guidelines.**				
Iron (Fe)-Total	mg/L	-	1	-	-	0.537	**1.05**	**The downstream location exeeds the short term BCWQ guideline.**				
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	0.000132	0.000179		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	-	-	-	-	0.536	0.735					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.0143	0.0264		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	-	-	-	< 0.0000050	< 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	-	-	0.000388	0.000342					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	< 0.00050	0.00062			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	0.064			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	-	-	-	-	0.452	0.620					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00090	0.00164					
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 guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guideliens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	3.75	4.31					
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	-	-	-	-	1.16	1.19					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0259	0.0275					
Sulfur (S)-Total	mg/L	-	-	-	-	0.72	0.74					
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	-	-	-	-	< 0.000010	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.0312	0.0658					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.000043	0.000060			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	0.00194	0.00311					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0033	0.0038					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0471	0.0434					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00433	0.00433					
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	-	-	0.0000073	0.0000059		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	-	-	-	3.52	3.32	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	-	-	-	-	< 0.000010	< 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	-	-	***0.00060***	***0.00061***	**Both upstream and downstream locations exceed long-term BCWG for FAL and have exceeded guidelines for 5 weeks on average.**	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	-	-	0.025	0.026					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.331	0.317					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00222	0.00266					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000368	0.000363					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.305	0.335					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00039	0.00047					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	2.55	2.37					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	0.997	0.942					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0198	0.0191					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	0.87	0.69					
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	0.00083					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000023	0.000025					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00066	0.00065					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	< 0.0010	< 0.0010		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:	<u>**Exceeds BCAWWQG Short and Long-Term Guideline**</u>	***Exceeds BCAWWQG Long term Guideline***	**Exceeds BCAWWQG Short term Guideline**	**Exceeds BCAWWQG MAL Short term Guideline**	***Exceeds BCAWWQG MAL Long term Guideline***							
Color Key:				<u>**Exceeds BCAWWQG MAL Short and Long-term Guidelines**</u>	<u>**Exceeds both BCAWWQG FAL and MAL Guidelines**</u>							

[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: SQU US1 (Upstream)	Values: SQU DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.18	7.09
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				8.7	8.8
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				23.50	28.90
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				11.4	12.1
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				1.37	1.35
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				10	8.2
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				0.55	0.55

BCR Site Receiving Environment Lab Documentation

ALS Canada Ltd.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **VA24B3435**	Page	: 1 of 8
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	:
Address		Address	:
Telephone		Telephone	:
Project	: 11964	Date Samples Received	: 10-Jun-2024 12:45
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 11-Jun-2024
C-O-C number	: ----	Issue Date	: 20-Jun-2024 11:46
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*
	Lab Analyst	Inorganics, Calgary, Alberta
	Analyst	Metals, Burnaby, British Columbia
	Manager - Inorganics	Inorganics, Waterloo, Ontario
	Manager - Inorganics	Metals, Waterloo, Ontario
	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Technical Specialist	Metals, Waterloo, Ontario
	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
	Team Leader - Organics	Inorganics, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Inorganics, 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	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B3435-001	VA24B3435-002	--------	--------	--------	--------	--------
Field Tests											
Conductivity, field	----	EF001/VA	µS/cm		29.000	27.000	----	----	----	----	----
pH, field	----	EF001/VA	pH units		7.18	7.09	----	----	----	----	----
Temperature, field	----	EF001/VA	°C		8.70	8.80	----	----	----	----	----
Physical Tests											
Hardness (as CaCO3), dissolved	----	EC100/VA	mg/L		10.2	9.60	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	mg/L		11.4	12.1	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	mg/L		29	35	----	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	mg/L		18.9	26.9	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	mg/L		10.0	8.2	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/VA	mg/L		0.0414	0.0306	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	mg/L		<0.050	<0.050	----	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	mg/L		0.55	0.55	----	----	----	----	----
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		0.0126	0.0139	----	----	----	----	----
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		0.086	0.092	----	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	mg/L		0.0381	0.0534	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	mg/L		2.19	2.09	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/CG	mg/L		1.37	1.35	----	----	----	----	----
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		0.931	1.43	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B3435-001	VA24B3435-002	--------	--------	--------	--------	--------
Total Metals											
Antimony, total	7440-36-0	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	mg/L		0.00016	0.00023	----	----	----	----	----
Barium, total	7440-39-3	E420/VA	mg/L		0.0143	0.0208	----	----	----	----	----
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		0.0000093	0.0000103	----	----	----	----	----
Calcium, total	7440-70-2	E420/VA	mg/L		3.67	3.65	----	----	----	----	----
Cesium, total	7440-46-2	E420/VA	mg/L		0.000034	0.000066	----	----	----	----	----
Chromium, total	7440-47-3	E420/VA	mg/L		<0.00050	0.00065	----	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	mg/L		0.00028	0.00053	----	----	----	----	----
Copper, total	7440-50-8	E420/VA	mg/L		0.00202	0.00303	----	----	----	----	----
Iron, total	7439-89-6	E420/VA	mg/L		0.537	1.05	----	----	----	----	----
Lead, total	7439-92-1	E420/VA	mg/L		0.000132	0.000179	----	----	----	----	----
Lithium, total	7439-93-2	E420/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	mg/L		0.536	0.735	----	----	----	----	----
Manganese, total	7439-96-5	E420/VA	mg/L		0.0143	0.0264	----	----	----	----	----
Mercury, total	7439-97-6	E508/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	mg/L		0.000388	0.000342	----	----	----	----	----
Nickel, total	7440-02-0	E420/VA	mg/L		<0.00050	0.00062	----	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	mg/L		<0.050	0.064	----	----	----	----	----
Potassium, total	7440-09-7	E420/VA	mg/L		0.452	0.620	----	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	mg/L		0.00090	0.00164	----	----	----	----	----
Selenium, total	7782-49-2	E420/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Silicon, total	7440-21-3	E420/VA	mg/L		3.75	4.31	----	----	----	----	----
Silver, total	7440-22-4	E420/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, total	7440-23-5	E420/VA	mg/L		1.16	1.19	----	----	----	----	----
Strontium, total	7440-24-6	E420/VA	mg/L		0.0259	0.0275	----	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	mg/L		0.72	0.74	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B3435-001	VA24B3435-002	--------	--------	--------	--------	--------
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		0.0312	0.0658	----	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, total	7440-61-1	E420/VA	mg/L		0.000043	0.000060	----	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	mg/L		0.00194	0.00311	----	----	----	----	----
Zinc, total	7440-66-6	E420/VA	mg/L		0.0033	0.0038	----	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	mg/L		<0.00020	<0.00020	----	----	----	----	----
Dissolved Metals											
Aluminum, dissolved	7429-90-5	E421/VA	mg/L		0.0471	0.0434	----	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	mg/L		0.00433	0.00433	----	----	----	----	----
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		0.0000073	0.0000059	----	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	mg/L		3.52	3.32	----	----	----	----	----
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		0.00060	0.00061	----	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	mg/L		0.025	0.026	----	----	----	----	----
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		0.331	0.317	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----	----	----
				Sampling date/time	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					VA24B3435-001	VA24B3435-002	--------	--------	--------	--------	--------
Dissolved Metals											
Manganese, dissolved	7439-96-5	E421/VA	mg/L		0.00222	0.00266	----	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	mg/L		<0.0000050	<0.0000050	----	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	mg/L		0.000368	0.000363	----	----	----	----	----
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		0.305	0.335	----	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	mg/L		0.00039	0.00047	----	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	mg/L		<0.000050	<0.000050	----	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	mg/L		2.55	2.37	----	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	mg/L		<0.000010	<0.000010	----	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	mg/L		0.997	0.942	----	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	mg/L		0.0198	0.0191	----	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	mg/L		0.87	0.69	----	----	----	----	----
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	0.00083	----	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	mg/L		<0.00010	<0.00010	----	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	mg/L		0.000023	0.000025	----	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	mg/L		0.00066	0.00065	----	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	mg/L		<0.0010	<0.0010	----	----	----	----	----
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	0.00065	----	----	----	----	----

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	: **VA24B3435**	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	: 10-Jun-2024 12:45
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 11-Jun-2024
C-O-C number	: ----	Issue Date	: 20-Jun-2024 11:46
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*
	Lab Analyst	Inorganics, Calgary, Alberta
	Analyst	Metals, Burnaby, British Columbia
	Manager - Inorganics	Inorganics, Waterloo, Ontario
	Manager - Inorganics	Metals, Waterloo, Ontario
	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Technical Specialist	Metals, Waterloo, Ontario
	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
	Team Leader - Organics	Inorganics, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°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	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----
						VA24B3435-001	VA24B3435-002	--------	--------	--------
						Result	Result	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		29.000	27.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.18	7.09	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		8.70	8.80	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		10.2	9.60	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		11.4	12.1	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		29	35	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		18.9	26.9	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		10.0	8.2	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0414	0.0306	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		0.55	0.55	----	----	----
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		0.0126	0.0139	----	----	----
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		0.086	0.092	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0381	0.0534	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		2.19	2.09	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/CG	0.50	mg/L		1.37	1.35	----	----	----
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		0.931	1.43	----	----	----
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	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----
						VA24B3435-001	VA24B3435-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00016	0.00023	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0143	0.0208	----	----	----
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		0.0000093	0.0000103	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		3.67	3.65	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000034	0.000066	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	0.00065	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00028	0.00053	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00202	0.00303	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.537	1.05	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000132	0.000179	----	----	----
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		0.536	0.735	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0143	0.0264	----	----	----
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		0.000388	0.000342	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	0.00062	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	0.064	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.452	0.620	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00090	0.00164	----	----	----
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		3.75	4.31	----	----	----
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		1.16	1.19	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0259	0.0275	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		0.72	0.74	----	----	----
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	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----
						VA24B3435-001	VA24B3435-002	--------	--------	--------
						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		0.0312	0.0658	----	----	----
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		0.000043	0.000060	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00194	0.00311	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0033	0.0038	----	----	----
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		0.0471	0.0434	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00433	0.00433	----	----	----
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		0.0000073	0.0000059	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		3.52	3.32	----	----	----
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		0.00060	0.00061	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.025	0.026	----	----	----
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		0.331	0.317	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00222	0.00266	----	----	----
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		0.000368	0.000363	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	10-Jun-2024 10:22	10-Jun-2024 10:57	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B3435-001	VA24B3435-002	--------	--------	--------
						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		0.305	0.335	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00039	0.00047	----	----	----
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		2.55	2.37	----	----	----
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		0.997	0.942	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0198	0.0191	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		0.87	0.69	----	----	----
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	0.00083	----	----	----
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		0.000023	0.000025	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00066	0.00065	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/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	0.00065	----	----	----

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	: **VA24B3435**	Page	: 1 of 15
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 10-Jun-2024 12:45
PO	: 11964 - Task 20 - Phase 3C-4C	Issue Date	: 20-Jun-2024 11:47
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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Physical Tests	QC-MRG2-1488186 001	----	Alkalinity, total (as CaCO3)	----	E290	1.9 mg/L B	1.5 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Analysis Holding Time Compliance

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

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

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

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

Matrix: **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	10-Jun-2024	18-Jun-2024	28 days	8 days	✓	18-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US 1	E298	10-Jun-2024	18-Jun-2024	28 days	8 days	✓	18-Jun-2024	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US 1	E235.Br-L	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times 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	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	10-Jun-2024	11-Jun-2024	3 days	1 days	✓	12-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	10-Jun-2024	11-Jun-2024	3 days	1 days	✓	12-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO2-L	10-Jun-2024	11-Jun-2024	3 days	1 days	✓	12-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO2-L	10-Jun-2024	11-Jun-2024	3 days	1 days	✓	12-Jun-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	10-Jun-2024	11-Jun-2024	28 days	1 days	✓	12-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	10-Jun-2024	18-Jun-2024	28 days	8 days	✓	19-Jun-2024	28 days	9 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	10-Jun-2024	18-Jun-2024	28 days	8 days	✓	19-Jun-2024	28 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU DS 1	E372-U	10-Jun-2024	18-Jun-2024	28 days	8 days	✓	19-Jun-2024	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	10-Jun-2024	18-Jun-2024	28 days	8 days	✓	19-Jun-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	10-Jun-2024	15-Jun-2024	28 days	5 days	✓	15-Jun-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	10-Jun-2024	15-Jun-2024	28 days	5 days	✓	15-Jun-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	10-Jun-2024	13-Jun-2024	180 days	3 days	✓	14-Jun-2024	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	10-Jun-2024	13-Jun-2024	180 days	3 days	✓	14-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)										
SQU DS 1	EF001	10-Jun-2024	----	----	----		11-Jun-2024	----	1 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)										
SQU US 1	EF001	10-Jun-2024	----	----	----		11-Jun-2024	----	1 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	10-Jun-2024	15-Jun-2024	28 days	5 days	✓	18-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 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	10-Jun-2024	15-Jun-2024	28 days	5 days	✓	18-Jun-2024	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU DS 1	E290	10-Jun-2024	11-Jun-2024	14 days	1 days	✓	14-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU US 1	E290	10-Jun-2024	11-Jun-2024	14 days	1 days	✓	14-Jun-2024	14 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU DS 1	E162	10-Jun-2024	----	----	----		17-Jun-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU US 1	E162	10-Jun-2024	----	----	----		17-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	10-Jun-2024	----	----	----		17-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	10-Jun-2024	----	----	----		17-Jun-2024	7 days	7 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	10-Jun-2024	----	----	----		14-Jun-2024	28 days	4 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	10-Jun-2024	----	----	----		14-Jun-2024	28 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times 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	10-Jun-2024	15-Jun-2024	28 days	5 days	✓	15-Jun-2024	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	10-Jun-2024	15-Jun-2024	28 days	5 days	✓	15-Jun-2024	28 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	10-Jun-2024	13-Jun-2024	180 days	3 days	✓	17-Jun-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU US 1	E420	10-Jun-2024	13-Jun-2024	180 days	3 days	✓	17-Jun-2024	180 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU DS 1	E395	10-Jun-2024	----	----	----		16-Jun-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU US 1	E395	10-Jun-2024	----	----	----		16-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	1488187	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1499975	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1488180	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1488179	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1495573	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1487965	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496394	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1488178	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1488181	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1488182	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1488183	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1497773	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1494060	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1495603	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1487171	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1499973	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1499974	1	4	25.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1497742	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1488187	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1499975	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1488180	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1488179	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1495573	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1487965	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496394	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1488178	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1488181	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1488182	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1488183	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1497773	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1494060	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1495603	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1487171	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1499973	1	4	25.0	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	1499974	1	4	25.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1497742	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1488187	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1499975	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1488180	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1488179	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1495573	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1487965	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496394	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1488178	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1488181	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1488182	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1488183	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1497773	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1494060	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1495603	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1487171	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1499973	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1499974	1	4	25.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1497742	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1499975	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1488180	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1488179	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1495573	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1487965	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496394	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1488178	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1488181	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1488182	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1488183	1	7	14.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1494060	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1495603	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1487171	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1499973	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1499974	1	4	25.0	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	1496723	1	19	5.2	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, 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 - 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	: **VA24B3435**	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	: 10-Jun-2024 12:45
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 11-Jun-2024
C-O-C number	: ----	Issue Date	: 20-Jun-2024 11:46
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*
	Lab Analyst	Calgary Inorganics, Calgary, Alberta
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Technical Specialist	Waterloo Metals, Waterloo, Ontario
	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
	Team Leader - Organics	Vancouver Inorganics, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1488187)											
VA24B3081-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	148	148	0.0674%	20%	----
Physical Tests (QC Lot: 1497742)											
FJ2401667-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	4.7	4.9	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1497773)											
FJ2401667-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	198	203	2.50%	20%	----
Anions and Nutrients (QC Lot: 1488178)											
VA24B3081-001	Anonymous	Fluoride	16984-48-8	E235.F	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1488179)											
VA24B3081-001	Anonymous	Chloride	16887-00-6	E235.Cl	5.00	mg/L	<5.00	<5.00	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1488180)											
VA24B3081-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1488181)											
VA24B3081-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0500	mg/L	0.332	0.328	0.0036	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1488182)											
VA24B3081-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1488183)											
VA24B3081-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	3.00	mg/L	1150	1150	0.395%	20%	----
Anions and Nutrients (QC Lot: 1499973)											
VA24B3363-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.278	0.277	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1499974)											
VA24B3363-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0107	0.0111	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1499975)											
VA24B3435-001	SQU US 1	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0414	0.0388	0.0026	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1496394)											
VA24B3435-001	SQU US 1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.37	1.42	0.05	Diff <2x LOR	----
Total Sulfides (QC Lot: 1496723)											
CG2407834-002	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: 1487171)											
VA24B3340-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0720	0.0743	3.16%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1487171) - continued											
VA24B3340-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00052	0.00049	0.00004	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0184	0.0183	0.448%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<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	26.9	27.3	1.58%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00222	0.00239	0.00017	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00135	0.00139	0.00004	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.075	0.078	0.003	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0028	0.0028	0.00002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	8.23	8.02	2.49%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0164	0.0167	1.74%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00516	0.00515	0.261%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.300	mg/L	<0.300	<0.300	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	2.16	2.19	1.43%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00117	0.00117	0.000004	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000218	0.000236	0.000018	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	9.74	9.72	0.295%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	11.5	11.3	1.04%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.181	0.184	1.69%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	19.1	18.7	2.27%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000731	0.000721	1.36%	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: 1487171) - continued											
VA24B3340-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00134	0.00134	0.000007	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	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
Total Metals (QC Lot: 1495603)											
FJ2401638-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1487965)											
VA24B3377-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0019	0.0020	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00025	0.00026	0.000004	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00138	0.00135	2.62%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0718	0.0746	3.87%	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	0.713	0.715	0.263%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000068	0.0000077	0.0000008	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	93.8	95.6	1.82%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000012	0.000013	0.0000003	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00056	0.00052	0.00004	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00030	0.00031	0.000002	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00126	0.00128	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.042	0.041	0.0007	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	23.6	23.8	0.847%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.181	0.181	0.128%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000382	0.000419	0.000037	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00583	0.00581	0.318%	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	13.3	13.5	1.45%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00247	0.00249	0.963%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000076	0.000085	0.000009	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.22	1.20	1.29%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	76.1	76.9	1.04%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.598	0.638	6.48%	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: 1487965) - continued											
VA24B3377-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	4.42	4.56	0.14	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000273	0.000266	2.56%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	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: 1495573)											
VA24B3398-008	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1494060)											
VA24B3435-001	SQU US 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1488187)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	# 1.9	B
Physical Tests (QCLot: 1497742)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1497773)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1488178)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1488179)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1488180)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1488181)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1488182)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1488183)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1499973)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1499974)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1499975)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1496394)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1496723)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1487171)						
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: 1487171) - 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: 1495603)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1487965)						
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: 1487965) - 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: 1495573)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1494060)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

