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 environments (upstream and downstream) and points 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. 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

*Note that Woodfibre receiving environment downstream sonde is not in place due to dry conditions

Summary-BC Rail Site

Site Activities

- No batches were discharged during this reporting period
- Water produced by the water treatment plant is being recirculated for tunneling and to create grout for tunneling.

Point of Discharge from Water Treatment System Monitoring

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

Table 3: Discharge from Water Treatment System Information

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

*Max discharge is 515 m3/day

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	Results
Squamish River Upstream	2024-10-23	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	Results
Squamish River Downstream	2023-10-23	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

- In collaboration with the QP, it was determined the flow in East Creak had increased enough for the sonde to be moved to the original permitted location close to the discharge point on October 2nd. On October 11th, in collaboration with the QP, the sonde was moved again to a more representative location approximately 65m from the discharge point.
- On October 3rd, 2024, the Permittee entered the 3.1 Maintenance of Works and Emergency Procedures clause as outlined in the Permit for emergency discharge from the Woodfibre water treatment. Notification was sent to BCER on October 3rd as required in the permit. The emergency discharge was complete by October 14th as sample results were assessed to be within guidelines.

Point of Discharge from Water Treatment System Monitoring

Table 3 below includes information on the discharge water. Appendix C includes real time/field samples from the discharge.

Table 3: Discharges from Water Treatment System

Location	Date of Discharge	Real Time Monitored and Daily Monitoring	Discharge Volume
Woodfibre	2024-10-21	Yes-Appendix C	361m^3
Woodfibre	2024-10-22	Yes-Appendix C	349m^3
Woodfibre	2024-10-23	Yes-Appendix C	328 m^3
Woodfibre	2024-10-24	Yes-Appendix C	351m^3
Woodfibre	2024-10-25	Yes-Appendix C	338m^3
Woodfibre	2024-10-26	Yes-Appendix C	313m^3
Woodfibre	2024-10-27	Yes-Appendix C	384m^3

*Max discharge is 1500m^3/day

Exceedances

See above.

Receiving Environment Monitoring

The receiving environment is being monitored as outlined in the permit with additional oversight by the QP.

Table 4: Upstream Monitoring Information

Location	Date of Lab Sample	Real Time Monitored	Results
Woodfibre Upstream	2024-10-21	Yes *	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	Results
Woodfibre Downstream	2024-10-21	Yes *	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.
- Recorded exceedances in the laboratory and field samples collected from the receiving environment (upstream and downstream) may be indicative of the existing background water quality in the East Creek 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

No Discharges

BCR Site Batch Sample Lab Documentation

No Discharges

BCR Site WTP Discharge Field Notes and Logs
No Discharges

Appendix B: BCR Site Receiving Environment Documentation

BCR Site Receiving Environment Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:			Farshad Shafiei Ph.D., R.P.Bio.	SQU US1 (Upstream)	SQU DS1 (Downstream)	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24C8557-001	VA24C8557-002					
	Date Sampled					10/23/2024	10/23/2024					
	Time Sampled					10:12	10:52					
Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	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	7.28	7.39		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 [4]	-	Max +/- from BKG 1°C [4]	-	8.2	7.4		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: 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: US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	53	48					
Turbidity (field)	NTU	Varies with background, see note Guideline = 40.2	Varies with background, see note Guideline = 123.66 5-week discrete sampling average = 110.9 (DS)	Varies with background, see note Guideline = 40.2	Varies with background, see note Guideline = 123.66 5-week discrete sampling average = 110.9 (DS)	32.2	35.9		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: US value + 8 = 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: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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: US value + 8 = 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: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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	11.24	10.84		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 $CaCO_3$) (total)	mg/L	-	-	-	-	14.7	15.5					
Total Dissolved Solids	mg/L	-	-	-	-	35	39					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 53.2	Varies with background, see note Guideline = 102.0 5-week discrete sampling average = **103.7** (DS)	Varies with background, see note Guideline = 53.2	Varies with background, see note Guideline = 102.0 5-week discrete sampling average = **103.7** (DS)	28.2	25.4		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: US value + 25 = 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: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters.	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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: US value + 25 = 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: US value + 10 = DS guideline Change from background of 10% when background is >	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	1.80	1.88			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	13.0	13.4	The upstream and downstream locations have moderate sensitivity to acid inputs (i.e. medium 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 H_2S)	mg/L	-	0.002	-	-	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. Guideline = 16.3	Varies with pH and temperature. See note. Guideline = 1.88	Varies with pH, temperature and salinity. See note. Guideline = 83	Varies with pH, temperature and salinity. See note. Guideline = 14	0.0519	0.0831		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	600	150	+/- 10% from BKG	+/- 10% from BKG	1.51	1.70				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 Guideline = 0.912	-	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	32.8	3	-	3.7	0.0660	0.0634					
Nitrite (as N)	mg/L	Varies with chloride. See note. Guideline = 0.06	Varies with chloride. See note. Guideline = 0.02	-	-	0.0031	0.0051		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	-	-	-	-	0.201	0.218					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0432	0.0615			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. Guideline = 128	-	-	4.08	4.28			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	-	Varies with pH, DOC, hardness Guideline = 0.053 5-week field average = **3.90** (US), **3.84** (DS)	-	-	***1.01***	***0.96***	**Total Al exceeds the long-term BCWQG for FAL at both locations.** However, this is not attributable to BCR construction activities and is likely a characteristic of the Squamish River, the local geology or attributed to other sources.		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	0.25	0.074	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00024	0.00021					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.0188	0.0178			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	-	-	-	-	< 0.00005	< 0.00005					
Boron (B)-Total	mg/L	-	1.2	-	1.2	< 0.010	< 0.010					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000108	0.0000126					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	5.21	5.50					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000048	0.000042					
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	-	0.0025	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	0.00039	0.00034					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002 5-week field average = 0.00829 (US), 0.0083 (DS)	0.00244	0.00217					
Iron (Fe)-Total	mg/L	1	-	-	-	0.728	0.723					
Lead (Pb)-Total	mg/L	-	-	0.14	0.002 5-week field average = 0.00070 (US), 0.00061 (DS)	0.000196	0.000169					
Lithium (Li)-Total	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.810	0.806					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.926	Varies with hardness Guideline = 0.768	-	-	0.0248	0.0236		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 Guideline = N/A	-	-	< 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	46	7.6	-	-	0.000422	0.000606					
Nickel (Ni)-Total	mg/L	-	-	-	0.0083	0.00054	< 0.00050					Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	0.056	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	-	-	-	-	0.788	0.769					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00147	0.00135					
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	-	-	-	-	4.85	5.14					
Silver (Ag)-Total	mg/L	Varies with hardness, see note Guideline = 0.0001	Varies with hardness, see note Guideline = 0.00005	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	-	-	-	-	1.97	2.26					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0348	0.0346					
Sulfur (S)-Total	mg/L	-	-	-	-	1.18	1.24					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week field average = 0.000034 (US), 0.000036 (DS)	-	-	< 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	-	-	-	-	0.0346	0.0295					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.000062	0.000052			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005 5-week field average = 0.008775 (US), 0.0090475 (DS)	0.00229	0.00217					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	Guideline = 0.010 5-week field average = **0.0111** (US), **0.0125** (DS)	***0.0051***	***0.003***	**Total Zn exceeds the long-term BCWQG for MAL at both locations.** However, this is not attributable to BCR construction activities and is likely a characteristic of the Squamish River, the local geology or attributed to other sources				
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.143	0.0615					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00014	0.00015					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00882	0.00799					
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 Guideline = 0.000199	Varies with hardness, see note Guideline = 0.000071	-	-	0.0000061	0.0000089		Guideline is hardness dependent. Guideline is applicable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for 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	-	-	4.97	5.26	The upstream and downstream locations have high sensitivity to acid inputs (i.e. medium buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000013	< 0.000010					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Dissolved	mg/L	-	-	-	-	-	-					
Chromium (Cr(VI))-Dissolved	mg/L	-	-	-	-	-	-					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0021	Guideline varies with other parameters, see note Guideline = 0.0002 5-week field average = **0.0008** (US), **0.0008** (DS)	-	-	***0.00106***	***0.00084***	**Dissolved Cu exceeds the long-term BCWQG for FAL at both locations.** However, this is not attributable to BCR construction activities and is likely a characteristic of the Squamish River, the local geology or attributed to other sources	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	-	-	-	0.138	0.16					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline = 0.00156 5-week field average = 0.00005 (US), 0.00005 (DS)	-	-	< 0.000050	< 0.000050			Guideline varies with DOC and hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation (EXP((0.514*LN(DOC))+(0.214*(LN(Hardness)))+0.4354))/2/1000 where DOC range is 0.5-31.5 mg/L and hardness range is 4.7-511 mg/L.		
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.566	0.583					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00981	0.00949					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000426	0.00058					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0164	Guideline varies with other parameters, see note Guideline = 0.000929 5-week field average = 0.0005 (US), 0.0005 (DS)	-	-	< 0.00050	< 0.00050		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		
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.636	0.634					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00084	0.00084					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	3.76	4.08					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.84	2.04					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0291	0.0300					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.22	1.31					
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	-	-	-	-	0.00431	0.00140					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000042	0.000032					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00099	0.00095					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.009	Varies with pH, DOC, hardness Guideline = 0.0032 5-week field average = 0.0014 (US), 0.0017 (DS)	-	-	0.0015	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, annd 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 both FAL and MAL Guidelines**	**Exceeds FAL Short term Guideline**	***Exceeds FAL Long term Guideline***	**Exceeds MAL Short term Guideline**	***Exceeds MAL Long term Guideline***							
Color Key:		**Exceeds Short and Long-Term Guideline**		**Exceeds MAL Short and Long-term 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	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Values: SQU US1 (Upstream)	Values: SQU DS1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.33	7.41
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				8.2	7.4
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				32.20	35.90
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				14.7	15.5
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				1.8	1.88
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				13	13.4
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.51	1.7

BCR Site Receiving Environment Lab Documentation

ALS Canada Ltd.

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C8557**			
Client			Laboratory	:
Contact			Account Manager	:
Address			Address	:
Telephone			Telephone	:
Project	: 11964		Date Samples Received	: 23-Oct-2024 13:00
PO	: 11964 - Task 20- Phase 3C -4C		Date Analysis Commenced	: 24-Oct-2024
C-O-C number	: ----		Issue Date	: 30-Oct-2024 11:35
Sampler	: ----			
Site	: Water Analysis			
Quote number	: VA23-TRIT100-012			
No. of samples received	: 2			
No. of samples analysed	: 2			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*

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*
mg/L	milligrams per litre
°C	degrees celsius
pH units	pH units
µS/cm	microsiemens per centimetre
-	no 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)				Client sample ID	SQU US 1	SQU DS 1	----	----	----
				Client sampling date / time	23-Oct-2024 10:12	23-Oct-2024 10:52	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C8557-001	VA24C8557-002	----	----	----
					Result	Result	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	53.000	48.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.28	7.39	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	8.20	7.40	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/CG	0.60	mg/L	14.7	15.5	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/CG	0.60	mg/L	16.3	17.0	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	35	39	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	28.2	25.4	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	13.0	13.4	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0519	0.0831	----	----	----
Ammonia, un-ionized (as N), field	7664-41-7	EC298A/VA	0.0010	mg/L	<0.0010	<0.0010	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	1.51	1.70	----	----	----
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	0.0660	0.0634	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0031	0.0051	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.201	0.218	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0432	0.0615	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	4.08	4.28	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	23-Oct-2024 10:12	23-Oct-2024 10:52	----	----	----
						VA24C8557-001	VA24C8557-002	----	----	----
						Result	Result	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		1.80	1.88	----	----	----
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/CG	0.0030	mg/L		1.01	0.960	----	----	----
Antimony, total	7440-36-0	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/CG	0.00010	mg/L		0.00024	0.00021	----	----	----
Barium, total	7440-39-3	E420/CG	0.00010	mg/L		0.0188	0.0178	----	----	----
Beryllium, total	7440-41-7	E420/CG	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, total	7440-69-9	E420/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/CG	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, total	7440-43-9	E420/CG	0.0000050	mg/L		0.0000108	0.0000126	----	----	----
Calcium, total	7440-70-2	E420/CG	0.050	mg/L		5.21	5.50	----	----	----
Cesium, total	7440-46-2	E420/CG	0.000010	mg/L		0.000048	0.000042	----	----	----
Chromium, total	7440-47-3	E420/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/CG	0.00010	mg/L		0.00039	0.00034	----	----	----
Copper, total	7440-50-8	E420/CG	0.00050	mg/L		0.00244	0.00217	----	----	----
Iron, total	7439-89-6	E420/CG	0.010	mg/L		0.728	0.723	----	----	----
Lead, total	7439-92-1	E420/CG	0.000050	mg/L		0.000196	0.000169	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	23-Oct-2024 10:12	23-Oct-2024 10:52	----	----	----
						VA24C8557-001	VA24C8557-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Lithium, total	7439-93-2	E420/CG	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, total	7439-95-4	E420/CG	0.0050	mg/L		0.810	0.806	----	----	----
Manganese, total	7439-96-5	E420/CG	0.00010	mg/L		0.0248	0.0236	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/CG	0.000050	mg/L		0.000422	0.000606	----	----	----
Nickel, total	7440-02-0	E420/CG	0.00050	mg/L		0.00054	<0.00050	----	----	----
Phosphorus, total	7723-14-0	E420/CG	0.050	mg/L		0.056	0.050	----	----	----
Potassium, total	7440-09-7	E420/CG	0.050	mg/L		0.788	0.769	----	----	----
Rubidium, total	7440-17-7	E420/CG	0.00020	mg/L		0.00147	0.00135	----	----	----
Selenium, total	7782-49-2	E420/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/CG	0.10	mg/L		4.85	5.14	----	----	----
Silver, total	7440-22-4	E420/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/CG	0.050	mg/L		1.97	2.26	----	----	----
Strontium, total	7440-24-6	E420/CG	0.00020	mg/L		0.0348	0.0346	----	----	----
Sulfur, total	7704-34-9	E420/CG	0.50	mg/L		1.18	1.24	----	----	----
Tellurium, total	13494-80-9	E420/CG	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/CG	0.00030	mg/L		0.0346	0.0295	----	----	----
Tungsten, total	7440-33-7	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	23-Oct-2024 10:12	23-Oct-2024 10:52	----	----	----
						VA24C8557-001	VA24C8557-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Uranium, total	7440-61-1	E420/CG	0.000010	mg/L		0.000062	0.000052	----	----	----
Vanadium, total	7440-62-2	E420/CG	0.00050	mg/L		0.00229	0.00217	----	----	----
Zinc, total	7440-66-6	E420/CG	0.0030	mg/L		0.0051	0.0030	----	----	----
Zirconium, total	7440-67-7	E420/CG	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/CG	0.0010	mg/L		0.143	0.0615	----	----	----
Antimony, dissolved	7440-36-0	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/CG	0.00010	mg/L		0.00014	0.00015	----	----	----
Barium, dissolved	7440-39-3	E421/CG	0.00010	mg/L		0.00882	0.00799	----	----	----
Beryllium, dissolved	7440-41-7	E421/CG	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/CG	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/CG	0.0000050	mg/L		0.0000061	0.0000089	----	----	----
Calcium, dissolved	7440-70-2	E421/CG	0.050	mg/L		4.97	5.26	----	----	----
Cesium, dissolved	7440-46-2	E421/CG	0.000010	mg/L		0.000013	<0.000010	----	----	----
Chromium, dissolved	7440-47-3	E421/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/CG	0.00010	mg/L		0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/CG	0.00020	mg/L		0.00106	0.00084	----	----	----
Iron, dissolved	7439-89-6	E421/CG	0.010	mg/L		0.138	0.160	----	----	----
Lead, dissolved	7439-92-1	E421/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, dissolved	7439-93-2	E421/CG	0.0010	mg/L		<0.0010	<0.0010	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	23-Oct-2024 10:12	23-Oct-2024 10:52	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C8557-001	VA24C8557-002	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E421/CG	0.0050	mg/L		0.566	0.583	----	----	----
Manganese, dissolved	7439-96-5	E421/CG	0.00010	mg/L		0.00981	0.00949	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/CG	0.000050	mg/L		0.000426	0.000580	----	----	----
Nickel, dissolved	7440-02-0	E421/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, dissolved	7723-14-0	E421/CG	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/CG	0.050	mg/L		0.636	0.634	----	----	----
Rubidium, dissolved	7440-17-7	E421/CG	0.00020	mg/L		0.00084	0.00084	----	----	----
Selenium, dissolved	7782-49-2	E421/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/CG	0.050	mg/L		3.76	4.08	----	----	----
Silver, dissolved	7440-22-4	E421/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, dissolved	7440-23-5	E421/CG	0.050	mg/L		1.84	2.04	----	----	----
Strontium, dissolved	7440-24-6	E421/CG	0.00020	mg/L		0.0291	0.0300	----	----	----
Sulfur, dissolved	7704-34-9	E421/CG	0.50	mg/L		1.22	1.31	----	----	----
Tellurium, dissolved	13494-80-9	E421/CG	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/CG	0.00030	mg/L		0.00431	0.00140	----	----	----
Tungsten, dissolved	7440-33-7	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/CG	0.000010	mg/L		0.000042	0.000032	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		SQU US 1	SQU DS 1	----	----	----
			Client sampling date / time		23-Oct-2024 10:12	23-Oct-2024 10:52	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C8557-001	VA24C8557-002	----	----	----
					Result	Result	----	----	----
Dissolved Metals									
Vanadium, dissolved	7440-62-2	E421/CG	0.00050	mg/L	0.00099	0.00095	----	----	----
Zinc, dissolved	7440-66-6	E421/CG	0.0010	mg/L	0.0015	0.0014	----	----	----
Zirconium, dissolved	7440-67-7	E421/CG	0.00020	mg/L	<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/CG	-	-	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	: **VA24C8557**	Page	: 1 of 15
Client		Laboratory	
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project		Date Samples Received	: 23-Oct-2024 13:00
PO		Issue Date	: 30-Oct-2024 11:35
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								
Total Metals	QC-1735215-001	----	Manganese, total	7439-96-5	E420	0.00015 B mg/L	0.0001 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	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	29-Oct-2024	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US 1	E298	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	29-Oct-2024	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US 1	E235.Br-L	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU US 1	E235.F	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	23-Oct-2024	26-Oct-2024	3 days	3 days	✓	26-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	23-Oct-2024	26-Oct-2024	3 days	3 days	✓	26-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO2-L	23-Oct-2024	26-Oct-2024	3 days	3 days	✓	26-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO2-L	23-Oct-2024	26-Oct-2024	3 days	3 days	✓	26-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	23-Oct-2024	26-Oct-2024	28 days	3 days	✓	26-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	29-Oct-2024	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	29-Oct-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
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU DS 1	E372-U	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	29-Oct-2024	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	29-Oct-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	23-Oct-2024	29-Oct-2024	28 days	6 days	✓	29-Oct-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	23-Oct-2024	29-Oct-2024	28 days	6 days	✓	29-Oct-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	23-Oct-2024	28-Oct-2024	180 days	5 days	✓	28-Oct-2024	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	23-Oct-2024	28-Oct-2024	180 days	5 days	✓	28-Oct-2024	180 days	5 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	23-Oct-2024	----	----	----		28-Oct-2024	----	5 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	23-Oct-2024	----	----	----		28-Oct-2024	----	5 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	27-Oct-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
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU US 1	E358-L	23-Oct-2024	27-Oct-2024	28 days	4 days	✓	27-Oct-2024	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU DS 1	E290	23-Oct-2024	26-Oct-2024	14 days	3 days	✓	26-Oct-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU US 1	E290	23-Oct-2024	26-Oct-2024	14 days	3 days	✓	26-Oct-2024	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU DS 1	E162	23-Oct-2024	----	----	----		28-Oct-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU US 1	E162	23-Oct-2024	----	----	----		28-Oct-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	23-Oct-2024	----	----	----		28-Oct-2024	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	23-Oct-2024	----	----	----		28-Oct-2024	7 days	5 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	23-Oct-2024	----	----	----		26-Oct-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	23-Oct-2024	----	----	----		26-Oct-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU DS 1	E508	23-Oct-2024	29-Oct-2024	28 days	6 days	✓	29-Oct-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	23-Oct-2024	29-Oct-2024	28 days	6 days	✓	29-Oct-2024	28 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	23-Oct-2024	28-Oct-2024	180 days	5 days	✓	28-Oct-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU US 1	E420	23-Oct-2024	28-Oct-2024	180 days	5 days	✓	28-Oct-2024	180 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU DS 1	E395	23-Oct-2024	----	----	----		24-Oct-2024	7 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU US 1	E395	23-Oct-2024	----	----	----		24-Oct-2024	7 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	1732821	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1734589	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1732817	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	1732816	1	11	9.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1738850	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1735218	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1734592	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1732815	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1732818	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1732819	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1732820	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1736717	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1733610	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737375	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1735215	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1734590	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1734591	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1736712	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1732821	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1734589	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1732817	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	1732816	1	11	9.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1738850	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1735218	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1734592	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1732815	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1732818	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1732819	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1732820	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1736717	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1733610	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737375	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1735215	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1734590	1	19	5.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1734591	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1736712	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1732821	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1734589	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1732817	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	1732816	1	11	9.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1738850	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1735218	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1734592	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1732815	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1732818	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1732819	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1732820	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1736717	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1733610	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737375	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1735215	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1734590	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1734591	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1736712	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1734589	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1732817	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	1732816	1	11	9.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1738850	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1735218	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1734592	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1732815	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1732818	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1732819	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1732820	1	19	5.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1733610	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737375	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1735215	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1734590	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1734591	1	19	5.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	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 - 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 - Calgary	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 - Calgary	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 - Calgary	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 - Calgary	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 and Ionized Ammonia (Calculation) (Field Temperature and pH)	EC298A ALS Environmental - Vancouver	Water	CCME CWQG Ammonia	Un-ionized ammonia is calculated from test results for total ammonia, field temperature and pH, and is expressed in units of mg/L "as N".
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples for total nitrogen analysis are digested using a heated persulfate digestion. Nitrogen compounds are converted to nitrate in this digestion.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Calgary	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	: **VA24C8557**	Page	: 1 of 17
Client		Laboratory	
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 23-Oct-2024 13:00
PO	: 11964 - Task 20- Phase 3C -4C	Date Analysis Commenced	: 24-Oct-2024
C-O-C number	: ----	Issue Date	: 30-Oct-2024 11:35
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*

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: 1732821)											
VA24C8729-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	110	110	0.276%	20%	----
Physical Tests (QC Lot: 1736712)											
FJ2403253-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1736717)											
FJ2403253-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	212	221	4.38%	20%	----
Anions and Nutrients (QC Lot: 1732815)											
VA24C8557-001	SQU US 1	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1732816)											
VA24C8557-001	SQU US 1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.51	1.50	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1732817)											
VA24C8557-001	SQU US 1	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1732818)											
VA24C8557-001	SQU US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0660	0.0656	0.474%	20%	----
Anions and Nutrients (QC Lot: 1732819)											
VA24C8557-001	SQU US 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0031	0.0032	0.00009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1732820)											
VA24C8557-001	SQU US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.08	4.07	0.193%	20%	----
Anions and Nutrients (QC Lot: 1734589)											
FJ2403260-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0259	0.0262	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1734590)											
FJ2403260-001	Anonymous	Nitrogen, total	7727-37-9	E366	1.50	mg/L	26.6	26.7	0.369%	20%	----
Anions and Nutrients (QC Lot: 1734591)											
FJ2403260-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0073	0.0075	0.0002	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1734592)											
VA24C8549-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.61	3.86	0.24	Diff <2x LOR	----
Total Sulfides (QC Lot: 1729561)											
VA24C8188-001	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: 1735215)											
CG2415715-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1735215) - continued											
CG2415715-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00019	0.00020	0.000006	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0245	0.0237	3.39%	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	0.0000096	0.0000095	0.0000002	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	73.9	75.1	1.66%	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	0.00083	0.00082	0.00001	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.0176	0.0178	0.941%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	7.04	7.13	1.23%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.00439	0.00436	0.762%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0014	0.0012	0.0001	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	5.79	5.78	0.145%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.981	1.00	2.06%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000215	0.000211	0.000004	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00173	0.00178	0.00004	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	1.01	1.02	1.04%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00095	0.00096	0.000010	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	4.68	4.55	2.87%	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	4.12	4.23	2.54%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.237	0.239	0.942%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	2.96	3.01	0.05	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	0.000014	<0.000010	0.000004	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000419	0.000420	0.217%	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: 1735215) - continued											
CG2415715-001	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	0.555	0.566	1.98%	20%	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1737375)											
VA24C8557-001	SQU US 1	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1735218)											
CG2415715-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0209	0.0218	4.08%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000056	0.0000052	0.0000004	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	76.8	76.0	1.10%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00078	0.00080	0.00002	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00131	0.00132	0.000005	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0012	0.0011	0.0001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	5.92	5.86	1.00%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.988	0.966	2.28%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000239	0.000240	0.0000008	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00160	0.00159	0.00002	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.07	1.04	2.61%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00102	0.00097	0.00004	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.48	4.43	1.11%	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	4.25	4.25	0.0227%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.238	0.237	0.550%	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: 1735218) - continued											
CG2415715-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.05	2.98	0.06	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	0.000011	0.000010	0.0000007	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	0.000356	0.000371	4.09%	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	0.407	0.406	0.358%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1738850)											
VA24C8527-016	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1733610)											
FJ2403238-003	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1732821)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1736712)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1736717)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1732815)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1732816)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1732817)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1732818)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1732819)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1732820)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1734589)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1734590)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1734591)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1734592)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1729561)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1735215)						
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: 1735215) - 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	# 0.00015	B
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: 1737375)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1735218)						
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: 1735218) - 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: 1738850)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1733610)						
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: 1732821)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1736712)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1736717)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 1732815)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.2	90.0	110	----
Anions and Nutrients (QCLot: 1732816)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1732817)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 1732818)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1732819)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.1	90.0	110	----
Anions and Nutrients (QCLot: 1732820)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1734589)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	96.5	85.0	115	----
Anions and Nutrients (QCLot: 1734590)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 1734591)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	94.3	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1734592)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	95.0	80.0	120	----
Total Sulfides (QCLot: 1729561)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 1735215)									

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: 1735215) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	100	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	99.2	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	98.4	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.1	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	109	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.7	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.1	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	94.6	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.7	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	96.5	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	116	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	96.4	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	116	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	104	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	94.6	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.2	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	70.0	130	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.7	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	94.2	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	93.6	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	105	60.0	140	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	89.8	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	91.7	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.2	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	91.2	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.1	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.4	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	94.7	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.4	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.6	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	99.8	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1735215) - 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	92.1	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	93.4	80.0	120	----
Total Metals (QCLot: 1737375)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	97.9	80.0	120	----
Dissolved Metals (QCLot: 1735218)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	98.0	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	100	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.6	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	93.4	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.3	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.6	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	113	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.8	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	110	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	103	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	94.3	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.7	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	70.0	130	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.4	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.3	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	93.4	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	92.9	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	99.9	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: 1735218) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	89.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.1	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	96.4	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.7	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	97.3	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.7	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	93.1	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.3	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	92.2	80.0	120	----
Speciated Metals (QCLot: 1733610)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	99.5	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: 1732815)										
VA24C8557-002	SQU DS 1	Fluoride	16984-48-8	E235.F	0.991 mg/L	1 mg/L	99.1	75.0	125	----
Anions and Nutrients (QCLot: 1732816)										
VA24C8557-002	SQU DS 1	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1732817)										
VA24C8557-002	SQU DS 1	Bromide	24959-67-9	E235.Br-L	0.538 mg/L	0.5 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 1732818)										
VA24C8557-002	SQU DS 1	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: 1732819)										
VA24C8557-002	SQU DS 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.498 mg/L	0.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1732820)										
VA24C8557-002	SQU DS 1	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1734589)										
FJ2403260-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0969 mg/L	0.1 mg/L	96.9	75.0	125	----
Anions and Nutrients (QCLot: 1734590)										
FJ2403260-002	Anonymous	Nitrogen, total	7727-37-9	E366	0.390 mg/L	0.4 mg/L	97.5	70.0	130	----
Anions and Nutrients (QCLot: 1734591)										
FJ2403260-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0477 mg/L	0.05 mg/L	95.5	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1734592)										
VA24C8549-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.62 mg/L	5 mg/L	92.5	70.0	130	----
Total Sulfides (QCLot: 1729561)										
VA24C8188-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.224 mg/L	0.2 mg/L	112	75.0	125	----
Total Metals (QCLot: 1735215)										
CG2415715-002	Anonymous	Aluminum, total	7429-90-5	E420	1.86 mg/L	2 mg/L	93.2	70.0	130	----
		Antimony, total	7440-36-0	E420	0.186 mg/L	0.2 mg/L	93.1	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.184 mg/L	0.2 mg/L	91.8	70.0	130	----
		Barium, total	7440-39-3	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.374 mg/L	0.4 mg/L	93.4	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0963 mg/L	0.1 mg/L	96.3	70.0	130	----
		Boron, total	7440-42-8	E420	1.02 mg/L	1 mg/L	102	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.0368 mg/L	0.04 mg/L	92.1	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0927 mg/L	0.1 mg/L	92.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.371 mg/L	0.4 mg/L	92.8	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: 1735215) - continued										
CG2415715-002	Anonymous	Cobalt, total	7440-48-4	E420	0.184 mg/L	0.2 mg/L	92.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.184 mg/L	0.2 mg/L	91.8	70.0	130	----
		Iron, total	7439-89-6	E420	17.9 mg/L	20 mg/L	89.7	70.0	130	----
		Lead, total	7439-92-1	E420	0.181 mg/L	0.2 mg/L	90.5	70.0	130	----
		Lithium, total	7439-93-2	E420	1.02 mg/L	1 mg/L	102	70.0	130	----
		Magnesium, total	7439-95-4	E420	8.76 mg/L	10 mg/L	87.6	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.182 mg/L	0.2 mg/L	90.9	70.0	130	----
		Nickel, total	7440-02-0	E420	0.367 mg/L	0.4 mg/L	91.7	70.0	130	----
		Phosphorus, total	7723-14-0	E420	92.0 mg/L	100 mg/L	92.0	70.0	130	----
		Potassium, total	7440-09-7	E420	36.8 mg/L	40 mg/L	92.0	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.182 mg/L	0.2 mg/L	90.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.379 mg/L	0.4 mg/L	94.8	70.0	130	----
		Silicon, total	7440-21-3	E420	94.1 mg/L	100 mg/L	94.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.0373 mg/L	0.04 mg/L	93.3	70.0	130	----
		Sodium, total	7440-23-5	E420	20.1 mg/L	20 mg/L	101	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	182 mg/L	200 mg/L	91.1	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.387 mg/L	0.4 mg/L	96.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		Thorium, total	7440-29-1	E420	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Tin, total	7440-31-5	E420	0.180 mg/L	0.2 mg/L	89.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.363 mg/L	0.4 mg/L	90.8	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.189 mg/L	0.2 mg/L	94.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.924 mg/L	1 mg/L	92.4	70.0	130	----
		Zinc, total	7440-66-6	E420	3.51 mg/L	4 mg/L	87.7	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.382 mg/L	0.4 mg/L	95.6	70.0	130	----
Total Metals (QCLot: 1737375)										
VA24C8557-002	SQU DS 1	Mercury, total	7439-97-6	E508	0.0000978 mg/L	0 mg/L	97.8	70.0	130	----
Dissolved Metals (QCLot: 1735218)										
CG2415715-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	2.01 mg/L	2 mg/L	100	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.193 mg/L	0.2 mg/L	96.4	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.380 mg/L	0.4 mg/L	95.1	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0984 mg/L	0.1 mg/L	98.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.949 mg/L	1 mg/L	94.9	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0941 mg/L	0.1 mg/L	94.1	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.394 mg/L	0.4 mg/L	98.5	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1735218) - continued										
CG2415715-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.195 mg/L	0.2 mg/L	97.5	70.0	130	----
		Iron, dissolved	7439-89-6	E421	18.7 mg/L	20 mg/L	93.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	1.05 mg/L	1 mg/L	105	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	8.90 mg/L	10 mg/L	89.0	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.185 mg/L	0.2 mg/L	92.6	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.383 mg/L	0.4 mg/L	95.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	97.1 mg/L	100 mg/L	97.1	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	38.2 mg/L	40 mg/L	95.5	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.194 mg/L	0.2 mg/L	97.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.390 mg/L	0.4 mg/L	97.4	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	101 mg/L	100 mg/L	101	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	20.7 mg/L	20 mg/L	103	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	183 mg/L	200 mg/L	91.6	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.385 mg/L	0.4 mg/L	96.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0373 mg/L	0.04 mg/L	93.3	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.208 mg/L	0.2 mg/L	104	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.182 mg/L	0.2 mg/L	91.0	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.192 mg/L	0.2 mg/L	96.0	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.975 mg/L	1 mg/L	97.5	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	3.79 mg/L	4 mg/L	94.7	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.383 mg/L	0.4 mg/L	95.7	70.0	130	----
Dissolved Metals (QCLot: 1738850)										
VA24C8527-017	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000901 mg/L	0 mg/L	90.1	70.0	130	----
Speciated Metals (QCLot: 1733610)										
FJ2403238-003	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0417 mg/L	0.04 mg/L	104	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 -

Page 1 of

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

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: 30 Oct 24 hh:mm

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

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA23-TRIT100-012	AFE/Cost Center:	PO#
Job #:	11964	Major/Minor Code:	Routing Code:
PO / AFE:	11964 - Task 20 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	VA24C8557	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 H_2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO_2, NO_3, SO_4)	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	23-10-2024	10:12	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.28 cond: 53 temp: 8.2																					
	SQU DS 1	23-10-2024	10:52	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.39 cond: 48 temp: 7.4																					

Environmental Division Vancouver
Work Order Reference
VA24C8557
Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (electronic COC
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)

SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Time: 12:58	Received by:	Date:	Time:	Received by:	Date: 10/23/24	Time: 1700

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 01 FROM

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

2024-10-23-Renkers-865EF

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	10/23/2024	**Location:**	BC Rail Site
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.725231 -123.1652
Temperature(c):	Low 10 High 3	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 10:55:29 **Flow Volume (visual):** high

Notes: Cleaned sonde; recalibration not needed.