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: 1488187)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1497742)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	87.6	85.0	115	----
Physical Tests (QCLot: 1497773)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	94.1	85.0	115	----
Anions and Nutrients (QCLot: 1488178)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1488179)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1488180)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 1488181)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1488182)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1488183)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1499973)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	95.5	75.0	125	----
Anions and Nutrients (QCLot: 1499974)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	112	80.0	120	----
Anions and Nutrients (QCLot: 1499975)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	109	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1496394)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	112	80.0	120	----
Total Sulfides (QCLot: 1496723)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 1487171)									

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: 1487171) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	94.2	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	99.1	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	99.1	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	95.9	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	93.7	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.2	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.7	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	93.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	96.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	92.1	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	94.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.9	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	94.3	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	96.5	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.2	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	94.9	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	94.6	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	95.3	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	93.3	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	97.1	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	93.9	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	103	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.9	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	97.3	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	85.2	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	95.7	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	92.1	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.6	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.3	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	95.3	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	94.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1487171) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	95.8	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	92.9	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: 1495603)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	98.1	80.0	120	----
Dissolved Metals (QCLot: 1487965)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	96.7	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.9	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	105	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	99.9	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.4	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.4	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	96.5	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.1	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	105	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	101	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	101	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	109	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: 1487965) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.2	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	90.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.4	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	98.8	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.0	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	95.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	102	80.0	120	----
Speciated Metals (QCLot: 1494060)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	99.3	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: 1488178)										
VA24B3081-002	Anonymous	Fluoride	16984-48-8	E235.F	5.04 mg/L	5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1488179)										
VA24B3081-002	Anonymous	Chloride	16887-00-6	E235.Cl	509 mg/L	500 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1488180)										
VA24B3081-002	Anonymous	Bromide	24959-67-9	E235.Br-L	2.42 mg/L	2.5 mg/L	96.9	75.0	125	----
Anions and Nutrients (QCLot: 1488181)										
VA24B3081-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.6 mg/L	12.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1488182)										
VA24B3081-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.59 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1488183)										
VA24B3081-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1499973)										
VA24B3435-002	SQU DS 1	Nitrogen, total	7727-37-9	E366	0.360 mg/L	0.4 mg/L	90.0	70.0	130	----
Anions and Nutrients (QCLot: 1499974)										
VA24B3435-001	SQU US 1	Phosphorus, total	7723-14-0	E372-U	0.0493 mg/L	0.05 mg/L	98.6	70.0	130	----
Anions and Nutrients (QCLot: 1499975)										
VA24B3435-002	SQU DS 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: 1496394)										
VA24B3435-001	SQU US 1	Carbon, dissolved organic [DOC]	----	E358-L	5.47 mg/L	5 mg/L	109	70.0	130	----
Total Sulfides (QCLot: 1496723)										
CG2407840-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.211 mg/L	0.2 mg/L	105	75.0	125	----
Total Metals (QCLot: 1487171)										
VA24B3340-002	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00917 mg/L	0.01 mg/L	91.7	70.0	130	----
		Boron, total	7440-42-8	E420	0.099 mg/L	0.1 mg/L	99.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00401 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	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	0.0387 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: 1487171) - continued										
VA24B3340-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Copper, total	7440-50-8	E420	0.0194 mg/L	0.02 mg/L	97.3	70.0	130	----
		Iron, total	7439-89-6	E420	1.94 mg/L	2 mg/L	97.2	70.0	130	----
		Lead, total	7439-92-1	E420	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0955 mg/L	0.1 mg/L	95.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.30 mg/L	10 mg/L	93.0	70.0	130	----
		Potassium, total	7440-09-7	E420	3.81 mg/L	4 mg/L	95.3	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0425 mg/L	0.04 mg/L	106	70.0	130	----
		Silicon, total	7440-21-3	E420	9.39 mg/L	10 mg/L	93.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.00407 mg/L	0.004 mg/L	102	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	19.4 mg/L	20 mg/L	97.0	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0424 mg/L	0.04 mg/L	106	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00364 mg/L	0.004 mg/L	90.9	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0147 mg/L	0.02 mg/L	73.4	70.0	130	----
		Tin, total	7440-31-5	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0989 mg/L	0.1 mg/L	98.9	70.0	130	----
		Zinc, total	7440-66-6	E420	0.374 mg/L	0.4 mg/L	93.5	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Total Metals (QCLot: 1495603)										
FJ2401638-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000929 mg/L	0 mg/L	92.9	70.0	130	----
Dissolved Metals (QCLot: 1487965)										
VA24B3377-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.207 mg/L	0.2 mg/L	104	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0215 mg/L	0.02 mg/L	108	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0432 mg/L	0.04 mg/L	108	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00931 mg/L	0.01 mg/L	93.1	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00397 mg/L	0.004 mg/L	99.2	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0100 mg/L	0.01 mg/L	100	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0398 mg/L	0.04 mg/L	99.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	96.2	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: 1487965) - continued										
VA24B3377-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.97 mg/L	2 mg/L	98.4	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0186 mg/L	0.02 mg/L	93.3	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.105 mg/L	0.1 mg/L	105	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	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.9 mg/L	10 mg/L	109	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0431 mg/L	0.04 mg/L	108	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.72 mg/L	10 mg/L	97.2	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00379 mg/L	0.004 mg/L	94.7	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	21.9 mg/L	20 mg/L	110	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0406 mg/L	0.04 mg/L	102	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00365 mg/L	0.004 mg/L	91.2	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0160 mg/L	0.02 mg/L	79.9	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0418 mg/L	0.04 mg/L	104	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00423 mg/L	0.004 mg/L	106	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.388 mg/L	0.4 mg/L	97.1	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1495573)										
VA24B3398-009	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0 mg/L	101	70.0	130	----
Speciated Metals (QCLot: 1494060)										
VA24B3435-001	SQU US 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0399 mg/L	0.04 mg/L	99.8	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

Environmental Division
Vancouver
Work Order Reference
VA24B3435

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	Triton Environmental
Contact:	
Phone:	
	ne final report
Street:	
City/Province:	
Postal Code:	

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 or Fax
Email 2
Email 3

Select Service Level Below - Contact your AM to confirm

Regular [R] ☑ Standard TAT if received by 3 pm - busines

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

EMERGENCY: 1 Business day [E | Same Day, Weeken | 200% (Laboratory c

Date and Time Required for all E&P TATs:

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

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Invoice Distribution

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

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): B3435
ALS Contact:
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	10-Jun-24	10:22	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.18 cond: 29 mS/cm temp: 8.7°C																					
	SQU DS 1	10-Jun-24	10:57	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.09 cond: 27 mS/cm temp: 8.8°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							N	6

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 / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

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			
							13

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	June 10, 2024	12:45

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
HA	6/10	12:45

REFER TO BACK PAGE FOR TERMS AND CONDITIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

BCR Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-6-10-Blanchard-9BFB9

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	06/10/2024	**Location:**	BC Rail Site
Triton QP:	Sam Blanchard	**Latitude/Longitude:**	49.725282 -123.165175
Temperature(c):	Low 13 High 21	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:57:00 **Flow Volume (visual):** high

Notes:

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	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

Wiped sensors

Photos

Photo: 1

Location: SQU DS1

Description: US View

Photo: 2

Location: SQU DS1

Description: DS View

Photos

Photo: 3

Location: SQU DS1

Description: Across View

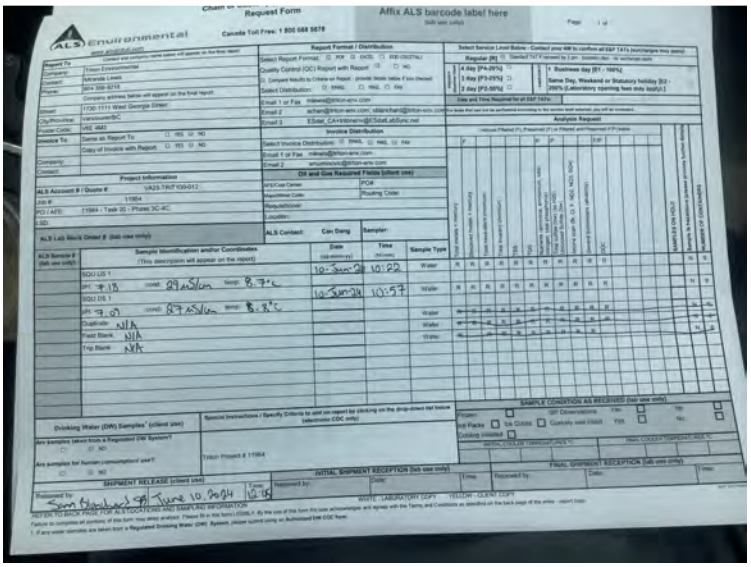

Photo: 4

Location: SQU DS1

Description: Lab CoC

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-6-10-Blanchard-E9E30

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	06/10/2024	**Location:**	BC Rail Site
Triton QP:	Sam Blanchard	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 13 High 21	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:22:00 **Flow Volume (visual):** high

Notes:

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	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