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

Logger Maintenance

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

Describe Logger Maintenance

Photos

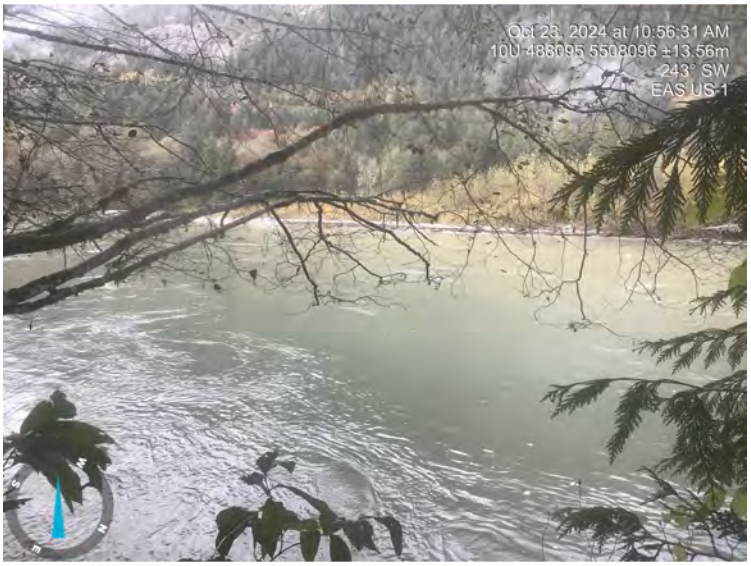


Photo: 1

Location: SQU DS

Description: Across/upstream view

Photo: 2

Location: SQU DS

Description: Downstream view

FORTIS BC
Energy at work

2024-10-23-Renkers-865EF

Photos

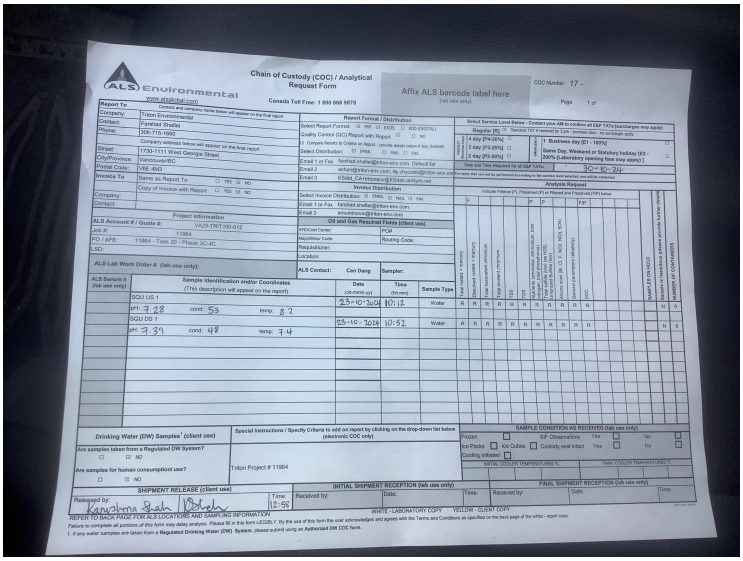


Photo: 3

Location: SQU DS

Description: Signed COC

Sign Off

Report Prepared By:	Stephanie Renkers	**Report Reviewed:**	Yes
Report Reviewer:		**Professional(s) of Record:**	
Name:			
Designation:			
Designation Number:			

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-23-Renkers-C72EC

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	10/23/2024	**Location:**	BC Rail Site
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 10 High 3	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 10:12:00 **Flow Volume (visual):** high

Notes: Could not pull sonde out from river due to being stuck on debris from recent Significant Rain Event (SRE), but was it functioning according to HydroVu.

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

Logger Maintenance

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

Describe Logger Maintenance

Photos

Photo: 1

Location: SQU US

Description: Across view

Photo: 2

Location: SQU US

Description: Downstream view

Photos

Photo: 3

Location: SQU US

Description: Upstream view

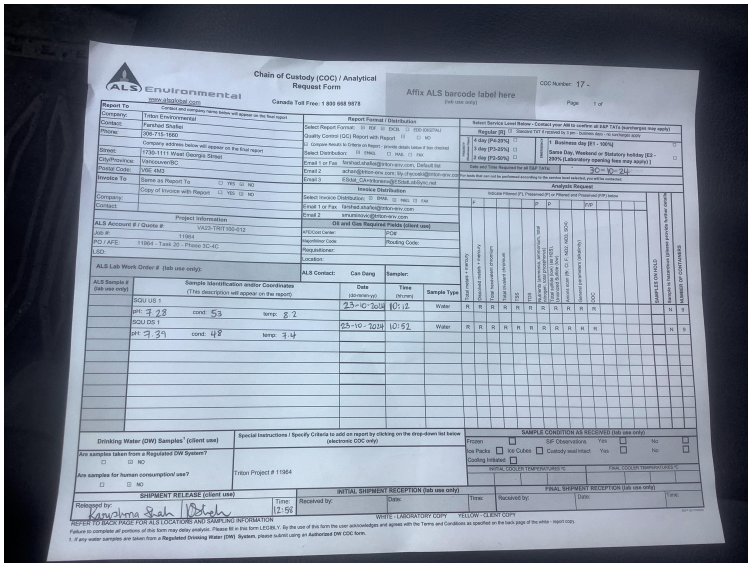


Photo: 4

Location: SQU US

Description: Signed COC

Sign Off

Report Prepared By:	Stephanie Renkers	**Report Reviewed:**	Yes
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:	COLLEGE OF APPLIED BIOLOGISTS Farshad Shafiei RPBio 3781 CAB		Farshad Shafiei Ph.D., R.P.Bio.	WLNG EOP	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24C8149-001					
	Date Sampled					21-Oct-2024					
	Time Sampled					09:50					
Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	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 5-week discrete sampling average = 6.9 (EOP)	7.0-8.7 5-week discrete sampling average = 6.9 (EOP)	7.0	pH is out of range for long-term BCWQG for MAL. However, this is due to natural variability.	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	Multiple guidelines dependent on water use and species, see notes: Short-term daily temperature = 15°C, or Max +/- 1°C from optimum temperature range for most sensitive salmonid species present, or Short-term daily temperature is 19°C, or Max +/- from BKG 1°C	-	Max +/- from BKG 1°C	-	11.6		Guideline is species-dependent. Short-term daily temperature is 15°C for streams with Bull Trout &/or Dolly Varden, Max +/- 1°C from the optimum range as shown in Table 43B of the BCWG for aquatic life for each life history phase of the most sensitive salmonid species present, Mean Weekly Max Temperature guideline is18°C. Short-term daily temperature guideline is 19°C for streams with unknown fish distribution, or Max +/- 1°C from background. Refer to footnote 4 for background temperature range for East Creek.		Guideline for marine waters are based on natural ambient conditions. Refer to footnote 4 for background temperature range for East Creek. Calculation: US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	139	Water treatment process has been increasing the Conductivity levels based on the levels seen at US1 site. Although this is not causing harm, the treatment facility should be informed and asked to keep the levels like that of observed at US1.				
Turbidity (field)	NTU	Varies with background, see note US1 (background) guideline = 8.0	Varies with background, see note US1 (background) guideline = 2.33 5-week discrete sampling average = 13.7 (EOP)	Varies with background, see note US1 (background) guideline = 8.0	Varies with background, see note US1 (background) guideline = 2.33 5-week discrete sampling average = 13.7 (EOP)	4.39		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: US value + 8 = 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: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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: US value + 8 = 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: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
General Parameters											
Hardness (as $CaCO_3$) (total)	mg/L	-	-	-	-	53.9					
Total Dissolved Solids	mg/L	-	-	-	-	94					
Total Suspended Solids	mg/L	Varies with background, see note US1 (background) guideline = 28	Varies with background, see note US1 (background) guideline = 8.00 5-week discrete sampling average = 6.20 (EOP)	Varies with background, see note US1 (background) guideline = 28	Varies with background, see note US1 (background) guideline = 8.00 5-week discrete sampling average = 6.20 (EOP)	3.4		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: US value + 25 = 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: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: US value + (US value*0.1) = 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 US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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: US value + 25 = 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: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: US value + (US value*0.1) = 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 US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	< 0.50			Long-term (30-day) median within 20% of background median [3]		
Total Phenols	mg/L	0.05	-	-	-	< 0.0010		Interim guideline		Interim guideline	
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	54.8	Water treatment process has been increasing the total Alkalinity levels based on the levels seen at US1 site. Although this is not causing harm, the treatment facility should be informed and asked to keep the levels like that of observed at US1. 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 H_2S)	mg/L	-	0.002	-	-	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016					
Anions and Nutrients											
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. US1 (background) guideline = 22.3	Varies with pH and temperature. See note. US1 (background) guideline = 1.79	Varies with pH and temperature. See note. US1 (background) guideline = 92	Varies with pH, temperature and salinity. See note. US1 (background) guideline = 14	0.0067		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	600	150	+/- 10% from BKG	+/- 10% from BKG	1.53				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
Fluoride	mg/L	Varies with hardness US1 (background) guideline = 0.605	-	1.5	-	0.176		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	32.8	3	-	3.7	0.0202					
Nitrite (as N)	mg/L	Varies with chloride. Table 27B, see note. US1 (background) guideline = 0.06	Varies with chloride. Table 27B, see note. US1 (background) guideline = 0.02	-	-	< 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	-	-	-	-	0.108					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0112			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. US1 (background) guideline = 128	-	-	5.24			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 US1 (background) guideline = 0.078 5-week discrete sampling averages = 0.573 (EOP), 0.056 (US), 0.216 (DS)	-	-	*0.184*	Total Al exceeds the long-term BCWQG for FAL.		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	0.25	0.074	-	-	0.00014					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00139					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.00591			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	0.015					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	< 0.0000100					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	19.7					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000042					
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	-	0.0025	-	0.0015	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002 5-week discrete sampling averages = 0.00109 (EOP), 0.00067 (US), 0.00079 (DS)	0.00141					
Iron (Fe)-Total	mg/L	1	-	-	-	0.098					
Lead (Pb)-Total	mg/L			0.14	0.002 5-week discrete sampling averages = 0.00140 (EOP), 0.00005 (US), 0.00023 (DS)	0.00246					
Lithium (Li)-Total	mg/L	-	-	-	-	0.003					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.14					
Manganese (Mn)-Total	mg/L	Varies with hardness US1 (background) guideline = 0.82	Varies with hardness US1 (background) guideline = 0.77 5-week discrete sampling averages = 0.0039 (EOP), 0.0021 (US), 0.0084 (DS)	-	-	0.00479		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 US1 (background) guideline = N/A	-	-	< 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	46	7.6	-	-	0.0182					
Nickel (Ni)-Total	mg/L	-		-	0.008	< 0.00050					Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	0.121			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	-	-	-	-	1.17					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00205					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	< 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 guidelines 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	-	-	-	-	6.1					
Silver (Ag)-Total	mg/L	Varies with hardness, see note US1 (background) guideline = 0.0001	Varies with hardness, see note US1 (background) guideline = 0.00005	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	-	-	-	-	3.78					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0438					
Sulfur (S)-Total	mg/L	-	-	-	-	2.02					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week discrete sampling averages = 0.000018 (EOP), 0.000010 (US), 0.00005 (DS)	-	-	0.000015			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to the EGP site.		
Thorium (Th)-Total	mg/L	-	-	-	-	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.00366					
Tungsten (W)-Total	mg/L	-	-	-	-	0.0005					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.00427			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010 5-week discrete sampling averages = 0.0106 (EOP), 0.003 (US), 0.0063 (DS)	0.015					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020					
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.004					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	0.00012					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00106					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00499					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.014					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note US1 (background) guideline = 0.000091	Varies with hardness, see note US1 (background) guideline = 0.000043 5-week discrete sampling averages = 0.00000824 (EOP), 0.0000055 (US), 0.0000108 (DS)	-	-	< 0.0000100		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	-	-	18.5	Water treatment process has been increasing the Ca levels based on the levels seen at US1 site. Although this is not causing harm, the treatment facility should be informed and asked to keep the levels like that of observed at US1. The WLNG EOP sample had 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	-	-	-	-	0.000024					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note US1 (background) guideline = 0.0016	Guideline varies with other parameters, see note US1 (background) guideline = 0.0004 5-week discrete sampling averages = 0.00043 (EOP), 0.00061 (US), 0.00039 (DS)	-	-	*0.0006*	Dissolved copper exceeds long-term BCWQG for FAL.	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	-	-	-	< 0.010					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline: 0.00202 5-week discrete sampling averages = 0.000209 (EOP), 0.00005 (US), 0.00005 (DS)	-	-	0.000362			Guideline varies with DOC and hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation (EXP((0.514*LN(DOC))+(0.214*(LN(Hardness)))+0.4354))/2/1000 where DOC range is 0.5-31.5 mg/L and hardness range is 4.7-511 mg/L.		
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.0028					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.12					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00309					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.017					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with pH, temperature, DOC, and hardness US1 (background) guideline: 0.0172	Guideline varies with pH, temperature, DOC, and hardness US1 (background) guideline: 0.00115 5-week discrete sampling averages = 0.0005 (EOP), 0.00051 (US), 0.00050 (DS)	-	-	< 0.00050		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		
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	1.09					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00187					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.0000500					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	5.69					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	3.65					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0407					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.91					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.000011					
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	-	-	-	-	0.00044					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.00153					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness US1 (background) guideline = 0.011	Varies with pH, DOC, hardness US1 (background) guideline = 0.0042 5-week discrete sampling average = 0.0057 (EOP), 0.0011 (US), 0.0042 (DS)	-	-	0.0114	Dissolved zinc exceeds short-term and long-term BCWQG for FAL.	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	-	-	< 1.0			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					
VPHw	µg/L	-	-	-	-	< 100					
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	µg/L	-	6	-	6	< 0.010					
Acenaphthylene	µg/L	-	-	-	-	< 0.010					
Acridine	µg/L	-	-	-	-	< 0.010					
Anthracene	µg/L	0.1	4	-	-	< 0.010					
Benz(a)anthracene	µg/L	0.1	0.1	-	-	< 0.010					
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	< 0.010					
Dibenz(a,h)anthracene	µg/L	-	-	-	-	< 0.0050					
Fluoranthene	µg/L	0.2	4	-	-	< 0.010		Guideline is for phototoxic effects			
Fluorene	µg/L	-	12	-	-	< 0.010					
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	< 0.010					
Methylnaphthalene, 1-	µg/L	-	-	-	1	< 0.010					Guideline is for total methylated napthalene and is presented here for reference.
Methylnaphthalene, 2-	µg/L	-	-	-	1	< 0.010					Guideline is for total methylated napthalene and is presented here for reference.
Naphthalene	µg/L	-	1	-	1	< 0.050					
Phenanthrene	µg/L	-	0.3	-	-	< 0.020					
Pyrene	µg/L	0.02	-	-	-	< 0.010					
Quinoline	µg/L	-	3.4	-	-	< 0.050		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 both FAL and MAL Guidelines	Exceeds FAL Short term Guideline	*Exceeds FAL Long term Guideline*	Exceeds MAL Short term Guideline	*Exceeds MAL Long term Guideline*						
Color Key:		Exceeds FAL Short and Long-Term Guideline		Exceeds MAL Short and Long-term 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: 0.3-8.0C; Mar-Apr: 3.0-10.2C; May-June: 6.8-15.1C; Jul-present: 12.9-18.2C

Reference: AquaTROLL In-Situ Data Logger - Background water quality readings collected from Dec.-present.

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	Measurement method	Values: WLNG EOP	Values: WLNG US 07-Oct-2024
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations	7	6.83
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations	11.6	13.2
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations	4.39	0.02
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	53.9	16.3
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations	0.5	2.81
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations	54.8	8.6
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations	1.53	1.69
Total Suspended Solids	mg/L	Laboratory tested total suspended solids tested at the lab used in guideline calculations	3.4	< 3.0

Woodfibre Site Sample Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C8149**		
Client	: **Triton Environmental Consultants Ltd**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Account Manager	:
Address	:	Address	:
Telephone	:	Telephone	:
Project	: 11964	Date Samples Received	: 21-Oct-2024 18:00
PO	: 11964-Task30-Phase 3C-4C	Date Analysis Commenced	: 22-Oct-2024
C-O-C number	: ----	Issue Date	: 23-Oct-2024 20:24
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
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*
		Inorganics, Edmonton, Alberta
		Administration, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		Organics, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		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*
mg/L	milligrams per litre
µg/L	micrograms per litre
pH units	pH units
µS/cm	microsiemens per centimetre
°C	degrees celsius
-	no units

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

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

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

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	WLNG EOP	----	----	----	----
				Client sampling date / time	21-Oct-2024 09:50	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	139.00	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.00	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	11.6	----	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	50.8	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	53.9	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	94	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	3.4	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	54.8	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0067	----	----	----	----
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	1.53	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.176	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0202	----	----	----	----
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	0.108	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0112	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	5.24	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP	----	----	----	----
					Client sampling date / time: 21-Oct-2024 09:50	----	----	----	----
					VA24C8149-001	----	----	----	----
					Result	----	----	----	----
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	0.184	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00014	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00139	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00591	----	----	----	----
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	0.015	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000100 DLM	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	19.7	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000042	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00141	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.098	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.00246	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0030	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	1.14	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP	----	----	----	----
					Client sampling date / time: 21-Oct-2024 09:50	----	----	----	----
					VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Total Metals									
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00479	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.0182	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	0.121	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.17	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00205	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	6.10	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	3.78	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0438	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	2.02	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000015	----	----	----	----
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	0.00366	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	0.00050	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00427	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP	----	----	----	----
					Client sampling date / time				
					21-Oct-2024 09:50	----	----	----	----
					VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Total Metals									
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0150	----	----	----	----
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	0.0040	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	0.00012	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00106	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00499	----	----	----	----
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	0.014	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000100 DLM	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	18.5	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000024	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00060	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	<0.010	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	0.000362	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0028	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	1.12	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00309	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP	----	----	----	----
					Client sampling date / time				
					21-Oct-2024 09:50	----	----	----	----
					VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.0170	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	1.09	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00187	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	5.69	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	3.65	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0407	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	1.91	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	0.000011	----	----	----	----
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	0.00044	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.00153	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0114	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP	----	----	----	----
					Client sampling date / time				
					21-Oct-2024 09:50	----	----	----	----
					VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
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	<0.0010	----	----	----	----
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	----	----	----	----
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-1,3-	10061-01-5	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L	<0.75	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	21-Oct-2024 09:50	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C8149-001	----	----	----	----
						Result	----	----	----	----
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	----	----	----	----
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP	----	----	----	----
					Client sampling date / time				
					21-Oct-2024 09:50	----	----	----	----
					VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Volatile Organic Compounds [Fuels]									
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	%	88.0	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%	108	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%	84.7	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%	98.7	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L	<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	WLNG EOP	----	----	----	----
				Client sampling date / time	21-Oct-2024 09:50	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C8149-001	----	----	----	----
					Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	----	----	----	----
					Client sampling date / time	21-Oct-2024 09:50	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C8149-001	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		109	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		103	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		99.5	----	----	----	----
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	%		94.9	----	----	----	----

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	: **VA24C8149**	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	: 21-Oct-2024 18:00
PO	: 11964-Task30-Phase 3C-4C	Issue Date	: 23-Oct-2024 20:24
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.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) WLNG EOP	E562	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG EOP	E298	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	22-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP	E235.Br-L	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	22-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP	E235.Cl	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	22-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG EOP	E235.F	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	22-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG EOP	E235.NO3-L	21-Oct-2024	22-Oct-2024	3 days	1 days	✓	22-Oct-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WLNG EOP	E235.NO2-L	21-Oct-2024	22-Oct-2024	3 days	1 days	✓	22-Oct-2024	3 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
Anions and Nutrients : Sulfate in Water by IC										
HDPE WLNG EOP	E235.SO4	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	22-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG EOP	E366	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) WLNG EOP	E372-U	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	23-Oct-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WLNG EOP	E509	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE WLNG EOP	E421	21-Oct-2024	22-Oct-2024	0 hrs	19 hrs	× UCP	22-Oct-2024	0 hrs	36 hrs	× UCP
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial dissolved (hydrochloric acid) WLNG EOP	EF001	21-Oct-2024	----	----	----		22-Oct-2024	----	1 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial WLNG EOP	E680E	21-Oct-2024	22-Oct-2024	7 days	1 days	✓	22-Oct-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) WLNG EOP	E601A	21-Oct-2024	23-Oct-2024	14 days	2 days	✓	23-Oct-2024	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) WLNG EOP	E581.VH+F1	21-Oct-2024	22-Oct-2024	14 days	1 days	✓	22-Oct-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WLNG EOP	E358-L	21-Oct-2024	22-Oct-2024	28 days	1 days	✓	22-Oct-2024	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG EOP	E290	21-Oct-2024	22-Oct-2024	14 days	1 days	✓	22-Oct-2024	14 days	1 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WLNG EOP	E162	21-Oct-2024	----	----	----		22-Oct-2024	7 days	1 days	✓
Physical Tests : TSS by Gravimetry										
HDPE WLNG EOP	E160	21-Oct-2024	----	----	----		22-Oct-2024	7 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) WLNG EOP	E641A	21-Oct-2024	23-Oct-2024	14 days	2 days	✓	23-Oct-2024	40 days	0 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide) WLNG EOP	E532	21-Oct-2024	----	----	----		21-Oct-2024	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) WLNG EOP	E508	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE WLNG EOP	E420	21-Oct-2024	22-Oct-2024	0 hrs	21 hrs	× UCP	22-Oct-2024	0 hrs	36 hrs	× UCP
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG EOP	E395	21-Oct-2024	----	----	----		22-Oct-2024	7 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP	E611C	21-Oct-2024	22-Oct-2024	14 days	1 days	✓	22-Oct-2024	14 days	1 days	✓

Legend & Qualifier Definitions

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1722149	1	8	12.5	5.0	✓
Ammonia by Fluorescence	E298	1722305	1	6	16.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1722145	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1722144	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1724839	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1722208	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1722306	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1722143	1	8	12.5	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1723074	1	16	6.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1722146	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1722147	1	8	12.5	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1725710	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1722148	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	1723701	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1722004	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1724781	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1722200	1	1	100.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1722303	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1722304	1	6	16.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1724017	1	2	50.0	5.0	✓
TSS by Gravimetry	E160	1723687	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1722514	1	2	50.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1722513	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1722149	1	8	12.5	5.0	✓
Ammonia by Fluorescence	E298	1722305	1	6	16.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1724681	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1722145	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1722144	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1724839	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1722208	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1722306	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1722143	1	8	12.5	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1723074	1	16	6.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1722146	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1722147	1	8	12.5	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	1724682	1	19	5.2	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1725710	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1722148	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	1723701	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1722004	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1724781	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1722200	1	1	100.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1722303	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1722304	1	6	16.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1724017	1	2	50.0	5.0	✓
TSS by Gravimetry	E160	1723687	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1722514	1	2	50.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1722513	1	7	14.2	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1722149	1	8	12.5	5.0	✓
Ammonia by Fluorescence	E298	1722305	1	6	16.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1724681	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1722145	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1722144	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1724839	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1722208	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1722306	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1722143	1	8	12.5	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1723074	1	16	6.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1722146	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1722147	1	8	12.5	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1724682	1	19	5.2	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1725710	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1722148	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	1723701	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1722004	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1724781	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1722200	1	1	100.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1722303	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1722304	1	6	16.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1724017	1	2	50.0	5.0	✓
TSS by Gravimetry	E160	1723687	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1722514	1	2	50.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1722513	1	7	14.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1722305	1	6	16.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1722145	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1722144	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1724839	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1722208	0	1	0.0	5.0	✗
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1722306	1	3	33.3	5.0	✓
Fluoride in Water by IC	E235.F	1722143	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1722146	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1722147	1	8	12.5	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1725710	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1722148	1	8	12.5	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1722004	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1724781	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1722200	0	1	0.0	5.0	✗
Total Nitrogen by Colourimetry	E366	1722303	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1722304	1	6	16.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1724017	1	2	50.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1722514	1	2	50.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1722513	1	7	14.2	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 - 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 a GC-MS-FID.
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	: **VA24C8149**	Page	: 1 of 21
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone	: ----	Telephone	
Project	: 11964	Date Samples Received	: 21-Oct-2024 18:00
PO	: 11964-Task30-Phase 3C-4C	Date Analysis Commenced	: 21-Oct-2024
C-O-C number	: ----	Issue Date	: 23-Oct-2024 20:24
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*
		Edmonton Inorganics, Edmonton, Alberta
		Vancouver Administration, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Organics, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		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: 1722149)											
VA24C8159-007	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	18.3	19.5	6.42%	20%	----
Physical Tests (QC Lot: 1723687)											
FJ2403198-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	10.2	10.4	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1723701)											
FJ2403198-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1520	1600	4.90%	20%	----
Anions and Nutrients (QC Lot: 1722143)											
VA24C8148-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.138	0.136	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722144)											
VA24C8148-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	4.31	4.30	0.009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722145)											
VA24C8148-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722146)											
VA24C8148-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0176	0.0177	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722147)											
VA24C8148-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722148)											
VA24C8148-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.73	4.72	0.125%	20%	----
Anions and Nutrients (QC Lot: 1722303)											
VA24C8148-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.166	0.162	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722304)											
VA24C7886-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1722305)											
VA24C7886-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1722306)											
VA24C8086-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.21	1.20	0.02	Diff <2x LOR	----
Total Sulfides (QC Lot: 1724017)											
VA24C8148-001	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: 1722200)											
VA24C8149-001	WLNG EOP	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.184	0.185	0.384%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00014	0.00013	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: 1722200) - continued											
VA24C8149-001	WLNG EOP	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00139	0.00140	0.138%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.00591	0.00602	1.90%	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	0.015	0.014	0.0010	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	19.7	18.5	6.30%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000042	0.000038	0.000004	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00141	0.00141	0.000005	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.098	0.100	0.002	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.00246	0.00230	7.05%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0030	0.0028	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	1.14	1.15	0.600%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00479	0.00470	1.94%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0182	0.0169	7.50%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	0.121	0.108	0.013	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.17	1.17	0.0366%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00205	0.00206	0.656%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	0.000082	0.000032	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6.10	5.99	1.77%	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	3.78	3.82	1.18%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0438	0.0397	9.93%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	2.02	2.13	0.11	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	0.000015	0.000014	0.000001	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00366	0.00397	8.08%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00050	0.00047	0.00003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00427	0.00401	6.20%	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: 1722200) - continued											
VA24C8149-001	WLNG EOP	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	0.0150	0.0147	0.0003	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1724781)											
VA24C7731-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1722208)											
VA24C8149-001	WLNG EOP	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0040	0.0032	0.0009	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00012	0.00012	0.000002	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00106	0.00110	3.18%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00499	0.00478	4.31%	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	0.014	0.014	0.0003	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	18.5	18.4	0.494%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000024	0.000024	0.0000003	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00060	0.00056	0.00004	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	0.000362	0.000355	0.000007	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0028	0.0028	0.00008	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.12	1.12	0.172%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00309	0.00312	1.04%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0170	0.0168	1.48%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.09	1.09	0.0395%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00187	0.00196	0.00009	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	0.000091	0.000041	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.69	5.89	3.36%	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	3.65	3.67	0.606%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0407	0.0400	1.65%	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: 1722208) - continued											
VA24C8149-001	WLNG EOP	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.91	1.88	0.02	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	0.000011	0.000012	0.0000004	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	0.00044	0.00045	0.00001	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00153	0.00156	1.75%	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	0.0114	0.0112	1.34%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1724839)											
VA24C7616-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1722004)											
VA24C7985-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00150	mg/L	<0.00150	<0.00150	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1725710)											
CG2415213-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	0.0238	0.0246	3.35%	20%	----
Volatile Organic Compounds (QC Lot: 1722513)											
FJ2403194-001	Anonymous	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: 1722513) - continued											
FJ2403194-001	Anonymous	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: 1722514)											
VA24C8148-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Glycols (QC Lot: 1723074)											
VA24C7875-001	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: 1722149)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1723687)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1723701)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1722143)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1722144)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1722145)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1722146)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1722147)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1722148)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1722303)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1722304)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1722305)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1722306)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1724017)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1722200)						
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: 1722200) - 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: 1724781)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1722208)						
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: 1722208) - 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: 1724839)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1722004)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Aggregate Organics (QCLot: 1725710)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1722513)						
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: 1722513) - 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: 1722514)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1724681)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1724682)						
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: 1724682) - 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: 1723074)						
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: 1722149)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1723687)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	92.0	85.0	115	----
Physical Tests (QCLot: 1723701)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 1722143)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.5	90.0	110	----
Anions and Nutrients (QCLot: 1722144)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.2	90.0	110	----
Anions and Nutrients (QCLot: 1722145)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 1722146)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1722147)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	97.1	90.0	110	----
Anions and Nutrients (QCLot: 1722148)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1722303)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	99.4	75.0	125	----
Anions and Nutrients (QCLot: 1722304)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	94.8	80.0	120	----
Anions and Nutrients (QCLot: 1722305)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	104	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1722306)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.3	80.0	120	----
Total Sulfides (QCLot: 1724017)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	100	80.0	120	----
Total Metals (QCLot: 1722200)									

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: 1722200) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	97.2	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	95.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	100	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	97.1	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.2	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.1	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	91.9	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	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	99.0	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.6	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.7	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	109	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.0	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.4	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	105	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.9	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	110	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	99.2	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	98.7	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1722200) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	97.9	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.0	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Total Metals (QCLot: 1724781)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 1722208)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	107	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	101	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	105	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	98.1	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.3	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.6	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	93.5	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	106	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.5	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	99.0	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	99.7	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.3	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	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.2	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	111	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	109	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: 1722208) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	110	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	103	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	106	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	104	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.2	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	110	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.3	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	90.1	80.0	120	----
Speciated Metals (QCLot: 1722004)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Aggregate Organics (QCLot: 1725710)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	108	85.0	115	----
Volatile Organic Compounds (QCLot: 1722513)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	90.3	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	112	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	97.0	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	99.0	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	94.7	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	101	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	98.1	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	97.1	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	97.0	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	93.0	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	86.3	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	85.1	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1722513) - continued									
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	102	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	97.1	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	79.5	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	87.2	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	81.4	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	86.2	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	106	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	102	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	106	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	88.5	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	95.0	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	102	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	91.9	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	104	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	83.3	70.0	130	----
Hydrocarbons (QCLot: 1722514)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	84.0	70.0	130	----
Hydrocarbons (QCLot: 1724681)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	100	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	89.9	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1724682)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	123	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	123	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	128	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	120	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	104	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	126	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: 1724682) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	121	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	112	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	120	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	118	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	115	60.0	130	----
Glycols (QCLot: 1723074)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	100	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	98.5	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	93.9	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	97.6	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**