Wiped sensors, calibrated pH

Photos

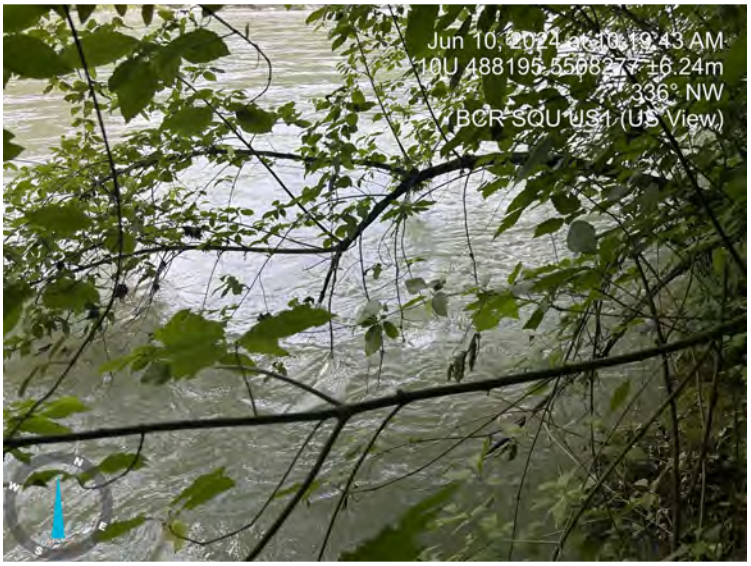

Photo: 1

Location: SQU US1

Description: US View

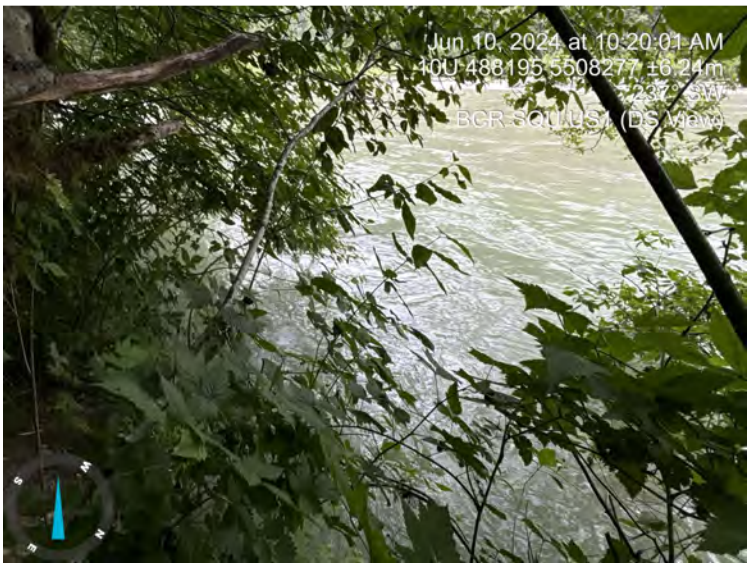

Photo: 2

Location: SQU US1

Description: DS View

Photos

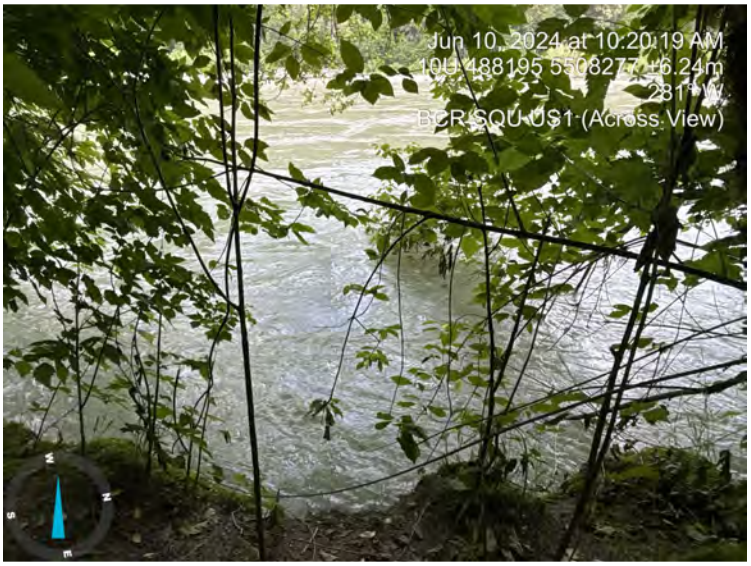

Photo: 3

Location: SQU US1

Description: Across View

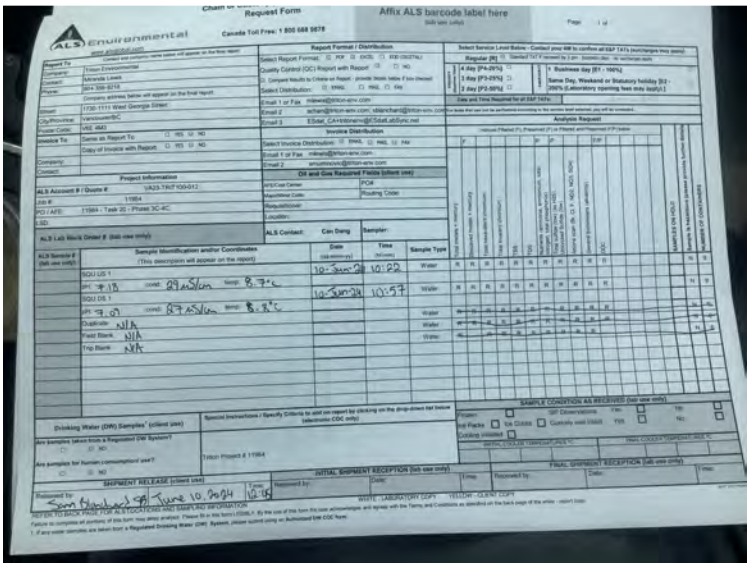

Photo: 4

Location: SQU US1

Description: Lab CoC

Sign Off

Report Prepared By:	Sam Blanchard	**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 Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:	BRITISH COLUMBIA INSTITUTE OF AGROLOGISTS 3144 Miranda Lewis PAg		Miranda Lewis PAg, MSc	WLNG EOP	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24B4054-001					
	Date Sampled					14-Jun-2024					
	Time Sampled					15:10					
Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Water					
						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	7.1		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]	-	19.1	**Temperature may be elevated above receiving environment.**	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	-	-	-	-	319					
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	0.28		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	-	-	-	-	80.5					
Total Dissolved Solids	mg/L	-	-	-	-	253					
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		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	-	-	-	-	7.69			Long-term (30-day) median within 20% of background median [3]		
Total Phenols	mg/L	-	0.05	-	-	0.0014		Interim guideline		Interim guideline	
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	133	The WLNG EOP sample has low sensitivity to acid inputs (i.e. high 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					
Total Sulfide (un-ionized as H2S)	mg/L	0.002	-	-	-	< 0.0015			Working guideline		
Total Sulfide (as H2S)	mg/L	-	-	-	-	< 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.	0.0308		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					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	19.2				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	-	0.457		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	< 0.0050					
Nitrite (as N)	mg/L	Varies with chloride. See note.	Varies with chloride. See note.	-	-	< 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	-	-	-	-	0.509					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.0279			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.	-	-	-	9.7			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	-	-	-	0.0074			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	-	-	0.00198					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00205					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00379			Working guideline status		
Beryllium (Be)-Total	mg/L	0.00013	-	-	0.100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Total	mg/L	1.2	-	-	1.2	0.04					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000093					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	27.5					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000047					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	0.00015					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	< 0.00050					
Iron (Fe)-Total	mg/L	-	1	-	-	0.022					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	< 0.000050		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation 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	-	-	-	-	0.0205					
Magnesium (Mg)-Total	mg/L	-	-	-	-	2.88					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.123		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	-	-	-	< 0.0000050			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	-	-	0.0128					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	< 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			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	-	-	-	-	10.7					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.0179					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	0.000072			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 guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guideliens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	6.57					
Silver (Ag)-Total	mg/L	Varies with hardness, see note	Varies with hardness, see note	0.003	0.0015	< 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	-	-	-	-	32.2					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.124					
Sulfur (S)-Total	mg/L	-	-	-	-	3.41					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	0.000066			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	-	-	-	-	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	< 0.00030					
Tungsten (W)-Total	mg/L	-	-	-	-	0.00029					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.00099			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	0.00112					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.0002					
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0037					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	0.00191					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00214					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00436					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.039					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note	Varies with hardness, see note	-	-	< 0.0000150		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	-	-	-	29.3	The WLNG EOP has low sensitivity to acid inputs (i.e. high 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	-	-	-	-	0.000049					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	0.00016					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note	Guideline varies with other parameters, see note	-	-	0.00028		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	-	-	0.016					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.021					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	3.4					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.144					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.0122					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	11.8					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.0192					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	0.000079					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	6.39					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	37.1					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.126					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	3.34					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.00007					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	0.00027					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000681					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00088					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	< 0.0010		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					
Volatile Organic Compounds											
Chlorobenzene	µg/L	-	-	-	-	<0.50					
Chloromethane	µg/L	-	-	-	-	<5.0					
Dichlorobenzene, 1,2-	µg/L	0.7	-	-	42	< 0.50			Working guideline status		Working guideline status
Dichlorobenzene, 1,3-	µg/L	150	-	-	-	< 0.50			Working guideline status		
Dichlorobenzene, 1,4-	µg/L	26	-	-	-	< 0.50			Working guideline status		
Dichloropropane, 1,2-	µg/L	-	-	-	-	<0.50					
Dichloropropylene, cis+trans-1,3-	µg/L	-	-	-	-	<0.75					
Dichloropropylene, cis-1,3-	µg/L	-	-	-	-	<0.50					
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	<0.50					
Tetrachloroethane, 1,1,2,2-	µg/L	-	-	-	-	<0.20					
Trichloroethane, 1,1,2-	µg/L	-	-	-	-	<0.50					
Trichlorofluoromethane	µg/L	-	-	-	-	<0.50					
Carbon tetrachloride	µg/L	-	-	-	-	<0.50					
Chloroethane	µg/L	-	-	-	-	<0.50					
Dichloroethane, 1,1-	µg/L	-	-	-	-	<0.50					
Dichloroethane, 1,2-	µg/L	100	-	-	-	< 0.50			Working guideline status		
Dichloroethylene, 1,1-	µg/L	-	-	-	-	<0.50					
Dichloroethylene, cis-1,2-	µg/L	-	-	-	-	<0.50					
Dichloroethylene, trans-1,2-	µg/L	-	-	-	-	<0.50					
Dichloromethane	µg/L	98.1	-	-	-	< 1.00			Working guideline status		
Dichloropropylene, trans-1,3-	µg/L		-	-	-	<0.50					
Tetrachloroethylene	µg/L	110	-	-	-	< 0.50			Working guideline status		
Trichloroethane, 1,1,1-	µg/L	-	-	-	-	<0.50					
Trichloroethylene	µg/L	21	-	-	-	< 0.50			Working guideline status		
Vinyl chloride	µg/L	-	-	-	-	<0.40					
Benzene	µg/L	40	-	-	110	< 0.50			Interim guideline status		Interim guideline status
Ethylbenzene	µg/L	200	-	-	250	< 0.50			Interim guideline status		Interim guideline status
Methyl-tert-butyl ether [MTBE]	µg/L	-	3400	440	-	< 0.50					
Styrene	µg/L	72	-	-	-	< 0.50			Working guideline status		
Toluene	µg/L	0.5	-	-	-	< 0.40					
Xylene, m+p-	µg/L	-	-	-	-	<0.40					
Xylene, o-	µg/L	-	-	-	-	<0.30					
Xylenes, total	µg/L	30	-	-	-	< 0.50					
Bromodichloromethane	µg/L	-	-	-	-	<0.50					
Bromoform	µg/L	-	-	-	-	<0.50					
Chloroform	µg/L	1.8	-	-	-	< 0.50			Working guideline status		
Dibromochloromethane	µg/L	-	-	-	-	<0.50					
Hydrocarbons											
EPH (C10-C19)	µg/L	-	-	-	-	<250					
EPH (C19-C32)	µg/L	-	-	-	-	<250					
VHw (C6-C10)	µg/L	-	-	-	-	<100					
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	µg/L	6	-	-	6	< 0.0100					
Acenaphthylene	µg/L	-	-	-	-	<0.010					
Acridine	µg/L	-	-	-	-	<0.010					
Anthracene	µg/L	4	0.1	-	-	< 0.0100					
Benz(a)anthracene	µg/L	0.1	0.1	-	-	< 0.0100					
Benzo(a)pyrene	µg/L	0.01	-	-	0.01	< 0.0050					
Benzo(b+j)fluoranthene	µg/L	-	-	-	-	<0.010					
Benzo(b+j+k)fluoranthene	µg/L	-	-	-	-	<0.015					
Benzo(g,h,i)perylene	µg/L	-	-	-	-	<0.010					
Benzo(k)fluoranthene	µg/L	-	-	-	-	<0.010					
Chrysene	µg/L	-	-	-	0.1	< 0.0100					
Dibenz(a,h)anthracene	µg/L	-	-	-	-	<0.0050					
Fluoranthene	µg/L	4	0.2	-	-	< 0.0100		Guideline is for phototoxic effects			
Fluorene	µg/L	12	-	-	-	< 0.0100					
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	<0.010					
Methylnaphthalene, 1-	µg/L	-	-	-	1	< 0.0100					Guideline is for total methylated napthalene and is presented here for reference.
Methylnaphthalene, 2-	µg/L	-	-	-	1	< 0.0100					Guideline is for total methylated napthalene and is presented here for reference.
Naphthalene	µg/L	1	-	-	1	< 0.0500					
Phenanthrene	µg/L	0.3	-	-	-	< 0.0200					
Pyrene	µg/L	-	0.02	-	-	< 0.0100					
Quinoline	µg/L	3.4	-	-	-	< 0.0500		Working guideline status			
Glycols											
Ethylene glycol	mg/L	192	-	-	-	< 5.0					
Propylene glycol, 1,2-	mg/L	500	-	-	-	< 5.0					
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 EOP
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.1
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				19.1
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				0.28
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				80.5
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				7.69
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				133
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				19.2

Woodfibre Site Sample Lab Documentation

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CERTIFICATE OF ANALYSIS

Work Order	: **VA24B4054**	Page	: 1 of 10
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Account Manager	
Address	:	Address	
Telephone	:	Telephone	
Project	: 11964	Date Samples Received	: 14-Jun-2024 18:30
PO	: 11964 - Task 30 - Phase 3C-4C	Date Analysis Commenced	: 15-Jun-2024
C-O-C number	: ----	Issue Date	: 18-Jun-2024 14:35
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Metals, Burnaby, British Columbia
	Laboratory Analyst	Inorganics, Edmonton, Alberta
	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
	Lab Assistant	Metals, Burnaby, British Columbia
	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
	Lab Assistant	Inorganics, Burnaby, British Columbia
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Team Leader - Organics	Organics, Burnaby, British Columbia
	Team Leader - Metals	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
µg/L	micrograms per litre
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).*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
					VA24B4054-001	--------	--------	--------	--------
					Result	----	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		319.00	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.10	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		19.1	----	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		87.2	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		80.5	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		253	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		133	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0308	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		19.2	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.457	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.509	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0279	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		9.70	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		7.69	----	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	----	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0074	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		0.00198	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B4054-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00205	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00379	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.040	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000093	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		27.5	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000047	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00015	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.022	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0205	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		2.88	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.123	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.0128	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		10.7	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.0179	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000072	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		6.57	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		32.2	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.124	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		3.41	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000066	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B4054-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00029	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000990	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00112	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0037	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		0.00191	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00214	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00436	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.039	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000150 DLM	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		29.3	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000049	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.00016	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00028	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.016	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0210	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		3.40	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.144	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0122	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B4054-001	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		11.8	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.0192	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000079	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		6.39	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		37.1	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.126	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		3.34	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		0.000070	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		0.00027	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000681	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00088	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		<0.0010	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	----	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/VA	0.00050	mg/L		<0.00050	----	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/VA	0.00050	mg/L		<0.00050	----	----	----	----
Aggregate Organics										
Phenols, total (4AAP)	----	E562/EO	0.0010	mg/L		0.0014 RRV	----	----	----	----
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloromethane	74-87-3	E611C/VA	5.0	µg/L		<5.0	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B4054-001	--------	--------	--------	--------
						Result	----	----	----	----
Volatile Organic Compounds										
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L		<0.75	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B4054-001	--------	--------	--------	--------
						Result	----	----	----	----
Volatile Organic Compounds [Fuels]										
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	----	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	----	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	----	----	----	----
HEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
LEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
VPHw	----	EC580A/VA	100	µg/L		<100	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		75.6	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		103	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		87.5	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		101	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	14-Jun-2024 15:10	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B4054-001	--------	--------	--------	--------
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		117	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		109	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		112	----	----	----	----
Glycols										
Diethylene glycol	111-46-6	E680E/VA	5.0	mg/L		<5.0	----	----	----	----
Ethylene glycol	107-21-1	E680E/VA	5.0	mg/L		<5.0	----	----	----	----
Propylene glycol, 1,2-	57-55-6	E680E/VA	5.0	mg/L		<5.0	----	----	----	----
Triethylene glycol	112-27-6	E680E/VA	5.0	mg/L		<5.0	----	----	----	----
Glycols, total (EG+DEG+PG)	----	E680E/VA	10	mg/L		<10	----	----	----	----
Glycols Surrogates										
Propanediol, 1,3-	504-63-2	E680E/VA	1.0	%		96.2	----	----	----	----

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	: **VA24B4054**	Page	: 1 of 15
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 14-Jun-2024 18:30
PO	: 11964 - Task 30 - Phase 3C-4C	Issue Date	: 18-Jun-2024 14:35
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Dissolved Metals	QC-1496245-002	----	Thorium, dissolved	7440-29-1	E421	78.7 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