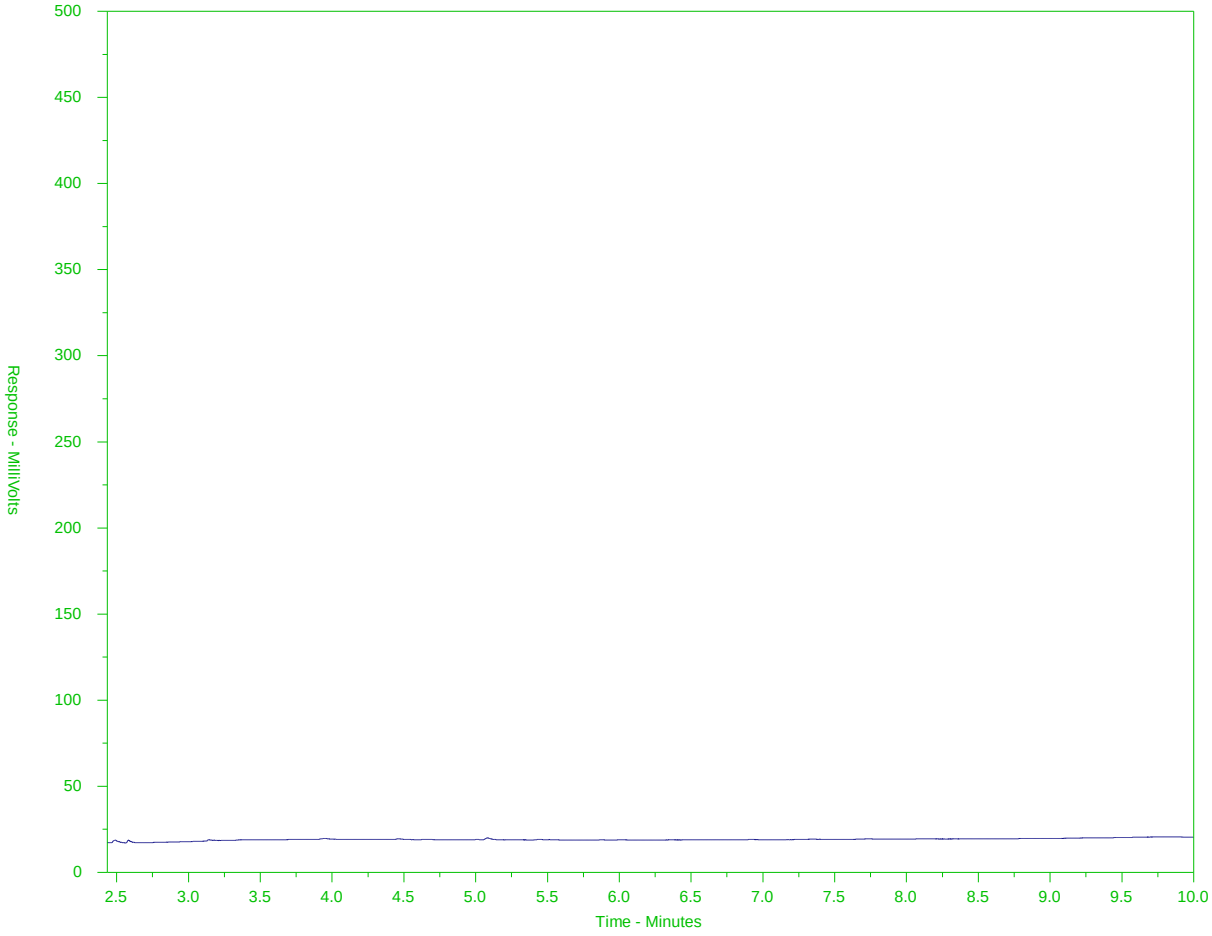
					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1722143)										
VA24C8149-001	WLNG EOP	Fluoride	16984-48-8	E235.F	1.03 mg/L	1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1722144)										
VA24C8149-001	WLNG EOP	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1722145)										
VA24C8149-001	WLNG EOP	Bromide	24959-67-9	E235.Br-L	0.559 mg/L	0.5 mg/L	112	75.0	125	----
Anions and Nutrients (QCLot: 1722146)										
VA24C8149-001	WLNG EOP	Nitrate (as N)	14797-55-8	E235.NO3-L	2.60 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1722147)										
VA24C8149-001	WLNG EOP	Nitrite (as N)	14797-65-0	E235.NO2-L	0.507 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1722148)										
VA24C8149-001	WLNG EOP	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1722303)										
VA24C8149-001	WLNG EOP	Nitrogen, total	7727-37-9	E366	0.386 mg/L	0.4 mg/L	96.5	70.0	130	----
Anions and Nutrients (QCLot: 1722304)										
VA24C7886-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0457 mg/L	0.05 mg/L	91.5	70.0	130	----
Anions and Nutrients (QCLot: 1722305)										
VA24C7886-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.106 mg/L	0.1 mg/L	106	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1722306)										
VA24C8148-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.17 mg/L	5 mg/L	103	70.0	130	----
Total Sulfides (QCLot: 1724017)										
VA24C8149-001	WLNG EOP	Sulfide, total (as S)	18496-25-8	E395	0.185 mg/L	0.2 mg/L	92.6	75.0	125	----
Total Metals (QCLot: 1724781)										
VA24C7782-001	Anonymous	Mercury, total	7439-97-6	E508	0.000100 mg/L	0 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1724839)										
VA24C7616-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000929 mg/L	0 mg/L	92.9	70.0	130	----
Speciated Metals (QCLot: 1722004)										
VA24C7985-002	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.764 mg/L	0.75 mg/L	102	70.0	130	----
Aggregate Organics (QCLot: 1725710)										
CG2415213-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0217 mg/L	0.02 mg/L	109	75.0	125	----
Volatile Organic Compounds (QCLot: 1722513)										

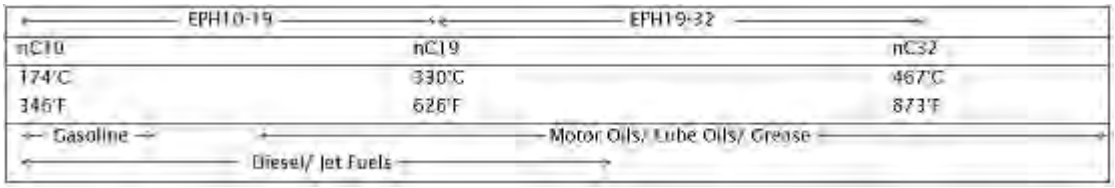
Sub-Matrix: **Water**

					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: 1722513) - continued										
FJ2403194-001	Anonymous	Benzene	71-43-2	E611C	112 µg/L	100 µg/L	112	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	112 µg/L	100 µg/L	112	60.0	140	----
		Bromoform	75-25-2	E611C	127 µg/L	100 µg/L	127	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	120 µg/L	100 µg/L	120	60.0	140	----
		Chlorobenzene	108-90-7	E611C	122 µg/L	100 µg/L	122	60.0	140	----
		Chloroethane	75-00-3	E611C	110 µg/L	100 µg/L	110	50.0	150	----
		Chloroform	67-66-3	E611C	121 µg/L	100 µg/L	121	60.0	140	----
		Chloromethane	74-87-3	E611C	106 µg/L	100 µg/L	106	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	121 µg/L	100 µg/L	121	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	119 µg/L	100 µg/L	119	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	131 µg/L	100 µg/L	131	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	132 µg/L	100 µg/L	132	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	118 µg/L	100 µg/L	118	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	114 µg/L	100 µg/L	114	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	113 µg/L	100 µg/L	113	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	121 µg/L	100 µg/L	121	60.0	140	----
		Dichloromethane	75-09-2	E611C	121 µg/L	100 µg/L	121	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	117 µg/L	100 µg/L	117	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	99.6 µg/L	100 µg/L	99.6	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	107 µg/L	100 µg/L	107	60.0	140	----
		Ethylbenzene	100-41-4	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	124 µg/L	100 µg/L	124	60.0	140	----
		Styrene	100-42-5	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	128 µg/L	100 µg/L	128	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	115 µg/L	100 µg/L	115	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	135 µg/L	100 µg/L	135	60.0	140	----
		Toluene	108-88-3	E611C	114 µg/L	100 µg/L	114	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	118 µg/L	100 µg/L	118	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	118 µg/L	100 µg/L	118	60.0	140	----
		Trichloroethylene	79-01-6	E611C	120 µg/L	100 µg/L	120	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	118 µg/L	100 µg/L	118	50.0	150	----
		Vinyl chloride	75-01-4	E611C	104 µg/L	100 µg/L	104	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	264 µg/L	200 µg/L	132	60.0	140	----
		Xylene, o-	95-47-6	E611C	108 µg/L	100 µg/L	108	60.0	140	----
Hydrocarbons (QCLot: 1722514)										
VA24C8149-001	WLNG EOP	VHw (C6-C10)	----	E581.VH+F1	4960 µg/L	6310 µg/L	78.7	60.0	140	----

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: VA24C8149-001-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

COC Number: 20 -

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Environmental Division Vancouver
Work Order Reference
VA24C8149

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Triton Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:		Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
		Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☑ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:		Email 1 or Fax	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:		Email 2	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:		Email 3	Additional fees may apply to rush requests on weekends, s…
Invoice To	Same as Report To ☐ YES ☑ NO		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice D	For all tests with rush TATs requested, please contact your AM to confirm availability.
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA23-TRIT100-012	AFE/Cost Center:	PO#
Job #:	11964	Major/Minor Code:	Routing Code:
PO / AFE:	11964 - Task 30 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):	C8149	ALS Contact:	Sampler:

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS, TDS, T-Alkalinity,Anions scan (Br, Cl, F, NO2, NO3, SO4)	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	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						F					P	P	P	P	F/P							
	WLNG EOP	21-OCT-24	09:50	Water	15	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~					
	pH: 7.00 cond: 139 µS/cm temp: 11.6 °C					P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2					
	~~Duplicate~~			~~Water~~	~~15~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~					

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	ESDAT EDD to ESdat_CA+tritonenv@ESdatLabSync.net
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

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

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

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				2			

SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Date:	Time:	Received by:	Date:	Time:	Received by: RJ	Date: oct 21	Time: 15 pm
21-OCT-24	16:44						

S AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — AUG 2020 FRONT

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

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

Woodfibre Site WTP Discharge Field Notes and Logs

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

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Appendices:

1. Executive Summary and Field Notes:

The discharged water consistently remained within regulatory guidelines. The key parameters, including temperature, pH, NTU, salinity, conductivity, and oxidation-reduction potential (ORP), were monitored throughout the discharge process and remained within the prescribed limits. No visible sheen observed on top of the WTP tanks and discharged water. All relevant parameters were measured using YSI instruments and WTP probes. The total discharge volume up to October 21 was 15,345 m3.

Daily Volume Summary:

Table 1: Discharge Volumes Daily Summary

Date	Location	Volume (m3)	Comments
October 21	WoodFibre (WF)	361	None
October 22	WF	349	None
October 23	WF	328	None
October 24	WF	351	None
October 25	WF	338	None
October 26	WF	313	None
October 27	WF	384	None
	Total	2,424	None

2. Discharge Parameter Summary:

Table 2: Discharge Parameter Summary

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	0:00:00	7.1	0.465	16.7	15,345	15.6	115
10/21/2024	0:15:00	7.1	0.469	16	15,352	15.7	115
10/21/2024	4:30:00	7.1	0.507	14.2	15,406	18.1	245
10/21/2024	5:45:00	7.1	0.514	11	15,411	17.7	245
10/21/2024	6:00:00	7.1	0.514	13.8	15,419	18.9	245
10/21/2024	8:15:00	7.1	0.518	4.2	15,453	15.5	116
10/21/2024	8:30:00	7.1	0.507	3.8	15,461	15.7	115
10/21/2024	9:30:00	7.1	0.507	2.9	15,469	16.1	116
10/21/2024	9:45:00	7.1	0.510	2.6	15,476	16.2	116
10/21/2024	11:45:00	7.1	0.533	1.7	15,514	17.1	242
10/21/2024	12:00:00	7.1	0.514	1.9	15,522	17.3	242
10/21/2024	12:15:00	7	0.522	1.8	15,530	17.4	242
10/21/2024	14:15:00	7	0.503	3.4	15,568	18.5	243
10/21/2024	15:00:00	7	0.495	2.5	15,580	18.5	244
10/21/2024	15:15:00	7	0.507	1.7	15,587	18.6	243
10/21/2024	15:30:00	7	0.212	1.8	15,595	18.7	244
10/21/2024	16:15:00	7	0.476	2	15,597	18.6	243
10/21/2024	18:30:00	7	0.231	1.2	15,623	18.2	244
10/21/2024	18:45:00	7	0.510	1.6	15,630	18.2	247
10/21/2024	19:00:00	7	0.488	1.3	15,638	18.3	247
10/21/2024	19:15:00	7	0.503	11.4	15,645	18.4	248
10/21/2024	20:15:00	7	0.507	1.3	15,648	18	247

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	22:15:00	7	0.529	1	15,680	17.8	248
10/21/2024	22:30:00	7	0.495	0.9	15,688	17.9	246
10/21/2024	22:45:00	7	0.480	1.3	15,695	17.9	248
10/21/2024	23:00:00	7	0.495	1.1	15,703	18.1	248
10/22/2024	0:15:00	7	0.499	4	15,706	18.2	247
10/22/2024	2:00:00	7.1	0.507	5.1	15,729	18.9	248
10/22/2024	2:15:00	7.1	0.537	3.8	15,737	18.8	248
10/22/2024	2:30:00	7.1	0.514	3.7	15,745	18.7	248
10/22/2024	3:45:00	7.1	0.503	3.2	15,756	18.2	245
10/22/2024	4:30:00	7.1	0.503	3.9	15,779	18	247
10/22/2024	5:45:00	7	0.510	3.1	15,789	17.6	247
10/22/2024	6:00:00	7	0.510	1.9	15,796	17.7	250
10/22/2024	7:45:00	7.1	0.514	2.5	15,812	17.7	248
10/22/2024	9:30:00	7.1	0.514	1.4	15,845	14.8	250
10/22/2024	9:45:00	7.1	0.518	1.3	15,853	15	252
10/22/2024	10:00:00	7.1	0.525	1.1	15,860	15.5	252
10/22/2024	11:15:00	7.1	0.518	0.7	15,882	16.1	253
10/22/2024	11:30:00	7.1	0.132	0.5	15,888	16.3	253
10/22/2024	11:45:00	7.1	0.503	0.3	15,894	16.5	252
10/22/2024	12:00:00	7.1	0.499	0.2	15,902	16.7	253
10/22/2024	14:45:00	7.1	0.476	1.2	15,933	18.3	253
10/22/2024	15:00:00	7.1	0.465	0.7	15,940	18.3	253
10/22/2024	15:15:00	7.1	0.469	1.4	15,947	18.3	254
10/22/2024	18:15:00	7	0.488	0.2	15,978	17.2	250

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	18:30:00	7	0.465	1.9	15,986	17.2	253
10/22/2024	18:45:00	7	0.484	0.9	15,993	17.2	253
10/22/2024	20:00:00	7	0.480	0.7	16,003	17.3	253
10/22/2024	20:15:00	7	0.465	0.8	16,011	17.3	251
10/22/2024	23:45:00	7	0.518	0.3	16,052	17.5	253
10/23/2024	0:00:00	6.9	0.507	1.1	16,059	17.7	252
10/23/2024	0:15:00	6.9	0.491	1.9	16,067	17.8	253
10/23/2024	1:30:00	6.9	0.499	0.7	16,076	18.4	253
10/23/2024	3:45:00	6.9	0.525	1.2	16,097	18.4	253
10/23/2024	4:00:00	6.9	0.499	0.9	16,105	18.3	255
10/23/2024	4:15:00	6.9	0.514	1.4	16,113	18	252
10/23/2024	6:15:00	6.9	0.518	3	16,137	15.8	262
10/23/2024	6:30:00	6.9	0.507	2.8	16,144	14.2	260
10/23/2024	8:00:00	6.9	0.518	1.5	16,154	15.7	260
10/23/2024	8:15:00	6.9	0.507	1.4	16,162	16.3	258
10/23/2024	9:30:00	6.9	0.522	1.1	16,197	17.4	260
10/23/2024	10:45:00	6.9	0.476	1.1	16,208	17	260
10/23/2024	11:00:00	6.9	0.484	1.4	16,214	17.3	262
10/23/2024	12:30:00	6.8	0.469	0.2	16,235	17.2	260
10/23/2024	13:15:00	6.8	0.476	0.2	16,254	17.6	260
10/23/2024	14:30:00	6.8	0.495	0.3	16,265	18	261
10/23/2024	14:45:00	6.8	0.480	0.2	16,273	18	260
10/23/2024	16:45:00	6.8	0.522	0.1	16,303	17.8	262
10/23/2024	17:00:00	6.8	0.510	0	16,308	17.9	262

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	17:15:00	6.8	0.514	0.1	16,314	18.1	261
10/23/2024	17:30:00	6.8	0.514	0.2	16,321	18.1	262
10/23/2024	19:30:00	6.8	0.476	0.6	16,330	16.9	261
10/23/2024	19:45:00	6.8	0.510	0.5	16,337	16.8	259
10/23/2024	21:30:00	7.1	0.503	6.8	16,361	12	113
10/23/2024	21:45:00	7.2	0.507	4.4	16,369	12	114
10/23/2024	22:00:00	7.2	0.499	3.8	16,376	12	114
10/23/2024	23:00:00	7.2	0.246	1.8	16,380	13.7	114
10/24/2024	1:00:00	7.2	0.507	2.5	16,413	11.7	116
10/24/2024	1:15:00	7.2	0.503	2.6	16,421	11.6	114
10/24/2024	2:30:00	7.2	0.522	13.8	16,429	11.6	116
10/24/2024	4:15:00	7.3	0.503	12.7	16,459	11.5	116
10/24/2024	4:30:00	7.3	0.488	12.9	16,466	11.5	114
10/24/2024	4:45:00	7.3	0.507	14.6	16,474	11.5	116
10/24/2024	5:00:00	7.3	0.491	14.3	16,481	11.5	116
10/24/2024	8:15:00	7.3	0.469	9.1	16,518	11.2	114
10/24/2024	8:45:00	7.3	0.514	10.4	16,522	11.1	113
10/24/2024	9:00:00	7.3	0.544	12	16,529	11	113
10/24/2024	10:15:00	7.3	0.473	14.3	16,566	11.3	114
10/24/2024	10:30:00	7.3	0.499	13.4	16,574	11.3	114
10/24/2024	10:45:00	7.3	0.488	11.1	16,578	11.4	114
10/24/2024	15:15:00	7.3	0.457	5.4	16,617	14.3	114
10/24/2024	15:30:00	7.3	0.514	3.4	16,624	12.3	116
10/24/2024	15:45:00	7.3	0.525	4.4	16,632	12.2	116

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	19:15:00	7.3	0.567	1.2	16,680	11.6	113
10/24/2024	19:30:00	7.3	0.537	1.2	16,688	11.6	113
10/24/2024	20:45:00	7.3	0.525	0.4	16,699	11.8	114
10/24/2024	23:00:00	7.3	0.503	0.5	16,741	11.2	113
10/25/2024	0:00:00	7.3	0.518	3	16,749	11.2	113
10/25/2024	0:15:00	7.3	0.507	10.2	16,757	11.1	114
10/25/2024	3:00:00	7.3	0.503	4.7	16,786	10.9	113
10/25/2024	3:15:00	7.3	0.510	3.4	16,793	11	114
10/25/2024	3:30:00	7.3	0.522	4.2	16,801	11	113
10/25/2024	5:15:00	7.3	0.503	2.8	16,832	11.1	114
10/25/2024	7:15:00	7.2	0.397	5.8	16,850	12.6	113
10/25/2024	7:30:00	7.2	0.404	5.6	16,856	12.9	113
10/25/2024	8:45:00	7.2	0.397	2.4	16,863	13.9	255
10/25/2024	9:00:00	7.5	0.329	22	16,873	10.9	113
10/25/2024	10:45:00	7.2	0.510	3.3	16,883	11	113
10/25/2024	11:30:00	7.2	0.495	0.5	16,905	11	114
10/25/2024	11:45:00	7.2	0.503	0.1	16,913	11.1	114
10/25/2024	12:00:00	7.2	0.503	0	16,921	11.2	114
10/25/2024	13:00:00	7.1	0.495	0	16,927	11.8	114
10/25/2024	16:30:00	7.1	0.488	0.4	16,976	12.1	114
10/25/2024	16:45:00	7.1	0.465	0	16,983	11.8	114
10/25/2024	17:00:00	7.2	0.491	0	16,990	11.9	116
10/25/2024	18:15:00	7.1	0.491	0	17,000	12.2	114
10/25/2024	18:30:00	7.2	0.495	0	17,008	12	116

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	18:45:00	7.2	0.484	0	17,015	12	116
10/25/2024	20:00:00	7.2	0.469	0	17,025	12	114
10/25/2024	22:15:00	7.2	0.488	0	17,063	11.6	114
10/25/2024	23:30:00	7.2	0.473	0.3	17,072	11.7	116
10/25/2024	23:45:00	7.2	0.480	4.9	17,079	11.5	116
10/26/2024	0:00:00	7.2	0.469	0	17,087	11.5	114
10/26/2024	3:15:00	7.2	0.355	0	17,117	14.6	116
10/26/2024	3:30:00	7.2	0.352	0	17,123	15	115
10/26/2024	3:45:00	7.2	0.359	0	17,128	15.3	116
10/26/2024	4:00:00	7.2	0.367	0	17,134	15.7	246
10/26/2024	6:00:00	7.1	0.367	0	17,157	17.9	116
10/26/2024	6:15:00	7.1	0.344	0	17,162	18.1	116
10/26/2024	6:30:00	7.1	0.352	0	17,168	18.3	116
10/26/2024	6:45:00	7.1	0.352	0	17,173	18.5	116
10/26/2024	8:45:00	7.1	0.352	0	17,196	17.3	114
10/26/2024	9:00:00	7.1	0.344	0	17,202	17.1	114
10/26/2024	9:15:00	7.1	0.348	0	17,207	16.9	114
10/26/2024	9:30:00	7.1	0.352	0	17,212	16.9	114
10/26/2024	10:45:00	7.1	0.340	0	17,218	16.1	114
10/26/2024	14:00:00	7.1	0.246	0	17,258	18.6	115
10/26/2024	14:15:00	7	0.246	0	17,262	18.5	116
10/26/2024	14:30:00	7.2	0.491	0.9	17,266	19.1	116
10/26/2024	14:45:00	7.3	0.499	10.9	17,274	19.3	116
10/26/2024	18:00:00	7.2	0.166	1.9	17,313	19.1	258

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	18:15:00	7.2	0.488	1.5	17,320	19.1	259
10/26/2024	18:30:00	7.2	0.503	0.1	17,327	19.1	257
10/26/2024	20:00:00	7.1	0.280	0	17,348	18.6	257
10/26/2024	20:15:00	7.1	0.265	0	17,352	18.6	257
10/26/2024	20:30:00	7.1	0.276	0	17,356	18.6	257
10/26/2024	22:15:00	8	0.393	6.1	17,364	17.4	114
10/26/2024	23:30:00	7.7	0.352	2.9	17,386	17.3	253
10/26/2024	23:45:00	7.7	0.352	2.8	17,392	17.3	253
10/27/2024	0:00:00	7.7	0.340	2.9	17,397	17.4	255
10/27/2024	2:30:00	7.8	0.348	6.6	17,428	16.5	253
10/27/2024	2:45:00	7.8	0.537	5.9	17,435	17	255
10/27/2024	3:00:00	7.8	0.529	2.8	17,443	17.1	255
10/27/2024	4:00:00	7.8	0.291	1.9	17,472	17.9	251
10/27/2024	4:15:00	7.8	0.522	2.8	17,478	18	253
10/27/2024	4:30:00	7.7	0.507	3	17,486	18.2	255
10/27/2024	4:45:00	7.7	0.510	2.9	17,487	18.1	255
10/27/2024	6:00:00	7.7	0.518	1.9	17,499	18.1	253
10/27/2024	8:00:00	7.6	0.268	2.1	17,529	17.8	251
10/27/2024	8:15:00	7.6	0.265	2	17,533	17.7	253
10/27/2024	10:00:00	7.6	0.514	2.9	17,562	16.3	252
10/27/2024	10:15:00	7.6	0.499	2.4	17,569	16.2	254
10/27/2024	10:45:00	7.6	0.514	1.7	17,585	16.1	255
10/27/2024	11:00:00	7.5	0.533	2.4	17,593	16	255
10/27/2024	11:30:00	7.5	0.518	2.3	17,608	15.8	258

Date	Time	Discharge pH	Flow Rate (m3/ min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	13:15:00	7.5	0.525	2	17,619	15.5	256
10/27/2024	13:30:00	7.5	0.518	1.5	17,627	15.8	257
10/27/2024	13:45:00	7.5	0.507	1.5	17,632	16.1	256
10/27/2024	14:15:00	7.5	0.518	1.1	17,642	16.6	256
10/27/2024	15:15:00	7.4	0.503	0.8	17,651	16.9	255
10/27/2024	15:30:00	7.4	0.495	0.6	17,658	17	255
10/27/2024	18:45:00	7.4	0.427	1	17,716	17.5	255
10/27/2024	19:00:00	7.4	0.507	1	17,720	17.5	255
10/27/2024	19:15:00	7.4	0.525	0.9	17,727	17.4	255
10/27/2024	20:30:00	7.3	0.246	0.3	17,746	17.8	252
10/27/2024	20:45:00	7.3	0.234	0.3	17,749	18	252
10/27/2024	21:30:00	7.3	0.253	0.8	17,750	17.9	252
10/27/2024	21:45:00	7.3	0.234	0.8	17,753	17.7	255
10/27/2024	23:00:00	7.3	0.219	0.2	17,770	17.5	256
10/27/2024	23:15:00	7.3	0.627	2.1	17,773	18.1	257
10/27/2024	23:30:00	7.3	0.215	1.2	17,776	18.6	257

Table 3. In-Situ Parameters

Date	Time	Temperature °C	DO mg/L	Conductivity SPC-uS/cm	SAL-ppt	pH	ORP mV	NTU
10/21/2024	10:12:30AM	12.2	11.01	129.9	0.06	7.81	120.6	0.30
10/22/2024	11:40:43PM	12.1	10.00	122.3	0.06	7.67	121.2	1.10
10/23/2024	05:44:40PM	12.2	10.79	126.8	0.06	7.40	112.5	0.90
10/24/2024	05:54:40PM	11.8	11.02	123.3	0.06	7.01	100.6	0.88
10/25/2024	01:19:46PM	11.0	12.83	126.3	0.06	7.21	142.5	2.71
10/26/2024	09:04:37AM	11.2	9.91	120.6	0.06	7.74	104.4	0.80
10/27/2024	01:46:58AM	12.2	8.44	133.6	0.06	8.02	101.9	1.19

3. Calibration Log:

Table 4. Calibration Log

Date	Unit	pH	Conductivity/Temp.	Salinity	NTU
9/17/2024	YSI	✓	✓	✓	✓
9/17/2024	WTP	✓	✓	N/A	✓

APPENDIX A: WTP

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	0:00:00	7.1	0.465	16.7	15,345	Open	15.6	115
10/21/2024	0:15:00	7.1	0.469	16	15,352	Open	15.7	115
10/21/2024	0:30:00	7.1	0.000	16.7	15,356	Open	15.9	116
10/21/2024	0:45:00	7.1	0.000	15.7	15,356	Open	15.9	116
10/21/2024	1:00:00	7.1	0.000	12	15,360	Open	16	116
10/21/2024	1:15:00	7.1	0.000	10.8	15,360	Open	16.1	116
10/21/2024	1:30:00	7.1	0.000	11.6	15,360	Open	16.1	115
10/21/2024	1:45:00	7.1	0.000	13.6	15,360	Open	16.2	116
10/21/2024	2:00:00	7.1	0.473	14.2	15,366	Open	16.3	116
10/21/2024	2:15:00	7.1	0.476	13.1	15,373	Open	16.4	243
10/21/2024	2:30:00	7.1	0.473	14	15,380	Open	16.6	243
10/21/2024	2:45:00	7.1	0.000	14	15,383	Open	16.8	243
10/21/2024	3:00:00	7.1	0.000	13.5	15,383	Open	16.8	240
10/21/2024	3:15:00	7.1	0.000	13.8	15,383	Open	16.8	243

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	3:30:00	7.1	0.000	13.4	15,383	Open	16.8	243
10/21/2024	3:45:00	7.1	0.488	28.3	15,386	Open	18.1	245
10/21/2024	4:00:00	7.1	0.480	13.3	15,393	Open	18.3	245
10/21/2024	4:15:00	7.1	0.510	11.9	15,398	Open	18.1	245
10/21/2024	4:30:00	7.1	0.507	14.2	15,406	Open	18.1	245
10/21/2024	4:45:00	7.1	0.000	12.9	15,409	Open	18	245
10/21/2024	5:00:00	7.1	0.000	11.1	15,409	Open	17.8	245
10/21/2024	5:15:00	7.1	0.000	12.1	15,409	Open	17.7	245
10/21/2024	5:30:00	7.1	0.000	12.2	15,409	Open	17.7	242
10/21/2024	5:45:00	7.1	0.514	11	15,411	Open	17.7	245
10/21/2024	6:00:00	7.1	0.514	13.8	15,419	Open	18.9	245
10/21/2024	6:15:00	7.1	0.514	10.9	15,424	Open	17.1	114
10/21/2024	6:30:00	7.1	0.000	8	15,430	Open	14.1	114
10/21/2024	6:45:00	7.1	0.000	4.8	15,430	Open	14.3	113
10/21/2024	7:00:00	7.1	0.000	4.7	15,430	Open	14.4	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	7:15:00	7.1	0.000	4.4	15,430	Open	14.5	114
10/21/2024	7:30:00	7.1	0.382	3.9	15,430	Open	14.7	114
10/21/2024	7:45:00	7.1	0.518	4.1	15,437	Open	15	115
10/21/2024	8:00:00	7.1	0.510	3.9	15,445	Open	15.2	116
10/21/2024	8:15:00	7.1	0.518	4.2	15,453	Open	15.5	116
10/21/2024	8:30:00	7.1	0.507	3.8	15,461	Open	15.7	115
10/21/2024	8:45:00	7.1	0.000	4	15,467	Open	15.8	114
10/21/2024	9:00:00	7.1	0.000	3.1	15,467	Open	15.9	117
10/21/2024	9:15:00	7.1	0.000	2.6	15,467	Open	16	116
10/21/2024	9:30:00	7.1	0.507	2.9	15,469	Open	16.1	116
10/21/2024	9:45:00	7.1	0.510	2.6	15,476	Open	16.2	116
10/21/2024	10:00:00	7.1	0.518	2.6	15,484	Open	16.5	116
10/21/2024	10:15:00	7.1	0.518	2.3	15,492	Open	16.6	115
10/21/2024	10:30:00	7.1	0.522	2.5	15,500	Open	16.8	243
10/21/2024	10:45:00	7.1	0.000	2.5	15,505	Open	16.9	245

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	11:00:00	7.1	0.000	2.2	15,505	Open	17	242
10/21/2024	11:15:00	7.1	0.000	2.1	15,505	Open	17	242
10/21/2024	11:30:00	7.1	0.510	2	15,506	Open	17	240
10/21/2024	11:45:00	7.1	0.533	1.7	15,514	Open	17.1	242
10/21/2024	12:00:00	7.1	0.514	1.9	15,522	Open	17.3	242
10/21/2024	12:15:00	7	0.522	1.8	15,530	Open	17.4	242
10/21/2024	12:30:00	7	0.514	1.9	15,537	Open	17.6	242
10/21/2024	12:45:00	7	0.000	1.5	15,542	Open	17.6	242
10/21/2024	13:00:00	7	0.000	1.7	15,542	Open	17.7	242
10/21/2024	13:15:00	7	0.000	1.1	15,542	Open	17.7	243
10/21/2024	13:30:00	7	0.503	1.8	15,546	Open	17.7	243
10/21/2024	13:45:00	7	0.507	1.4	15,553	Open	17.9	242
10/21/2024	14:00:00	7	0.503	3	15,561	Open	18.5	243
10/21/2024	14:15:00	7	0.503	3.4	15,568	Open	18.5	243
10/21/2024	14:30:00	7	0.000	3	15,575	Open	18.5	245

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	14:45:00	7	0.000	2.1	15,575	Open	18.6	244
10/21/2024	15:00:00	7	0.495	2.5	15,580	Open	18.5	244
10/21/2024	15:15:00	7	0.507	1.7	15,587	Open	18.6	243
10/21/2024	15:30:00	7	0.212	1.8	15,595	Open	18.7	244
10/21/2024	15:45:00	7	0.000	1.8	15,597	Open	18.7	244
10/21/2024	16:00:00	7	0.000	1.7	15,597	Open	18.6	244
10/21/2024	16:15:00	7	0.476	2	15,597	Open	18.6	243
10/21/2024	16:30:00	7	0.000	1	15,600	Open	18.6	244
10/21/2024	16:45:00	7	0.000	1.4	15,600	Open	18.6	244
10/21/2024	17:00:00	7	0.000	0.9	15,600	Open	18.6	243
10/21/2024	17:15:00	7	0.507	4	15,601	Open	18.4	243
10/21/2024	17:30:00	7	0.507	1	15,608	Open	18.3	244
10/21/2024	17:45:00	7	0.510	1.2	15,616	Open	18.3	243
10/21/2024	18:00:00	7	0.000	1	15,621	Open	18.3	244
10/21/2024	18:15:00	7	0.000	1.1	15,623	Open	18.2	244

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	18:30:00	7	0.231	1.2	15,623	Open	18.2	244
10/21/2024	18:45:00	7	0.510	1.6	15,630	Open	18.2	247
10/21/2024	19:00:00	7	0.488	1.3	15,638	Open	18.3	247
10/21/2024	19:15:00	7	0.503	11.4	15,645	Open	18.4	248
10/21/2024	19:30:00	7	0.000	2.4	15,646	Open	18.3	245
10/21/2024	19:45:00	7	0.000	1.9	15,646	Open	18.1	245
10/21/2024	20:00:00	7	0.000	1.1	15,646	Open	18	248
10/21/2024	20:15:00	7	0.507	1.3	15,648	Open	18	247
10/21/2024	20:30:00	7	0.503	1.3	15,655	Open	17.9	247
10/21/2024	20:45:00	7	0.518	1	15,663	Open	17.8	248
10/21/2024	21:00:00	7	0.000	0.8	15,668	Open	17.8	248
10/21/2024	21:15:00	7	0.000	1.2	15,668	Open	17.7	245
10/21/2024	21:30:00	7	0.000	1.2	15,668	Open	17.7	245
10/21/2024	21:45:00	7	0.000	1.2	15,668	Open	17.7	247
10/21/2024	22:00:00	7	0.529	1.3	15,672	Open	17.7	247

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/21/2024	22:15:00	7	0.529	1	15,680	Open	17.8	248
10/21/2024	22:30:00	7	0.495	0.9	15,688	Open	17.9	246
10/21/2024	22:45:00	7	0.480	1.3	15,695	Open	17.9	248
10/21/2024	23:00:00	7	0.495	1.1	15,703	Open	18.1	248
10/21/2024	23:15:00	6.9	0.000	1.1	15,704	Open	18.1	248
10/21/2024	23:30:00	7	0.000	1.4	15,704	Open	18	245
10/21/2024	23:45:00	6.9	0.000	1.2	15,704	Open	17.9	248
10/22/2024	0:00:00	6.9	0.000	0.9	15,704	Open	17.9	250
10/22/2024	0:15:00	7	0.499	4	15,706	Open	18.2	247
10/22/2024	0:30:00	7.1	0.514	2.5	15,713	Open	19.3	248
10/22/2024	0:45:00	7.1	0.503	5.7	15,721	Open	19.5	247
10/22/2024	1:00:00	7.1	0.147	8	15,723	Open	19.4	248
10/22/2024	1:15:00	7.1	0.000	6.1	15,724	Open	19.3	245
10/22/2024	1:30:00	7.1	0.000	5.3	15,724	Open	19.1	248
10/22/2024	1:45:00	7.1	0.000	6	15,724	Open	19	248

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	2:00:00	7.1	0.507	5.1	15,729	Open	18.9	248
10/22/2024	2:15:00	7.1	0.537	3.8	15,737	Open	18.8	248
10/22/2024	2:30:00	7.1	0.514	3.7	15,745	Open	18.7	248
10/22/2024	2:45:00	7.1	0.000	3.9	15,749	Open	18.7	247
10/22/2024	3:00:00	7.1	0.000	3.2	15,749	Open	18.6	248
10/22/2024	3:15:00	7.1	0.000	3.7	15,749	Open	18.6	248
10/22/2024	3:30:00	7.1	0.000	4.6	15,750	Open	18.5	248
10/22/2024	3:45:00	7.1	0.503	3.2	15,756	Open	18.2	245
10/22/2024	4:00:00	7.1	0.488	2.3	15,764	Open	18.4	248
10/22/2024	4:15:00	7.1	0.495	2.9	15,771	Open	18.2	250
10/22/2024	4:30:00	7.1	0.503	3.9	15,779	Open	18	247
10/22/2024	4:45:00	7.1	0.000	3.1	15,782	Open	17.9	250
10/22/2024	5:00:00	7.1	0.000	3.7	15,782	Open	17.8	246
10/22/2024	5:15:00	7	0.000	3.4	15,783	Open	17.7	246
10/22/2024	5:30:00	7	0.000	2.8	15,783	Open	17.7	248

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	5:45:00	7	0.510	3.1	15,789	Open	17.6	247
10/22/2024	6:00:00	7	0.510	1.9	15,796	Open	17.7	250
10/22/2024	6:15:00	7.1	0.507	1.7	15,803	Open	17.7	248
10/22/2024	6:30:00	7.1	0.000	2.1	15,808	Open	17.7	250
10/22/2024	6:45:00	7.1	0.000	1.9	15,808	Open	17.5	246
10/22/2024	7:00:00	7	0.151	1.9	15,808	Open	17.4	248
10/22/2024	7:15:00	7	0.000	1.9	15,809	Open	17.3	246
10/22/2024	7:30:00	7	0.000	2.2	15,809	Open	17.2	248
10/22/2024	7:45:00	7.1	0.514	2.5	15,812	Open	17.7	248
10/22/2024	8:00:00	7.2	0.155	2.9	15,819	Open	12.7	114
10/22/2024	8:15:00	7.2	0.510	3	15,825	Open	13.1	114
10/22/2024	8:30:00	7.2	0.000	1.8	15,830	Open	13.5	114
10/22/2024	8:45:00	7.1	0.000	1.7	15,830	Open	13.8	114
10/22/2024	9:00:00	7.1	0.000	1.5	15,830	Open	14.1	114
10/22/2024	9:15:00	7.1	0.514	1	15,837	Open	14.5	253

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	9:30:00	7.1	0.514	1.4	15,845	Open	14.8	250
10/22/2024	9:45:00	7.1	0.518	1.3	15,853	Open	15	252
10/22/2024	10:00:00	7.1	0.525	1.1	15,860	Open	15.5	252
10/22/2024	10:15:00	7.1	0.514	1.1	15,868	Open	15.7	252
10/22/2024	10:30:00	7.1	0.514	1.4	15,875	Open	15.9	255
10/22/2024	10:45:00	7.1	0.000	1.2	15,878	Open	16	255
10/22/2024	11:00:00	7.1	0.000	0.7	15,878	Open	16.1	253
10/22/2024	11:15:00	7.1	0.518	0.7	15,882	Open	16.1	253
10/22/2024	11:30:00	7.1	0.132	0.5	15,888	Open	16.3	253
10/22/2024	11:45:00	7.1	0.503	0.3	15,894	Open	16.5	252
10/22/2024	12:00:00	7.1	0.499	0.2	15,902	Open	16.7	253
10/22/2024	12:15:00	7.1	0.000	0.2	15,905	Open	16.9	253
10/22/2024	12:30:00	7.1	0.000	0	15,905	Open	17.1	252
10/22/2024	12:45:00	7.1	0.000	0.5	15,905	Open	17.1	250
10/22/2024	13:00:00	7.1	0.000	0.4	15,905	Open	17.1	252

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	13:15:00	7.1	0.484	1.4	15,911	Open	18.4	252
10/22/2024	13:30:00	7.1	0.473	0.8	15,919	Open	18.4	252
10/22/2024	13:45:00	7.1	0.484	1	15,926	Open	18.5	253
10/22/2024	14:00:00	7.1	0.000	1.5	15,927	Open	18.5	253
10/22/2024	14:15:00	7.1	0.000	0.8	15,927	Open	18.5	253
10/22/2024	14:30:00	7.1	0.000	0.8	15,927	Open	18.4	253
10/22/2024	14:45:00	7.1	0.476	1.2	15,933	Open	18.3	253
10/22/2024	15:00:00	7.1	0.465	0.7	15,940	Open	18.3	253
10/22/2024	15:15:00	7.1	0.469	1.4	15,947	Open	18.3	254
10/22/2024	15:30:00	7.1	0.457	0.6	15,953	Open	18.2	253
10/22/2024	15:45:00	7.1	0.000	0.4	15,955	Open	17.9	254
10/22/2024	16:00:00	7.1	0.000	0.7	15,955	Open	17.8	253
10/22/2024	16:15:00	7.1	0.000	0.2	15,955	Open	17.9	253
10/22/2024	16:30:00	7.1	0.457	0.2	15,957	Open	17.7	253
10/22/2024	16:45:00	7.1	0.465	0.9	15,964	Open	17.6	253

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	17:00:00	7.1	0.442	0	15,970	Open	17.7	253
10/22/2024	17:15:00	7	0.000	0.5	15,975	Open	17.7	252
10/22/2024	17:30:00	7	0.000	0.6	15,975	Open	17.6	252
10/22/2024	17:45:00	7	0.000	0	15,975	Open	17.4	250
10/22/2024	18:00:00	7	0.000	0.2	15,975	Open	17.4	252
10/22/2024	18:15:00	7	0.488	0.2	15,978	Open	17.2	250
10/22/2024	18:30:00	7	0.465	1.9	15,986	Open	17.2	253
10/22/2024	18:45:00	7	0.484	0.9	15,993	Open	17.2	253
10/22/2024	19:00:00	7	0.000	0.7	15,999	Open	17.4	253
10/22/2024	19:15:00	7	0.000	1.2	15,999	Open	17.5	253
10/22/2024	19:30:00	7	0.000	1.7	15,999	Open	17.5	253
10/22/2024	19:45:00	7	0.000	1.3	15,999	Open	17.4	253
10/22/2024	20:00:00	7	0.480	0.7	16,003	Open	17.3	253
10/22/2024	20:15:00	7	0.465	0.8	16,011	Open	17.3	251
10/22/2024	20:30:00	7	0.488	0.9	16,018	Open	17.3	253

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/22/2024	20:45:00	7	0.000	0.9	16,022	Open	17.3	252
10/22/2024	21:00:00	7	0.000	0.9	16,022	Open	17.3	251
10/22/2024	21:15:00	7	0.000	0.6	16,022	Open	17.3	251
10/22/2024	21:30:00	7	0.000	0.8	16,023	Open	17.2	251
10/22/2024	21:45:00	7	0.000	1.3	16,023	Open	17.2	251
10/22/2024	22:00:00	7	0.507	0.7	16,027	Open	17.3	252
10/22/2024	22:15:00	7	0.503	0.8	16,034	Open	17.2	251
10/22/2024	22:30:00	7	0.503	0.8	16,042	Open	17.1	251
10/22/2024	22:45:00	7	0.000	0.4	16,047	Open	17.1	255
10/22/2024	23:00:00	7	0.000	0.7	16,047	Open	17.2	255
10/22/2024	23:15:00	7	0.000	0.2	16,047	Open	17.3	252
10/22/2024	23:30:00	7	0.000	0.5	16,047	Open	17.3	253
10/22/2024	23:45:00	7	0.518	0.3	16,052	Open	17.5	253
10/23/2024	0:00:00	6.9	0.507	1.1	16,059	Open	17.7	252
10/23/2024	0:15:00	6.9	0.491	1.9	16,067	Open	17.8	253

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	0:30:00	6.9	0.000	0.6	16,071	Open	18	253
10/23/2024	0:45:00	6.9	0.000	0.8	16,071	Open	18.2	253
10/23/2024	1:00:00	6.9	0.000	0.7	16,071	Open	18.2	252
10/23/2024	1:15:00	6.9	0.000	0.4	16,071	Open	18.2	253
10/23/2024	1:30:00	6.9	0.499	0.7	16,076	Open	18.4	253
10/23/2024	1:45:00	6.9	0.488	0.3	16,084	Open	18.5	253
10/23/2024	2:00:00	6.9	0.488	0.5	16,091	Open	18.5	252
10/23/2024	2:15:00	6.9	0.000	0.5	16,095	Open	18.5	251
10/23/2024	2:30:00	6.9	0.000	0.4	16,095	Open	18.5	251
10/23/2024	2:45:00	6.9	0.000	0.3	16,095	Open	18.4	253
10/23/2024	3:00:00	6.9	0.049	0.4	16,095	Open	18.4	253
10/23/2024	3:15:00	6.9	0.000	0.1	16,096	Open	18.4	253
10/23/2024	3:30:00	6.9	0.000	0.2	16,096	Open	18.4	253
10/23/2024	3:45:00	6.9	0.525	1.2	16,097	Open	18.4	253
10/23/2024	4:00:00	6.9	0.499	0.9	16,105	Open	18.3	255

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	4:15:00	6.9	0.514	1.4	16,113	Open	18	252
10/23/2024	4:30:00	6.9	0.461	1	16,120	Open	17.9	253
10/23/2024	4:45:00	6.9	0.000	1.4	16,120	Open	17.6	252
10/23/2024	5:00:00	6.9	0.129	0.8	16,121	Open	17.6	253
10/23/2024	5:15:00	6.9	0.000	0.7	16,121	Open	17.6	253
10/23/2024	5:30:00	6.9	0.000	1.2	16,121	Open	17.6	252
10/23/2024	5:45:00	6.9	0.234	0.7	16,121	Open	17.8	253
10/23/2024	6:00:00	6.9	0.514	3.8	16,129	Open	19.5	250
10/23/2024	6:15:00	6.9	0.518	3	16,137	Open	15.8	262
10/23/2024	6:30:00	6.9	0.507	2.8	16,144	Open	14.2	260
10/23/2024	6:45:00	6.9	0.000	2.1	16,146	Open	14.1	260
10/23/2024	7:00:00	6.9	0.000	2.8	16,146	Open	14.4	262
10/23/2024	7:15:00	6.9	0.000	2	16,147	Open	14.9	260
10/23/2024	7:30:00	6.9	0.000	1.7	16,147	Open	15.3	260
10/23/2024	7:45:00	6.9	0.000	1.7	16,147	Open	15.4	258

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	8:00:00	6.9	0.518	1.5	16,154	Open	15.7	260
10/23/2024	8:15:00	6.9	0.507	1.4	16,162	Open	16.3	258
10/23/2024	8:30:00	6.9	0.514	1.1	16,170	Open	16.7	258
10/23/2024	8:45:00	6.9	0.514	1.1	16,178	Open	17.1	260
10/23/2024	9:00:00	6.9	0.514	1.2	16,185	Open	17.4	260
10/23/2024	9:15:00	6.9	0.533	1.1	16,189	Open	17.4	260
10/23/2024	9:30:00	6.9	0.522	1.1	16,197	Open	17.4	260
10/23/2024	9:45:00	6.9	0.000	0.7	16,199	Open	17.5	260
10/23/2024	10:00:00	6.9	0.000	0.6	16,199	Open	17.4	260
10/23/2024	10:15:00	6.9	0.000	0.8	16,199	Open	17.2	260
10/23/2024	10:30:00	6.9	0.000	1.1	16,203	Open	17.1	258
10/23/2024	10:45:00	6.9	0.476	1.1	16,208	Open	17	260
10/23/2024	11:00:00	6.9	0.484	1.4	16,214	Open	17.3	262
10/23/2024	11:15:00	6.8	0.457	1.1	16,221	Open	17.2	259
10/23/2024	11:30:00	6.8	0.476	0.6	16,228	Open	17.1	259

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	11:45:00	6.8	0.000	0.5	16,232	Open	17.2	262
10/23/2024	12:00:00	6.8	0.000	0.2	16,232	Open	17.2	260
10/23/2024	12:15:00	6.8	0.000	0	16,232	Open	17.2	261
10/23/2024	12:30:00	6.8	0.469	0.2	16,235	Open	17.2	260
10/23/2024	12:45:00	6.8	0.457	0.4	16,242	Open	17.3	260
10/23/2024	13:00:00	6.8	0.488	0.3	16,247	Open	17.4	260
10/23/2024	13:15:00	6.8	0.476	0.2	16,254	Open	17.6	260
10/23/2024	13:30:00	6.8	0.000	0.1	16,258	Open	17.8	259
10/23/2024	13:45:00	6.8	0.000	0.3	16,258	Open	17.9	260
10/23/2024	14:00:00	6.8	0.000	0.3	16,258	Open	17.9	260
10/23/2024	14:15:00	6.8	0.000	0	16,258	Open	18	261
10/23/2024	14:30:00	6.8	0.495	0.3	16,265	Open	18	261
10/23/2024	14:45:00	6.8	0.480	0.2	16,273	Open	18	260
10/23/2024	15:00:00	6.8	0.484	0.2	16,277	Open	18.1	260
10/23/2024	15:15:00	6.8	0.499	0.1	16,285	Open	18.1	261

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	15:30:00	6.8	0.000	0.2	16,289	Open	18.2	262
10/23/2024	15:45:00	6.8	0.000	0.2	16,289	Open	18.1	262
10/23/2024	16:00:00	6.8	0.000	0	16,289	Open	18.2	262
10/23/2024	16:15:00	6.8	0.000	0.2	16,289	Open	18	259
10/23/2024	16:30:00	6.8	0.480	0.1	16,296	Open	17.9	262
10/23/2024	16:45:00	6.8	0.522	0.1	16,303	Open	17.8	262
10/23/2024	17:00:00	6.8	0.510	0	16,308	Open	17.9	262
10/23/2024	17:15:00	6.8	0.514	0.1	16,314	Open	18.1	261
10/23/2024	17:30:00	6.8	0.514	0.2	16,321	Open	18.1	262
10/23/2024	17:45:00	6.8	0.000	0	16,329	Open	18	261
10/23/2024	18:00:00	6.8	0.000	0.1	16,329	Open	17.9	260
10/23/2024	18:15:00	6.8	0.000	0.3	16,329	Open	17.7	260
10/23/2024	18:30:00	6.8	0.000	0.3	16,329	Open	17.5	260
10/23/2024	18:45:00	6.8	0.000	0.3	16,329	Open	17.3	260
10/23/2024	19:00:00	6.8	0.000	0.6	16,329	Open	17.2	259

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	19:15:00	6.8	0.000	0.2	16,329	Open	17.1	259
10/23/2024	19:30:00	6.8	0.476	0.6	16,330	Open	16.9	261
10/23/2024	19:45:00	6.8	0.510	0.5	16,337	Open	16.8	259
10/23/2024	20:00:00	6.8	0.503	0.3	16,345	Open	16.7	259
10/23/2024	20:15:00	6.8	0.488	0.5	16,352	Open	16.7	260
10/23/2024	20:30:00	6.8	0.000	0.4	16,356	Open	16.7	261
10/23/2024	20:45:00	6.8	0.000	0.2	16,356	Open	16.7	261
10/23/2024	21:00:00	6.8	0.000	0.2	16,356	Open	16.5	261
10/23/2024	21:15:00	6.8	0.000	0.2	16,356	Open	16.6	261
10/23/2024	21:30:00	7.1	0.503	6.8	16,361	Open	12	113
10/23/2024	21:45:00	7.2	0.507	4.4	16,369	Open	12	114
10/23/2024	22:00:00	7.2	0.499	3.8	16,376	Open	12	114
10/23/2024	22:15:00	7.2	0.000	3.6	16,380	Open	12.3	114
10/23/2024	22:30:00	7.2	0.000	2.6	16,380	Open	12.8	114
10/23/2024	22:45:00	7.2	0.000	3	16,380	Open	13.2	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/23/2024	23:00:00	7.2	0.246	1.8	16,380	Open	13.7	114
10/23/2024	23:15:00	7.2	0.495	3.9	16,387	Open	11.6	114
10/23/2024	23:30:00	7.2	0.507	2.9	16,394	Open	11.6	114
10/23/2024	23:45:00	7.2	0.499	3.3	16,402	Open	11.5	114
10/24/2024	0:00:00	7.2	0.000	2.3	16,402	Open	12.1	114
10/24/2024	0:15:00	7.2	0.000	2.5	16,402	Open	12.7	114
10/24/2024	0:30:00	7.2	0.000	1.5	16,402	Open	13.3	114
10/24/2024	0:45:00	7.2	0.499	6	16,406	Open	12.9	115
10/24/2024	1:00:00	7.2	0.507	2.5	16,413	Open	11.7	116
10/24/2024	1:15:00	7.2	0.503	2.6	16,421	Open	11.6	114
10/24/2024	1:30:00	7.2	0.000	2.1	16,423	Open	12.2	114
10/24/2024	1:45:00	7.2	0.000	1.5	16,423	Open	12.8	116
10/24/2024	2:00:00	7.2	0.000	1.8	16,423	Open	13.4	114
10/24/2024	2:15:00	7.2	0.000	1.4	16,423	Open	14	114
10/24/2024	2:30:00	7.2	0.522	13.8	16,429	Open	11.6	116

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	2:45:00	7.2	0.507	15.7	16,436	Open	11.5	114
10/24/2024	3:00:00	7.3	0.510	12.4	16,444	Open	11.4	114
10/24/2024	3:15:00	7.2	0.000	10.4	16,451	Open	11.5	114
10/24/2024	3:30:00	7.3	0.000	12.2	16,451	Open	12.1	116
10/24/2024	3:45:00	7.3	0.000	9.9	16,451	Open	12.8	115
10/24/2024	4:00:00	7.3	0.476	11.8	16,451	Open	13.5	116
10/24/2024	4:15:00	7.3	0.503	12.7	16,459	Open	11.5	116
10/24/2024	4:30:00	7.3	0.488	12.9	16,466	Open	11.5	114
10/24/2024	4:45:00	7.3	0.507	14.6	16,474	Open	11.5	116
10/24/2024	5:00:00	7.3	0.491	14.3	16,481	Open	11.5	116
10/24/2024	5:15:00	7.3	0.000	13.1	16,485	Open	11.8	114
10/24/2024	5:30:00	7.3	0.000	11.6	16,485	Open	12.5	114
10/24/2024	5:45:00	7.3	0.000	12	16,485	Open	13.1	116
10/24/2024	6:00:00	7.3	0.000	12.7	16,485	Open	13.7	257
10/24/2024	6:15:00	7.3	0.495	14.7	16,491	Open	11.6	116

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	6:30:00	7.3	0.488	15.3	16,498	Open	11.5	117
10/24/2024	7:00:00	7.3	0.000	11.6	16,508	Open	11.4	114
10/24/2024	7:15:00	7.3	0.000	11.5	16,508	Open	11.9	114
10/24/2024	7:30:00	7.3	0.000	10.4	16,508	Open	12.5	261
10/24/2024	7:45:00	7.3	0.000	10.6	16,508	Open	13.1	262
10/24/2024	8:00:00	7.3	0.495	10.8	16,510	Open	11.7	114
10/24/2024	8:15:00	7.3	0.469	9.1	16,518	Open	11.2	114
10/24/2024	8:30:00	7.3	0.000	11.1	16,519	Open	11.5	113
10/24/2024	8:45:00	7.3	0.514	10.4	16,522	Open	11.1	113
10/24/2024	9:00:00	7.3	0.544	12	16,529	Open	11	113
10/24/2024	9:15:00	7.3	0.488	14.4	16,537	Open	11	114
10/24/2024	9:30:00	7.3	0.514	17.6	16,544	Open	11	113
10/24/2024	9:45:00	7.3	0.514	17.4	16,551	Open	11	113
10/24/2024	10:00:00	7.3	0.495	15.9	16,559	Open	11.1	114
10/24/2024	10:15:00	7.3	0.473	14.3	16,566	Open	11.3	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	10:30:00	7.3	0.499	13.4	16,574	Open	11.3	114
10/24/2024	10:45:00	7.3	0.488	11.1	16,578	Open	11.4	114
10/24/2024	11:00:00	7.3	0.480	14.7	16,586	Open	11.4	113
10/24/2024	11:15:00	7.3	0.000	28.6	16,589	Open	11.6	113
10/24/2024	11:30:00	7.3	0.000	34.2	16,589	Open	12	113
10/24/2024	11:45:00	7.3	0.000	24.9	16,589	Open	12.6	114
10/24/2024	12:00:00	7.3	0.000	25.1	16,589	Open	13.2	115
10/24/2024	12:15:00	7.3	0.000	21.1	16,589	Open	13.7	115
10/24/2024	12:30:00	7.3	0.000	21.4	16,589	Open	14.2	255
10/24/2024	12:45:00	7.3	0.000	19.2	16,589	Open	14.9	255
10/24/2024	13:00:00	7.3	0.000	20.4	16,589	Open	15.2	257
10/24/2024	13:15:00	7.3	0.000	15.1	16,589	Open	15.4	255
10/24/2024	13:30:00	7.3	0.510	9.9	16,595	Open	12.2	114
10/24/2024	13:45:00	7.3	0.510	8.5	16,603	Open	12.1	114
10/24/2024	14:00:00	7.3	0.507	6.9	16,610	Open	12.1	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	14:15:00	7.3	0.000	6.8	16,616	Open	12.2	116
10/24/2024	14:30:00	7.3	0.000	6.3	16,616	Open	12.7	114
10/24/2024	14:45:00	7.3	0.000	5.5	16,616	Open	13.4	116
10/24/2024	15:00:00	7.3	0.000	4.3	16,616	Open	13.9	116
10/24/2024	15:15:00	7.3	0.457	5.4	16,617	Open	14.3	114
10/24/2024	15:30:00	7.3	0.514	3.4	16,624	Open	12.3	116
10/24/2024	15:45:00	7.3	0.525	4.4	16,632	Open	12.2	116
10/24/2024	16:00:00	7.3	0.507	4.1	16,640	Open	12.2	116
10/24/2024	16:15:00	7.3	0.000	3.4	16,644	Open	12.4	116
10/24/2024	16:30:00	7.3	0.000	3.1	16,644	Open	12.8	116
10/24/2024	16:45:00	7.3	0.000	3.3	16,644	Open	13.2	116
10/24/2024	17:00:00	7.3	0.000	1.9	16,644	Open	13.6	116
10/24/2024	17:15:00	7.3	0.197	2.8	16,649	Open	12.2	116
10/24/2024	17:30:00	7.3	0.525	2.8	16,655	Open	12.1	114
10/24/2024	17:45:00	7.3	0.529	1.8	16,663	Open	12	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	18:00:00	7.3	0.000	1.7	16,665	Open	12.4	114
10/24/2024	18:15:00	7.3	0.000	1	16,665	Open	12.9	115
10/24/2024	18:30:00	7.3	0.000	1.2	16,665	Open	13.3	113
10/24/2024	18:45:00	7.3	0.000	1	16,665	Open	13.5	113
10/24/2024	19:00:00	7.3	0.548	1.7	16,672	Open	11.7	113
10/24/2024	19:15:00	7.3	0.567	1.2	16,680	Open	11.6	113
10/24/2024	19:30:00	7.3	0.537	1.2	16,688	Open	11.6	113
10/24/2024	19:45:00	7.3	0.000	0.4	16,694	Open	11.9	114
10/24/2024	20:00:00	7.3	0.000	0.3	16,694	Open	12.3	114
10/24/2024	20:15:00	7.3	0.000	0.3	16,694	Open	12.8	113
10/24/2024	20:30:00	7.3	0.000	0.2	16,694	Open	13.4	114
10/24/2024	20:45:00	7.3	0.525	0.4	16,699	Open	11.8	114
10/24/2024	21:00:00	7.3	0.541	0.9	16,707	Open	11.5	113
10/24/2024	21:15:00	7.3	0.518	0.6	16,715	Open	11.4	114
10/24/2024	21:30:00	7.3	0.000	1.4	16,720	Open	11.5	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/24/2024	21:45:00	7.3	0.000	0.2	16,720	Open	11.7	113
10/24/2024	22:00:00	7.3	0.000	0.2	16,720	Open	12	113
10/24/2024	22:15:00	7.3	0.000	0.2	16,720	Open	12.4	113
10/24/2024	22:30:00	7.3	0.518	1.1	16,725	Open	11.4	114
10/24/2024	22:45:00	7.3	0.533	0.5	16,733	Open	11.2	113
10/24/2024	23:00:00	7.3	0.503	0.5	16,741	Open	11.2	113
10/24/2024	23:15:00	7.3	0.000	0.1	16,746	Open	11.3	113
10/24/2024	23:30:00	7.3	0.000	0.1	16,746	Open	11.5	112
10/24/2024	23:45:00	7.3	0.000	0.1	16,746	Open	11.7	112
10/25/2024	0:00:00	7.3	0.518	3	16,749	Open	11.2	113
10/25/2024	0:15:00	7.3	0.507	10.2	16,757	Open	11.1	114
10/25/2024	0:30:00	7.3	0.491	7.4	16,764	Open	11.3	115
10/25/2024	0:45:00	7.3	0.000	4	16,771	Open	11.2	113
10/25/2024	1:00:00	7.3	0.064	4.7	16,771	Open	11.7	113
10/25/2024	2:30:00	7.4	0.435	6.8	16,774	Open	11.9	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	2:45:00	7.3	0.491	21.4	16,779	Open	11.1	113
10/25/2024	3:00:00	7.3	0.503	4.7	16,786	Open	10.9	113
10/25/2024	3:15:00	7.3	0.510	3.4	16,793	Open	11	114
10/25/2024	3:30:00	7.3	0.522	4.2	16,801	Open	11	113
10/25/2024	4:00:00	7.3	0.000	2.3	16,807	Open	11.6	113
10/25/2024	4:15:00	7.3	0.000	1.8	16,807	Open	12.1	113
10/25/2024	4:30:00	7.3	0.510	2.1	16,810	Open	13.3	113
10/25/2024	4:45:00	7.3	0.488	2	16,817	Open	11.1	114
10/25/2024	5:00:00	7.3	0.499	2.4	16,825	Open	11.1	114
10/25/2024	5:15:00	7.3	0.503	2.8	16,832	Open	11.1	114
10/25/2024	5:30:00	7.3	0.000	2.4	16,837	Open	11.2	113
10/25/2024	5:45:00	7.3	0.000	2.5	16,837	Open	11.4	113
10/25/2024	6:00:00	7.3	0.000	1.6	16,837	Open	11.9	113
10/25/2024	6:15:00	7.3	0.000	2.7	16,837	Open	12.2	113
10/25/2024	6:30:00	7.3	0.000	1.6	16,837	Open	12.6	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	6:45:00	7.3	0.200	0.9	16,840	Open	13.1	114
10/25/2024	7:00:00	7.2	0.355	7	16,844	Open	12.4	113
10/25/2024	7:15:00	7.2	0.397	5.8	16,850	Open	12.6	113
10/25/2024	7:30:00	7.2	0.404	5.6	16,856	Open	12.9	113
10/25/2024	7:45:00	7.2	0.000	3.4	16,859	Open	13.1	113
10/25/2024	8:00:00	7.2	0.000	3.3	16,859	Open	13.5	114
10/25/2024	8:15:00	7.2	0.000	3	16,859	Open	13.8	114
10/25/2024	8:30:00	7.2	0.000	3.2	16,859	Open	13.9	255
10/25/2024	8:45:00	7.2	0.397	2.4	16,863	Open	13.9	255
10/25/2024	9:00:00	7.5	0.329	22	16,873	Open	10.9	113
10/25/2024	9:15:00	7.6	0.000	19.3	16,874	Open	11.3	113
10/25/2024	9:30:00	7.6	0.000	16.9	16,874	Open	11.7	113
10/25/2024	9:45:00	7.6	0.000	15.6	16,874	Open	12	113
10/25/2024	10:00:00	7.5	0.000	12.8	16,874	Open	12.3	113
10/25/2024	10:15:00	7.5	0.000	12	16,874	Open	12.6	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	10:30:00	7.5	0.473	12.8	16,875	Open	12.9	113
10/25/2024	10:45:00	7.2	0.510	3.3	16,883	Open	11	113
10/25/2024	11:00:00	7.2	0.491	1.9	16,891	Open	11	113
10/25/2024	11:15:00	7.2	0.484	1.3	16,898	Open	11	114
10/25/2024	11:30:00	7.2	0.495	0.5	16,905	Open	11	114
10/25/2024	11:45:00	7.2	0.503	0.1	16,913	Open	11.1	114
10/25/2024	12:00:00	7.2	0.503	0	16,921	Open	11.2	114
10/25/2024	12:15:00	7.2	0.000	0	16,925	Open	11.3	114
10/25/2024	12:30:00	7.2	0.000	0	16,925	Open	11.7	114
10/25/2024	12:45:00	7.2	0.000	0	16,925	Open	12	114
10/25/2024	13:00:00	7.1	0.495	0	16,927	Open	11.8	114
10/25/2024	13:15:00	7.2	0.510	0	16,935	Open	11.3	116
10/25/2024	13:30:00	7.2	0.159	0	16,940	Open	11.6	115
10/25/2024	13:45:00	7.1	0.000	0	16,947	Open	11.5	116
10/25/2024	14:00:00	7.2	0.000	0	16,947	Open	11.9	116

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	14:15:00	7.2	0.000	0	16,947	Open	12.3	115
10/25/2024	14:30:00	7.1	0.000	0	16,947	Open	12.6	115
10/25/2024	14:45:00	7.1	0.488	0	16,952	Open	11.7	116
10/25/2024	15:00:00	7.2	0.484	0	16,959	Open	11.7	115
10/25/2024	15:15:00	7.2	0.510	0	16,967	Open	11.8	114
10/25/2024	15:30:00	7.2	0.000	0	16,972	Open	12	116
10/25/2024	15:45:00	7.2	0.000	0	16,972	Open	12.4	114
10/25/2024	16:00:00	7.2	0.000	0	16,972	Open	12.9	114
10/25/2024	16:15:00	7.1	0.000	0	16,972	Open	13.4	116
10/25/2024	16:30:00	7.1	0.488	0.4	16,976	Open	12.1	114
10/25/2024	16:45:00	7.1	0.465	0	16,983	Open	11.8	114
10/25/2024	17:00:00	7.2	0.491	0	16,990	Open	11.9	116
10/25/2024	17:15:00	7.2	0.000	0	16,996	Open	12	116
10/25/2024	17:30:00	7.2	0.000	0	16,996	Open	12.6	114
10/25/2024	17:45:00	7.2	0.000	0	16,996	Open	13.2	116