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

Matrix Spike (MS) Recoveries								
Dissolved Metals	Anonymous	Anonymous	Silver, dissolved	7440-22-4	E421	63.0 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) WLNG EOP	E562	14-Jun-2024	18-Jun-2024	28 days	4 days	✓	18-Jun-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG EOP	E298	14-Jun-2024	16-Jun-2024	28 days	2 days	✓	16-Jun-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP	E235.Br-L	14-Jun-2024	17-Jun-2024	28 days	3 days	✓	17-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP	E235.Cl	14-Jun-2024	17-Jun-2024	28 days	3 days	✓	17-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG EOP	E235.F	14-Jun-2024	17-Jun-2024	28 days	3 days	✓	17-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG EOP	E235.NO3-L	14-Jun-2024	17-Jun-2024	3 days	3 days	✓	17-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WLNG EOP	E235.NO2-L	14-Jun-2024	17-Jun-2024	3 days	3 days	✓	17-Jun-2024	3 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 : Sulfate in Water by IC										
HDPE WLNG EOP	E235.SO4	14-Jun-2024	17-Jun-2024	28 days	3 days	✓	17-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG EOP	E366	14-Jun-2024	16-Jun-2024	28 days	2 days	✓	17-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) WLNG EOP	E372-U	14-Jun-2024	16-Jun-2024	28 days	2 days	✓	17-Jun-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WLNG EOP	E509	14-Jun-2024	17-Jun-2024	28 days	3 days	✓	17-Jun-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WLNG EOP	E421	14-Jun-2024	16-Jun-2024	180 days	2 days	✓	17-Jun-2024	180 days	3 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 EOP	EF001	14-Jun-2024	----	----	----		17-Jun-2024	----	3 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial WLNG EOP	E680E	14-Jun-2024	17-Jun-2024	7 days	3 days	✓	17-Jun-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) WLNG EOP	E601A	14-Jun-2024	16-Jun-2024	14 days	2 days	✓	16-Jun-2024	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) WLNG EOP	E581.VH+F1	14-Jun-2024	15-Jun-2024	14 days	1 days	✓	15-Jun-2024	14 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times 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 EOP	E358-L	14-Jun-2024	16-Jun-2024	28 days	2 days	✓	16-Jun-2024	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG EOP	E290	14-Jun-2024	17-Jun-2024	14 days	3 days	✓	17-Jun-2024	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WLNG EOP	E162	14-Jun-2024	----	----	----		16-Jun-2024	7 days	2 days	✓
Physical Tests : TSS by Gravimetry										
HDPE WLNG EOP	E160	14-Jun-2024	----	----	----		16-Jun-2024	7 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) WLNG EOP	E641A	14-Jun-2024	16-Jun-2024	14 days	2 days	✓	16-Jun-2024	40 days	0 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide) WLNG EOP	E532	14-Jun-2024	----	----	----		17-Jun-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG EOP	E508	14-Jun-2024	17-Jun-2024	28 days	3 days	✓	17-Jun-2024	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG EOP	E420	14-Jun-2024	16-Jun-2024	180 days	2 days	✓	17-Jun-2024	180 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG EOP	E395	14-Jun-2024	----	----	----		16-Jun-2024	7 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP	E611C	14-Jun-2024	15-Jun-2024	14 days	1 days	✓	15-Jun-2024	14 days	1 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	1497296	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1496511	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1497302	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1497301	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1497400	1	7	14.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1496245	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496508	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1497300	1	20	5.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1498030	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1497298	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1497299	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1499631	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1497297	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1496567	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497569	1	10	10.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1497402	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1496250	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1496509	1	3	33.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1496510	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1496522	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1496336	1	4	25.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1496337	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1497296	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1496511	1	3	33.3	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1496514	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1497302	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1497301	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1497400	1	7	14.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1496245	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496508	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1497300	1	20	5.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1498030	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1497298	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1497299	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							
PAHs in Water by Hexane LVI GC-MS	E641A	1496515	1	7	14.2	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1499631	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1497297	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1496567	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497569	1	10	10.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1497402	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1496250	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1496509	1	3	33.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1496510	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1496522	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1496336	1	4	25.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1496337	1	4	25.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1497296	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1496511	1	3	33.3	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1496514	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1497302	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1497301	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1497400	1	7	14.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1496245	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496508	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1497300	1	20	5.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1498030	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1497298	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1497299	1	20	5.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1496515	1	7	14.2	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1499631	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1497297	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1496567	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497569	1	10	10.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1497402	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1496250	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1496509	1	3	33.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1496510	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1496522	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1496336	1	4	25.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1496337	1	4	25.0	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)							
Ammonia by Fluorescence	E298	1496511	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1497302	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1497301	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1497400	1	7	14.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1496245	1	10	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1496508	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1497300	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1497298	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1497299	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1499631	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1497297	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497569	1	10	10.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1497402	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1496250	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1496509	1	3	33.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1496510	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1496723	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1496336	1	4	25.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1496337	1	4	25.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 - Vancouver	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Edmonton	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide ($K_3Fe(CN)_6$) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Total Xylenes is the sum of m,p-Xylene & o-Xylene. Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, & Total Xylenes. Total BTEX+Styrene is the sum of Total BTEX & Styrene. Total Trihalomethanes [THMs] is the sum of Bromodichloromethane, Bromoform, Chloroform, & Dibromochloromethane.
PAHs in Water by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Glycols (4 analytes) by GC-FID	E680E ALS Environmental - Vancouver	Water	EPA 8015D (mod)	Derivatized glycols are analyzed by GC-FID.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as $CaCO_3$), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 - Vancouver	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH C6-C10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
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.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
Glycols Extraction and Derivatization (BC Only)	EP680E ALS Environmental - Vancouver	Water	EPA 8015D (mod)	Aqueous sample is derivatized and extracted with orgaic solvent.

QUALITY CONTROL REPORT

Work Order	: **VA24B4054**	Page	: 1 of 23
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 14-Jun-2024 18:30
PO	: 11964 - Task 30 - Phase 3C-4C	Date Analysis Commenced	: 15-Jun-2024
C-O-C number	: ----	Issue Date	: 18-Jun-2024 14:35
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Team Leader - Organics	Vancouver Organics, Burnaby, British Columbia
	Team Leader - Metals	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: 1496522)											
VA24B3717-009	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	32.1	35.1	8.94%	20%	----
Physical Tests (QC Lot: 1496567)											
VA24B3717-009	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	238	249	4.51%	20%	----
Physical Tests (QC Lot: 1497296)											
VA24B3811-013	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	62.1	61.6	0.808%	20%	----
Anions and Nutrients (QC Lot: 1496509)											
VA24B3010-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.277	0.274	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1496510)											
VA24B3010-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0165	0.0156	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1496511)											
VA24B3010-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0089	0.0090	0.00005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1497297)											
VA24B3811-011	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	186	187	0.200%	20%	----
Anions and Nutrients (QC Lot: 1497298)											
VA24B3811-011	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.470	0.472	0.362%	20%	----
Anions and Nutrients (QC Lot: 1497299)											
VA24B3811-011	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: 1497300)											
VA24B3811-011	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.136	0.134	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1497301)											
VA24B3811-011	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1497302)											
VA24B3811-011	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1496508)											
VA24B3010-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	6.71	6.86	2.34%	20%	----
Total Sulfides (QC Lot: 1496723)											
CG2407834-002	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: 1496250)											
VA24B4042-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	45.3 µg/L	0.0448	1.06%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.24 µg/L	0.00023	0.00001	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: 1496250) - continued											
VA24B4042-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	1.10 µg/L	0.00114	3.07%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	9.47 µg/L	0.00954	0.742%	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	1010 µg/L	1.00	0.737%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0070 µg/L	0.0000069	0.00000009	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	89100 µg/L	89.4	0.236%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.099 µg/L	0.000098	0.000001	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	0.69 µg/L	0.00067	0.00002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.56 µg/L	0.00053	0.00003	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	204 µg/L	0.203	0.249%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	4.0 µg/L	0.0039	0.00005	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	85500 µg/L	85.3	0.304%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	73.2 µg/L	0.0719	1.91%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	3.03 µg/L	0.00303	0.00617%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	2.65 µg/L	0.00265	0.000002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	3490 µg/L	3.47	0.517%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	39300 µg/L	38.6	1.66%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	34.3 µg/L	0.0338	1.46%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.070 µg/L	0.000071	0.0000009	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6540 µg/L	6.43	1.74%	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	164000 µg/L	162	1.24%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	418 µg/L	0.412	1.50%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	128000 µg/L	126	2.08%	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	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00060	mg/L	<0.60 µg/L	<0.00060	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.15 µg/L	0.00015	0.000003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.332 µg/L	0.000330	0.437%	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: 1496250) - continued											
VA24B4042-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	6.61 µg/L	0.00659	0.263%	20%	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<3.0 µg/L	<0.0030	0	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: 1497402)											
VA24B4054-001	WLNG EOP	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1496245)											
VA24B4042-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	44.4 µg/L	0.0448	0.965%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.22 µg/L	0.00022	0.000009	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	1.22 µg/L	0.00120	1.73%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	9.79 µg/L	0.00957	2.24%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	826 µg/L	0.842	1.93%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0081 µg/L	0.0000082	0.00000005	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	82900 µg/L	83.1	0.214%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.100 µg/L	0.000096	0.000004	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.71 µg/L	0.00068	0.00003	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.53 µg/L	0.00050	0.00003	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	56 µg/L	0.056	0.0003	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	3.7 µg/L	0.0037	0.00002	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	89800 µg/L	88.1	1.93%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	68.0 µg/L	0.0662	2.65%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	2.89 µg/L	0.00289	0.132%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	2.63 µg/L	0.00258	0.00005	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	3440 µg/L	3.47	0.617%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	41000 µg/L	39.4	3.84%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	35.2 µg/L	0.0338	4.11%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.050 µg/L	0.000055	0.000005	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	6100 µg/L	6.06	0.521%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	177000 µg/L	172	2.56%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	395 µg/L	0.386	2.28%	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: 1496245) - continued											
VA24B4042-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	116000 µg/L	119	2.45%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.30 µg/L	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.14 µg/L	0.00014	0.0000008	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.318 µg/L	0.000313	1.40%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	6.57 µg/L	0.00634	3.55%	20%	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.40 µg/L	<0.00040	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1497400)											
VA24B4054-001	WLNG EOP	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1497569)											
VA24B4017-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	0.00102	0.00100	0.00002	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1499631)											
VA24B4054-001	WLNG EOP	Phenols, total (4AAP)	----	E562	0.0010	mg/L	0.0014	0.0011	0.0002	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1496337)											
VA24B4054-001	WLNG EOP	Benzene	71-43-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611C	5.0	µg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	µg/L	<0.50	<0.50	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*
Volatile Organic Compounds (QC Lot: 1496337) - continued											
VA24B4054-001	WLNG EOP	Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611C	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611C	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1496336)											
VA24B4054-001	WLNG EOP	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Glycols (QC Lot: 1498030)											
VA24B3580-001	Anonymous	Diethylene glycol	111-46-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Ethylene glycol	107-21-1	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Propylene glycol, 1,2-	57-55-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Triethylene glycol	112-27-6	E680E	5.0	mg/L	<5.0	<5.0	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: 1496522)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1496567)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1497296)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1496509)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1496510)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1496511)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1497297)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1497298)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1497299)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1497300)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1497301)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1497302)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1496508)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1496723)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1496250)						
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: 1496250) - 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: 1497402)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1496245)						
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: 1496245) - 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: 1497400)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1497569)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Aggregate Organics (QCLot: 1499631)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1496337)						
Benzene	71-43-2	E611C	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611C	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	<0.50	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611C	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611C	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611C	5	µg/L	<5.0	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611C	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1496337) - continued						
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	<0.20	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611C	0.4	µg/L	<0.40	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	<0.40	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1496336)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1496514)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1496515)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1496515) - continued						
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----
Glycols (QCLot: 1498030)						
Diethylene glycol	111-46-6	E680E	5	mg/L	<5.0	----
Ethylene glycol	107-21-1	E680E	5	mg/L	<5.0	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	<5.0	----
Triethylene glycol	112-27-6	E680E	5	mg/L	<5.0	----

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: 1496522)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1496567)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1497296)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 1496509)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1496510)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	90.2	80.0	120	----
Anions and Nutrients (QCLot: 1496511)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1497297)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1497298)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1497299)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 1497300)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1497301)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1497302)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1496508)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	113	80.0	120	----
Total Sulfides (QCLot: 1496723)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 1496250)									

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: 1496250) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	98.8	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.1	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	103	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	91.7	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	96.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	97.9	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.7	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	99.2	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	99.6	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	99.4	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.3	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	96.6	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	113	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.7	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.9	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.5	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	97.9	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.1	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.3	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	105	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	100	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.9	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.0	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	98.5	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.1	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: 1496250) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.7	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.9	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	94.9	80.0	120	----
Total Metals (QCLot: 1497402)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	102	80.0	120	----
Dissolved Metals (QCLot: 1496245)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	107	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	97.4	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.6	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	103	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	90.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	96.2	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	104	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	104	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	97.0	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	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	99.9	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	95.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	110	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	105	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
Dissolved Metals (QCLot: 1496245) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	94.9	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.8	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	# 78.7	80.0	120	MES
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	97.0	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	99.7	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	89.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	104	80.0	120	----
Speciated Metals (QCLot: 1497569)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
Aggregate Organics (QCLot: 1499631)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	105	85.0	115	----
Volatile Organic Compounds (QCLot: 1496337)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	93.9	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	84.5	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	97.6	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	108	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	99.5	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	90.3	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	91.7	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	93.1	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	99.2	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	98.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1496337) - continued									
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	99.7	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	90.7	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	80.5	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	99.1	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	112	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	99.1	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	93.5	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	94.2	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	108	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	105	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	95.9	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	93.7	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	99.4	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	110	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	93.1	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	110	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	95.6	70.0	130	----
Hydrocarbons (QCLot: 1496336)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	104	70.0	130	----
Hydrocarbons (QCLot: 1496514)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	106	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	105	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1496515)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	97.9	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	113	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	123	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1496515) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	120	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	113	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	114	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	103	60.0	130	----
Glycols (QCLot: 1498030)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	97.3	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	97.0	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	92.0	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	99.5	70.0	130	----

Matrix Spike (MS) Report

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

Sub-Matrix: **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: 1496509)										
VA24B3010-002	Anonymous	Nitrogen, total	7727-37-9	E366	0.402 mg/L	0.4 mg/L	100	70.0	130	----
Anions and Nutrients (QCLot: 1496510)										
VA24B3010-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0468 mg/L	0.05 mg/L	93.6	70.0	130	----
Anions and Nutrients (QCLot: 1496511)										
VA24B3010-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0985 mg/L	0.1 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 1497297)										
VA24B3811-012	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1497298)										
VA24B3811-012	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1497299)										
VA24B3811-012	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.515 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1497300)										
VA24B3811-012	Anonymous	Fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1497301)										
VA24B3811-012	Anonymous	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1497302)										
VA24B3811-012	Anonymous	Bromide	24959-67-9	E235.Br-L	0.519 mg/L	0.5 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1496508)										
VA24B3010-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1496723)										
CG2407840-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.211 mg/L	0.2 mg/L	105	75.0	125	----
Total Metals (QCLot: 1496250)										
VA24B4042-002	Anonymous	Aluminum, total	7429-90-5	E420	0.197 mg/L	0.2 mg/L	98.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Barium, total	7440-39-3	E420	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00910 mg/L	0.01 mg/L	91.0	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00386 mg/L	0.004 mg/L	96.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00981 mg/L	0.01 mg/L	98.1	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0394 mg/L	0.04 mg/L	98.6	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: 1496250) - continued										
VA24B4042-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Copper, total	7440-50-8	E420	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	----
		Iron, total	7439-89-6	E420	1.96 mg/L	2 mg/L	98.2	70.0	130	----
		Lead, total	7439-92-1	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0928 mg/L	0.1 mg/L	92.8	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	0.0209 mg/L	0.02 mg/L	105	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0369 mg/L	0.04 mg/L	92.4	70.0	130	----
		Phosphorus, total	7723-14-0	E420	11.2 mg/L	10 mg/L	112	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	0.0416 mg/L	0.04 mg/L	104	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	0.00385 mg/L	0.004 mg/L	96.3	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	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00366 mg/L	0.004 mg/L	91.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0170 mg/L	0.02 mg/L	85.0	70.0	130	----
		Tin, total	7440-31-5	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0400 mg/L	0.04 mg/L	100.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E420	0.372 mg/L	0.4 mg/L	93.1	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
Total Metals (QCLot: 1497402)										
VA24B4077-001	Anonymous	Mercury, total	7439-97-6	E508	0.000104 mg/L	0 mg/L	104	70.0	130	----
Dissolved Metals (QCLot: 1496245)										
VA24B4042-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.217 mg/L	0.2 mg/L	108	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0233 mg/L	0.02 mg/L	116	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0369 mg/L	0.04 mg/L	92.3	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00809 mg/L	0.01 mg/L	80.9	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00387 mg/L	0.004 mg/L	96.7	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00977 mg/L	0.01 mg/L	97.7	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0195 mg/L	0.02 mg/L	97.6	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: 1496245) - continued										
VA24B4042-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.97 mg/L	2 mg/L	98.7	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0181 mg/L	0.02 mg/L	90.7	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0954 mg/L	0.1 mg/L	95.4	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	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	11.5 mg/L	10 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	ND mg/L	----	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0474 mg/L	0.04 mg/L	118	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00252 mg/L	0.004 mg/L	63.0	70.0	130	MES
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00353 mg/L	0.004 mg/L	88.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0158 mg/L	0.02 mg/L	79.0	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0414 mg/L	0.04 mg/L	104	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00384 mg/L	0.004 mg/L	96.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.368 mg/L	0.4 mg/L	91.9	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1497400)										
VA24B4077-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0 mg/L	102	70.0	130	----
Speciated Metals (QCLot: 1497569)										
VA24B4017-002	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.264 mg/L	0.25 mg/L	106	70.0	130	----
Aggregate Organics (QCLot: 1499631)										
VA24B4054-001	WLNG EOP	Phenols, total (4AAP)	----	E562	0.0202 mg/L	0.02 mg/L	101	75.0	125	----
Volatile Organic Compounds (QCLot: 1496337)										
VA24B4060-002	Anonymous	Benzene	71-43-2	E611C	75.1 µg/L	100 µg/L	75.1	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	80.9 µg/L	100 µg/L	80.9	60.0	140	----
		Bromoform	75-25-2	E611C	77.6 µg/L	100 µg/L	77.6	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	64.5 µg/L	100 µg/L	64.5	60.0	140	----
		Chlorobenzene	108-90-7	E611C	75.4 µg/L	100 µg/L	75.4	60.0	140	----
		Chloroethane	75-00-3	E611C	75.6 µg/L	100 µg/L	75.6	50.0	150	----
		Chloroform	67-66-3	E611C	77.5 µg/L	100 µg/L	77.5	60.0	140	----
		Chloromethane	74-87-3	E611C	62.5 µg/L	100 µg/L	62.5	50.0	150	----