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	18:00:00	7.2	0.000	0	16,996	Open	13.7	116
10/25/2024	18:15:00	7.1	0.491	0	17,000	Open	12.2	114
10/25/2024	18:30:00	7.2	0.495	0	17,008	Open	12	116
10/25/2024	18:45:00	7.2	0.484	0	17,015	Open	12	116
10/25/2024	19:00:00	7.2	0.000	0	17,021	Open	12	115
10/25/2024	19:15:00	7.2	0.000	0	17,021	Open	12.6	117
10/25/2024	19:30:00	7.2	0.000	0	17,021	Open	13.3	116
10/25/2024	19:45:00	7.2	0.000	0	17,021	Open	13.7	116
10/25/2024	20:00:00	7.2	0.469	0	17,025	Open	12	114
10/25/2024	20:15:00	7.2	0.461	0.9	17,032	Open	11.7	114
10/25/2024	20:30:00	7.2	0.454	0	17,039	Open	11.6	114
10/25/2024	20:45:00	7.2	0.000	0	17,045	Open	11.8	114
10/25/2024	21:00:00	7.2	0.000	0	17,045	Open	12	113
10/25/2024	21:15:00	7.2	0.000	0	17,045	Open	12.5	113
10/25/2024	21:30:00	7.2	0.000	0	17,045	Open	12.7	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/25/2024	21:45:00	7.2	0.499	0	17,048	Open	11.6	114
10/25/2024	22:00:00	7.2	0.495	0	17,055	Open	11.6	114
10/25/2024	22:15:00	7.2	0.488	0	17,063	Open	11.6	114
10/25/2024	22:30:00	7.2	0.000	0	17,068	Open	11.8	114
10/25/2024	22:45:00	7.2	0.000	0	17,068	Open	12.2	114
10/25/2024	23:00:00	7.2	0.000	0	17,068	Open	12.5	113
10/25/2024	23:15:00	7.2	0.000	0	17,068	Open	12.8	113
10/25/2024	23:30:00	7.2	0.473	0.3	17,072	Open	11.7	116
10/25/2024	23:45:00	7.2	0.480	4.9	17,079	Open	11.5	116
10/26/2024	0:00:00	7.2	0.469	0	17,087	Open	11.5	114
10/26/2024	0:15:00	7.2	0.000	0	17,092	Open	11.5	114
10/26/2024	0:30:00	7.2	0.000	0	17,092	Open	11.9	114
10/26/2024	0:45:00	7.2	0.000	0	17,092	Open	12.2	114
10/26/2024	1:00:00	7.2	0.000	0	17,092	Open	12.5	114
10/26/2024	1:15:00	7.2	0.484	0	17,096	Open	11.8	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	1:30:00	7.2	0.469	7.3	17,103	Open	11.2	114
10/26/2024	1:45:00	7.2	0.567	0	17,111	Open	11.3	113
10/26/2024	2:00:00	7.3	0.000	0	17,112	Open	11.8	113
10/26/2024	2:15:00	7.3	0.000	0	17,112	Open	12	113
10/26/2024	2:30:00	7.2	0.000	1.8	17,112	Open	13.5	114
10/26/2024	2:45:00	7.2	0.000	0.2	17,112	Open	14.4	113
10/26/2024	3:00:00	7.2	0.000	0	17,112	Open	14.3	113
10/26/2024	3:15:00	7.2	0.355	0	17,117	Open	14.6	116
10/26/2024	3:30:00	7.2	0.352	0	17,123	Open	15	115
10/26/2024	3:45:00	7.2	0.359	0	17,128	Open	15.3	116
10/26/2024	4:00:00	7.2	0.367	0	17,134	Open	15.7	246
10/26/2024	4:15:00	7.2	0.359	6.8	17,139	Open	16	248
10/26/2024	4:30:00	7.1	0.000	0	17,140	Open	17.2	116
10/26/2024	4:45:00	7.1	0.000	0	17,140	Open	17.5	114
10/26/2024	5:00:00	7.1	0.000	6.6	17,140	Open	17.5	115

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	5:15:00	7.1	0.344	0	17,141	Open	17.4	114
10/26/2024	5:30:00	7.1	0.355	0	17,146	Open	17.4	114
10/26/2024	5:45:00	7.1	0.359	0	17,152	Open	17.6	114
10/26/2024	6:00:00	7.1	0.367	0	17,157	Open	17.9	116
10/26/2024	6:15:00	7.1	0.344	0	17,162	Open	18.1	116
10/26/2024	6:30:00	7.1	0.352	0	17,168	Open	18.3	116
10/26/2024	6:45:00	7.1	0.352	0	17,173	Open	18.5	116
10/26/2024	7:00:00	7.1	0.401	0	17,179	Open	18.8	116
10/26/2024	7:15:00	7.1	0.333	0	17,184	Open	19	116
10/26/2024	7:30:00	7.1	0.352	0	17,189	Open	19.3	118
10/26/2024	7:45:00	7.1	0.000	0	17,191	Open	19.4	116
10/26/2024	8:00:00	7.1	0.000	0	17,191	Open	19	116
10/26/2024	8:15:00	7	0.000	0	17,191	Open	18.5	114
10/26/2024	8:30:00	7.1	0.336	0	17,191	Open	17.8	115
10/26/2024	8:45:00	7.1	0.352	0	17,196	Open	17.3	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	9:00:00	7.1	0.344	0	17,202	Open	17.1	114
10/26/2024	9:15:00	7.1	0.348	0	17,207	Open	16.9	114
10/26/2024	9:30:00	7.1	0.352	0	17,212	Open	16.9	114
10/26/2024	9:45:00	7.1	0.000	0	17,216	Open	16.8	114
10/26/2024	10:00:00	7.1	0.000	0	17,216	Open	16.6	114
10/26/2024	10:15:00	7.1	0.000	0	17,216	Open	16.4	114
10/26/2024	10:30:00	7.1	0.000	0	17,216	Open	16.2	114
10/26/2024	10:45:00	7.1	0.340	0	17,218	Open	16.1	114
10/26/2024	11:00:00	7.1	0.325	0	17,221	Open	16.3	115
10/26/2024	11:15:00	7.1	0.333	0	17,225	Open	16.6	116
10/26/2024	11:30:00	7.1	0.314	0	17,230	Open	17.1	116
10/26/2024	11:45:00	7.1	0.318	0	17,235	Open	17.5	116
10/26/2024	12:00:00	7.1	0.321	0	17,240	Open	18	116
10/26/2024	12:15:00	7.1	0.310	0	17,244	Open	18.2	116
10/26/2024	12:30:00	7.1	0.306	0	17,249	Open	18.6	116

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	12:45:00	7.1	0.000	0	17,253	Open	18.9	116
10/26/2024	13:00:00	7.1	0.000	0	17,256	Open	19.2	116
10/26/2024	13:15:00	7.1	0.000	0	17,256	Open	19.1	116
10/26/2024	13:30:00	7.1	0.000	0	17,256	Open	19	116
10/26/2024	13:45:00	7.1	0.000	0	17,256	Open	18.7	114
10/26/2024	14:00:00	7.1	0.246	0	17,258	Open	18.6	115
10/26/2024	14:15:00	7	0.246	0	17,262	Open	18.5	116
10/26/2024	14:30:00	7.2	0.491	0.9	17,266	Open	19.1	116
10/26/2024	14:45:00	7.3	0.499	10.9	17,274	Open	19.3	116
10/26/2024	15:00:00	7.2	0.491	0	17,281	Open	19.3	116
10/26/2024	15:15:00	7.2	0.000	0.2	17,283	Open	19.2	116
10/26/2024	15:30:00	7.3	0.000	0	17,283	Open	19.1	116
10/26/2024	15:45:00	7.2	0.000	0	17,283	Open	18.9	114
10/26/2024	16:00:00	7.1	0.000	0	17,283	Open	18.7	115
10/26/2024	16:15:00	7.1	0.491	0	17,290	Open	18.6	116

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	16:30:00	7.1	0.480	0	17,297	Open	18.6	116
10/26/2024	16:45:00	7.1	0.476	0	17,304	Open	18.6	116
10/26/2024	17:00:00	7.1	0.000	0	17,308	Open	18.6	116
10/26/2024	17:15:00	7.1	0.000	0	17,308	Open	18.5	116
10/26/2024	17:30:00	7.1	0.000	0	17,308	Open	18.4	116
10/26/2024	17:45:00	7.1	0.000	0	17,308	Open	18.3	116
10/26/2024	18:00:00	7.2	0.166	1.9	17,313	Open	19.1	258
10/26/2024	18:15:00	7.2	0.488	1.5	17,320	Open	19.1	259
10/26/2024	18:30:00	7.2	0.503	0.1	17,327	Open	19.1	257
10/26/2024	18:45:00	7.2	0.000	0.1	17,328	Open	19	257
10/26/2024	19:00:00	7.2	0.000	0	17,328	Open	18.8	257
10/26/2024	19:15:00	7.2	0.518	0	17,332	Open	18.7	257
10/26/2024	19:30:00	7.2	0.461	0	17,339	Open	18.7	257
10/26/2024	19:45:00	7.1	0.268	0	17,344	Open	18.6	257
10/26/2024	20:00:00	7.1	0.280	0	17,348	Open	18.6	257

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/26/2024	20:15:00	7.1	0.265	0	17,352	Open	18.6	257
10/26/2024	20:30:00	7.1	0.276	0	17,356	Open	18.6	257
10/26/2024	20:45:00	7.1	0.000	0	17,360	Open	18.6	257
10/26/2024	21:00:00	7.1	0.000	0	17,360	Open	18.6	256
10/26/2024	21:15:00	7.1	0.000	0	17,361	Open	18.5	257
10/26/2024	22:15:00	8	0.393	6.1	17,364	Open	17.4	114
10/26/2024	22:30:00	7.7	0.000	4.5	17,367	Open	17.4	255
10/26/2024	22:45:00	7.9	0.389	4.1	17,370	Open	17.4	255
10/26/2024	23:00:00	7.7	0.363	2.8	17,376	Open	17.3	255
10/26/2024	23:15:00	7.7	0.367	2.8	17,381	Open	17.3	255
10/26/2024	23:30:00	7.7	0.352	2.9	17,386	Open	17.3	253
10/26/2024	23:45:00	7.7	0.352	2.8	17,392	Open	17.3	253
10/27/2024	0:00:00	7.7	0.340	2.9	17,397	Open	17.4	255
10/27/2024	0:15:00	7.6	0.344	3.6	17,402	Open	17.5	257
10/27/2024	0:30:00	7.6	0.336	2.1	17,407	Open	17.6	257

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	0:45:00	7.6	0.000	1.2	17,409	Open	17.7	255
10/27/2024	2:00:00	7.9	0.370	6.5	17,417	Open	16.1	253
10/27/2024	2:15:00	7.8	0.363	7.8	17,422	Open	16.3	255
10/27/2024	2:30:00	7.8	0.348	6.6	17,428	Open	16.5	253
10/27/2024	2:45:00	7.8	0.537	5.9	17,435	Open	17	255
10/27/2024	3:00:00	7.8	0.529	2.8	17,443	Open	17.1	255
10/27/2024	3:15:00	7.8	0.510	3.9	17,451	Open	17.4	253
10/27/2024	3:30:00	7.8	0.510	2.9	17,458	Open	17.6	253
10/27/2024	3:45:00	7.8	0.514	1.9	17,466	Open	17.7	253
10/27/2024	4:00:00	7.8	0.291	1.9	17,472	Open	17.9	251
10/27/2024	4:15:00	7.8	0.522	2.8	17,478	Open	18	253
10/27/2024	4:30:00	7.7	0.507	3	17,486	Open	18.2	255
10/27/2024	4:45:00	7.7	0.510	2.9	17,487	Open	18.1	255
10/27/2024	5:00:00	7.7	0.000	2.6	17,493	Open	18.2	255
10/27/2024	5:15:00	7.7	0.000	1.8	17,493	Open	18.2	256

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	5:30:00	7.7	0.000	1.8	17,493	Open	18.1	253
10/27/2024	5:45:00	7.7	0.000	1.3	17,493	Open	18.1	253
10/27/2024	6:00:00	7.7	0.518	1.9	17,499	Open	18.1	253
10/27/2024	6:15:00	7.7	0.518	1.9	17,506	Open	18.1	253
10/27/2024	6:30:00	7.7	0.507	2.5	17,514	Open	18.1	253
10/27/2024	6:45:00	7.7	0.507	2.1	17,521	Open	18.2	253
10/27/2024	7:00:00	7.7	0.000	2.8	17,524	Open	18.2	253
10/27/2024	7:15:00	7.7	0.000	2.4	17,524	Open	18.2	253
10/27/2024	7:30:00	7.7	0.000	2.2	17,524	Open	18.2	251
10/27/2024	7:45:00	7.7	0.265	1.8	17,525	Open	18	251
10/27/2024	8:00:00	7.6	0.268	2.1	17,529	Open	17.8	251
10/27/2024	8:15:00	7.6	0.265	2	17,533	Open	17.7	253
10/27/2024	8:30:00	7.6	0.163	2.1	17,537	Open	17.6	252
10/27/2024	8:45:00	7.6	0.522	2	17,544	Open	17.4	254
10/27/2024	9:00:00	7.6	0.000	2.2	17,546	Open	17.2	252

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	9:15:00	7.6	0.000	2	17,546	Open	17	254
10/27/2024	9:30:00	7.6	0.136	2.2	17,546	Open	16.7	252
10/27/2024	9:45:00	7.6	0.503	2.2	17,554	Open	16.5	252
10/27/2024	10:00:00	7.6	0.514	2.9	17,562	Open	16.3	252
10/27/2024	10:15:00	7.6	0.499	2.4	17,569	Open	16.2	254
10/27/2024	10:30:00	7.6	0.525	2	17,577	Open	16.2	255
10/27/2024	10:45:00	7.6	0.514	1.7	17,585	Open	16.1	255
10/27/2024	11:00:00	7.5	0.533	2.4	17,593	Open	16	255
10/27/2024	11:15:00	7.5	0.529	2.1	17,601	Open	15.9	258
10/27/2024	11:30:00	7.5	0.518	2.3	17,608	Open	15.8	258
10/27/2024	11:45:00	7.5	0.000	2	17,615	Open	15.7	255
10/27/2024	12:00:00	7.5	0.000	2.1	17,615	Open	15.6	253
10/27/2024	12:15:00	7.5	0.000	2	17,615	Open	15.4	255
10/27/2024	12:30:00	7.5	0.000	2.1	17,615	Open	15.3	255
10/27/2024	12:45:00	7.5	0.000	2	17,615	Open	15.3	256

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	13:00:00	7.5	0.000	1.5	17,615	Open	15.3	257
10/27/2024	13:15:00	7.5	0.525	2	17,619	Open	15.5	256
10/27/2024	13:30:00	7.5	0.518	1.5	17,627	Open	15.8	257
10/27/2024	13:45:00	7.5	0.507	1.5	17,632	Open	16.1	256
10/27/2024	14:00:00	7.5	0.000	0.9	17,636	Open	16.3	255
10/27/2024	14:15:00	7.5	0.518	1.1	17,642	Open	16.6	256
10/27/2024	14:30:00	7.5	0.000	1.3	17,644	Open	16.7	257
10/27/2024	14:45:00	7.4	0.000	1.2	17,644	Open	16.8	255
10/27/2024	15:00:00	7.4	0.000	0.8	17,644	Open	16.8	257
10/27/2024	15:15:00	7.4	0.503	0.8	17,651	Open	16.9	255
10/27/2024	15:30:00	7.4	0.495	0.6	17,658	Open	17	255
10/27/2024	15:45:00	7.4	0.476	0.6	17,665	Open	17.1	257
10/27/2024	16:00:00	7.4	0.000	0.5	17,668	Open	17.1	257
10/27/2024	16:15:00	7.4	0.454	0.6	17,673	Open	17.1	257
10/27/2024	16:30:00	7.4	0.412	0.8	17,679	Open	17.2	257

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 21st to October 27th 2024**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 31,2024**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	16:45:00	7.4	0.412	1.1	17,686	Open	17.2	255
10/27/2024	17:00:00	7.4	0.412	0.8	17,692	Open	17.3	255
10/27/2024	17:15:00	7.4	0.401	0.7	17,698	Open	17.4	255
10/27/2024	17:30:00	7.4	0.386	0.6	17,704	Open	17.4	255
10/27/2024	17:45:00	7.4	0.106	1	17,706	Open	17.6	256
10/27/2024	18:00:00	7.4	0.393	1	17,712	Open	17.8	255
10/27/2024	18:15:00	7.4	0.000	0.9	17,715	Open	17.8	256
10/27/2024	18:30:00	7.4	0.000	0.8	17,715	Open	17.6	255
10/27/2024	18:45:00	7.4	0.427	1	17,716	Open	17.5	255
10/27/2024	19:00:00	7.4	0.507	1	17,720	Open	17.5	255
10/27/2024	19:15:00	7.4	0.525	0.9	17,727	Open	17.4	255
10/27/2024	19:30:00	7.4	0.189	1.2	17,734	Open	17.3	255
10/27/2024	19:45:00	7.4	0.178	0.6	17,737	Open	17.3	254
10/27/2024	20:00:00	7.4	0.181	0.3	17,739	Open	17.5	252
10/27/2024	20:15:00	7.4	0.249	0.4	17,743	Open	17.7	254

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/27/2024	20:30:00	7.3	0.246	0.3	17,746	Open	17.8	252
10/27/2024	20:45:00	7.3	0.234	0.3	17,749	Open	18	252
10/27/2024	21:00:00	7.3	0.000	0.4	17,749	Open	18.1	252
10/27/2024	21:15:00	7.3	0.000	0.8	17,749	Open	18.1	253
10/27/2024	21:30:00	7.3	0.253	0.8	17,750	Open	17.9	252
10/27/2024	21:45:00	7.3	0.234	0.8	17,753	Open	17.7	255
10/27/2024	22:00:00	7.3	0.238	0.7	17,756	Open	17.6	255
10/27/2024	22:15:00	7.3	0.246	0.5	17,760	Open	17.6	257
10/27/2024	22:30:00	7.3	0.295	0.7	17,763	Open	17.5	257
10/27/2024	22:45:00	7.3	0.227	0.7	17,766	Open	17.4	257
10/27/2024	23:00:00	7.3	0.219	0.2	17,770	Open	17.5	256
10/27/2024	23:15:00	7.3	0.627	2.1	17,773	Open	18.1	257
10/27/2024	23:30:00	7.3	0.215	1.2	17,776	Open	18.6	257
10/27/2024	23:45:00	7.3	0.215	1.8	17,780	Open	18.5	257

Photos

Photo 1: No visible sheen observed in the WTP water, October 21st

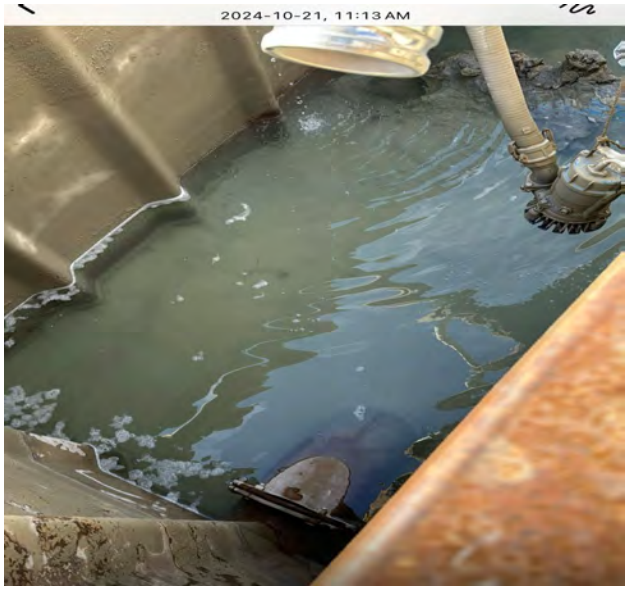



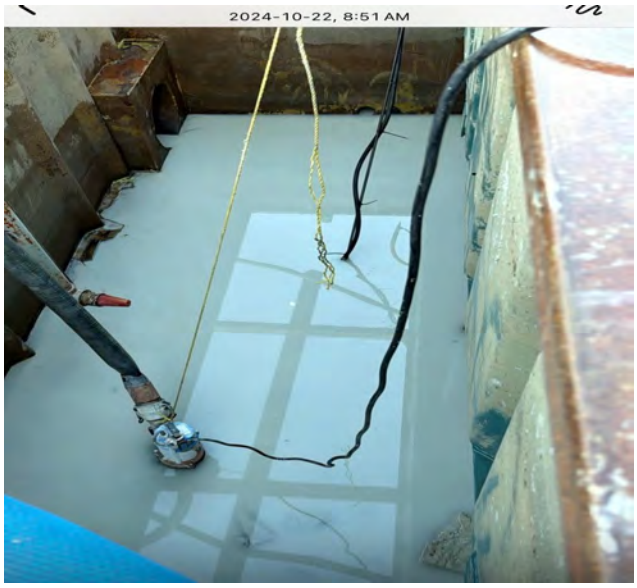
Photo 4: No visible sheen observed in the WTP water, October 22nd


Photo 1: No visible sheen observed in the WTP water, October 25th

Photo 4: No visible sheen observed in the WTP water, October 26th


Photo 1: No visible sheen observed in the WTP water, October 26th

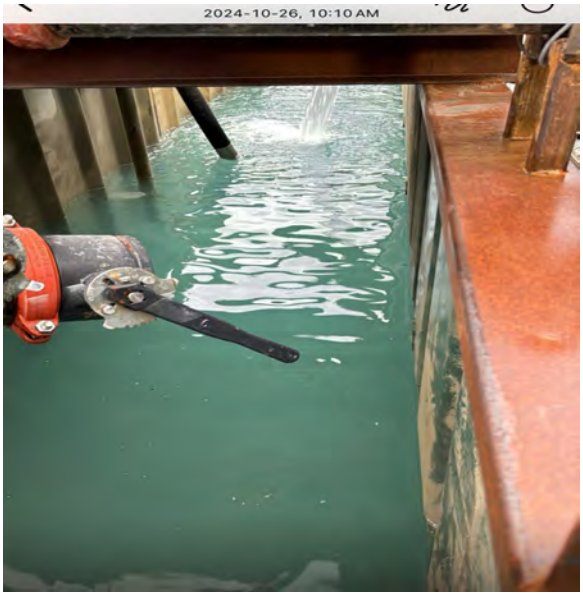
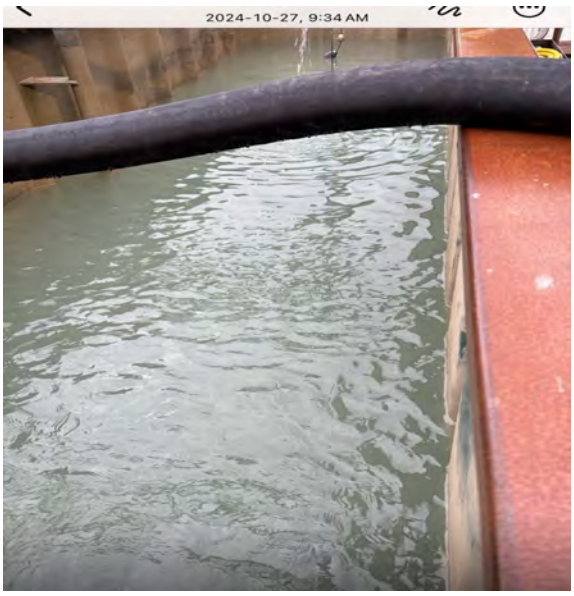



Photo 3: No visible sheen observed in the WTP water, October 27th


FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-21-Chycoski-A6782

Project Component:	Tunnel	**Site Name:**	WLNG Treatment Discharge
Inspection Date:	10/21/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669375 -123.249926
Temperature(c):	Low 7 High 12	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Wet

Observations

Time: 09:50:00 **Flow Volume (visual):** N/A

Notes: Sampled from spigot in discharge pipe. Sampling will be conducted from there from now on.

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:**	No
Nutrients	Yes	**VOC/VPH**	Yes		
DOC	Yes	**EPH, PAH, LEPH/HEPH**	Yes		
		Trout LC50	Yes		

Logger Maintenance

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

Describe Logger Maintenance

2024-10-21-Chycoski-A6782

Photos

Photo: 1

Location: WLNG EOP

Description: Sampling from new spigot location

Photo: 2

Location: WLNG EOP

Description: Discharge water from spigot.

Photos

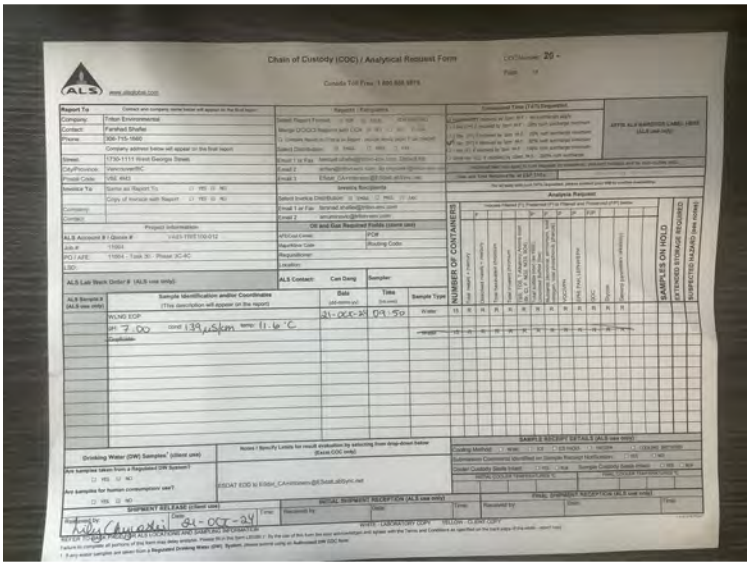


Photo: 3

Location: WLNG EOP

Description: Lab COC - sample bottles

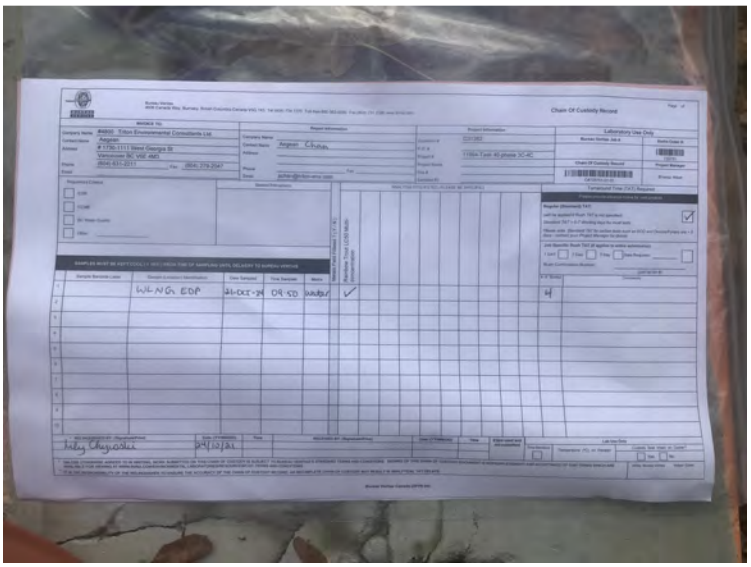


Photo: 4

Location: WLNG EOP

Description: Lab COC - LC 50

Sign Off

Report Prepared By:	Lily Chycoski	**Report Reviewed:**	Yes
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:	Farshad Shafiei Ph.D., R.P.Bio.		Farshad Shafiei Ph.D., R.P.Bio.	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					VA24C8188-001	VA24C8188-002					
	Date Sampled					21-Oct-2024	21-Oct-2024					
	Time Sampled					11:53	10:44					
Analyte	**Units**	**FAL-ST [1,2]**	**FAL-LT [1,2]**	**MAL-ST [1]**	**MAL-LT [1,2]**	Water	Water					
						N/A	N/A		**Guideline notes**			
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.12	7.17		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	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C [4] 5 week averages: US: 13.4 DS: 13.7	-	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C 4 5 week averages: US: 13.4 DS: 13.7	-	10.9	10.8		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 East Creek. Refer to BC Water Quality Guidelines for more information Hourly rate of change not to exceed 1°C. Calculation: 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 East Creek. Calculation: US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	35	43					
Turbidity (field)	NTU	Varies with background, see note Guideline = 8.8	Varies with background, see note Guideline = 3.05 5-week discrete sampling average = 4.74 (DS)	Varies with background, see note Guideline = 8.8	Varies with background, see note Guideline = 3.05 5-week discrete sampling average = 4.74 (DS)	0.76	2.16		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: US value + 8 = 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: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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: US value + 8 = 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: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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	10.11	10.21		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 $CaCO_3$) (total)	mg/L	-	-	-	-	8.99	9.74					
Total Dissolved Solids	mg/L	-	-	-	-	37	35					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 28	Varies with background, see note Guideline = 8.00 5-week discrete sampling average = 4.8 (DS)	Varies with background, see note Guideline = 28	Varies with background, see note Guideline = 8.00 5-week discrete sampling average = 4.8 (DS)	< 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: US value + 25 = 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: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: US value + (US value*0.1) = 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 US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using 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: US value + 25 = 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: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: US value + (US value*0.1) = 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 US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	4.74	3.56			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	6.8	7.6	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 H_2S)	mg/L	-	0.002	-	-	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. Guideline = 18.9	Varies with pH and temperature. See note. Guideline = 1.80	Varies with pH and temperature. See note. Guideline = 131	Varies with pH, temperature and salinity. See note. Guideline = 14.0	< 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	600	150	> 110% of background	< 90% of background	1.03	0.97				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
Fluoride	mg/L	Varies with hardness Guideline = 0.366	-	1.5	-	< 0.020	0.027		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	32.8	3	-	3.7	0.079	0.0483					
Nitrite (as N)	mg/L	Varies with chloride. Table 27B, see note. Guideline = 0.06	Varies with chloride. Table 27B, see note. Guideline = 0.02	-	-	< 0.0010	0.0018		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	-	-	-	-	0.201	0.157					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0478	0.0212			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. Guideline = 128	-	-	3.85	3.51			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 Guideline = 0.130 5-week field average = 0.083 (US), **0.214** (DS)	-	-	0.142	***0.142***	**Total aluminum exceeds the long-term BCWQG for FAL at the downstream location.**		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	0.25	0.074	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.0002	0.00022					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00378	0.00421			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	0.0000117	0.0000086					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	2.83	3.22					
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	-	0.0025	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002 5-week field averages = 0.0016 (US), 0.0011 (DS)	0.00126	0.00093					
Iron (Fe)-Total	mg/L	1	-	-	-	0.074	0.063					
Lead (Pb)-Total	mg/L	-	-	0.14	0.002 5-week field averages = 0.0000512 (US), 0.00010 (DS)	0.000056	< 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*ln(hardness)-1.460] where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP[1.273*ln(hardness)-4.704] applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.467	0.412					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.82	Varies with hardness Guideline = 0.77	-	-	0.00394	0.00278		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 Guideline = N/A	-	-	< 0.000005	< 0.000005			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	46	7.6	-	-	0.000399	0.00118					
Nickel (Ni)-Total	mg/L	-	-	-	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	-	-	0.055	< 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	-	-	-	-	0.361	0.287					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00043	0.00043					
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 guidelienes 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 guidelienes 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	-	-	-	-	3.78	3.72					
Silver (Ag)-Total	mg/L	Varies with hardness, see note Guideline = 0.0001	Varies with hardness, see note Guideline = 0.00005	0.003	0.0015	0.000011	< 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	-	-	-	-	1.76	1.67					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0135	0.012					
Sulfur (S)-Total	mg/L	-	-	-	-	1.24	1.07					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week field average = < 0.000010 (US), < 0.00005 (DS)	-	-	< 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 the 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	-	-	-	-	0.00193	0.00166					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.000167	0.000354			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005	< 0.00050	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010 5-week field average = 0.003 (US), 0.0059 (DS)	< 0.0030	0.0032					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0884	0.0936					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00022	0.00018					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00354	0.00376					
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 Guideline = 0.000049	Varies with hardness, see note Guideline = 0.000076	-	-	0.0000068	0.0000063		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 guiedline 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	-	-	2.9	2.95	The upstream and downstream locations have high sensitivity (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					
Chromium (Cr(III))-Dissolved	mg/L	-	-	-	-	-	-					
Chromium (Cr(VI))-Dissolved	mg/L	-	-	-	-	-	-					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0042	Guideline varies with other parameters, see note Guideline = 0.0007 5-week field average = **0.00147** (US), **0.00093** (DS)	-	-	***0.00112***	***0.00084***	**Dissolved copper at the upstream and downstream location exceeds long-term BCWQG for FAL.** The upstream location is the background site, thus the exceedance is not due to project activities.	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	-	-	-	0.027	0.022					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline: 0.00324 5-week field average = < 0.00005 (US), < 0.00005 (DS)	-	-	< 0.000050	< 0.000050			Guideline varies with DOC and hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation (EXP((0.514*LN(DOC))+(0.214*(LN(Hardness)))+0.4354))/2/1000 where DOC range is 0.5-31.5 mg/L and hardness range is 4.7-511 mg/L.		
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.459	0.386					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00212	0.0016					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.000005	< 0.000005					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000373	0.000707					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with pH, temperature, DOC, and hardness Guideline: 0.0239	Guideline varies with pH, temperature, DOC, and hardness Guideline: 0.00147 5-week field average = 0.00112 (US), 0.00087 (DS)	-	-	< 0.00050	< 0.00050		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		
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.33	0.265					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00039	0.00034					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	3.69	3.59					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.73	1.5					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0135	0.0113					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.16	1.02					
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	-	-	-	-	0.00033	0.00031					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000139	0.000183					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.011	Varies with pH, DOC, hardness Guideline = 0.00586 5-week field average = 0.0015 (US), 0.0044 (DS)	-	-	0.0018	0.0027		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 both FAL and MAL Guidelines**	**Exceeds FAL Short term Guideline**	***Exceeds FAL Long term Guideline***	**Exceeds MAL Short term Guideline**	***Exceeds MAL Long term Guideline***							
Color Key:		**Exceeds FAL Short and Long-Term Guideline**		**Exceeds MAL Short and Long-term 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: 0.3-8.0C; Mar-Apr: 3.0-10.2C; May-June: 6.8-15.1C; Jul-present: 12.9-18.2C
Reference: AquaTROLL In-Situ Data Logger - Background water quality readings collected from Dec.-present.
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

Parameters Used to Calculate Guidelines

Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Values	
						WLNG US1 (Upstream)	WLNG DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.12	7.17
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				10.9	10.8
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				0.76	2.16
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				8.99	9.74
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				4.74	3.56
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				6.8	7.6
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.03	0.97

Woodfibre Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	:	**VA24C8188**		
Client	:	**Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:		Account Manager	
Address	:		Address	
Telephone	:		Telephone	
Project	:	11964	Date Samples Received	: 21-Oct-2024 18:00
PO	:	11964-Task 20-Phase 3C-4C	Date Analysis Commenced	: 23-Oct-2024
C-O-C number	:	----	Issue Date	: 31-Oct-2024 16:34
Sampler	:	----		
Site	:	Water Analysis		
Quote number	:	VA23-TRIT100-012		
No. of samples received	:	2		
No. of samples analysed	:	2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
		Metals, Calgary, Alberta
		Metals, Burnaby, British Columbia
		Administration, Burnaby, British Columbia
		Inorganics, Waterloo, Ontario
		Metals, Waterloo, Ontario
		Metals, Calgary, Alberta
		Inorganics, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Metals, Waterloo, Ontario
		Metals, Calgary, Alberta
		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*
mg/L	milligrams per litre
pH units	pH units
µS/cm	microsiemens per centimetre
°C	degrees celsius
-	no units

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

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Sample Comments

Sample	*Client Id*	*Comment*
VA24C8188-001	WLNG US 1	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
VA24C8188-001	WLNG US 1	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
VA24C8188-002	WLNG DS 1	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
VA24C8188-002	WLNG DS 1	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		WLNG US 1	WLNG DS 1	----	----	----
			Client sampling date / time		21-Oct-2024 11:53	21-Oct-2024 10:44	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C8188-001	VA24C8188-002	----	----	----
					Result	Result	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	35.000	43.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.12	7.17	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	10.9	10.8	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/CG	0.60	mg/L	9.13	8.96	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/CG	0.60	mg/L	8.99	9.74	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	37	35	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	6.8	7.6	----	----	----
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	1.03	0.97	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	0.027	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0790	0.0483	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	0.0018	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.201	0.157	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0478	0.0212	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	3.85	3.51	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	4.74	3.56	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	21-Oct-2024 11:53	21-Oct-2024 10:44	----	----	----
						VA24C8188-001	VA24C8188-002	----	----	----
						Result	Result	----	----	----
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/CG	0.0030	mg/L		0.142	0.142	----	----	----
Antimony, total	7440-36-0	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/CG	0.00010	mg/L		0.00020	0.00022	----	----	----
Barium, total	7440-39-3	E420/CG	0.00010	mg/L		0.00378	0.00421	----	----	----
Beryllium, total	7440-41-7	E420/CG	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, total	7440-69-9	E420/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/CG	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, total	7440-43-9	E420/CG	0.0000050	mg/L		0.0000117	0.0000086	----	----	----
Calcium, total	7440-70-2	E420/CG	0.050	mg/L		2.83	3.22	----	----	----
Cesium, total	7440-46-2	E420/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Chromium, total	7440-47-3	E420/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, total	7440-50-8	E420/CG	0.00050	mg/L		0.00126	0.00093	----	----	----
Iron, total	7439-89-6	E420/CG	0.010	mg/L		0.074	0.063	----	----	----
Lead, total	7439-92-1	E420/CG	0.000050	mg/L		0.000056	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/CG	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, total	7439-95-4	E420/CG	0.0050	mg/L		0.467	0.412	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	21-Oct-2024 11:53	21-Oct-2024 10:44	----	----	----
						VA24C8188-001	VA24C8188-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Manganese, total	7439-96-5	E420/CG	0.00010	mg/L		0.00394	0.00278	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/CG	0.000050	mg/L		0.000399	0.00118	----	----	----
Nickel, total	7440-02-0	E420/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, total	7723-14-0	E420/CG	0.050	mg/L		0.055	<0.050	----	----	----
Potassium, total	7440-09-7	E420/CG	0.050	mg/L		0.361	0.287	----	----	----
Rubidium, total	7440-17-7	E420/CG	0.00020	mg/L		0.00043	0.00043	----	----	----
Selenium, total	7782-49-2	E420/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/CG	0.10	mg/L		3.78	3.72	----	----	----
Silver, total	7440-22-4	E420/CG	0.000010	mg/L		0.000011	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/CG	0.050	mg/L		1.76	1.67	----	----	----
Strontium, total	7440-24-6	E420/CG	0.00020	mg/L		0.0135	0.0120	----	----	----
Sulfur, total	7704-34-9	E420/CG	0.50	mg/L		1.24	1.07	----	----	----
Tellurium, total	13494-80-9	E420/CG	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/CG	0.00030	mg/L		0.00193	0.00166	----	----	----
Tungsten, total	7440-33-7	E420/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/CG	0.000010	mg/L		0.000167	0.000354	----	----	----
Vanadium, total	7440-62-2	E420/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	21-Oct-2024 11:53	21-Oct-2024 10:44	----	----	----
						VA24C8188-001	VA24C8188-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Zinc, total	7440-66-6	E420/CG	0.0030	mg/L		<0.0030	0.0032	----	----	----
Zirconium, total	7440-67-7	E420/CG	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/CG	0.0010	mg/L		0.0884	0.0936	----	----	----
Antimony, dissolved	7440-36-0	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/CG	0.00010	mg/L		0.00022	0.00018	----	----	----
Barium, dissolved	7440-39-3	E421/CG	0.00010	mg/L		0.00354	0.00376	----	----	----
Beryllium, dissolved	7440-41-7	E421/CG	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/CG	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/CG	0.0000050	mg/L		0.0000068	0.0000063	----	----	----
Calcium, dissolved	7440-70-2	E421/CG	0.050	mg/L		2.90	2.95	----	----	----
Cesium, dissolved	7440-46-2	E421/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Chromium, dissolved	7440-47-3	E421/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/CG	0.00020	mg/L		0.00112	0.00084	----	----	----
Iron, dissolved	7439-89-6	E421/CG	0.010	mg/L		0.027	0.022	----	----	----
Lead, dissolved	7439-92-1	E421/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, dissolved	7439-93-2	E421/CG	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, dissolved	7439-95-4	E421/CG	0.0050	mg/L		0.459	0.386	----	----	----
Manganese, dissolved	7439-96-5	E421/CG	0.00010	mg/L		0.00212	0.00160	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	21-Oct-2024 11:53	21-Oct-2024 10:44	----	----	----
						VA24C8188-001	VA24C8188-002	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/CG	0.000050	mg/L		0.000373	0.000707	----	----	----
Nickel, dissolved	7440-02-0	E421/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, dissolved	7723-14-0	E421/CG	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/CG	0.050	mg/L		0.330	0.265	----	----	----
Rubidium, dissolved	7440-17-7	E421/CG	0.00020	mg/L		0.00039	0.00034	----	----	----
Selenium, dissolved	7782-49-2	E421/CG	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/CG	0.050	mg/L		3.69	3.59	----	----	----
Silver, dissolved	7440-22-4	E421/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, dissolved	7440-23-5	E421/CG	0.050	mg/L		1.73	1.50	----	----	----
Strontium, dissolved	7440-24-6	E421/CG	0.00020	mg/L		0.0135	0.0113	----	----	----
Sulfur, dissolved	7704-34-9	E421/CG	0.50	mg/L		1.16	1.02	----	----	----
Tellurium, dissolved	13494-80-9	E421/CG	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/CG	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/CG	0.00030	mg/L		0.00033	0.00031	----	----	----
Tungsten, dissolved	7440-33-7	E421/CG	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/CG	0.000010	mg/L		0.000139	0.000183	----	----	----
Vanadium, dissolved	7440-62-2	E421/CG	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, dissolved	7440-66-6	E421/CG	0.0010	mg/L		0.0018	0.0027	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		WLNG US 1	WLNG DS 1	----	----	----
			Client sampling date / time		21-Oct-2024 11:53	21-Oct-2024 10:44	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C8188-001	VA24C8188-002	----	----	----
					Result	Result	----	----	----
Dissolved Metals									
Zirconium, dissolved	7440-67-7	E421/CG	0.00020	mg/L	<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Laboratory	Laboratory	----	----	----
Dissolved metals filtration location	----	EP421/CG	-	-	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	: **VA24C8188**	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	: 21-Oct-2024 18:00
PO	: 11964-Task 20-Phase 3C-4C	Issue Date	: 31-Oct-2024 16:34
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG DS 1	E298	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	26-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG US 1	E298	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	26-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.Br-L	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG US 1	E235.Br-L	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG DS 1	E235.Cl	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG US 1	E235.Cl	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG DS 1	E235.F	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-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										
WLNG US 1	E235.F	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO3-L	21-Oct-2024	23-Oct-2024	3 days	2 days	✓	23-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO3-L	21-Oct-2024	23-Oct-2024	3 days	2 days	✓	23-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO2-L	21-Oct-2024	23-Oct-2024	3 days	2 days	✓	23-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO2-L	21-Oct-2024	23-Oct-2024	3 days	2 days	✓	23-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG DS 1	E235.SO4	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG US 1	E235.SO4	21-Oct-2024	23-Oct-2024	28 days	2 days	✓	23-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG DS 1	E366	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	28-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG US 1	E366	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	28-Oct-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG DS 1	E372-U	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	28-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG US 1	E372-U	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	28-Oct-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WLNG DS 1	E509	21-Oct-2024	30-Oct-2024	28 days	9 days	✓	30-Oct-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WLNG US 1	E509	21-Oct-2024	30-Oct-2024	28 days	9 days	✓	30-Oct-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WLNG DS 1	E421	21-Oct-2024	26-Oct-2024	180 days	5 days	✓	28-Oct-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WLNG US 1	E421	21-Oct-2024	26-Oct-2024	180 days	5 days	✓	28-Oct-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 dissolved (hydrochloric acid)										
WLNG DS 1	EF001	21-Oct-2024	----	----	----		26-Oct-2024	----	5 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial dissolved (hydrochloric acid)										
WLNG US 1	EF001	21-Oct-2024	----	----	----		26-Oct-2024	----	5 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG DS 1	E358-L	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	26-Oct-2024	28 days	5 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	21-Oct-2024	25-Oct-2024	28 days	4 days	✓	26-Oct-2024	28 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG DS 1	E290	21-Oct-2024	23-Oct-2024	14 days	2 days	✓	23-Oct-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG US 1	E290	21-Oct-2024	23-Oct-2024	14 days	2 days	✓	23-Oct-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	21-Oct-2024	----	----	----		27-Oct-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	21-Oct-2024	----	----	----		27-Oct-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	21-Oct-2024	----	----	----		27-Oct-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	21-Oct-2024	----	----	----		27-Oct-2024	7 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG DS 1	E532	21-Oct-2024	----	----	----		24-Oct-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG US 1	E532	21-Oct-2024	----	----	----		24-Oct-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
WLNG DS 1	E508	21-Oct-2024	30-Oct-2024	28 days	9 days	✓	29-Oct-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
WLNG US 1	E508	21-Oct-2024	30-Oct-2024	28 days	9 days	✓	29-Oct-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WLNG DS 1	E420	21-Oct-2024	27-Oct-2024	180 days	6 days	✓	28-Oct-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WLNG US 1	E420	21-Oct-2024	27-Oct-2024	180 days	6 days	✓	28-Oct-2024	180 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG DS 1	E395	21-Oct-2024	----	----	----		24-Oct-2024	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG US 1	E395	21-Oct-2024	----	----	----		24-Oct-2024	7 days	3 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	1726097	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1732683	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1726101	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1726100	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1741082	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1733064	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1732685	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1726099	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1726102	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1726103	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1726104	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1734085	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1728845	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737550	2	20	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1733063	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1732681	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1732682	1	12	8.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1734076	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1726097	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1732683	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1726101	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1726100	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1741082	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1733064	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1732685	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1726099	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1726102	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1726103	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1726104	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1734085	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1728845	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737550	2	20	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1733063	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1732681	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	1732682	1	12	8.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1734076	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1726097	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1732683	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1726101	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1726100	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1741082	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1733064	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1732685	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1726099	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1726102	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1726103	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1726104	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1734085	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1728845	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737550	2	20	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1733063	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1732681	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1732682	1	12	8.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	5.0	✓
TSS by Gravimetry	E160	1734076	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1732683	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1726101	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1726100	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1741082	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1733064	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1732685	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1726099	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1726102	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1726103	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1726104	1	12	8.3	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1728845	1	4	25.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1737550	2	20	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1733063	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1732681	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1732682	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*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1729561	1	7	14.2	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 - 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 - Calgary	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 - Calgary	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 - Calgary	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 - Calgary	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 ALS Environmental - Vancouver	Water	APHA 4500-P J (mod)	Samples for total nitrogen analysis are digested using a heated persulfate digestion. Nitrogen compounds are converted to nitrate in this digestion.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Calgary	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.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C8188**	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	: 21-Oct-2024 18:00
PO	: 11964-Task 20-Phase 3C-4C	Date Analysis Commenced	: 23-Oct-2024
C-O-C number	: ----	Issue Date	: 31-Oct-2024 16:34
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*
		Calgary Metals, Calgary, Alberta
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Administration, Burnaby, British Columbia
		Waterloo Inorganics, Waterloo, Ontario
		Waterloo Metals, Waterloo, Ontario
		Calgary Metals, Calgary, Alberta
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Waterloo Metals, Waterloo, Ontario
		Calgary Metals, Calgary, Alberta
		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: 1726097)											
FJ2403217-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	85.3	84.8	0.588%	20%	----
Physical Tests (QC Lot: 1734076)											
FJ2403238-006	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	244	254	3.78%	20%	----
Physical Tests (QC Lot: 1734085)											
FJ2403238-006	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	403	377	6.67%	20%	----
Anions and Nutrients (QC Lot: 1726099)											
FJ2403217-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.242	0.235	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1726100)											
FJ2403217-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	91.0	90.7	0.266%	20%	----
Anions and Nutrients (QC Lot: 1726101)											
FJ2403217-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	1.35	1.36	0.011	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1726102)											
FJ2403217-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.232	0.228	0.0034	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1726103)											
FJ2403217-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	0.0184	0.0171	0.0012	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1726104)											
FJ2403217-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	146	145	0.728%	20%	----
Anions and Nutrients (QC Lot: 1732681)											
VA24C8188-001	WLNG US 1	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.201	0.206	0.005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1732682)											
VA24C8188-001	WLNG US 1	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0478	0.0477	0.0628%	20%	----
Anions and Nutrients (QC Lot: 1732683)											
VA24C8188-001	WLNG US 1	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0064	0.0014	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1732685)											
VA24C8188-001	WLNG US 1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.74	4.05	0.69	Diff <2x LOR	----
Total Sulfides (QC Lot: 1729561)											
VA24C8188-001	WLNG US 1	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0015	0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1733063)											
FJ2403232-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0102	0.0118	0.0016	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	0.00013	0.000006	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1733063) - continued											
FJ2403232-001	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	2.84	2.91	2.40%	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	0.422	0.431	1.92%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000054	0.0000058	0.0000004	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	44.4	44.3	0.189%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000117	0.000114	1.81%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.276	0.274	0.909%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.424	0.430	1.33%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	10.2	10.8	5.03%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00394	0.00407	3.33%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000070	0.000076	0.000007	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.81	1.84	1.22%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00368	0.00352	4.39%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.55	3.57	0.460%	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	309	314	1.59%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.460	0.471	2.39%	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	0.00011	<0.00010	0.00001	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000030	0.000030	0.0000002	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: 1733063) - continued											
FJ2403232-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	0.00022	0.00021	0.00001	Diff <2x LOR	----
Total Metals (QC Lot: 1737550)											
KS2404340-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1741079)											
VA24C8188-001	WLNG US 1	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1733064)											
FJ2403232-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	0.0011	0.0001	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	2.98	3.08	3.15%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.424	0.439	3.41%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	44.2	44.6	0.840%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000110	0.000111	0.470%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.273	0.274	0.506%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.442	0.471	6.25%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	11.0	11.0	0.794%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00392	0.00399	1.72%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000063	0.000066	0.000002	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.93	1.94	0.492%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00358	0.00368	2.59%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.61	3.69	2.20%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1733064) - continued											
FJ2403232-001	Anonymous	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	339	342	0.727%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.454	0.469	3.10%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<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	0.000024	0.000025	0.000001	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0016	0.0016	0.00008	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1741082)											
VA24C8188-001	WLNG US 1	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1728845)											
VA24C8188-001	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: 1726097)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1734076)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1734085)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1726099)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1726100)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1726101)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1726102)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1726103)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1726104)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1732681)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1732682)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1732683)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1732685)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1729561)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1733063)						
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: 1733063) - 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: 1737550)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1741079)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1733064)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1733064) - continued						
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1741082)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1728845)						
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: 1726097)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1734076)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	88.5	85.0	115	----
Physical Tests (QCLot: 1734085)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 1726099)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	95.0	90.0	110	----
Anions and Nutrients (QCLot: 1726100)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1726101)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1726102)									
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: 1726103)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1726104)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1732681)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 1732682)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	91.1	80.0	120	----
Anions and Nutrients (QCLot: 1732683)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.1	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1732685)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	89.4	80.0	120	----
Total Sulfides (QCLot: 1729561)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 1733063)									

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: 1733063) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	96.7	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.9	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	94.7	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	102	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	96.8	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.7	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	98.2	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.5	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.8	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	99.0	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.3	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	93.9	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	95.3	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.0	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	70.0	130	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	96.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	97.0	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	94.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	104	60.0	140	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	89.9	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	90.8	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	95.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	94.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	93.2	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	99.3	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.2	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	94.1	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.7	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1733063) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.0	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	93.9	80.0	120	----
Total Metals (QCLot: 1737550)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	97.4	80.0	120	----
Total Metals (QCLot: 1741079)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	88.2	80.0	120	----
Dissolved Metals (QCLot: 1733064)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	94.8	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	95.8	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	92.6	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	91.4	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	98.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.1	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	92.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	94.1	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	96.2	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	93.0	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	92.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	95.3	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.4	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.6	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	105	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	94.3	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	93.8	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	93.5	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	100	70.0	130	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.1	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.1	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	90.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	102	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	87.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	104	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: 1733064) - continued									
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	91.4	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	95.3	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	87.5	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	93.2	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	95.6	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.2	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	92.8	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	93.1	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	96.3	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	91.6	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.3	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	94.6	80.0	120	----
Speciated Metals (QCLot: 1728845)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	96.9	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: 1726099)										
FJ2403217-002	Anonymous	Fluoride	16984-48-8	E235.F	5.02 mg/L	5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1726100)										
FJ2403217-002	Anonymous	Chloride	16887-00-6	E235.Cl	509 mg/L	500 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1726101)										
FJ2403217-002	Anonymous	Bromide	24959-67-9	E235.Br-L	2.67 mg/L	2.5 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 1726102)										
FJ2403217-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.7 mg/L	12.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1726103)										
FJ2403217-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.49 mg/L	2.5 mg/L	99.7	75.0	125	----
Anions and Nutrients (QCLot: 1726104)										
FJ2403217-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	508 mg/L	500 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1732681)										
VA24C8188-002	WLNG DS 1	Nitrogen, total	7727-37-9	E366	0.405 mg/L	0.4 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 1732682)										
VA24C8188-002	WLNG DS 1	Phosphorus, total	7723-14-0	E372-U	0.0476 mg/L	0.05 mg/L	95.2	70.0	130	----
Anions and Nutrients (QCLot: 1732683)										
VA24C8188-002	WLNG DS 1	Ammonia, total (as N)	7664-41-7	E298	0.0955 mg/L	0.1 mg/L	95.5	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1732685)										
VA24C8188-002	WLNG DS 1	Carbon, dissolved organic [DOC]	----	E358-L	4.92 mg/L	5 mg/L	98.3	70.0	130	----
Total Sulfides (QCLot: 1729561)										
VA24C8188-002	WLNG DS 1	Sulfide, total (as S)	18496-25-8	E395	0.224 mg/L	0.2 mg/L	112	75.0	125	----
Total Metals (QCLot: 1733063)										
VA24C8032-001	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.195 mg/L	0.2 mg/L	97.7	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.199 mg/L	0.2 mg/L	99.4	70.0	130	----
		Barium, total	7440-39-3	E420	0.193 mg/L	0.2 mg/L	96.6	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.407 mg/L	0.4 mg/L	102	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0953 mg/L	0.1 mg/L	95.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.832 mg/L	1 mg/L	83.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	ND mg/L	----	ND	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Chromium, total	7440-47-3	E420	0.394 mg/L	0.4 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: 1733063) - continued										
VA24C8032-001	Anonymous	Cobalt, total	7440-48-4	E420	ND mg/L	----	ND	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.192 mg/L	0.2 mg/L	96.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.964 mg/L	1 mg/L	96.4	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	0.199 mg/L	0.2 mg/L	99.7	70.0	130	----
		Nickel, total	7440-02-0	E420	ND mg/L	----	ND	70.0	130	----
		Phosphorus, total	7723-14-0	E420	103 mg/L	100 mg/L	103	70.0	130	----
		Potassium, total	7440-09-7	E420	40.0 mg/L	40 mg/L	100	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.191 mg/L	0.2 mg/L	95.6	70.0	130	----
		Selenium, total	7782-49-2	E420	0.422 mg/L	0.4 mg/L	105	70.0	130	----
		Silicon, total	7440-21-3	E420	99.3 mg/L	100 mg/L	99.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		Sodium, total	7440-23-5	E420	21.0 mg/L	20 mg/L	105	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	0.413 mg/L	0.4 mg/L	103	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.219 mg/L	0.2 mg/L	110	70.0	130	----
		Tin, total	7440-31-5	E420	0.191 mg/L	0.2 mg/L	95.7	70.0	130	----
		Titanium, total	7440-32-6	E420	0.375 mg/L	0.4 mg/L	93.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.195 mg/L	0.2 mg/L	97.6	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.995 mg/L	1 mg/L	99.5	70.0	130	----
		Zinc, total	7440-66-6	E420	ND mg/L	----	ND	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.406 mg/L	0.4 mg/L	102	70.0	130	----
Total Metals (QCLot: 1737550)										
VA24C8087-001	Anonymous	Mercury, total	7439-97-6	E508	0.000119 mg/L	0 mg/L	119	70.0	130	----
Total Metals (QCLot: 1741079)										
VA24C8188-002	WLNG DS 1	Mercury, total	7439-97-6	E508	0.0000914 mg/L	0 mg/L	91.4	70.0	130	----
Dissolved Metals (QCLot: 1733064)										
VA24C8032-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	ND mg/L	----	ND	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.183 mg/L	0.2 mg/L	91.5	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.198 mg/L	0.2 mg/L	99.2	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.188 mg/L	0.2 mg/L	94.1	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.395 mg/L	0.4 mg/L	98.8	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0889 mg/L	0.1 mg/L	88.9	70.0	130	----
		Boron, dissolved	7440-42-8	E421	1.05 mg/L	1 mg/L	105	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	ND mg/L	----	ND	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0921 mg/L	0.1 mg/L	92.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1733064) - continued										
VA24C8032-001	Anonymous	Chromium, dissolved	7440-47-3	E421	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	ND mg/L	----	ND	70.0	130	----
		Copper, dissolved	7440-50-8	E421	ND mg/L	----	ND	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.183 mg/L	0.2 mg/L	91.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	1.00 mg/L	1 mg/L	100	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	0.187 mg/L	0.2 mg/L	93.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	ND mg/L	----	ND	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	101 mg/L	100 mg/L	101	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	39.7 mg/L	40 mg/L	99.2	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.188 mg/L	0.2 mg/L	94.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.406 mg/L	0.4 mg/L	102	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	104 mg/L	100 mg/L	104	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0361 mg/L	0.04 mg/L	90.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	20.3 mg/L	20 mg/L	102	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	0.363 mg/L	0.4 mg/L	90.8	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0363 mg/L	0.04 mg/L	90.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.206 mg/L	0.2 mg/L	103	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.176 mg/L	0.2 mg/L	88.2	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.189 mg/L	0.2 mg/L	94.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	----	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.991 mg/L	1 mg/L	99.1	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	ND mg/L	----	ND	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.396 mg/L	0.4 mg/L	99.0	70.0	130	----
Dissolved Metals (QCLot: 1741082)										
VA24C8188-002	WLNG DS 1	Mercury, dissolved	7439-97-6	E509	0.0000944 mg/L	0 mg/L	94.4	70.0	130	----
Speciated Metals (QCLot: 1728845)										
VA24C8188-001	WLNG 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 1 of

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

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

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

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

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

Date and Time Required for all E&P TATs: 29-OCT-2024

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

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA23-TRIT100-012	AFE/Cost Center:	PO#
Job #:	11964	Major/Minor Code:	Routing Code:
PO / AFE:	11964 - Task 20 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Conta	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 detail	NUMBER OF CONTAINERS
					F	F					P	P			F/P							
	WLNG US 1	21-Oct-24	11:53	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.12 cond: 35 µS/cm temp: 10.9 °C																					
	WLNG DS 1	21-Oct-24	10:44	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.17 cond: 43 µS/cm temp: 10.8 °C																					

Environmental Division
Vancouver
Work Order Reference
VA24C8188

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Crit ... list below
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			
				4			

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:
21-OCT-24	16:44					Oct 21	6pm

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

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

	EAS DS1							EAS US1 (Background)					
Date	Temperature (c)	Specific Conductivity (µS/cm)	Salinity PSU	pH	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Date	Temperature (c)	Specific Conductivity (µS/cm)	Salinity PSU	pH	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10/21/2024 12:00	10.89	36.93	0.02	7.15	10.21	7.43	10/21/2024 12:00	10.6	16.9		7.1	10.1	2.5
10/21/2024 13:00	10.95	35.73	0.02	7.19	10.19	19.27	10/21/2024 13:00	10.6	20.2		7.1	10.1	1.9
							10/21/2024 13:15	10.5	19.8		7.1	10.2	0.4
							10/21/2024 13:30	10.5	19.9		7.0	10.1	0.3
							10/21/2024 13:45	10.5	19.8		7.1	10.2	0.3
10/21/2024 14:00	10.81	24.96	0.01	6.97	10.20	12.20	10/21/2024 14:00	10.5	19.6		7.1	10.2	0.4
							10/21/2024 14:15	10.4	19.6		7.1	10.2	1.7
							10/21/2024 14:30	10.5	19.3		7.0	10.2	0.4
							10/21/2024 14:45	10.5	19.3		7.1	10.1	0.3
10/21/2024 15:00	10.78	27.13	0.01	7.13	10.22	69.52	10/21/2024 15:00	10.5	19.0		7.1	10.1	0.4
							10/21/2024 15:15	10.6	19.1		7.1	10.1	0.3
							10/21/2024 15:30	10.5	18.8		7.1	10.1	0.8
							10/21/2024 15:45	10.5	18.8		7.2	10.2	0.3
10/21/2024 16:00	10.87	30.56	0.01	7.14	10.20	10.78	10/21/2024 16:00	10.5	18.5		7.1	10.2	0.3
							10/21/2024 16:15	10.5	18.6		7.1	10.1	0.4
							10/21/2024 16:30	10.5	18.4		7.1	10.2	0.3
							10/21/2024 16:45	10.5	18.4		7.1	10.2	0.6
10/21/2024 17:00	10.69	23.64	0.01	6.97	10.23	6.84	10/21/2024 17:00	10.4	18.2		7.1	10.2	0.3
10/21/2024 17:15	10.59	23.60	0.01	6.88	10.27	6.24	10/21/2024 17:15	10.4	18.3		7.2	10.2	0.4
10/21/2024 17:30	10.61	26.62	0.01	6.98	10.30	31.49	10/21/2024 17:30	10.4	18.2		7.1	10.2	0.6
10/21/2024 17:45	10.66	32.19	0.01	7.11	10.27	5.44	10/21/2024 17:45	10.3	18.2		7.1	10.2	0.3
10/21/2024 18:00	10.62	30.73	0.01	7.12	10.30	12.90	10/21/2024 18:00	10.3	18.1		7.0	10.2	0.3
10/21/2024 18:15	10.50	21.25	0.01	6.94	10.30	25.84	10/21/2024 18:15	10.3	18.1		7.1	10.2	0.4
10/21/2024 18:30	10.45	19.87	0.01	6.93	10.31	30.98	10/21/2024 18:30	10.2	17.7		7.0	10.2	0.7
10/21/2024 18:45	10.40	18.92	0.01	6.89	10.32	25.58	10/21/2024 18:45	10.2	18.0		7.1	10.2	0.4
10/21/2024 19:00	10.48	30.52	0.01	7.10	10.35	6.49	10/21/2024 19:00	10.2	17.9		7.0	10.2	0.3
10/21/2024 19:15	10.45	29.20	0.01	7.11	10.32	8.72	10/21/2024 19:15	10.1	17.9		7.1	10.2	0.5
10/21/2024 19:30	10.42	30.80	0.01	7.12	10.37	17.70	10/21/2024 19:30	10.1	17.6		7.0	10.3	0.4
10/21/2024 19:45	10.27	22.46	0.01	6.88	10.37	6.53	10/21/2024 19:45	10.1	17.9		7.1	10.3	0.6
10/21/2024 20:00	10.23	22.51	0.01	6.87	10.41	4.74	10/21/2024 20:00	10.0	17.5		7.0	10.3	0.5
10/21/2024 20:15	10.20	22.48	0.01	6.91	10.39	5.28	10/21/2024 20:15	10.0	17.6		7.1	10.3	0.3
10/21/2024 20:30	10.25	29.71	0.01	7.05	10.42	9.11	10/21/2024 20:30	10.0	17.3		7.1	10.3	0.4
10/21/2024 20:45	10.26	28.79	0.01	7.09	10.39	7.21	10/21/2024 20:45	10.0	17.4		7.1	10.3	0.3
10/21/2024 21:00	10.23	30.22	0.01	7.09	10.44	7.81	10/21/2024 21:00	9.9	17.2		7.0	10.4	0.4
10/21/2024 21:15	10.14	27.86	0.01	7.07	10.41	5.89	10/21/2024 21:15	9.9	17.3		7.0	10.3	0.4
10/21/2024 21:30	10.07	22.19	0.01	6.87	10.51	6.88	10/21/2024 21:30	9.9	17.0		7.1	10.3	0.5
10/21/2024 21:45	10.04	22.74	0.01	6.92	10.44	4.25	10/21/2024 21:45	9.9	17.1		7.0	10.3	0.5
10/21/2024 22:00	10.01	21.79	0.01	6.86	10.49	4.35	10/21/2024 22:00	9.8	16.9		7.1	10.4	0.8
10/21/2024 22:15	10.09	31.68	0.01	7.11	10.43	6.74	10/21/2024 22:15	9.8	17.0		7.1	10.4	0.4
10/21/2024 22:30	10.06	30.30	0.01	7.11	10.48	7.04	10/21/2024 22:30	9.8	16.6		7.1	10.4	0.4
10/21/2024 22:45	10.04	29.00	0.01	7.08	10.45	6.04	10/21/2024 22:45	9.8	17.0		7.1	10.4	1.2
10/21/2024 23:00	10.03	30.44	0.01	7.10	10.49	4.86	10/21/2024 23:00	9.8	16.7		7.1	10.4	0.4
10/21/2024 23:15	10.02	32.12	0.01	7.14	10.47	7.66	10/21/2024 23:15	9.8	16.8		7.1	10.4	0.5
10/21/2024 23:30	9.90	21.89	0.01	6.89	10.53	4.95	10/21/2024 23:30	9.8	16.4		7.0	10.4	0.5
10/21/2024 23:45	9.88	22.22	0.01	6.93	10.51	10.61	10/21/2024 23:45	9.7	16.6		7.1	10.4	0.4
10/22/2024 0:00	9.86	20.88	0.01	6.82	10.55	4.41	10/22/2024 0:00	9.7	16.4		7.1	10.4	0.5
10/22/2024 0:15	9.85	21.93	0.01	6.88	10.52	3.92	10/22/2024 0:15	9.7	16.5		7.0	10.4	0.8
10/22/2024 0:30	9.89	27.83	0.01	7.01	10.56	5.81	10/22/2024 0:30	9.7	16.3		7.0	10.4	0.3
10/22/2024 0:45	9.94	31.74	0.01	7.09	10.48	4.00	10/22/2024 0:45	9.7	16.4		7.1	10.4	0.3
10/22/2024 1:00	9.93	30.71	0.01	7.08	10.55	3.77	10/22/2024 1:00	9.7	16.0		7.0	10.4	0.3
10/22/2024 1:15	9.87	26.71	0.01	7.04	10.51	4.72	10/22/2024 1:15	9.7	16.4		6.9	10.4	0.3
10/22/2024 1:30	9.81	21.53	0.01	6.88	10.57	4.39	10/22/2024 1:30	9.7	16.1		7.0	10.4	0.3
10/22/2024 1:45	9.80	21.96	0.01	6.92	10.54	4.13	10/22/2024 1:45	9.7	16.3		7.0	10.4	0.3
10/22/2024 2:00	9.77	20.98	0.01	6.87	10.60	5.04	10/22/2024 2:00	9.6	16.2		7.1	10.4	0.3
10/22/2024 2:15	9.85	31.06	0.01	7.14	10.51	5.06	10/22/2024 2:15	9.6	16.1		7.0	10.4	0.6
10/22/2024 2:30	9.83	30.30	0.01	7.09	10.55	5.89	10/22/2024 2:30	9.6	15.9		7.0	10.4	0.2
10/22/2024 2:45	9.81	31.78	0.01	7.08	10.53	4.57	10/22/2024 2:45	9.6	16.1		7.0	10.4	0.3
10/22/2024 3:00	9.68	21.28	0.01	6.85	10.64	3.75	10/22/2024 3:00	9.5	15.8		7.1	10.5	0.5
10/22/2024 3:15	9.64	20.20	0.01	6.82	10.59	3.89	10/22/2024 3:15	9.5	16.0		7.0	10.5	0.5
10/22/2024 3:30	9.61	19.98	0.01	6.82	10.65	3.97	10/22/2024 3:30	9.5	15.8		7.0	10.5	0.3
10/22/2024 3:45	9.61	21.79	0.01	6.92	10.59	5.73	10/22/2024 3:45	9.5	15.9		7.1	10.5	0.3
10/22/2024 4:00	9.70	30.06	0.01	7.10	10.63	5.31	10/22/2024 4:00	9.5	15.6		7.0	10.5	0.2
10/22/2024 4:15	9.71	31.83	0.01	7.09	10.58	5.35	10/22/2024 4:15	9.5	15.8		7.0	10.5	0.3
10/22/2024 4:30	9.71	31.70	0.01	7.09	10.61	8.25	10/22/2024 4:30	9.5	15.5		7.0	10.5	0.3
10/22/2024 4:45	9.70	32.11	0.01	7.11	10.59	4.81	10/22/2024 4:45	9.5	15.8		7.0	10.5	0.3
10/22/2024 5:00	9.58	21.78	0.01	6.88	10.64	6.09	10/22/2024 5:00	9.5	15.5		7.1	10.5	0.6
10/22/2024 5:15	9.56	21.33	0.01	6.89	10.61	6.08	10/22/2024 5:15	9.5	15.8		7.1	10.5	0.5
10/22/2024 5:30	9.57	21.35	0.01	6.87	10.68	4.69	10/22/2024 5:30	9.5	15.7		7.0	10.5	0.3
10/22/2024 5:45	9.56	21.68	0.01	6.87	10.62	4.58	10/22/2024 5:45	9.5	15.7		7.0	10.5	0.2
10/22/2024 6:00	9.68	31.11	0.01	7.09	10.64	5.25	10/22/2024 6:00	9.5	15.5		7.0	10.5	0.2
10/22/2024 6:15	9.69	32.69	0.01	7.15	10.59	5.09	10/22/2024 6:15	9.5	15.7		7.0	10.5	0.9
10/22/2024 6:30	9.70	32.31	0.01	7.13	10.64	4.95	10/22/2024 6:30	9.5	15.6		7.0	10.5	0.4
10/22/2024 6:45	9.58	21.85	0.01	6.94	10.62	5.41	10/22/2024 6:45	9.5	15.6		7.0	10.5	0.3
10/22/2024 7:00	9.54	20.56	0.01	6.86	10.68	5.29	10/22/2024 7:00	9.5	15.4		7.0	10.5	0.2
10/22/2024 7:15	9.54	24.43	0.01	6.95	10.62	6.21	10/22/2024 7:15	9.4	15.5		7.1	10.5	0.4
10/22/2024 7:30	9.50	20.41	0.01	6.84	10.70	5.44	10/22/2024 7:30	9.4	15.3		7.0	10.5	0.2
10/22/2024 7:45	9.47	20.95	0.01	6.88	10.64	6.58	10/22/2024 7:45	9.4	15.5		7.0	10.5	0.2
10/22/2024 8:00	9.56	30.32	0.01	7.09	10.68	4.93	10/22/2024 8:00	9.4	15.3		7.0	10.5	0.3
10/22/2024 8:15	9.52	27.70	0.01	7.12	10.64	3.62	10/22/2024 8:15	9.4	15.4		7.0	10.5	0.2
10/22/2024 8:30	9.53	31.42	0.01	7.09	10.69	4.77	10/22/2024 8:30	9.4	15.1		7.0	10.5	0.3
10/22/2024 8:45	9.41	21.96	0.01	6.94	10.66	4.05	10/22/2024 8:45	9.4	15.3		7.0	10.5	0.2
10/22/2024 9:00	9.38	20.30	0.01	6.84	10.74	4.50	10/22/2024 9:00	9.4	15.0		7.1	10.5	0.3
10/22/2024 9:15	9.39	19.13	0.01	6.83	10.71	5.41	10/22/2024 9:15	9.4	15.3		6.9	10.5	0.2
10/22/2024 9:30	9.55	27.40	0.01	7.12	10.66	5.90	10/22/2024 9:30	9.4	15.2		7.0	10.5	0.4
10/22/2024 9:45	9.58	31.10	0.01	7.15	10.66	5.50	10/22/2024 9:45	9.4	15.2		7.0	10.5	0.3
10/22/2024 10:00	9.61	29.86	0.01	7.12	10.69	3.82	10/22/2024 10:00	9.4	15.2		7.0	10.5	0.3
10/22/2024 10:15	9.50	32.27	0.01	7.16	10.67	6.29	10/22/2024 10:15	9.4	15.2		6.9	10.5	0.2
10/22/2024 10:30	9.52	29.61	0.01	7.11	10.67	4.70	10/22/2024 10:30	9.5	15.0		7.0	10.5	0.3
10/22/2024 10:45	9.54	32.70	0.01	7.17	10.65	4.89	10/22/2024 10:45	9.5	15.2		7.0	10.5	0.2
10/22/2024 11:00	9.47	20.36	0.01	6.89	10.72	6.03	10/22/2024 11:00	9.6	14.9		7.0	10.5	0.3
10/22/2024 11:15	9.50	20.79	0.01	6.87	10.68	4.85	10/22/2024 11:15	9.6	15.2		7.0	10.5	0.3
10/22/2024 11:30	9.62	31.42	0.01	7.14	10.69	6.12	10/22/2024 11:30	9.6	15.0		7.0	10.5	0.3
10/22/2024 11:45	9.74	29.59	0.01	7.13	10.60	6.25	10/22/2024 11:45	9.6	15.1		7.0	10.5	0.3
10/22/2024 12:00	9.80	31.47	0.01	7.12	10.65	7.25	10/22/2024 12:00	9.7	15.0		6.9	10.5	0.2
10/22/2024 12:15	9.84	33.29	0.01	7.13	10.57	9.41	10/22/2024 12:15	9.7	15.1		6.9	10.5	0.3