Sub-Matrix: **Water**

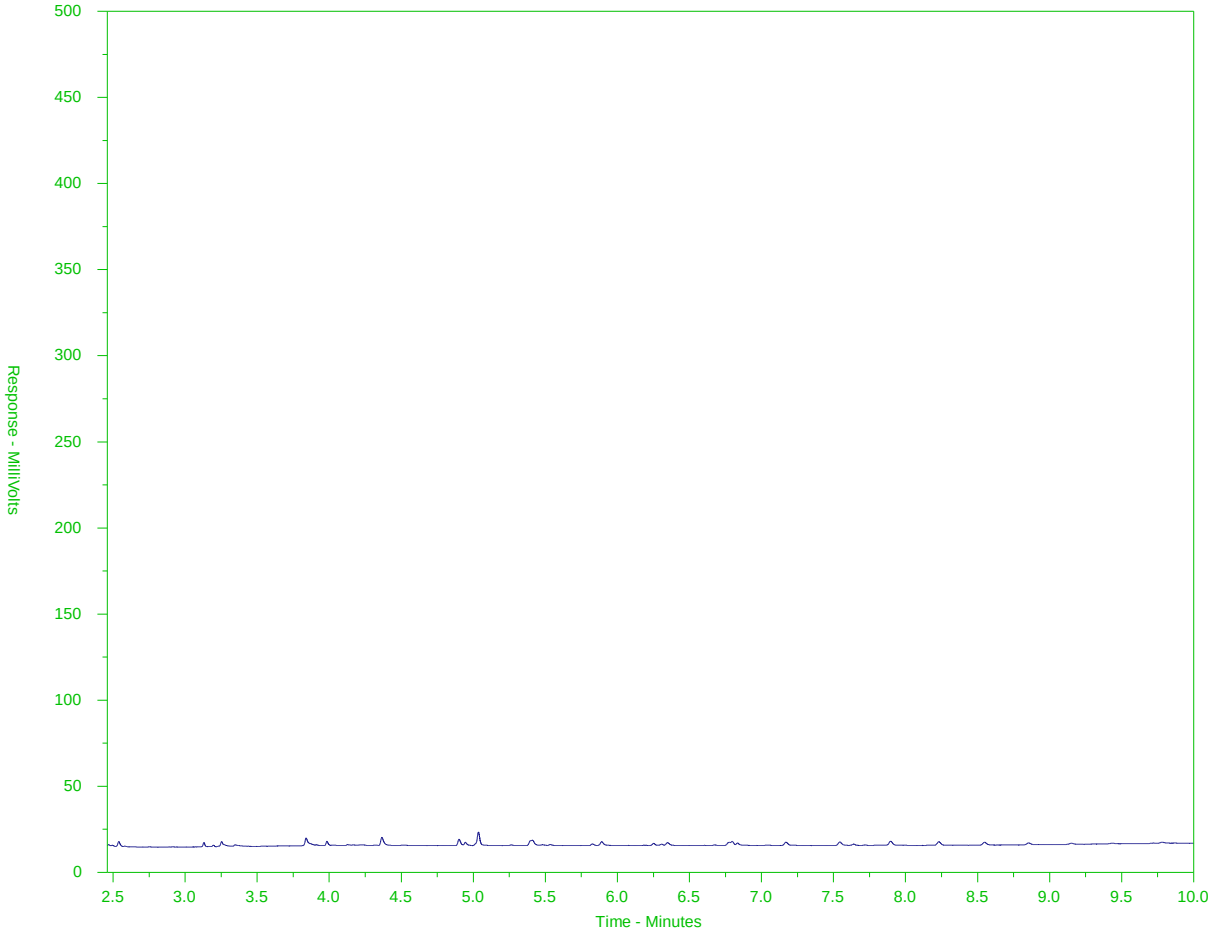
					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1496337) - continued										
VA24B4060-002	Anonymous	Dibromochloromethane	124-48-1	E611C	79.5 µg/L	100 µg/L	79.5	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	81.5 µg/L	100 µg/L	81.5	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	82.8 µg/L	100 µg/L	82.8	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	85.2 µg/L	100 µg/L	85.2	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	74.9 µg/L	100 µg/L	74.9	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	87.9 µg/L	100 µg/L	87.9	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	64.2 µg/L	100 µg/L	64.2	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	75.0 µg/L	100 µg/L	75.0	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	72.9 µg/L	100 µg/L	72.9	60.0	140	----
		Dichloromethane	75-09-2	E611C	81.8 µg/L	100 µg/L	81.8	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	85.6 µg/L	100 µg/L	85.6	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	79.8 µg/L	100 µg/L	79.8	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	73.2 µg/L	100 µg/L	73.2	60.0	140	----
		Ethylbenzene	100-41-4	E611C	61.6 µg/L	100 µg/L	61.6	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	92.0 µg/L	100 µg/L	92.0	60.0	140	----
		Styrene	100-42-5	E611C	72.2 µg/L	100 µg/L	72.2	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	74.2 µg/L	100 µg/L	74.2	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	89.7 µg/L	100 µg/L	89.7	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	69.7 µg/L	100 µg/L	69.7	60.0	140	----
		Toluene	108-88-3	E611C	68.6 µg/L	100 µg/L	68.6	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	65.7 µg/L	100 µg/L	65.7	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	83.9 µg/L	100 µg/L	83.9	60.0	140	----
		Trichloroethylene	79-01-6	E611C	69.5 µg/L	100 µg/L	69.5	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	70.7 µg/L	100 µg/L	70.7	50.0	150	----
		Vinyl chloride	75-01-4	E611C	60.5 µg/L	100 µg/L	60.5	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	154 µg/L	200 µg/L	76.8	60.0	140	----
		Xylene, o-	95-47-6	E611C	65.4 µg/L	100 µg/L	65.4	60.0	140	----
Hydrocarbons (QCLot: 1496336)										
VA24B4060-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	5040 µg/L	6310 µg/L	79.9	60.0	140	----

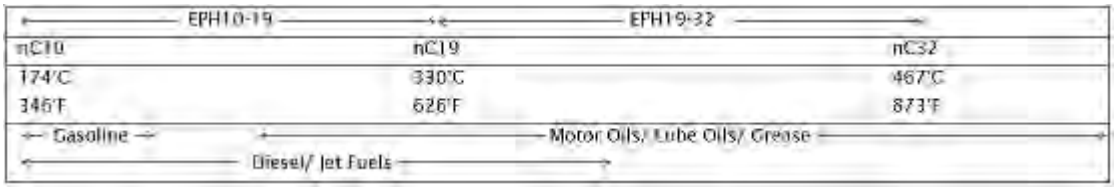
Qualifiers

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

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: VA24B4054-001-E601A
Client Sample ID: WLNG EOP





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

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:	
Contact:	
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ 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 Fax	
Email 2	
Email 3	

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.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

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

Project Information	
ALS Account # / Quote #:	VA23-TRIT100-012
Job #:	11964
PO / AFE:	11964 - Task 30 - Phase 3C-4C
LSD:	
ALS Lab Work Order # (lab use only):	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	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, T-Alkalinity,Anions scan (Br, Cl, F,	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus, phenols)	VOC/VPH	EPH, PAH, LEPH/HEPH	DOC	Glycols	General parameters (alkalinity)				SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
						F				P	P	P	P	F/P								
	~~Discharge~~ 1 WLNG EOP			Water	R	R	R	R	R	R	R	R	R	R	R	R						15
	pH: 7.1 cond: 319 ~~mg/L~~ mS/cm temp: 19.1	14-JUN-24	15:10																			
	~~Duplicate~~			~~Water~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~						~~15~~
	~~Field Blank~~			~~Water~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~						~~15~~
	~~Trip Blank~~			~~Water~~	~~R~~		~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~		~~R~~	~~R~~						~~11~~

Environmental Division
Vancouver
Work Order Reference
VA24B4054

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ 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			
				10			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	14 June 24	Time: 6:00 pm	Received by:	Date:	Time:	Received by: DW	Date: Jun 14	Time: 6:30 pm

IONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY SEPT 2017 FRONT

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

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

Woodfibre Site WTP Discharge Field Notes and Logs

Day 1 Continuous Discharge WLNG

WTP Log:

Date	Time	Discharge pH	Discharge Flow Rate (USGPM)	Discharge NTU	Flow Total (G)	Recirc Valve Status	Discharge Valve Status	Last Discharge Start Time		
2024/06/14	15:15:00	7.2	68	0.9	1,730	Closed	Open	03:10:29 PM Jun-14-2024		
2024/06/14	15:30:00	7	393	1.1	2,618	Open	Closed	03:24:43 PM Jun-14-2024		

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-6-14-Chycoski-CCCF7

Project Component:	Tunnel	**Site Name:**	WLNG Treatment Discharge
Inspection Date:	06/14/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669351 -123.248439
Temperature(c):	Low 8 High 14	**Permit:**	PE 110136
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 15:10:51 **Flow Volume (visual):** moderate

Notes: Conductivity 319 micro Siemens per cm

Odour Detected?:	Yes	**Notes:**	Slightly sulfuric
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:** Glycols x2 bottles
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**VOC/VPH**	Yes	**QA Samples:** No Glycols x2 bottles
Nutrients	Yes	**EPH, PAH, LEPH/HEPH**	Yes	
DOC	Yes	**Trout LC50**	No	

Logger Maintenance

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

Describe Logger Maintenance

Photos

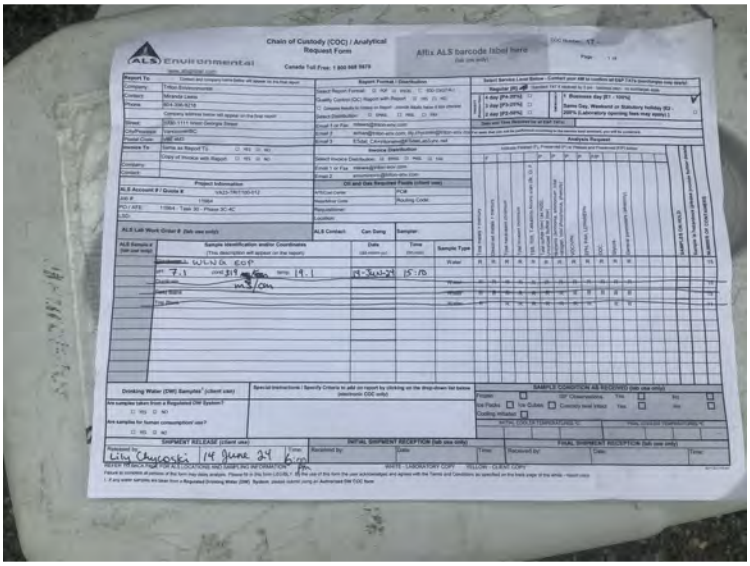


Photo: 3

Location: WLNG EOP

Description: Lab COC

Sign Off

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

Appendix D: Woodfibre Site Receiving Environment Documentation

Woodfibre Site Receiving Environment Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:	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					VA24B3535-001	VA24B3535-002					
	Date Sampled					11-Jun-2024	11-Jun-2024					
	Time Sampled					07:57	08:38					
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	7.3	7.37		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]	-	11.1	11.4		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	-	-	-	-	26	32					
Turbidity (field)	NTU	Varies with background, see note Lowest value for guideline is 3 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 3 NTU	1.93	0.78		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.
Dissolved Oxygen (field)	mg/L	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	9.80	9.71		Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.
General Parameters												
Hardness (as CaCO3) (total)	mg/L	-	-	-	-	5.68	6.12					
Total Dissolved Solids	mg/L	-	-	-	-	15	20					
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	-	-	-	-	2.27	1.71			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	5.8	6.3	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.	< 0.0050	< 0.0050		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	0.58	0.57				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	< 0.020		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	0.0096	0.0113					
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	-	-	-	-	0.058	0.056					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.0049	0.0051			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.	-	-	-	1.8	1.93			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	-	-	-	***0.0911***	***0.075***	**When entered in the 5-week rolling average LT excel spreadsheet, both upstream and downstream locations remain 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	0.00013	0.0001					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00273	0.00306			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	0.0000068	0.000007					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	1.94	2.11					
Cesium (Cs)-Total	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00055	< 0.00050					
Iron (Fe)-Total	mg/L	-	1	-	-	0.04	0.036					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	< 0.000050	< 0.000050		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation 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	-	-	-	-	0.203	0.208					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.00165	0.00184		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	-	-	-	< 0.0000050	< 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	-	-	0.000376	0.000509					
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	-	-	-	-	0.129	0.136					
Rubidium (Rb)-Total	mg/L	-	-	-	-	< 0.00020	0.00028					
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	-	-	-	-	3.89	3.89					
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	-	-	-	-	1.18	1.21					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0108	0.0107					
Sulfur (S)-Total	mg/L	-	-	-	-	< 0.50	0.57					
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	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.00153	0.00094					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.000097	0.000094			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	< 0.00050	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	< 0.0030	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0591	0.0576					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.0001	< 0.00010					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0027	0.00329					
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	-	-	0.000006	0.0000057		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	-	-	-	2.01	2.22	The upstream and downstream 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	-	-	-	-	< 0.000010	< 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	-	-	***0.00054***	***0.0005***	**The 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	-	-	0.016	0.02					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.214	0.225					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00075	0.0013					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000356	0.000507					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.148	0.135					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00027	0.00027					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.06	4.19					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.26	1.26					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0108	0.0113					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	< 0.50	< 0.50					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000094	0.0001					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0014	0.0014		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				7.3	7.37
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				11.1	11.4
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				1.93	0.78
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				5.68	6.12
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				2.27	1.71
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				5.8	6.3
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				0.58	0.57

Woodfibre Site Receiving Environment Lab Documentation

ALS Canada Ltd.