10/22/2024 12:30	9.74	21.06	0.01	6.83	10.67	4.24	10/22/2024 12:30	9.7	14.9	7.0	10.5	0.7
10/22/2024 12:45	9.74	21.08	0.01	6.89	10.60	4.61	10/22/2024 12:45	9.7	15.0	7.0	10.4	0.4
10/22/2024 13:00	9.77	19.28	0.01	6.84	10.61	5.27	10/22/2024 13:00	9.8	14.9	7.1	10.4	0.3
10/22/2024 13:15	9.78	18.04	0.01	6.85	10.62	5.91	10/22/2024 13:15	9.8	15.0	7.0	10.4	0.3
10/22/2024 13:30	9.95	26.85	0.01	7.11	10.57	9.85	10/22/2024 13:30	9.8	14.8	7.1	10.4	0.3
10/22/2024 13:45	9.99	26.67	0.01	7.13	10.55	7.28	10/22/2024 13:45	9.9	15.0	7.1	10.4	0.4
10/22/2024 14:00	10.05	29.63	0.01	7.13	10.57	8.43	10/22/2024 14:00	9.9	14.8	7.1	10.4	0.2
10/22/2024 14:15	9.99	17.37	0.01	6.87	10.54	6.08	10/22/2024 14:15	9.9	14.9	7.1	10.4	0.8
10/22/2024 14:30	9.97	18.76	0.01	6.85	10.59	5.30	10/22/2024 14:30	9.9	14.7	7.1	10.4	0.3
10/22/2024 14:45	9.97	20.13	0.01	6.90	10.53	4.03	10/22/2024 14:45	10.0	14.9	7.0	10.4	0.5
10/22/2024 15:00	10.14	31.61	0.01	7.14	10.56	9.99	10/22/2024 15:00	10.0	14.6	7.0	10.4	0.3
10/22/2024 15:15	10.21	33.69	0.01	7.16	10.48	6.14	10/22/2024 15:15	10.0	14.8	7.0	10.4	0.3
10/22/2024 15:30	10.23	31.93	0.01	7.10	10.53	6.20	10/22/2024 15:30	10.0	14.7	7.0	10.4	0.3
10/22/2024 15:45	10.19	33.75	0.01	7.13	10.48	9.81	10/22/2024 15:45	10.0	14.7	7.1	10.4	0.3
10/22/2024 16:00	10.01	19.64	0.01	6.85	10.59	4.10	10/22/2024 16:00	10.0	14.6	7.0	10.4	0.3
10/22/2024 16:15	10.00	19.64	0.01	6.89	10.55	4.03	10/22/2024 16:15	10.0	14.7	7.0	10.4	0.2
10/22/2024 16:30	10.00	18.97	0.01	6.90	10.59	7.05	10/22/2024 16:30	10.0	14.6	7.0	10.4	0.4
10/22/2024 16:45	10.13	32.75	0.01	7.13	10.50	7.33	10/22/2024 16:45	10.0	14.7	7.0	10.4	0.3
10/22/2024 17:00	10.15	32.89	0.01	7.08	10.55	14.38	10/22/2024 17:00	10.0	14.6	7.0	10.4	0.2
10/22/2024 17:02	10.15	31.81	0.01	7.11	10.49	10.93	10/22/2024 17:02	10.0	14.7	7.0	10.4	0.2
10/22/2024 17:15	10.15	31.62	0.01	7.11	10.49	11.55	10/22/2024 17:15	10.0	14.6	7.0	10.4	0.3
10/22/2024 17:30	10.08	27.00	0.01	7.00	10.55	7.10	10/22/2024 17:30	10.0	14.7	7.0	10.4	0.2
10/22/2024 17:45	10.01	20.84	0.01	6.93	10.52	5.25	10/22/2024 17:45	10.0	14.6	7.0	10.4	0.2
10/22/2024 18:00	10.00	20.13	0.01	6.86	10.59	5.09	10/22/2024 18:00	10.0	14.7	7.0	10.3	0.2
10/22/2024 18:15	10.00	20.30	0.01	6.88	10.54	3.56	10/22/2024 18:15	10.0	14.6	7.0	10.3	0.2
10/22/2024 18:30	10.12	33.32	0.01	7.08	10.55	8.06	10/22/2024 18:30	9.9	14.8	7.0	10.4	0.4
10/22/2024 18:45	10.10	34.42	0.01	7.09	10.52	5.34	10/22/2024 18:45	9.9	14.6	7.0	10.4	0.3
10/22/2024 19:00	10.06	34.52	0.01	7.09	10.56	5.42	10/22/2024 19:00	9.9	14.7	7.0	10.4	0.2
10/22/2024 19:15	9.94	24.71	0.01	7.03	10.53	8.26	10/22/2024 19:15	9.8	14.7	7.0	10.4	0.3
10/22/2024 19:30	9.85	19.98	0.01	6.89	10.62	3.95	10/22/2024 19:30	9.8	14.6	7.0	10.4	0.2
10/22/2024 19:45	9.81	20.23	0.01	6.91	10.57	3.82	10/22/2024 19:45	9.7	14.6	7.0	10.4	0.2
10/22/2024 20:00	9.77	18.89	0.01	6.91	10.58	3.67	10/22/2024 20:00	9.7	14.7	6.9	10.4	0.3
10/22/2024 20:15	9.87	34.94	0.02	7.12	10.56	7.16	10/22/2024 20:15	9.7	14.6	6.9	10.4	0.3
10/22/2024 20:30	9.85	34.12	0.01	7.08	10.62	8.17	10/22/2024 20:30	9.7	14.7	7.0	10.4	0.2
10/22/2024 20:45	9.81	36.16	0.02	7.12	10.57	5.51	10/22/2024 20:45	9.6	14.4	7.0	10.4	0.3
10/22/2024 21:00	9.68	21.55	0.01	6.94	10.66	5.43	10/22/2024 21:00	9.6	14.6	7.0	10.4	0.3
10/22/2024 21:15	9.61	20.07	0.01	6.90	10.61	6.98	10/22/2024 21:15	9.5	14.5	7.0	10.5	0.3
10/22/2024 21:30	9.57	19.46	0.01	6.87	10.69	3.43	10/22/2024 21:30	9.5	14.6	7.0	10.5	0.2
10/22/2024 21:45	9.55	21.21	0.01	6.92	10.64	3.95	10/22/2024 21:45	9.5	14.6	7.0	10.5	0.2
10/22/2024 22:00	9.51	20.40	0.01	6.88	10.71	3.77	10/22/2024 22:00	9.5	14.6	7.0	10.5	0.3
10/22/2024 22:15	9.62	34.67	0.01	7.08	10.63	5.03	10/22/2024 22:15	9.4	14.4	6.9	10.5	0.2
10/22/2024 22:30	9.60	36.09	0.02	7.11	10.68	4.38	10/22/2024 22:30	9.4	14.6	7.0	10.5	0.2
10/22/2024 22:45	9.57	35.31	0.02	7.11	10.63	4.98	10/22/2024 22:45	9.4	14.5	7.0	10.5	0.4
10/22/2024 23:00	9.43	22.16	0.01	7.01	10.69	4.42	10/22/2024 23:00	9.3	14.6	7.0	10.5	0.2
10/22/2024 23:15	9.35	19.68	0.01	6.86	10.70	6.28	10/22/2024 23:15	9.3	14.5	7.0	10.5	0.2
10/22/2024 23:30	9.32	19.43	0.01	6.85	10.74	3.55	10/22/2024 23:30	9.3	14.6	7.0	10.5	0.2
10/22/2024 23:45	9.30	20.44	0.01	6.88	10.70	4.00	10/22/2024 23:45	9.3	14.4	7.1	10.5	0.2
10/23/2024 0:00	9.42	35.91	0.02	7.10	10.71	4.66	10/23/2024 0:00	9.2	14.6	7.0	10.5	0.4
10/23/2024 0:15	9.40	37.27	0.02	7.10	10.68	4.29	10/23/2024 0:15	9.2	14.5	6.9	10.5	0.2
10/23/2024 0:30	9.38	36.45	0.02	7.11	10.73	4.57	10/23/2024 0:30	9.2	14.5	7.0	10.5	0.2
10/23/2024 0:45	9.23	20.87	0.01	6.96	10.71	4.19	10/23/2024 0:45	9.2	14.4	7.0	10.5	0.2
10/23/2024 1:00	9.17	19.85	0.01	6.84	10.80	3.85	10/23/2024 1:00	9.1	14.5	7.0	10.5	0.2
10/23/2024 1:15	9.15	20.14	0.01	6.89	10.73	4.36	10/23/2024 1:15	9.1	14.3	7.0	10.6	0.2
10/23/2024 1:30	9.12	19.69	0.01	6.82	10.81	3.42	10/23/2024 1:30	9.1	14.5	7.0	10.6	0.2
10/23/2024 1:45	9.24	36.82	0.02	7.10	10.71	3.82	10/23/2024 1:45	9.1	14.3	7.0	10.6	0.2
10/23/2024 2:00	9.23	35.98	0.02	7.12	10.77	3.38	10/23/2024 2:00	9.0	14.5	7.0	10.6	0.2
10/23/2024 2:15	9.21	36.92	0.02	7.11	10.70	4.66	10/23/2024 2:15	9.0	14.3	6.9	10.6	0.2
10/23/2024 2:30	9.03	20.23	0.01	6.93	10.84	3.92	10/23/2024 2:30	9.0	14.4	7.0	10.6	0.3
10/23/2024 2:45	8.99	19.00	0.01	6.87	10.78	4.62	10/23/2024 2:45	9.0	14.3	7.0	10.6	0.2
10/23/2024 3:00	8.97	18.18	0.01	6.88	10.79	3.46	10/23/2024 3:00	9.0	14.4	7.0	10.6	0.3
10/23/2024 3:15	8.95	17.71	0.01	6.80	10.80	3.88	10/23/2024 3:15	9.0	14.3	7.0	10.6	0.2
10/23/2024 3:30	8.95	18.62	0.01	6.89	10.79	4.01	10/23/2024 3:30	9.0	14.4	7.0	10.6	0.3
10/23/2024 3:45	8.93	17.69	0.01	6.88	10.79	3.53	10/23/2024 3:45	8.9	14.2	7.0	10.6	0.2
10/23/2024 4:00	8.96	28.20	0.01	7.04	10.80	5.68	10/23/2024 4:00	8.9	14.3	7.0	10.6	0.2
10/23/2024 4:15	9.05	28.00	0.01	7.14	10.76	4.12	10/23/2024 4:15	8.9	14.1	7.0	10.6	0.3
10/23/2024 4:30	9.04	34.00	0.01	7.07	10.81	3.79	10/23/2024 4:30	8.9	14.3	7.1	10.6	1.4
10/23/2024 4:45	9.02	35.69	0.02	7.14	10.75	4.69	10/23/2024 4:45	8.9	14.1	7.0	10.6	1.8
10/23/2024 5:00	8.85	20.29	0.01	6.86	10.86	3.51	10/23/2024 5:00	8.9	14.3	7.1	10.6	0.2
10/23/2024 5:15	8.87	28.23	0.01	6.99	10.80	4.63	10/23/2024 5:15	8.9	14.1	7.0	10.6	0.2
10/23/2024 5:30	8.83	20.99	0.01	6.86	10.87	3.81	10/23/2024 5:30	8.8	14.3	7.0	10.6	0.2
10/23/2024 5:45	8.80	19.90	0.01	6.87	10.83	3.98	10/23/2024 5:45	8.8	14.2	7.0	10.6	0.2
10/23/2024 6:00	8.79	19.18	0.01	6.88	10.82	4.84	10/23/2024 6:00	8.8	14.3	7.0	10.6	0.2
10/23/2024 6:15	8.94	33.55	0.01	7.14	10.78	3.92	10/23/2024 6:15	8.8	14.2	7.0	10.6	0.2
10/23/2024 6:30	8.95	31.28	0.01	7.15	10.78	3.56	10/23/2024 6:30	8.8	14.3	7.0	10.6	0.2
10/23/2024 6:45	8.95	30.58	0.01	7.16	10.77	4.77	10/23/2024 6:45	8.8	14.1	7.0	10.6	0.2
10/23/2024 7:00	8.80	18.33	0.01	6.85	10.81	4.10	10/23/2024 7:00	8.9	14.3	7.0	10.6	0.2
10/23/2024 7:15	8.79	16.88	0.01	6.85	10.81	3.53	10/23/2024 7:15	8.9	14.1	7.0	10.6	0.2
10/23/2024 7:30	8.82	18.34	0.01	6.88	10.80	3.63	10/23/2024 7:30	8.9	14.3	7.0	10.6	0.2
10/23/2024 7:45	8.82	17.59	0.01	6.88	10.81	3.38	10/23/2024 7:45	8.9	14.2	7.0	10.6	0.2
10/23/2024 8:00	8.83	17.32	0.01	6.89	10.80	4.03	10/23/2024 8:00	8.9	14.3	7.0	10.6	0.3
10/23/2024 8:15	8.99	31.77	0.01	7.10	10.75	3.32	10/23/2024 8:15	8.9	14.0	7.0	10.6	0.2
10/23/2024 8:30	9.01	28.41	0.01	7.15	10.74	4.21	10/23/2024 8:30	8.9	14.2	7.0	10.6	0.2
10/23/2024 8:45	9.02	25.87	0.01	7.16	10.75	3.53	10/23/2024 8:45	8.9	14.0	7.0	10.6	0.3
10/23/2024 9:00	9.04	22.84	0.01	7.15	10.74	4.14	10/23/2024 9:00	8.9	14.2	7.0	10.6	0.2
10/23/2024 9:15	9.05	21.77	0.01	7.14	10.74	3.71	10/23/2024 9:15	8.9	14.1	7.0	10.6	0.2
10/23/2024 9:30	9.05	30.69	0.01	7.13	10.74	5.67	10/23/2024 9:30	9.0	14.2	7.1	10.6	0.2
10/23/2024 9:45	9.09	26.74	0.01	7.17	10.73	3.52	10/23/2024 9:45	9.0	14.1	7.0	10.6	0.2
10/23/2024 10:00	8.95	17.73	0.01	6.92	10.76	3.20	10/23/2024 10:00	9.0	14.2	7.1	10.6	0.2
10/23/2024 10:15	8.96	17.26	0.01	6.83	10.77	4.01	10/23/2024 10:15	9.0	14.1	7.0	10.6	0.2
10/23/2024 10:30	8.98	17.03	0.01	6.82	10.76	9.06	10/23/2024 10:30	9.1	14.2	7.0	10.6	0.2
10/23/2024 10:45	9.15	23.97	0.01	7.13	10.70	4.66	10/23/2024 10:45	9.1	14.0	7.0	10.6	0.2
10/23/2024 11:00	9.23	30.43	0.01	7.13	10.69	5.91	10/23/2024 11:00	9.1	14.2	7.0	10.6	0.2
10/23/2024 11:15	9.26	28.81	0.01	7.16	10.69	8.46	10/23/2024 11:15	9.2	14.0	7.0	10.6	0.2
10/23/2024 11:30	9.30	23.64	0.01	7.15	10.67	7.23	10/23/2024 11:30	9.2	14.2	7.0	10.5	0.2
10/23/2024 11:45	9.35	25.27	0.01	7.17	10.65	9.64	10/23/2024 11:45	9.3	14.1	7.1	10.5	0.2
10/23/2024 12:00	9.28	15.97	0.01	6.94	10.67	4.60	10/23/2024 12:00	9.3	14.1	7.1	10.5	0.2
10/23/2024 12:15	9.28	15.53	0.01	6.88	10.66	3.69	10/23/2024 12:15	9.3	14.1	7.1	10.5	0.3
10/23/2024 12:30	9.26	13.69	0.01	6.84	10.68	3.72	10/23/2024 12:30	9.3	14.1	7.1	10.5	0.2
10/23/2024 12:45	9.43	28.55	0.01	7.16	10.64	9.94	10/23/2024 12:45	9.3	13.9	7.0	10.5	0.2

10/23/2024 13:00	9.46	36.97	0.02	7.22	10.70	9.22	10/23/2024 13:00	9.3	14.1	7.0	10.5	0.2
10/23/2024 13:15	9.47	35.85	0.02	7.17	10.66	8.13	10/23/2024 13:15	9.4	14.0	7.0	10.5	0.2
10/23/2024 13:30	9.52	36.34	0.02	7.23	10.62	7.44	10/23/2024 13:30	9.4	14.1	7.0	10.5	0.2
10/23/2024 13:45	9.39	21.65	0.01	6.94	10.65	5.09	10/23/2024 13:45	9.4	14.0	7.0	10.5	0.2
10/23/2024 14:00	9.38	20.20	0.01	6.88	10.71	4.40	10/23/2024 14:00	9.5	14.0	7.1	10.5	0.2
10/23/2024 14:15	9.42	20.25	0.01	6.90	10.65	3.31	10/23/2024 14:15	9.5	13.8	7.1	10.4	0.2
10/23/2024 14:30	9.45	19.70	0.01	6.87	10.69	6.37	10/23/2024 14:30	9.5	14.0	7.1	10.5	0.2
10/23/2024 14:45	9.67	39.90	0.02	7.19	10.59	6.85	10/23/2024 14:45	9.6	13.9	7.1	10.4	0.2
10/23/2024 15:00	9.70	39.49	0.02	7.17	10.62	5.57	10/23/2024 15:00	9.6	14.0	7.0	10.4	0.2
10/23/2024 15:15	9.71	39.80	0.02	7.19	10.58	9.51	10/23/2024 15:15	9.6	14.0	7.1	10.4	0.2
10/23/2024 15:30	9.73	39.64	0.02	7.19	10.62	5.37	10/23/2024 15:30	9.6	14.0	7.1	10.4	0.2
10/23/2024 15:45	9.58	21.94	0.01	6.96	10.61	5.25	10/23/2024 15:45	9.6	13.8	7.0	10.4	0.2
10/23/2024 16:00	9.55	20.50	0.01	6.89	10.68	3.90	10/23/2024 16:00	9.6	14.0	7.0	10.5	0.2
10/23/2024 16:15	9.53	20.22	0.01	6.89	10.63	3.49	10/23/2024 16:15	9.6	13.8	7.0	10.4	0.6
10/23/2024 16:30	9.53	20.01	0.01	6.84	10.67	3.81	10/23/2024 16:30	9.6	14.1	7.0	10.4	0.2
10/23/2024 16:45	9.69	40.00	0.02	7.23	10.59	10.92	10/23/2024 16:45	9.5	14.0	7.0	10.5	0.6
10/23/2024 17:00	9.69	38.96	0.02	7.20	10.65	10.05	10/23/2024 17:00	9.5	15.5	7.1	10.4	0.2
10/23/2024 17:15	9.66	39.43	0.02	7.20	10.61	12.21	10/23/2024 17:15	9.5	17.1	7.1	10.4	0.3
10/23/2024 17:30	9.59	31.14	0.01	7.09	10.68	8.14	10/23/2024 17:30	9.5	16.8	7.1	10.4	0.2
10/23/2024 17:45	9.66	41.77	0.02	7.24	10.61	15.09	10/23/2024 17:45	9.5	16.2	7.1	10.4	0.2
10/23/2024 18:00	9.65	40.69	0.02	7.22	10.66	9.41	10/23/2024 18:00	9.5	16.1	7.0	10.4	0.2
10/23/2024 18:15	9.47	23.43	0.01	6.96	10.65	3.86	10/23/2024 18:15	9.5	15.9	7.0	10.4	0.2
10/23/2024 18:30	9.44	21.65	0.01	6.88	10.68	3.09	10/23/2024 18:30	9.5	15.7	7.1	10.4	0.2
10/23/2024 18:45	9.42	21.80	0.01	6.87	10.67	3.94	10/23/2024 18:45	9.4	15.4	7.1	10.5	0.2
10/23/2024 19:00	9.39	20.72	0.01	6.87	10.68	3.20	10/23/2024 19:00	9.4	15.4	7.0	10.5	0.2
10/23/2024 19:15	9.38	20.25	0.01	6.84	10.69	3.36	10/23/2024 19:15	9.4	15.0	7.1	10.5	0.2
10/23/2024 19:30	9.36	20.38	0.01	6.82	10.70	3.64	10/23/2024 19:30	9.4	15.2	7.0	10.5	0.2
10/23/2024 19:45	9.37	26.88	0.01	6.97	10.68	7.56	10/23/2024 19:45	9.4	15.0	7.0	10.5	0.2
10/23/2024 20:00	9.55	38.15	0.02	7.22	10.68	4.24	10/23/2024 20:00	9.4	15.0	7.0	10.5	0.2
10/23/2024 20:15	9.54	39.13	0.02	7.26	10.64	4.70	10/23/2024 20:15	9.4	14.7	7.1	10.5	0.2
10/23/2024 20:30	9.53	38.10	0.02	7.22	10.70	4.68	10/23/2024 20:30	9.4	15.0	7.1	10.5	0.2
10/23/2024 20:45	9.36	22.79	0.01	6.99	10.69	3.81	10/23/2024 20:45	9.3	14.9	7.0	10.5	0.2
10/23/2024 21:00	9.29	20.97	0.01	6.87	10.74	3.78	10/23/2024 21:00	9.3	14.9	7.0	10.5	0.2
10/23/2024 21:15	9.26	20.76	0.01	6.88	10.71	4.94	10/23/2024 21:15	9.3	14.7	7.0	10.5	0.2
10/23/2024 21:30	9.24	20.31	0.01	6.82	10.77	3.82	10/23/2024 21:30	9.3	14.9	7.0	10.5	0.2
10/23/2024 21:45	9.38	34.30	0.01	7.24	10.71	4.64	10/23/2024 21:45	9.2	14.6	7.1	10.5	0.2
10/23/2024 22:00	9.41	39.11	0.02	7.24	10.74	4.63	10/23/2024 22:00	9.2	14.8	7.0	10.5	0.2
10/23/2024 22:15	9.39	39.59	0.02	7.29	10.68	4.72	10/23/2024 22:15	9.2	14.5	7.0	10.5	0.2
10/23/2024 22:30	9.18	21.57	0.01	6.90	10.75	4.06	10/23/2024 22:30	9.2	14.7	7.1	10.5	0.4
10/23/2024 22:45	9.13	20.85	0.01	6.88	10.73	3.91	10/23/2024 22:45	9.1	14.6	7.0	10.5	0.2
10/23/2024 23:00	9.12	20.11	0.01	6.83	10.78	4.31	10/23/2024 23:00	9.1	14.7	7.0	10.5	0.2
10/23/2024 23:15	9.10	20.30	0.01	6.84	10.75	4.09	10/23/2024 23:15	9.1	14.6	7.1	10.6	0.2
10/23/2024 23:30	9.30	38.80	0.02	7.24	10.76	3.53	10/23/2024 23:30	9.1	14.6	7.0	10.6	0.2
10/23/2024 23:45	9.30	38.98	0.02	7.28	10.72	3.72	10/23/2024 23:45	9.1	14.5	7.0	10.6	0.2
10/24/2024 0:00	9.29	38.82	0.02	7.27	10.75	3.94	10/24/2024 0:00	9.1	14.6	7.0	10.6	0.2
10/24/2024 0:15	9.08	20.99	0.01	6.91	10.73	3.29	10/24/2024 0:15	9.1	14.4	7.1	10.6	0.2
10/24/2024 0:30	9.05	19.31	0.01	6.87	10.81	3.08	10/24/2024 0:30	9.1	14.6	7.0	10.6	0.2
10/24/2024 0:45	9.03	20.49	0.01	6.83	10.76	3.68	10/24/2024 0:45	9.1	14.5	7.1	10.6	0.2
10/24/2024 1:00	9.20	37.50	0.02	7.22	10.79	5.35	10/24/2024 1:00	9.0	14.6	7.0	10.6	0.4
10/24/2024 1:15	9.21	39.44	0.02	7.27	10.73	8.23	10/24/2024 1:15	9.0	14.5	7.0	10.6	0.2
10/24/2024 1:30	9.20	38.74	0.02	7.25	10.77	3.64	10/24/2024 1:30	9.0	14.5	7.0	10.6	0.2
10/24/2024 1:45	9.01	22.35	0.01	6.93	10.76	3.45	10/24/2024 1:45	9.0	14.4	7.0	10.6	0.2
10/24/2024 2:00	8.97	20.71	0.01	6.87	10.82	3.64	10/24/2024 2:00	9.0	14.5	7.0	10.6	0.2
10/24/2024 2:15	8.95	20.84	0.01	6.87	10.78	6.74	10/24/2024 2:15	9.0	14.3	7.0	10.6	0.2
10/24/2024 2:30	8.92	20.48	0.01	6.86	10.84	3.89	10/24/2024 2:30	8.9	14.5	7.1	10.6	0.2
10/24/2024 2:45	9.10	38.03	0.02	7.24	10.78	4.41	10/24/2024 2:45	8.9	14.3	7.0	10.6	0.2
10/24/2024 3:00	9.10	38.73	0.02	7.26	10.81	5.60	10/24/2024 3:00	8.9	14.5	7.0	10.6	0.4
10/24/2024 3:15	9.08	40.05	0.02	7.31	10.76	4.77	10/24/2024 3:15	8.9	14.2	7.0	10.6	0.2
10/24/2024 3:30	9.07	39.92	0.02	7.29	10.80	5.28	10/24/2024 3:30	8.9	14.4	7.1	10.6	0.2
10/24/2024 3:45	8.84	21.06	0.01	6.90	10.80	3.44	10/24/2024 3:45	8.9	14.2	7.0	10.6	0.2
10/24/2024 4:00	8.80	20.16	0.01	6.84	10.89	3.30	10/24/2024 4:00	8.8	14.4	7.1	10.6	0.2
10/24/2024 4:15	8.78	24.19	0.01	6.93	10.83	3.73	10/24/2024 4:15	8.8	14.3	7.0	10.6	0.2
10/24/2024 4:30	8.98	40.24	0.02	7.28	10.84	5.01	10/24/2024 4:30	8.8	14.4	7.1	10.6	0.2
10/24/2024 4:45	8.97	41.95	0.02	7.27	10.81	5.34	10/24/2024 4:45	8.7	14.2	7.0	10.6	0.2
10/24/2024 5:00	8.95	42.27	0.02	7.26	10.84	6.23	10/24/2024 5:00	8.7	14.4	7.0	10.7	0.1
10/24/2024 5:15	8.93	42.96	0.02	7.30	10.82	6.80	10/24/2024 5:15	8.7	14.2	7.0	10.7	0.1
10/24/2024 5:30	8.68	20.68	0.01	6.87	10.90	3.28	10/24/2024 5:30	8.7	14.3	7.0	10.7	0.1
10/24/2024 5:45	8.62	20.29	0.01	6.87	10.86	3.48	10/24/2024 5:45	8.7	14.2	7.0	10.7	0.2
10/24/2024 6:00	8.59	19.18	0.01	6.82	10.92	4.24	10/24/2024 6:00	8.6	14.8	7.0	10.7	0.2
10/24/2024 6:15	8.57	20.06	0.01	6.82	10.88	4.70	10/24/2024 6:15	8.6	14.5	7.0	10.7	0.2
10/24/2024 6:30	8.83	43.29	0.02	7.28	10.89	7.57	10/24/2024 6:30	8.6	14.4	7.0	10.7	0.2
10/24/2024 6:45	8.85	44.70	0.02	7.30	10.83	6.62	10/24/2024 6:45	8.6	14.3	7.0	10.6	0.2
10/24/2024 7:00	8.76	36.83	0.02	7.21	10.89	6.28	10/24/2024 7:00	8.6	14.3	7.0	10.7	0.1
10/24/2024 7:15	8.82	42.09	0.02	7.31	10.84	6.00	10/24/2024 7:15	8.6	14.2	7.0	10.7	0.2
10/24/2024 7:30	8.55	19.65	0.01	6.86	10.89	3.09	10/24/2024 7:30	8.6	14.2	6.9	10.7	0.2
10/24/2024 7:45	8.52	21.31	0.01	6.87	10.89	3.68	10/24/2024 7:45	8.6	14.2	7.0	10.7	0.1
10/24/2024 8:00	8.50	20.47	0.01	6.83	10.97	3.73	10/24/2024 8:00	8.5	14.2	7.0	10.7	0.2
10/24/2024 8:15	8.67	43.13	0.02	7.25	10.89	5.80	10/24/2024 8:15	8.6	14.1	7.0	10.7	0.2
10/24/2024 8:30	8.75	42.32	0.02	7.37	10.90	4.25	10/24/2024 8:30	8.6	14.2	7.0	10.7	0.1
10/24/2024 8:45	8.54	21.16	0.01	7.01	10.91	3.89	10/24/2024 8:45	8.6	14.1	7.0	10.7	0.1
10/24/2024 9:00	8.67	34.64	0.01	7.22	10.89	5.47	10/24/2024 9:00	8.6	14.2	7.0	10.7	0.2
10/24/2024 9:15	8.80	38.14	0.02	7.30	10.86	5.01	10/24/2024 9:15	8.6	14.1	7.0	10.7	0.2
10/24/2024 9:30	8.83	33.62	0.01	7.34	10.86	5.95	10/24/2024 9:30	8.7	14.2	7.0	10.7	0.2
10/24/2024 9:45	8.85	33.48	0.01	7.37	10.85	5.88	10/24/2024 9:45	8.7	14.0	7.0	10.7	0.2
10/24/2024 10:00	8.85	38.85	0.02	7.26	10.91	8.27	10/24/2024 10:00	8.7	14.2	7.1	10.7	0.2
10/24/2024 10:15	8.93	44.42	0.02	7.30	10.83	5.24	10/24/2024 10:15	8.8	14.1	7.0	10.7	0.2
10/24/2024 10:30	8.95	44.70	0.02	7.33	10.85	4.71	10/24/2024 10:30	8.8	14.2	7.0	10.7	0.2
10/24/2024 10:45	9.01	43.26	0.02	7.37	10.78	6.32	10/24/2024 10:45	8.9	14.1	7.0	10.6	0.1
10/24/2024 11:00	9.07	43.93	0.02	7.36	10.83	5.43	10/24/2024 11:00	8.9	14.2	7.1	10.6	0.2
10/24/2024 11:15	9.15	44.12	0.02	7.36	10.75	5.37	10/24/2024 11:15	9.0	14.0	7.0	10.6	0.2
10/24/2024 11:30	9.00	22.56	0.01	6.94	10.83	4.16	10/24/2024 11:30	9.0	14.2	7.1	10.6	0.2
10/24/2024 11:45	9.04	21.28	0.01	6.90	10.75	5.11	10/24/2024 11:45	9.1	14.1	7.1	10.6	0.2
10/24/2024 12:00	9.09	19.47	0.01	6.83	10.81	3.64	10/24/2024 12:00	9.1	14.2	7.1	10.6	0.2
10/24/2024 12:15	9.14	20.14	0.01	6.86	10.74	5.17	10/24/2024 12:15	9.2	14.0	7.1	10.5	0.2
10/24/2024 12:30	9.19	19.86	0.01	6.82	10.78	3.47	10/24/2024 12:30	9.3	14.2	7.0	10.6	0.2
10/24/2024 12:45	9.25	19.85	0.01	6.85	10.69	4.38	10/24/2024 12:45	9.3	14.1	7.1	10.5	0.2
10/24/2024 13:00	9.32	18.71	0.01	6.81	10.74	5.29	10/24/2024 13:00	9.4	14.1	7.1	10.5	0.2
10/24/2024 13:15	9.40	19.28	0.01	6.87	10.66	3.91	10/24/2024 13:15	9.4	13.9	7.1	10.5	0.2
10/24/2024 13:30	9.50	19.40	0.01	6.86	10.70	3.48	10/24/2024 13:30	9.5	14.1	7.1	10.5	0.2