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CERTIFICATE OF ANALYSIS

Work Order	: **VA24B3535**	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	: 11-Jun-2024 17:00
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 12-Jun-2024
C-O-C number	: ----	Issue Date	: 21-Jun-2024 20:29
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*
	Analyst	Metals, Burnaby, British Columbia
	Lab Assistant	Metals, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia
	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
	Production Manager, Environmental	Metals, Waterloo, Ontario
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Technical Specialist	Inorganics, Waterloo, Ontario
	Technical Specialist	Metals, Waterloo, Ontario
	Team Leader - Inorganics	Inorganics, Calgary, Alberta
	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
	Analyst	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°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	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	11-Jun-2024 07:57	11-Jun-2024 08:38	----	----	----
						VA24B3535-001	VA24B3535-002	--------	--------	--------
						Result	Result	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		26.000	32.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.30	7.40	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		11.1	11.4	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		5.90	6.47	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		5.68	6.12	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		15	20	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		5.8	6.3	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		0.58	0.57	----	----	----
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		0.0096	0.0113	----	----	----
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		0.058	0.056	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0049	0.0051	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		1.80	1.93	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/CG	0.50	mg/L		2.27	1.71	----	----	----
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		0.0911	0.0750	----	----	----
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	11-Jun-2024 07:57	11-Jun-2024 08:38	----	----	----
						VA24B3535-001	VA24B3535-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00013	0.00010	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00273	0.00306	----	----	----
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		0.0000068	0.0000070	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		1.94	2.11	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00055	<0.00050	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.040	0.036	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.203	0.208	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00165	0.00184	----	----	----
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		0.000376	0.000509	----	----	----
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		0.129	0.136	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		<0.00020	0.00028	----	----	----
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		3.89	3.89	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		1.18	1.21	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0108	0.0107	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		<0.50	0.57	----	----	----
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	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	11-Jun-2024 07:57	11-Jun-2024 08:38	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B3535-001	VA24B3535-002	--------	--------	--------
						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		0.00153	0.00094	----	----	----
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		0.000097	0.000094	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	<0.0030	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0591	0.0576	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00010	<0.00010	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00270	0.00329	----	----	----
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		0.0000060	0.0000057	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		2.01	2.22	----	----	----
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		0.00054	0.00050	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.016	0.020	----	----	----
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		0.214	0.225	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00075	0.00130	----	----	----
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		0.000356	0.000507	----	----	----
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	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	11-Jun-2024 07:57	11-Jun-2024 08:38	----	----	----
						VA24B3535-001	VA24B3535-002	--------	--------	--------
						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		0.148	0.135	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00027	0.00027	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		4.06	4.19	----	----	----
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		1.26	1.26	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0108	0.0113	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		<0.50	<0.50	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000094	0.000100	----	----	----
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		0.0014	0.0014	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], 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.

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B3535**	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	: 11-Jun-2024 17:00
PO	: 11964 - Task 20 - Phase 3C-4C	Issue Date	: 21-Jun-2024 20:30
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 US 1	E298	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	21-Jun-2024	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG DS 1	E298	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	20-Jun-2024	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.Br-L	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG US 1	E235.Br-L	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG DS 1	E235.Cl	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG US 1	E235.Cl	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG DS 1	E235.F	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-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	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO3-L	11-Jun-2024	14-Jun-2024	3 days	3 days	✓	14-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO3-L	11-Jun-2024	14-Jun-2024	3 days	3 days	✓	14-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO2-L	11-Jun-2024	14-Jun-2024	3 days	3 days	✓	14-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO2-L	11-Jun-2024	14-Jun-2024	3 days	3 days	✓	14-Jun-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG DS 1	E235.SO4	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG US 1	E235.SO4	11-Jun-2024	14-Jun-2024	28 days	3 days	✓	14-Jun-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG DS 1	E366	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	20-Jun-2024	28 days	9 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG US 1	E366	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	20-Jun-2024	28 days	9 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)										
WLNG DS 1	E372-U	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	20-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	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	20-Jun-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG DS 1	E509	11-Jun-2024	16-Jun-2024	28 days	5 days	✓	16-Jun-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG US 1	E509	11-Jun-2024	16-Jun-2024	28 days	5 days	✓	16-Jun-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG DS 1	E421	11-Jun-2024	14-Jun-2024	180 days	3 days	✓	18-Jun-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG US 1	E421	11-Jun-2024	14-Jun-2024	180 days	3 days	✓	18-Jun-2024	180 days	7 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	11-Jun-2024	----	----	----		12-Jun-2024	----	1 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	11-Jun-2024	----	----	----		12-Jun-2024	----	1 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG DS 1	E358-L	11-Jun-2024	19-Jun-2024	28 days	8 days	✓	19-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 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	11-Jun-2024	19-Jun-2024	28 days	9 days	✓	19-Jun-2024	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG DS 1	E290	11-Jun-2024	14-Jun-2024	14 days	3 days	✓	15-Jun-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG US 1	E290	11-Jun-2024	14-Jun-2024	14 days	3 days	✓	15-Jun-2024	14 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	11-Jun-2024	----	----	----		17-Jun-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	11-Jun-2024	----	----	----		17-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	11-Jun-2024	----	----	----		18-Jun-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	11-Jun-2024	----	----	----		18-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	11-Jun-2024	----	----	----		17-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	11-Jun-2024	----	----	----		17-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	11-Jun-2024	13-Jun-2024	28 days	2 days	✓	13-Jun-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG US 1	E508	11-Jun-2024	13-Jun-2024	28 days	2 days	✓	13-Jun-2024	28 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG DS 1	E420	11-Jun-2024	14-Jun-2024	180 days	3 days	✓	17-Jun-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG US 1	E420	11-Jun-2024	14-Jun-2024	180 days	3 days	✓	17-Jun-2024	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG DS 1	E395	11-Jun-2024	----	----	----		17-Jun-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG US 1	E395	11-Jun-2024	----	----	----		17-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	1493486	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1501938	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1493490	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1493489	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1496704	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1489320	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1503193	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1493488	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1493491	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1493492	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1493493	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1498739	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497833	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1491727	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1489997	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1501939	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1501935	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1498136	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1498726	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1493486	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1501938	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1493490	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1493489	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1496704	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1489320	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1503193	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1493488	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1493491	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1493492	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1493493	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1498739	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497833	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1491727	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1489997	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1501939	1	12	8.3	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	1501935	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1498136	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1498726	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1493486	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1501938	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1493490	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1493489	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1496704	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1489320	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1503193	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1493488	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1493491	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1493492	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1493493	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1498739	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497833	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1491727	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1489997	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1501939	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1501935	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1498136	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1498726	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1501938	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1493490	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1493489	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1496704	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1489320	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1503193	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1493488	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1493491	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1493492	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1493493	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1497833	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1491727	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1489997	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1501939	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1501935	1	11	9.0	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	1498136	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 - 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, 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 - 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.

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QUALITY CONTROL REPORT

Work Order	: **VA24B3535**	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	: 11-Jun-2024 17:00
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 12-Jun-2024
C-O-C number	: ----	Issue Date	: 21-Jun-2024 20:30
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*
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
	Production Manager, Environmental	Waterloo Metals, Waterloo, Ontario
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Technical Specialist	Waterloo Inorganics, Waterloo, Ontario
	Technical Specialist	Waterloo Metals, Waterloo, Ontario
	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
	Analyst	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1493486)											
KS2402160-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1498726)											
FJ2401694-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1498739)											
FJ2401694-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	262	262	0.191%	20%	----
Anions and Nutrients (QC Lot: 1493488)											
KS2402160-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.171	0.167	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1493489)											
KS2402160-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	10.9	10.9	0.04	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1493490)											
KS2402160-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1493491)											
KS2402160-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1493492)											
KS2402160-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1493493)											
KS2402160-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	407	409	0.401%	20%	----
Anions and Nutrients (QC Lot: 1501935)											
FJ2401669-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0026	0.0027	0.00008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1501938)											
FJ2401669-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0094	0.0092	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1501939)											
FJ2401669-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.121	0.119	0.002	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1503193)											
SK2402867-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.68	2.62	0.06	Diff <2x LOR	----
Total Sulfides (QC Lot: 1498136)											
CG2407917-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1489997)											
VA24B3468-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0222	0.0205	0.0016	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: 1489997) - continued											
VA24B3468-001	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	0.00306	0.00298	2.90%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000135	0.0000122	0.0000012	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	7.52	7.61	1.13%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	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	0.390	0.388	0.706%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.028	0.030	0.001	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.00158	0.00158	0.230%	20%	----
		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	0.189	0.190	0.454%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00585	0.00506	14.5%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000224	0.000230	0.000006	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00350	0.00336	0.00014	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	0.130	0.132	0.003	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00024	0.00025	0.00001	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	0.000052	0.000002	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	1.46	1.47	0.667%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	1.80	1.78	1.27%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0110	0.0111	0.915%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	0.00141	0.00146	3.26%	20%	----
		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	0.000012	0.000012	0.0000004	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: 1489997) - continued											
VA24B3468-001	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	0.0645	0.0636	1.55%	20%	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1491727)											
VA24B3508-005	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1489320)											
VA24B3388-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0042	0.0036	0.0005	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00025	0.00026	0.000006	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00036	0.00035	0.00001	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00518	0.00539	3.86%	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	0.016	0.016	0.00003	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000134	0.000145	8.00%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	280	286	1.95%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.00352	0.00354	0.595%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00182	0.00182	0.0508%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0361	0.0353	2.11%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	71.9	70.6	1.74%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	3.39	3.35	1.17%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00106	0.00108	2.26%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00646	0.00638	1.25%	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	0.100	mg/L	3.68	3.69	0.0861%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00982	0.00983	0.105%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00850	0.00917	7.57%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.92	1.90	0.752%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	10.3	10.1	1.60%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.631	0.648	2.64%	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: 1489320) - continued											
VA24B3388-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	329	335	1.85%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000070	0.000071	0.0000003	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00100	0.00105	4.62%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0146	0.0146	0.237%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1496704)											
VA24B3403-011	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1497833)											
VA24B3535-001	WLNG US 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1493486)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1498726)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1498739)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1493488)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1493489)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1493490)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1493491)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1493492)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1493493)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1501935)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1501938)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1501939)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Organic / Inorganic Carbon (QCLot: 1503193)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1498136)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1489997)						
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: 1489997) - 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: 1491727)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1489320)						
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: 1489320) - 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: 1496704)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1497833)						
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: 1493486)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1498726)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	97.8	85.0	115	----
Physical Tests (QCLot: 1498739)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	94.7	85.0	115	----
Anions and Nutrients (QCLot: 1493488)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1493489)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1493490)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1493491)									
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: 1493492)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1493493)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1501935)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	86.7	80.0	120	----
Anions and Nutrients (QCLot: 1501938)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.5	85.0	115	----
Anions and Nutrients (QCLot: 1501939)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	101	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1503193)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Total Sulfides (QCLot: 1498136)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	95.6	80.0	120	----
Total Metals (QCLot: 1489997)									

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: 1489997) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	98.5	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	96.4	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	96.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.5	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	100	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.3	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.9	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	99.4	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.3	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.9	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.2	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	96.4	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.8	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	108	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.3	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	99.5	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	85.9	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	96.5	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	94.5	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.4	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	94.0	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.0	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: 1489997) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	100	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.8	80.0	120	----
Total Metals (QCLot: 1491727)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	108	80.0	120	----
Dissolved Metals (QCLot: 1489320)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	106	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	117	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	112	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	112	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	105	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	109	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	108	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	110	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.5	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	108	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	108	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	105	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	107	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	108	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	106	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	102	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	116	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	108	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	99.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1489320) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	113	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	107	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	107	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	106	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	109	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	111	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	110	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	103	80.0	120	----
Speciated Metals (QCLot: 1497833)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	96.8	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: 1493488)										
KS2402160-002	Anonymous	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1493489)										
KS2402160-002	Anonymous	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1493490)										
KS2402160-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.512 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1493491)										
KS2402160-002	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: 1493492)										
KS2402160-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.506 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1493493)										
KS2402160-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1501935)										
FJ2401669-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0485 mg/L	0.05 mg/L	97.0	70.0	130	----
Anions and Nutrients (QCLot: 1501938)										
FJ2401669-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1501939)										
FJ2401669-002	Anonymous	Nitrogen, total	7727-37-9	E366	0.403 mg/L	0.4 mg/L	101	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1503193)										
SK2402867-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.88 mg/L	5 mg/L	118	70.0	130	----
Total Sulfides (QCLot: 1498136)										
CG2407924-003	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.192 mg/L	0.2 mg/L	95.9	75.0	125	----
Total Metals (QCLot: 1489997)										
VA24B3525-001	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0700 mg/L	0.08 mg/L	87.5	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0181 mg/L	0.02 mg/L	90.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.187 mg/L	0.2 mg/L	93.4	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00762 mg/L	0.008 mg/L	95.3	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0748 mg/L	0.08 mg/L	93.5	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
Total Metals (QCLot: 1489997) - continued										
VA24B3525-001	Anonymous	Cobalt, total	7440-48-4	E420	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.0355 mg/L	0.04 mg/L	88.7	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0357 mg/L	0.04 mg/L	89.3	70.0	130	----
		Lithium, total	7439-93-2	E420	0.187 mg/L	0.2 mg/L	93.4	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	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0744 mg/L	0.08 mg/L	92.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	17.3 mg/L	20 mg/L	86.4	70.0	130	----
		Potassium, total	7440-09-7	E420	7.25 mg/L	8 mg/L	90.6	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0356 mg/L	0.04 mg/L	89.1	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0798 mg/L	0.08 mg/L	99.7	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00789 mg/L	0.008 mg/L	98.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	38.3 mg/L	40 mg/L	95.8	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0830 mg/L	0.08 mg/L	104	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00707 mg/L	0.008 mg/L	88.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0298 mg/L	0.04 mg/L	74.5	70.0	130	----
		Tin, total	7440-31-5	E420	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Titanium, total	7440-32-6	E420	ND mg/L	----	ND	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00728 mg/L	0.008 mg/L	91.0	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Zinc, total	7440-66-6	E420	0.755 mg/L	0.8 mg/L	94.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0814 mg/L	0.08 mg/L	102	70.0	130	----
Total Metals (QCLot: 1491727)										
VA24B3516-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000999 mg/L	0 mg/L	99.9	70.0	130	----
Dissolved Metals (QCLot: 1489320)										
VA24B3388-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	ND mg/L	----	ND	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0222 mg/L	0.02 mg/L	111	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0434 mg/L	0.04 mg/L	108	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0106 mg/L	0.01 mg/L	106	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00414 mg/L	0.004 mg/L	104	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0107 mg/L	0.01 mg/L	107	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1489320) - continued										
VA24B3388-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Iron, dissolved	7439-89-6	E421	2.04 mg/L	2 mg/L	102	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0209 mg/L	0.02 mg/L	105	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.109 mg/L	0.1 mg/L	109	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	ND mg/L	----	ND	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0433 mg/L	0.04 mg/L	108	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	10.4 mg/L	10 mg/L	104	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00410 mg/L	0.004 mg/L	102	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	0.0422 mg/L	0.04 mg/L	106	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00398 mg/L	0.004 mg/L	99.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0161 mg/L	0.02 mg/L	80.6	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	ND mg/L	----	ND	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00416 mg/L	0.004 mg/L	104	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.416 mg/L	0.4 mg/L	104	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0448 mg/L	0.04 mg/L	112	70.0	130	----
Dissolved Metals (QCLot: 1496704)										
VA24B3403-012	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000968 mg/L	0 mg/L	96.8	70.0	130	----
Speciated Metals (QCLot: 1497833)										
VA24B3535-001	WLNG US 1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0384 mg/L	0.04 mg/L	96.1	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

Environmental Division Vancouver
Work Order Reference
VA24B3535

Telephone : + 1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	Triton Environmental
Contact:	
Phone:	
	the final report
Street:	
City/Province:	
Postal Code:	

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 Fax	
Email 2	
Email 3	

Select Service Level Below - Contact your AM to confi

Regular [R] ☑ Standard TAT if received by 3 pm - bus

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4-20%] ☐		1 Business day
	3 day [P3-25%] ☐		Same Day, Week
	2 day [P2-50%] ☐		200% (Laborator

Date and Time Required for all E&P TATs:

or tests that can not be performed according to the service level selected,

Analysis Requ

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

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

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): B3535

ALS Contact: Sampler:

Indicate Filtered (F), Preserved (P) or Filtered and Prese

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 deta	NUMBER OF CONTAINERS
						F					P	P			F/P							
	WLNG US 1	11-Jun-24	07:57	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.3 cond: 26 temp: 11.1																					
	WLNG DS 1	11-Jun-24	08:38	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.4 cond: 32 temp: 11.4																					
	~~Duplicate~~			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	~~Field Blank~~			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Trip Blank			Water	R		R	R	R	R	R	R	R	R							N	6

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ ☑ NO	
Are samples for human consumption/ use? ☐ ☑ NO	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			
				13			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
11-June-24	17:00					Jun 11	5:00 pm

ONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — SEPT 2007 FRONT

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

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

Woodfibre Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-6-11-Chycoski-708B6

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	06/11/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 3 High 9	**Permit:**	PE 110136
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 07:57:58 **Flow Volume (visual):** moderate

Notes: Conductivity 26 micro siemens per cm

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

Logger Maintenance

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

Describe Logger Maintenance

Photos

Photo: 1

Location: EAS US 1

Description: US view

Photo: 2

Location: EAS US 1

Description: Across view

Photos

Photo: 3

Location: EAS US 1

Description: DS view

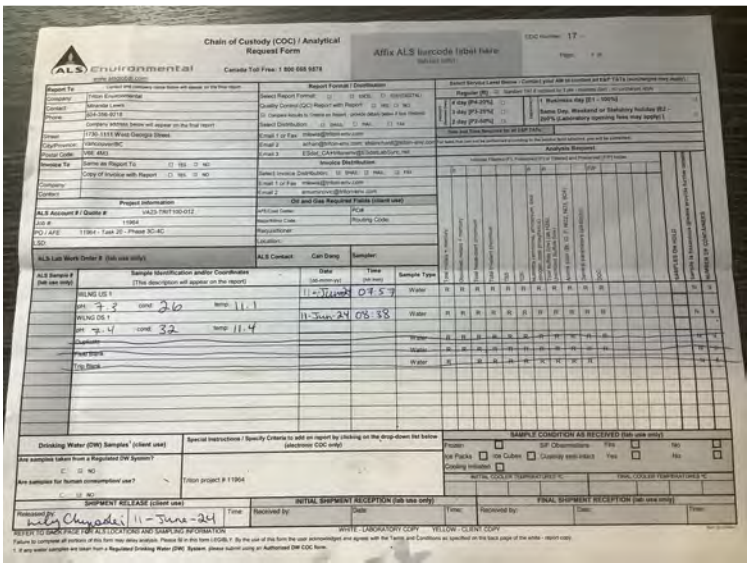

Photo: 4

Location: EAS US 1

Description: Lab COC

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-6-11-Chycoski-940EF

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	06/11/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.6683 -123.247958
Temperature(c):	Low 3 High 9	**Permit:**	PE 110136
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 08:38:27 **Flow Volume (visual):** moderate

Notes: Conductivity 32 micro siemens per cm

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 hexavalent chromium and total trivalent chromium
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**VOC/VPH**		**QA Samples:** No Total hexavalent chromium and total trivalent chromium
Nutrients	Yes	**EPH, PAH, LEPH/HEPH**		
DOC	Yes	**Trout LC50**		

Logger Maintenance

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

Describe Logger Maintenance

Photos

Photo: 1

Location: EAS DS 1

Description: US view

Photo: 2

Location: EAS DS 1

Description: Across view

Photos

Photo: 3

Location: EAS DS 1

Description: DS view

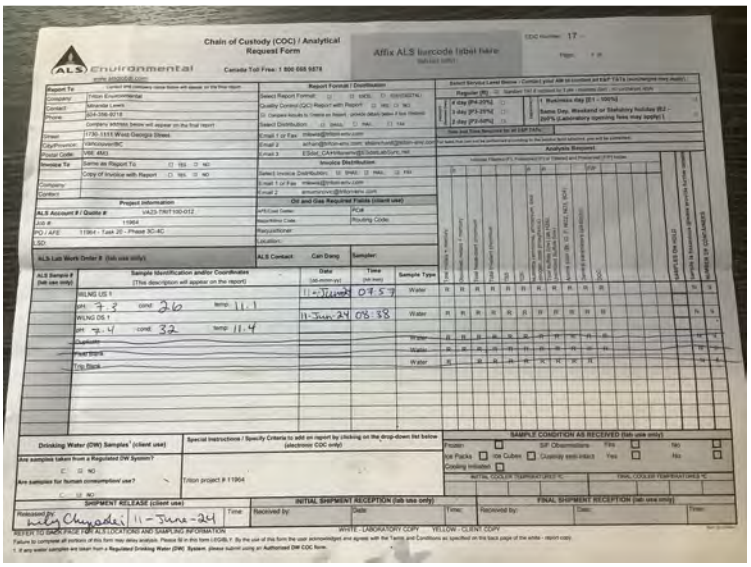

Photo: 4

Location: EAS DS 1

Description: Lab COC

Sign Off

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

WLNG US Sonde Data

Received	Temperature C	Specific Conductivity µS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU	TL Battery V
6/14/2024 0:00	11.11	13.65	0.01	6.97	300.38	9.91	0.11	12.17
6/14/2024 0:10	11.09	13.49	0.01	6.95	303.12	9.91	0.18	12.09
6/14/2024 0:20	11.08	13.59	0.01	6.97	301.43	9.9	0.17	12.09
6/14/2024 0:30	11.06	13.47	0.01	6.96	302.76	9.91	0.12	12.19
6/14/2024 0:40	11.05	13.56	0.01	6.98	300.58	9.9	0.13	12.19
6/14/2024 0:50	11.04	13.49	0.01	7.01	299.88	9.9	0.15	12.17
6/14/2024 1:00	11.03	13.58	0.01	6.97	303.77	9.91	0.11	12.07
6/14/2024 1:10	11.02	13.54	0.01	6.99	304.14	9.92	0.22	12.09
6/14/2024 1:20	11.01	13.6	0.01	6.98	303.11	9.93	0.14	12.14
6/14/2024 1:30	11	13.53	0.01	7.02	301.13	9.92	0.12	12.07
6/14/2024 1:40	10.99	13.58	0.01	6.97	303.45	9.94	0.17	12.17
6/14/2024 1:50	10.98	13.39	0.01	7	299.92	9.93	0.2	12.17
6/14/2024 2:00	10.97	13.57	0.01	6.97	300.67	9.95	0.13	12.14
6/14/2024 2:10	10.97	13.51	0.01	6.99	300.11	9.94	0.08	12.14
6/14/2024 2:20	10.96	13.54	0.01	6.99	300.73	9.94	0.11	12.14
6/14/2024 2:30	10.94	13.46	0.01	6.98	300.03	9.95	0.11	12.14
6/14/2024 2:40	10.93	13.56	0.01	6.98	301.1	9.94	0.14	12.14
6/14/2024 2:50	10.92	13.48	0.01	6.99	302.7	9.97	0.12	12.02
6/14/2024 3:00	10.91	13.56	0.01	6.98	302.46	9.95	0.14	12.12
6/14/2024 3:10	10.89	13.37	0.01	7	301.72	9.95	0.11	12.12
6/14/2024 3:20	10.87	13.52	0.01	6.99	302.95	9.97	0.1	12.12
6/14/2024 3:30	10.84	13.5	0.01	6.99	303.58	9.98	0.15	12.12
6/14/2024 3:40	10.82	13.54	0.01	6.98	303.33	9.98	0.13	12.12
6/14/2024 3:50	10.8	13.49	0.01	6.99	303.48	9.99	0.12	12
6/14/2024 4:00	10.78	13.53	0.01	6.98	303.63	9.99	0.57	12
6/14/2024 4:10	10.77	13.48	0.01	6.99	303.66	9.99	0.12	12.07
6/14/2024 4:20	10.76	13.54	0.01	6.97	304.48	10	0.11	12.07
6/14/2024 4:30	10.75	13.51	0.01	7	304.41	10	0.11	12
6/14/2024 4:40	10.73	13.53	0.01	6.97	303.14	9.82	0.16	12
6/14/2024 4:50	10.72	13.61	0.01	7.02	300.07	10.02	0.14	12.07
6/14/2024 5:00	10.72	13.55	0.01	6.98	301.21	10.01	0.19	12.07
6/14/2024 5:10	10.71	13.43	0.01	7.01	301.86	10.01	0.13	12.07
6/14/2024 5:20	10.7	13.55	0.01	6.97	302.47	10.02	0.1	12.05
6/14/2024 5:30	10.7	13.5	0.01	7.04	300.03	10.01	0.08	12.07
6/14/2024 5:40	10.7	13.53	0.01	6.97	302.71	10.02	0.14	12.07
6/14/2024 5:50	10.71	13.46	0.01	6.97	302.69	10.03	0.09	12.09
6/14/2024 6:00	10.72	13.49	0.01	6.95	303.71	10.03	0.12	12.12
6/14/2024 6:10	10.73	13.47	0.01	7.02	300.98	10.03	0.11	12.12
6/14/2024 6:20	10.74	13.47	0.01	6.99	303.73	10.01	0.13	12.05
6/14/2024 6:30	10.74	13.27	0.01	7.04	300.71	10.02	0.12	11.97
6/14/2024 6:40	10.75	13.49	0.01	7.01	301.6	10.02	0.12	11.97
6/14/2024 6:50	10.75	13.41	0.01	6.99	302.94	10.03	0.12	11.97

6/14/2024 7:00	10.75	12.74	0.01	7	301.91	10.03	0.12	12.05
6/14/2024 7:10	10.75	13.37	0.01	7.05	299.58	10.02	0.09	11.97
6/14/2024 7:20	10.76	13.44	0.01	7	302.6	10.05	0.09	12.05
6/14/2024 7:30	10.76	13.33	0.01	7.07	297.92	10.03	0.1	12.07
6/14/2024 7:40	10.76	13.46	0.01	7.02	301.84	10.03	0.11	12.12
6/14/2024 7:50	10.76	13.4	0.01	7.04	297.85	10.05	0.13	12.17
6/14/2024 8:00	10.77	13.46	0.01	7.01	297.08	10.03	0.15	12.17
6/14/2024 8:10	10.77	13.37	0.01	7.09	293.34	10.05	0.17	12.09
6/14/2024 8:20	10.77	13.42	0.01	7.02	297.59	10.04	0.15	12.21
6/14/2024 8:30	10.76	13.39	0.01	7.02	299.06	10.04	0.13	12.24
6/14/2024 8:40	10.77	13.42	0.01	7.02	299.12	10.05	0.12	12.33
6/14/2024 8:50	10.77	13.27	0.01	7.06	298.19	10.05	0.12	12.41
6/14/2024 9:00	10.78	13.37	0.01	7.02	299.57	10.06	0.15	12.5
6/14/2024 9:10	10.79	13.14	0.01	7.05	299.09	10.07	0.12	12.48
6/14/2024 9:20	10.81	13.07	0.01	7.02	299.49	10.04	0.13	12.5
6/14/2024 9:30	10.83	12.97	0.01	7.05	292.79	10.07	0.15	12.6
6/14/2024 9:40	10.84	13.01	0.01	7.02	295.94	10.06	0.14	12.62
6/14/2024 9:50	10.86	12.92	0.01	7.03	298.19	10.04	0.2	12.67
6/14/2024 10:00	10.88	12.99	0.01	7.02	299.64	10.07	0.17	12.67
6/14/2024 10:10	10.88	12.82	0.01	7.04	295.22	10.03	0.12	12.53
6/14/2024 10:20	10.89	13.1	0.01	7.02	294.35	10.05	0.1	12.6
6/14/2024 10:30	10.9	12.9	0.01	7.07	294.03	10.05	0.11	12.81
6/14/2024 10:40	10.91	13.18	0.01	7.02	295.12	10.07	0.13	12.74
6/14/2024 10:50	10.91	13.1	0.01	7.05	295.23	10.05	0.13	12.69
6/14/2024 11:00	10.91	13.17	0.01	7.02	296.99	10.04	1.1	12.67
6/14/2024 11:10	10.9	13.13	0.01	7.07	292.24	10.04	0.11	12.79
6/14/2024 11:20	10.9	13.19	0.01	7.03	296.4	10.05	0.12	12.98
6/14/2024 11:30	10.9	13.18	0.01	7.07	291.73	10.05	0.12	12.74
6/14/2024 11:40	10.91	13.22	0.01	7.04	295.71	10.07	0.2	12.81
6/14/2024 11:50	10.92	13.18	0.01	7.04	296.9	10.07	0.11	13.17
6/14/2024 12:00	10.97	13.22	0.01	7.04	296.73	10.09	0.18	13.63
6/14/2024 12:10	10.96	13.21	0.01	7.03	296.84	10.04	0.13	13.15
6/14/2024 12:20	10.98	13.24	0.01	7.03	296.4	10.03	0.66	13.12
6/14/2024 12:30	10.97	13.18	0.01	7.07	297.1	10.05	0.24	13.08
6/14/2024 12:40	11	13.26	0.01	7.05	298.27	10.03	0.14	13.51
6/14/2024 12:50	11.09	13.22	0.01	7.14	292.24	10.04	0.14	13.58
6/14/2024 13:00	11.11	13.23	0.01	7.06	292.15	10.03	0.14	13.53
6/14/2024 13:10	11.25	13.2	0.01	7.13	290.03	10.02	0.12	13.51
6/14/2024 13:20	11.26	13.24	0.01	7.06	294.12	9.99	0.12	13.24
6/14/2024 13:30	11.29	13.2	0.01	7.11	290.11	9.96	0.14	13.56
6/14/2024 13:40	11.39	13.27	0.01	7.07	292.71	9.98	0.15	13.7
6/14/2024 13:50	11.42	13.26	0.01	7.09	292.72	9.95	0.14	13.7
6/14/2024 14:00	11.45	13.29	0.01	7.07	294.88	9.95	0.16	13.67
6/14/2024 14:10	11.46	13.09	0.01	7.09	294.4	9.95	0.13	13.67
6/14/2024 14:20	11.47	13.31	0.01	7.05	296.56	9.94	0.16	13.44
6/14/2024 14:30	11.47	13.12	0.01	7.12	293.1	9.94	0.13	13.65
6/14/2024 14:40	11.46	13.34	0.01	7.05	297.59	9.93	0.46	13.67

6/14/2024 14:50	11.45	13.17	0.01	7.11	294.83	9.93	0.16	13.65
6/14/2024 15:00	11.45	13.37	0.01	7.06	296.5	9.95	0.17	13.67
6/14/2024 15:10	11.46	13.29	0.01	7.08	294.5	9.94	0.13	13.65
6/14/2024 15:20	11.46	13.35	0.01	7.06	296.65	9.93	0.13	13.36
6/14/2024 15:30	11.45	13.34	0.01	7.1	293.59	9.92	0.12	13.65
6/14/2024 15:40	11.44	13.36	0.01	7.06	296.47	9.92	0.09	12.62
6/14/2024 15:50	11.39	13.3	0.01	7.05	296.79	9.91	0.2	12.57
6/14/2024 16:00	11.37	13.39	0.01	7.04	298.42	9.92	0.2	13.63
6/14/2024 16:10	11.34	13.14	0.01	7.07	297.4	9.92	0.12	13.53
6/14/2024 16:20	11.33	13.42	0.01	7.05	298.42	9.94	0.15	13.39
6/14/2024 16:30	11.32	13.34	0.01	7.05	298.74	9.94	0.12	13.08
6/14/2024 16:40	11.32	13.36	0.01	7.05	298.26	9.96	0.12	12.96
6/14/2024 16:50	11.31	13.2	0.01	7.09	296.13	9.94	0.12	12.93
6/14/2024 17:00	11.29	13.42	0.01	7.05	299.52	9.95	0.13	13.24
6/14/2024 17:10	11.29	13.35	0.01	7.07	295.16	9.95	0.15	12.81
6/14/2024 17:20	11.28	13.42	0.01	7.04	297.7	9.94	0.2	12.88
6/14/2024 17:30	11.27	13.38	0.01	7.11	294.57	9.94	0.14	13.65
6/14/2024 17:40	11.27	13.41	0.01	7.03	298.25	9.95	0.17	12.84
6/14/2024 17:50	11.26	13.25	0.01	7.08	297.83	9.95	0.13	12.6
6/14/2024 18:00	11.27	13.42	0.01	7.02	298.8	9.93	0.15	12.76
6/14/2024 18:10	11.25	13.33	0.01	7.05	298.52	9.93	0.13	12.55
6/14/2024 18:20	11.25	13.45	0.01	7.02	299.85	9.94	0.14	12.41
6/14/2024 18:30	11.23	13.41	0.01	7.07	298.39	9.94	0.14	12.5
6/14/2024 18:40	11.22	13.49	0.01	7.01	300.48	9.92	0.13	12.57
6/14/2024 18:50	11.2	13.44	0.01	7.05	299.47	9.95	0.13	12.62
6/14/2024 19:00	11.19	13.47	0.01	7.01	300.62	9.95	0.12	12.48
6/14/2024 19:10	11.18	13.41	0.01	7.03	295.49	9.93	0.13	12.57
6/14/2024 19:20	11.18	13.49	0.01	7.01	297.27	9.95	0.13	12.48
6/14/2024 19:30	11.17	13.45	0.01	7.09	294.69	9.93	0.15	12.45
6/14/2024 19:40	11.17	13.48	0.01	7	299.67	9.95	0.13	12.55
6/14/2024 19:50	11.15	13.48	0.01	6.98	298.52	9.94	0.12	12.48
6/14/2024 20:00	11.13	13.51	0.01	7.01	298.75	9.94	0.13	12.45
6/14/2024 20:10	11.1	13.51	0.01	6.99	297.54	9.93	0.12	12.41
6/14/2024 20:20	11.09	13.54	0.01	6.99	297.4	9.94	0.25	12.24
6/14/2024 20:30	11.06	13.53	0.01	7.03	297.42	9.95	0.2	12.21
6/14/2024 20:40	11.04	13.56	0.01	7	298.47	9.93	0.11	12.26
6/14/2024 20:50	11.01	13.44	0.01	7.01	297.5	9.96	0.11	12.29
6/14/2024 21:00	10.98	13.58	0.01	7	299.1	9.95	0.12	12.26
6/14/2024 21:10	10.95	13.57	0.01	7.05	294.19	9.96	0.12	12.26
6/14/2024 21:20	10.92	13.6	0.01	6.99	298.56	9.96	0.12	12.21
6/14/2024 21:30	10.89	13.57	0.01	7	298.91	9.94	0.13	12.21
6/14/2024 21:40	10.87	13.54	0.01	6.99	299.52	9.97	0.15	12.19
6/14/2024 21:50	10.83	13.54	0.01	7.06	296.34	9.97	0.13	12.19
6/14/2024 22:00	10.81	13.6	0.01	6.98	299.96	9.98	0.16	12.12
6/14/2024 22:10	10.78	13.4	0.01	7.05	296.26	9.98	0.11	12.12
6/14/2024 22:20	10.76	13.59	0.01	6.96	299.72	10	0.11	12.12
6/14/2024 22:30	10.74	13.58	0.01	7.03	299.05	10.02	0.13	12.12

WLNG DS Sonde Data

Received	Temperature C	Specific Conductivity µS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU
6/14/2024 0:00	11.28	18.95	0.01	6.97	307.75	9.85	0
6/14/2024 0:10	11.26	18.95	0.01	6.96	308.1	9.85	0
6/14/2024 0:20	11.25	19.16	0.01	6.97	305.92	9.85	0
6/14/2024 0:30	11.23	19.29	0.01	6.98	306.11	9.87	0.05
6/14/2024 0:40	11.22	19.03	0.01	6.96	306.91	9.87	0
6/14/2024 0:50	11.21	19.98	0.01	6.96	309.19	9.87	0
6/14/2024 1:00	11.2	19.22	0.01	6.95	310.66	9.87	0
6/14/2024 1:10	11.18	19.17	0.01	6.96	309.64	9.88	0
6/14/2024 1:20	11.17	19.04	0.01	6.98	301.14	9.88	0
6/14/2024 1:30	11.16	19.22	0.01	6.96	308.62	9.88	0
6/14/2024 1:40	11.15	19.13	0.01	6.97	307.06	9.89	0
6/14/2024 1:50	11.14	19.21	0.01	6.98	307.03	9.9	0
6/14/2024 2:00	11.13	19.07	0.01	6.97	306.44	9.89	0
6/14/2024 2:10	11.12	19.17	0.01	6.97	307.41	9.89	0
6/14/2024 2:20	11.11	18.97	0.01	6.97	306.14	9.9	0
6/14/2024 2:30	11.09	19.09	0.01	6.96	307.93	9.91	0
6/14/2024 2:40	11.08	18.95	0.01	6.97	306.18	9.91	0
6/14/2024 2:50	11.07	18.95	0.01	6.97	306.63	9.92	0
6/14/2024 3:00	11.05	18.95	0.01	6.98	306.34	9.92	0
6/14/2024 3:10	11.04	19	0.01	6.96	308.25	9.92	0
6/14/2024 3:20	11.01	18.91	0.01	6.97	307.04	9.93	0
6/14/2024 3:30	10.99	19.18	0.01	6.98	307.97	9.94	0.34
6/14/2024 3:40	10.98	18.94	0.01	6.96	306.21	9.92	0
6/14/2024 3:50	10.98	19.08	0.01	6.96	309.41	9.94	0
6/14/2024 4:00	10.97	18.98	0.01	6.96	307.48	9.94	0.85
6/14/2024 4:10	10.95	19.14	0.01	6.96	307.78	9.95	0
6/14/2024 4:20	10.93	19.05	0.01	6.99	306.73	9.96	0.18
6/14/2024 4:30	10.91	19.15	0.01	6.96	309.72	9.96	0
6/14/2024 4:40	10.89	19.02	0.01	6.97	303.39	9.96	0.04
6/14/2024 4:50	10.88	19.04	0.01	6.96	308.17	9.97	0
6/14/2024 5:00	10.88	18.93	0.01	6.96	305.91	9.97	0
6/14/2024 5:10	10.87	19.14	0.01	6.97	306.69	9.97	0.65
6/14/2024 5:20	10.87	18.95	0.01	6.97	306.23	9.97	0
6/14/2024 5:30	10.86	18.97	0.01	6.97	307.93	9.98	0
6/14/2024 5:40	10.86	18.87	0.01	6.98	305.83	9.98	0.3
6/14/2024 5:50	10.86	19.13	0.01	6.97	308.18	9.98	0
6/14/2024 6:00	10.87	18.98	0.01	6.97	308.06	10	0
6/14/2024 6:10	10.87	19.06	0.01	6.97	309.61	9.99	0
6/14/2024 6:20	10.88	18.87	0.01	6.98	308.79	10	0.14
6/14/2024 6:30	10.88	18.84	0.01	6.97	309.99	10	0.39
6/14/2024 6:40	10.89	18.73	0.01	6.98	308.23	10	0
6/14/2024 6:50	10.89	18.92	0.01	6.97	310.07	9.99	0.16
6/14/2024 7:00	10.89	18.77	0.01	6.99	305.35	9.99	0.96

6/14/2024 7:10	10.89	19	0.01	6.98	308.94	9.98	0
6/14/2024 7:20	10.9	18.8	0.01	6.99	307.55	10	0
6/14/2024 7:30	10.91	18.87	0.01	6.98	309.66	10	0.02
6/14/2024 7:40	10.91	18.79	0.01	6.99	309.74	10.01	0
6/14/2024 7:50	10.92	18.87	0.01	7	310.43	10.02	0
6/14/2024 8:00	10.93	18.73	0.01	7.01	310.66	10.02	0.3
6/14/2024 8:10	10.94	18.81	0.01	7	310.96	10.02	0
6/14/2024 8:20	10.94	18.72	0.01	7	305.37	10.01	0
6/14/2024 8:30	10.93	18.91	0.01	7.01	309.08	10.02	0
6/14/2024 8:40	10.93	18.76	0.01	7	311.12	10.02	0
6/14/2024 8:50	10.94	18.7	0.01	7.02	309.48	10.03	0
6/14/2024 9:00	10.95	18.75	0.01	7	308.87	10.04	0
6/14/2024 9:10	10.96	18.65	0.01	7.02	310.64	10.05	0.07
6/14/2024 9:20	10.96	18.5	0.01	7.02	310.6	10.04	0
6/14/2024 9:30	10.98	18.32	0.01	7.01	313.32	10.04	0
6/14/2024 9:40	10.99	18.28	0.01	7.03	311.54	10.03	0
6/14/2024 9:50	11.01	18.42	0.01	7.02	314.48	10.04	0.12
6/14/2024 10:00	11.02	18.35	0.01	7.02	313.37	10.04	0
6/14/2024 10:10	11.03	18.24	0.01	7.01	314.42	10.04	0
6/14/2024 10:20	11.04	18.16	0.01	7.01	313.58	10.03	0
6/14/2024 10:30	11.04	18.46	0.01	7.03	313.79	10.03	2.35
6/14/2024 10:40	11.06	18.36	0.01	7.03	313.05	10.03	0
6/14/2024 10:50	11.07	18.41	0.01	7.02	314.59	10.03	0
6/14/2024 11:00	11.08	18.28	0.01	7.02	314.38	10.02	0
6/14/2024 11:10	11.07	18.49	0.01	7.02	314.14	10.03	0
6/14/2024 11:20	11.08	18.43	0.01	7.02	312.85	10.02	0
6/14/2024 11:30	11.1	18.42	0.01	7.04	313.73	10.03	1
6/14/2024 11:40	11.12	18.32	0.01	7.02	313.57	10.04	0
6/14/2024 11:50	11.14	18.28	0.01	7.06	311.88	10.03	0
6/14/2024 12:00	11.21	18.26	0.01	7.04	312.92	10.02	0
6/14/2024 12:10	11.24	18.74	0.01	7.06	314.02	10.03	0
6/14/2024 12:20	11.26	18.44	0.01	7.05	316.31	10	0.19
6/14/2024 12:30	11.25	18.79	0.01	7.05	314.24	10	0
6/14/2024 12:40	11.26	18.35	0.01	7.05	317.21	10	0.18
6/14/2024 12:50	11.45	18.66	0.01	7.06	314.54	9.98	0.42
6/14/2024 13:00	11.54	18.4	0.01	7.07	315.58	9.96	0.36
6/14/2024 13:10	11.79	18.47	0.01	7.08	316.59	9.92	0
6/14/2024 13:20	11.9	44.53	0.02	7.1	232.09	9.78	0.53
6/14/2024 13:30	11.78	27.23	0.01	7.06	315.46	9.85	1.17
6/14/2024 13:30	11.78	27.23	0.01	7.06	315.46	9.85	1.17
6/14/2024 13:40	11.92	21.6	0.01	7.07	336.55	9.85	0.19
6/14/2024 13:50	11.86	20.16	0.01	7.06	345.35	9.85	0.77
6/14/2024 14:00	12.01	19.46	0.01	7.06	346.32	9.83	0
6/14/2024 14:10	11.96	20.15	0.01	7.06	349.99	9.83	0
6/14/2024 14:20	11.94	19.07	0.01	7.09	350.99	9.84	0
6/14/2024 14:30	11.87	19.74	0.01	7.06	354.34	9.86	0
6/14/2024 14:40	11.82	18.8	0.01	7.07	354.95	9.86	0

WLNG DS Sonde Data

6/14/2024 14:50	11.78	19.59	0.01	7.05	357.23	9.87	0.16	
6/14/2024 15:00	11.79	18.76	0.01	7.06	357.57	9.87	0	
6/14/2024 15:10	14.14	155.61	0.07	7.4	330.54	8.8	12.28	Discharge t
6/14/2024 15:20	13.5	104.49	0.05	7.5	299.46	9.25	3.18	
6/14/2024 15:30	12.75	67	0.03	7.4	310.18	9.44	3.67	
6/14/2024 15:40	11.94	24.61	0.01	7.12	337.35	9.8	0	
6/14/2024 15:50	11.81	22.12	0.01	7.08	347.02	9.84	0	
6/14/2024 16:00	11.72	20.37	0.01	7.06	353.28	9.86	0.83	
6/14/2024 16:10	11.65	20.6	0.01	7.05	355.86	9.87	0.44	
6/14/2024 16:20	11.64	19.66	0.01	7.07	356.73	9.88	0	
6/14/2024 16:30	11.62	20.14	0.01	7.07	358.08	9.9	0.11	
6/14/2024 16:40	11.61	19.26	0.01	7.07	358.98	9.9	0	
6/14/2024 16:50	11.58	19.15	0.01	7.06	359.18	9.9	0.18	
6/14/2024 17:00	11.56	19.04	0.01	7.06	354.36	9.9	0.2	
6/14/2024 17:10	11.54	19.02	0.01	7.07	353.63	9.9	0.16	
6/14/2024 17:20	11.52	18.88	0.01	7.06	350.27	9.9	0	
6/14/2024 17:30	11.51	18.89	0.01	7.07	349.7	9.92	0	
6/14/2024 17:40	11.5	18.91	0.01	7.07	348.7	9.92	0	
6/14/2024 17:50	11.51	18.93	0.01	7.06	348.05	9.91	0.92	
6/14/2024 18:00	11.5	18.82	0.01	7.07	344.04	9.92	0.03	
6/14/2024 18:10	11.47	18.89	0.01	7.05	340.4	9.92	0	
6/14/2024 18:20	11.44	18.84	0.01	7.05	337.85	9.91	0.48	
6/14/2024 18:30	11.41	19.08	0.01	7.04	339.7	9.91	0	
6/14/2024 18:40	11.38	18.95	0.01	7.04	339.95	9.92	0	
6/14/2024 18:50	11.37	19.07	0.01	7.02	341.08	9.91	0	
6/14/2024 19:00	11.37	18.96	0.01	7.03	338.25	9.91	0.34	
6/14/2024 19:10	11.37	19.11	0.01	7.02	340.24	9.92	0	
6/14/2024 19:20	11.36	19.04	0.01	7.02	337.35	9.93	0	
6/14/2024 19:30	11.35	19.06	0.01	7.03	338.03	9.93	0	
6/14/2024 19:40	11.34	18.89	0.01	7.02	337.4	9.93	0.11	
6/14/2024 19:50	11.32	19.17	0.01	7.02	338.4	9.9	0	
6/14/2024 20:00	11.29	19.05	0.01	7.01	337.21	9.91	0	
6/14/2024 20:10	11.27	19.21	0.01	7.01	337.37	9.91	0.16	
6/14/2024 20:20	11.24	18.94	0.01	7	339.21	9.92	0	
6/14/2024 20:30	11.21	19.18	0.01	7.02	335.91	9.92	0.02	
6/14/2024 20:40	11.18	18.94	0.01	7	338.53	9.92	0.17	
6/14/2024 20:50	11.15	19.2	0.01	6.99	337.91	9.93	0	
6/14/2024 21:00	11.13	19.38	0.01	7	334.24	9.93	0	
6/14/2024 21:10	11.11	19.37	0.01	7.02	334.87	9.92	0.2	
6/14/2024 21:20	11.09	19.2	0.01	7.01	334.94	9.92	2.02	
6/14/2024 21:30	11.06	19.38	0.01	7	335.15	9.92	0.28	
6/14/2024 21:40	11.03	19.19	0.01	6.99	335.93	9.93	0	
6/14/2024 21:50	11	19.41	0.01	7	334.89	9.93	0	
6/14/2024 22:00	10.97	19.29	0.01	6.99	335.39	9.93	0	
6/14/2024 22:10	10.95	20.18	0.01	7	336.83	9.93	0	
6/14/2024 22:20	10.93	19.39	0.01	6.99	339.34	9.95	0	
6/14/2024 22:30	10.91	19.22	0.01	7	339.41	9.95	0	