10/24/2024 13:45	9.79	43.14	0.02	7.33	10.56	5.24	10/24/2024 13:45	9.5	14.0	7.0	10.5	0.2
10/24/2024 14:00	9.82	43.02	0.02	7.31	10.61	4.00	10/24/2024 14:00	9.5	14.1	7.1	10.5	0.2
10/24/2024 14:15	9.80	43.46	0.02	7.34	10.55	4.73	10/24/2024 14:15	9.5	14.0	7.0	10.5	0.2
10/24/2024 14:30	9.75	40.85	0.02	7.31	10.60	4.27	10/24/2024 14:30	9.5	14.1	7.0	10.5	0.2
10/24/2024 14:45	9.50	20.95	0.01	6.88	10.62	6.99	10/24/2024 14:45	9.5	13.9	7.0	10.4	0.2
10/24/2024 15:00	9.50	20.01	0.01	6.85	10.66	3.96	10/24/2024 15:00	9.5	14.1	7.1	10.4	0.2
10/24/2024 15:15	9.57	27.02	0.01	7.03	10.60	3.95	10/24/2024 15:15	9.6	13.9	7.1	10.4	0.2
10/24/2024 15:30	9.52	20.03	0.01	6.88	10.64	4.14	10/24/2024 15:30	9.6	14.1	7.0	10.4	0.2
10/24/2024 15:45	9.83	42.75	0.02	7.37	10.52	3.69	10/24/2024 15:45	9.6	14.0	7.1	10.4	0.2
10/24/2024 16:00	9.87	43.14	0.02	7.32	10.58	5.11	10/24/2024 16:00	9.6	14.1	7.1	10.4	0.2
10/24/2024 16:15	9.86	43.74	0.02	7.36	10.53	4.18	10/24/2024 16:15	9.6	14.0	7.1	10.4	0.3
10/24/2024 16:30	9.60	22.23	0.01	6.98	10.61	3.97	10/24/2024 16:30	9.6	14.1	7.0	10.4	0.2
10/24/2024 16:45	9.53	20.87	0.01	6.92	10.60	3.60	10/24/2024 16:45	9.6	14.0	7.0	10.4	0.2
10/24/2024 17:00	9.52	19.43	0.01	6.86	10.64	4.01	10/24/2024 17:00	9.6	14.1	7.0	10.4	0.2
10/24/2024 17:15	9.51	19.16	0.01	6.89	10.60	5.48	10/24/2024 17:15	9.6	14.0	7.0	10.4	1.2
10/24/2024 17:30	9.79	41.98	0.02	7.32	10.60	3.45	10/24/2024 17:30	9.5	14.1	7.0	10.4	0.2
10/24/2024 17:45	9.79	43.95	0.02	7.36	10.53	4.88	10/24/2024 17:45	9.5	13.9	7.0	10.4	0.2
10/24/2024 18:00	9.78	43.36	0.02	7.34	10.60	3.20	10/24/2024 18:00	9.5	14.1	7.1	10.4	0.2
10/24/2024 18:15	9.48	22.15	0.01	6.98	10.60	4.67	10/24/2024 18:15	9.5	14.0	7.1	10.4	0.2
10/24/2024 18:30	9.41	20.91	0.01	6.88	10.64	3.31	10/24/2024 18:30	9.4	14.2	6.9	10.4	0.2
10/24/2024 18:45	9.36	20.62	0.01	6.90	10.64	4.48	10/24/2024 18:45	9.4	14.1	7.0	10.4	0.2
10/24/2024 19:00	9.32	19.89	0.01	6.87	10.65	3.30	10/24/2024 19:00	9.3	14.1	7.1	10.5	0.2
10/24/2024 19:15	9.57	42.31	0.02	7.35	10.57	3.61	10/24/2024 19:15	9.3	14.0	7.0	10.5	0.2
10/24/2024 19:30	9.55	42.04	0.02	7.39	10.61	3.00	10/24/2024 19:30	9.2	14.2	7.0	10.5	0.2
10/24/2024 19:45	9.51	44.76	0.02	7.40	10.61	6.49	10/24/2024 19:45	9.2	13.9	7.0	10.5	0.2
10/24/2024 20:00	9.32	29.49	0.01	7.19	10.63	3.75	10/24/2024 20:00	9.2	14.2	7.1	10.5	0.2
10/24/2024 20:15	9.13	19.84	0.01	6.87	10.71	3.75	10/24/2024 20:15	9.1	13.9	7.0	10.5	0.1
10/24/2024 20:30	9.07	20.44	0.01	6.89	10.71	3.36	10/24/2024 20:30	9.1	14.1	7.0	10.5	0.2
10/24/2024 20:45	9.03	20.07	0.01	6.90	10.72	6.86	10/24/2024 20:45	9.0	14.0	7.0	10.5	0.2
10/24/2024 21:00	9.28	43.12	0.02	7.33	10.70	3.33	10/24/2024 21:00	9.0	14.1	7.0	10.5	0.2
10/24/2024 21:15	9.27	44.62	0.02	7.39	10.65	3.96	10/24/2024 21:15	9.0	13.9	7.0	10.5	0.2
10/24/2024 21:30	9.23	44.01	0.02	7.33	10.71	3.31	10/24/2024 21:30	8.9	14.1	7.1	10.6	0.2
10/24/2024 21:45	9.05	27.72	0.01	7.16	10.69	3.76	10/24/2024 21:45	8.9	13.9	7.1	10.5	0.2
10/24/2024 22:00	8.88	20.34	0.01	6.89	10.76	3.67	10/24/2024 22:00	8.9	14.1	7.0	10.6	0.2
10/24/2024 22:15	8.83	20.37	0.01	6.92	10.77	3.70	10/24/2024 22:15	8.8	14.0	7.0	10.6	0.2
10/24/2024 22:30	8.79	19.49	0.01	6.82	10.77	3.22	10/24/2024 22:30	8.8	14.2	7.1	10.6	0.2
10/24/2024 22:45	9.06	41.99	0.02	7.34	10.71	3.18	10/24/2024 22:45	8.8	14.0	7.0	10.6	0.2
10/24/2024 23:00	9.07	40.41	0.02	7.36	10.68	3.04	10/24/2024 23:00	8.8	14.2	7.0	10.6	0.2
10/24/2024 23:15	9.06	38.82	0.02	7.35	10.70	4.77	10/24/2024 23:15	8.8	14.1	7.0	10.6	0.1
10/24/2024 23:30	8.91	21.79	0.01	7.19	10.74	3.61	10/24/2024 23:30	8.8	14.2	7.0	10.6	0.2
10/24/2024 23:45	8.74	15.27	0.01	6.91	10.80	3.83	10/24/2024 23:45	8.7	14.0	7.0	10.6	0.2
10/25/2024 0:00	8.71	13.36	0.00	6.88	10.82	3.45	10/25/2024 0:00	8.7	14.2	7.0	10.6	0.2
10/25/2024 0:15	8.90	32.40	0.01	7.30	10.74	3.89	10/25/2024 0:15	8.7	14.1	7.0	10.6	0.1
10/25/2024 0:30	8.97	31.85	0.01	7.37	10.72	3.92	10/25/2024 0:30	8.7	14.2	6.9	10.6	0.2
10/25/2024 0:45	8.97	24.60	0.01	7.38	10.72	3.56	10/25/2024 0:45	8.7	14.0	7.0	10.6	0.2
10/25/2024 1:00	8.97	23.88	0.01	7.36	10.70	5.56	10/25/2024 1:00	8.7	14.2	7.1	10.6	0.1
10/25/2024 1:15	8.73	12.99	0.00	7.10	10.79	3.45	10/25/2024 1:15	8.6	14.0	7.0	10.6	0.2
10/25/2024 1:30	8.70	12.47	0.00	7.07	10.78	5.43	10/25/2024 1:30	8.6	14.2	7.1	10.6	0.2
10/25/2024 1:45	8.60	7.03	0.00	6.88	10.83	3.46	10/25/2024 1:45	8.6	14.0	7.0	10.6	0.2
10/25/2024 2:00	8.56	6.11	0.00	6.90	10.84	3.98	10/25/2024 2:00	8.6	14.2	7.1	10.6	0.3
10/25/2024 2:15	8.54	5.43	0.00	6.84	10.84	4.67	10/25/2024 2:15	8.6	14.1	7.0	10.6	0.1
10/25/2024 2:30	8.52	6.52	0.00	6.85	10.84	3.71	10/25/2024 2:30	8.6	14.1	7.1	10.6	0.2
10/25/2024 2:45	8.63	9.52	0.00	7.21	10.81	6.22	10/25/2024 2:45	8.6	14.1	7.0	10.6	0.1
10/25/2024 3:00	8.70	9.59	0.00	7.24	10.77	4.94	10/25/2024 3:00	8.5	14.2	7.0	10.6	0.2
10/25/2024 3:15	8.81	11.27	0.00	7.38	10.73	4.32	10/25/2024 3:15	8.5	14.0	7.1	10.6	0.2
10/25/2024 3:30	8.79	45.54	0.02	7.34	10.81	3.87	10/25/2024 3:30	8.5	14.2	7.1	10.6	0.2
10/25/2024 3:45	8.81	47.36	0.02	7.40	10.74	3.68	10/25/2024 3:45	8.5	13.8	7.1	10.6	0.1
10/25/2024 4:00	8.79	48.04	0.02	7.39	10.78	4.24	10/25/2024 4:00	8.5	14.2	7.0	10.6	0.2
10/25/2024 4:15	8.44	20.92	0.01	6.91	10.83	3.38	10/25/2024 4:15	8.4	14.0	7.1	10.7	0.1
10/25/2024 4:30	8.42	21.21	0.01	6.93	10.83	3.74	10/25/2024 4:30	8.4	14.2	7.0	10.6	0.2
10/25/2024 4:45	8.43	29.57	0.01	7.05	10.87	3.36	10/25/2024 4:45	8.4	14.0	7.0	10.6	0.1
10/25/2024 5:00	8.70	45.41	0.02	7.36	10.75	3.27	10/25/2024 5:00	8.4	14.2	7.0	10.6	0.2
10/25/2024 5:15	8.70	49.05	0.02	7.41	10.75	4.65	10/25/2024 5:15	8.4	14.0	7.1	10.7	0.2
10/25/2024 5:30	8.69	47.48	0.02	7.37	10.78	4.93	10/25/2024 5:30	8.4	14.2	7.0	10.6	0.1
10/25/2024 5:45	8.48	28.89	0.01	7.21	10.80	3.35	10/25/2024 5:45	8.3	14.0	7.1	10.6	0.1
10/25/2024 6:00	8.31	20.64	0.01	6.85	10.86	4.01	10/25/2024 6:00	8.3	14.2	7.0	10.7	0.1
10/25/2024 6:15	8.27	20.16	0.01	6.90	10.90	3.65	10/25/2024 6:15	8.3	13.8	7.0	10.7	0.1
10/25/2024 6:30	8.25	20.16	0.01	6.90	10.87	3.41	10/25/2024 6:30	8.3	14.1	7.0	10.6	0.2
10/25/2024 6:45	8.23	20.44	0.01	6.90	10.89	3.58	10/25/2024 6:45	8.3	14.0	7.0	10.7	0.1
10/25/2024 7:00	8.44	35.03	0.02	7.13	10.82	4.55	10/25/2024 7:00	8.3	14.1	7.0	10.7	0.1
10/25/2024 7:15	8.56	45.77	0.02	7.32	10.77	4.37	10/25/2024 7:15	8.3	13.9	7.0	10.7	0.2
10/25/2024 7:30	8.58	42.90	0.02	7.27	10.83	3.49	10/25/2024 7:30	8.3	14.1	7.0	10.6	0.1
10/25/2024 7:45	8.58	42.10	0.02	7.29	10.77	3.22	10/25/2024 7:45	8.3	13.9	7.0	10.7	0.1
10/25/2024 8:00	8.33	23.51	0.01	7.02	10.86	3.66	10/25/2024 8:00	8.3	14.1	7.1	10.7	0.1
10/25/2024 8:15	8.22	20.74	0.01	6.93	10.88	3.21	10/25/2024 8:15	8.3	14.1	7.0	10.7	0.2
10/25/2024 8:30	8.21	20.27	0.01	6.86	10.88	3.22	10/25/2024 8:30	8.3	14.1	7.0	10.7	0.1
10/25/2024 8:45	8.22	20.46	0.01	6.90	10.89	5.77	10/25/2024 8:45	8.3	14.0	7.0	10.6	0.2
10/25/2024 9:00	8.44	34.87	0.01	7.16	10.84	3.30	10/25/2024 9:00	8.3	14.1	7.1	10.7	0.1
10/25/2024 9:15	8.77	60.05	0.03	7.51	10.73	18.30	10/25/2024 9:15	8.4	13.9	7.1	10.6	0.1
10/25/2024 9:30	8.35	21.63	0.01	6.95	10.84	4.14	10/25/2024 9:30	8.4	14.1	7.0	10.6	0.1
10/25/2024 9:45	8.31	20.55	0.01	6.93	10.87	3.77	10/25/2024 9:45	8.4	13.9	7.1	10.7	0.1
10/25/2024 10:00	8.33	19.07	0.01	6.88	10.85	3.95	10/25/2024 10:00	8.5	14.1	7.0	10.6	0.1
10/25/2024 10:15	8.36	18.89	0.01	6.91	10.88	3.61	10/25/2024 10:15	8.5	13.9	7.0	10.6	0.2
10/25/2024 10:30	8.39	17.76	0.01	6.92	10.88	4.18	10/25/2024 10:30	8.6	14.1	7.1	10.6	0.2
10/25/2024 10:45	8.43	16.27	0.01	6.82	10.87	3.36	10/25/2024 10:45	8.6	13.9	7.0	10.6	0.1
10/25/2024 11:00	8.81	35.75	0.02	7.37	10.73	3.69	10/25/2024 11:00	8.6	14.1	7.1	10.6	0.1
10/25/2024 11:15	8.89	28.20	0.01	7.38	10.69	3.90	10/25/2024 11:15	8.7	13.9	7.1	10.6	0.1
10/25/2024 11:30	8.95	40.28	0.02	7.38	10.71	3.74	10/25/2024 11:30	8.7	14.1	7.1	10.5	0.2
10/25/2024 11:45	8.99	49.78	0.02	7.39	10.64	3.95	10/25/2024 11:45	8.8	14.0	7.1	10.6	0.2
10/25/2024 12:00	9.04	49.64	0.02	7.39	10.68	3.15	10/25/2024 12:00	8.8	14.1	7.1	10.5	0.2
10/25/2024 12:15	9.08	51.00	0.02	7.40	10.62	3.23	10/25/2024 12:15	8.8	14.0	7.1	10.5	0.1
10/25/2024 12:30	8.96	29.27	0.01	7.23	10.67	3.38	10/25/2024 12:30	8.9	14.1	7.1	10.5	0.2
10/25/2024 12:45	8.85	22.78	0.01	6.98	10.70	4.14	10/25/2024 12:45	8.9	13.9	7.1	10.5	0.1
10/25/2024 13:00	8.86	21.41	0.01	6.99	10.73	3.26	10/25/2024 13:00	9.0	14.1	7.1	10.5	0.2
10/25/2024 13:15	9.11	40.97	0.02	7.25	10.66	3.28	10/25/2024 13:15	9.0	14.0	7.1	10.5	0.2
10/25/2024 13:30	9.31	48.86	0.02	7.40	10.60	3.13	10/25/2024 13:30	9.1	14.2	7.1	10.5	0.3
10/25/2024 13:45	9.26	36.81	0.02	7.36	10.57	3.85	10/25/2024 13:45	9.1	13.9	7.1	10.5	0.1
10/25/2024 14:00	9.40	48.82	0.02	7.43	10.58	3.01	10/25/2024 14:00	9.1	14.1	7.1	10.5	0.2
10/25/2024 14:15	9.13	23.34	0.01	7.04	10.62	3.38	10/25/2024 14:15	9.1	14.0	7.1	10.4	0.2

10/25/2024 14:30	9.11	21.64	0.01	6.98	10.60	3.61	10/25/2024 14:30	9.2	14.2	7.1	10.4	0.1
10/25/2024 14:45	9.10	21.73	0.01	6.99	10.62	3.54	10/25/2024 14:45	9.2	14.0	7.1	10.4	0.1
10/25/2024 15:00	9.44	48.46	0.02	7.38	10.54	3.40	10/25/2024 15:00	9.2	14.2	7.1	10.4	0.2
10/25/2024 15:15	9.49	50.59	0.02	7.40	10.49	3.03	10/25/2024 15:15	9.2	14.0	7.1	10.4	0.1
10/25/2024 15:30	9.51	48.36	0.02	7.42	10.52	3.18	10/25/2024 15:30	9.2	14.1	7.1	10.4	0.2
10/25/2024 15:45	9.49	42.98	0.02	7.41	10.49	4.32	10/25/2024 15:45	9.2	13.9	7.1	10.4	0.3
10/25/2024 16:00	9.20	20.60	0.01	7.00	10.61	4.14	10/25/2024 16:00	9.3	14.2	7.1	10.4	0.2
10/25/2024 16:15	9.17	21.65	0.01	6.97	10.61	4.20	10/25/2024 16:15	9.2	14.0	7.0	10.4	0.2
10/25/2024 16:30	9.16	21.00	0.01	6.94	10.59	3.30	10/25/2024 16:30	9.2	14.2	7.1	10.4	0.2
10/25/2024 16:45	9.45	48.27	0.02	7.37	10.50	3.22	10/25/2024 16:45	9.2	14.1	7.1	10.4	0.2
10/25/2024 17:00	9.52	48.15	0.02	7.42	10.50	3.28	10/25/2024 17:00	9.2	14.2	7.1	10.4	0.2
10/25/2024 17:15	9.52	50.52	0.02	7.43	10.47	3.52	10/25/2024 17:15	9.2	14.0	7.1	10.4	0.2
10/25/2024 17:30	9.50	46.29	0.02	7.43	10.45	2.87	10/25/2024 17:30	9.2	14.2	7.1	10.4	0.1
10/25/2024 17:45	9.16	21.86	0.01	7.01	10.57	6.01	10/25/2024 17:45	9.2	14.1	7.0	10.4	0.1
10/25/2024 18:00	9.12	21.27	0.01	6.97	10.58	3.40	10/25/2024 18:00	9.2	14.2	7.0	10.4	0.2
10/25/2024 18:15	9.09	21.05	0.01	6.95	10.59	3.43	10/25/2024 18:15	9.2	14.0	7.1	10.4	0.2
10/25/2024 18:30	9.40	47.45	0.02	7.41	10.51	5.53	10/25/2024 18:30	9.2	14.2	7.1	10.4	0.2
10/25/2024 18:45	9.46	45.72	0.02	7.41	10.48	3.67	10/25/2024 18:45	9.2	14.0	7.1	10.4	0.2
10/25/2024 19:00	9.46	43.54	0.02	7.43	10.48	3.16	10/25/2024 19:00	9.2	14.2	7.1	10.4	0.2
10/25/2024 19:15	9.39	33.99	0.01	7.42	10.49	3.08	10/25/2024 19:15	9.1	14.0	7.1	10.4	0.4
10/25/2024 19:30	9.10	16.78	0.01	6.99	10.61	3.56	10/25/2024 19:30	9.1	14.2	7.1	10.4	0.2
10/25/2024 19:45	9.05	15.99	0.01	6.94	10.63	3.87	10/25/2024 19:45	9.1	14.0	7.1	10.4	0.2
10/25/2024 20:00	9.02	14.65	0.01	6.97	10.64	3.32	10/25/2024 20:00	9.1	14.2	7.0	10.4	0.2
10/25/2024 20:15	9.32	28.21	0.01	7.39	10.53	3.31	10/25/2024 20:15	9.1	14.0	7.1	10.4	0.2
10/25/2024 20:30	9.39	29.97	0.01	7.42	10.50	3.17	10/25/2024 20:30	9.1	14.2	7.1	10.4	0.2
10/25/2024 20:45	9.40	48.43	0.02	7.46	10.49	3.74	10/25/2024 20:45	9.1	14.0	7.0	10.4	0.1
10/25/2024 21:00	9.34	43.56	0.02	7.41	10.49	3.34	10/25/2024 21:00	9.1	14.2	7.1	10.4	0.2
10/25/2024 21:15	9.03	22.17	0.01	6.99	10.60	3.33	10/25/2024 21:15	9.1	14.0	7.0	10.4	0.2
10/25/2024 21:30	9.01	21.27	0.01	6.93	10.59	3.42	10/25/2024 21:30	9.1	14.2	7.1	10.4	0.2
10/25/2024 21:45	8.99	21.03	0.01	6.97	10.61	3.11	10/25/2024 21:45	9.1	14.1	7.0	10.4	0.2
10/25/2024 22:00	9.29	49.03	0.02	7.37	10.52	7.80	10/25/2024 22:00	9.1	14.2	7.1	10.4	0.2
10/25/2024 22:15	9.35	49.12	0.02	7.43	10.50	3.57	10/25/2024 22:15	9.1	14.0	7.0	10.4	0.2
10/25/2024 22:30	9.36	47.42	0.02	7.45	10.50	3.13	10/25/2024 22:30	9.1	14.2	7.1	10.4	0.2
10/25/2024 22:45	9.31	39.42	0.02	7.45	10.50	4.43	10/25/2024 22:45	9.1	14.1	7.1	10.4	0.2
10/25/2024 23:00	9.01	18.43	0.01	7.00	10.61	3.58	10/25/2024 23:00	9.1	14.2	7.0	10.4	0.1
10/25/2024 23:15	8.99	16.92	0.01	6.98	10.62	3.12	10/25/2024 23:15	9.1	14.0	7.0	10.4	0.1
10/25/2024 23:30	8.97	20.47	0.01	6.94	10.58	3.21	10/25/2024 23:30	9.1	14.2	7.0	10.4	0.2
10/25/2024 23:45	9.26	48.46	0.02	7.42	10.52	3.55	10/25/2024 23:45	9.1	14.2	7.1	10.3	0.2
10/26/2024 0:00	9.33	46.54	0.02	7.46	10.49	4.47	10/26/2024 0:00	9.1	14.2	7.1	10.4	0.2
10/26/2024 0:15	9.34	44.58	0.02	7.47	10.48	2.94	10/26/2024 0:15	9.0	14.1	7.0	10.4	0.4
10/26/2024 0:30	9.33	38.84	0.02	7.48	10.50	3.23	10/26/2024 0:30	9.0	14.2	7.1	10.4	0.2
10/26/2024 0:45	9.00	17.26	0.01	7.00	10.62	3.63	10/26/2024 0:45	9.0	13.9	7.1	10.4	0.2
10/26/2024 1:00	8.95	16.06	0.01	6.97	10.62	3.96	10/26/2024 1:00	9.0	30.3	7.1	10.4	0.3
10/26/2024 1:15	8.93	14.45	0.01	6.95	10.62	4.12	10/26/2024 1:15	8.9	57.2	7.3	10.4	0.8
10/26/2024 1:30	9.14	31.82	0.01	7.34	10.53	3.55	10/26/2024 1:30	8.9	60.3	7.3	10.4	0.7
10/26/2024 1:45	9.19	44.47	0.02	7.43	10.51	4.26	10/26/2024 1:45	8.9	59.8	7.4	10.4	2.4
10/26/2024 2:00	9.18	42.33	0.02	7.40	10.52	5.00	10/26/2024 2:00	8.9	58.3	7.4	10.4	2.0
10/26/2024 2:15	9.00	34.03	0.01	7.22	10.56	6.30	10/26/2024 2:15	8.9	59.3	7.4	10.4	2.0
10/26/2024 2:30	8.85	27.32	0.01	7.10	10.63	7.00	10/26/2024 2:30	8.9	61.7	7.4	10.4	2.3
10/26/2024 2:45	8.91	74.35	0.03	7.44	10.61	66.92	10/26/2024 2:45	8.8	66.9	7.4	10.4	3.1
10/26/2024 3:00	8.80	36.01	0.02	7.20	10.62	9.53	10/26/2024 3:00	8.8	77.5	7.4	10.5	8.4
10/26/2024 3:15	8.77	74.54	0.03	7.30	10.67	14.52	10/26/2024 3:15	8.7	101.0	7.5	10.5	18.8
10/26/2024 3:30	8.87	159.29	0.07	7.76	10.71	13.92	10/26/2024 3:30	8.8	119.4	7.6	10.5	14.6
10/26/2024 3:45	8.87	121.76	0.06	7.48	10.65	28.96	10/26/2024 3:45	8.9	124.4	7.6	10.5	9.7
10/26/2024 4:00	8.87	112.29	0.05	7.44	10.70	32.37	10/26/2024 4:00	8.9	127.3	7.6	10.5	9.0
10/26/2024 4:15	8.91	125.25	0.06	7.46	10.64	24.72	10/26/2024 4:15	9.0	125.0	7.6	10.5	10.0
10/26/2024 4:30	8.95	108.57	0.05	7.41	10.69	22.89	10/26/2024 4:30	9.1	119.0	7.6	10.5	6.2
10/26/2024 4:45	8.90	101.02	0.05	7.33	10.69	21.51	10/26/2024 4:45	9.1	105.8	7.6	10.5	3.9
10/26/2024 5:00	8.96	84.83	0.04	7.30	10.66	24.68	10/26/2024 5:00	9.2	97.1	7.5	10.4	3.1
10/26/2024 5:15	9.00	105.40	0.05	7.28	10.62	15.37	10/26/2024 5:15	9.2	86.7	7.5	10.4	2.2
10/26/2024 5:30	9.06	77.02	0.04	7.28	10.67	13.44	10/26/2024 5:30	9.3	79.1	7.4	10.4	1.5
10/26/2024 5:45	9.16	90.94	0.04	7.34	10.58	11.99	10/26/2024 5:45	9.3	70.6	7.3	10.4	0.7
10/26/2024 6:00	9.20	68.47	0.03	7.32	10.63	14.33	10/26/2024 6:00	9.3	63.8	7.3	10.4	0.8
10/26/2024 6:15	9.22	73.63	0.03	7.32	10.57	17.19	10/26/2024 6:15	9.3	57.3	7.3	10.4	0.8
10/26/2024 6:30	9.24	59.61	0.03	7.28	10.63	11.39	10/26/2024 6:30	9.4	52.8	7.3	10.4	1.4
10/26/2024 6:45	9.26	61.81	0.03	7.25	10.56	12.70	10/26/2024 6:45	9.4	47.8	7.2	10.4	0.5
10/26/2024 7:00	9.29	49.45	0.02	7.27	10.58	11.93	10/26/2024 7:00	9.5	45.4	7.2	10.3	0.3
10/26/2024 7:15	9.32	46.14	0.02	7.23	10.56	11.39	10/26/2024 7:15	9.5	42.5	7.2	10.3	0.4
10/26/2024 7:30	9.34	46.15	0.02	7.25	10.60	12.90	10/26/2024 7:30	9.5	41.1	7.1	10.3	0.4
10/26/2024 7:45	9.36	51.60	0.02	7.26	10.56	11.72	10/26/2024 7:45	9.5	39.2	7.2	10.3	0.3
10/26/2024 8:00	9.31	37.72	0.02	7.01	10.62	10.27	10/26/2024 8:00	9.5	38.2	7.1	10.3	0.3
10/26/2024 8:15	9.31	35.53	0.02	6.99	10.58	7.01	10/26/2024 8:15	9.5	36.4	7.1	10.3	0.4
10/26/2024 8:30	9.32	35.05	0.02	6.95	10.60	6.62	10/26/2024 8:30	9.5	36.2	7.1	10.3	0.3
10/26/2024 8:45	9.34	37.44	0.02	6.98	10.55	4.74	10/26/2024 8:45	9.6	34.6	7.1	10.3	0.3
10/26/2024 9:00	9.43	39.09	0.02	7.22	10.59	6.31	10/26/2024 9:00	9.6	34.8	7.1	10.3	0.5
10/26/2024 9:15	9.49	45.64	0.02	7.25	10.53	7.46	10/26/2024 9:15	9.6	33.8	7.1	10.3	0.2
10/26/2024 9:30	9.53	38.60	0.02	7.24	10.58	8.81	10/26/2024 9:30	9.7	33.5	7.1	10.3	0.4
10/26/2024 9:45	9.56	34.54	0.01	7.25	10.54	10.15	10/26/2024 9:45	9.7	32.6	7.1	10.3	0.3
10/26/2024 10:00	9.52	32.15	0.01	7.02	10.58	5.90	10/26/2024 10:00	9.7	32.6	7.1	10.3	0.2
10/26/2024 10:15	9.54	36.03	0.02	6.98	10.51	5.53	10/26/2024 10:15	9.8	31.8	7.1	10.3	0.3
10/26/2024 10:30	9.57	33.30	0.01	6.98	10.57	5.51	10/26/2024 10:30	9.8	31.9	7.1	10.3	0.4
10/26/2024 10:45	9.60	35.63	0.02	6.98	10.52	13.56	10/26/2024 10:45	9.8	31.3	7.1	10.3	0.2
10/26/2024 11:00	9.72	37.16	0.02	7.15	10.53	6.76	10/26/2024 11:00	9.9	31.3	7.1	10.3	0.2
10/26/2024 11:15	9.81	43.43	0.02	7.28	10.46	10.38	10/26/2024 11:15	10.0	31.0	7.1	10.2	0.2
10/26/2024 11:30	9.88	38.35	0.02	7.26	10.48	5.47	10/26/2024 11:30	9.9	30.9	7.1	10.3	0.2
10/26/2024 11:45	9.90	43.23	0.02	7.30	10.44	10.76	10/26/2024 11:45	10.0	30.2	7.1	10.3	0.4
10/26/2024 12:00	9.93	38.87	0.02	7.30	10.45	7.08	10/26/2024 12:00	10.0	30.1	7.1	10.2	0.2
10/26/2024 12:15	9.96	44.19	0.02	7.31	10.42	9.32	10/26/2024 12:15	10.0	29.7	7.1	10.2	0.3
10/26/2024 12:30	9.98	38.04	0.02	7.30	10.45	5.27	10/26/2024 12:30	10.0	29.4	7.1	10.2	0.3
10/26/2024 12:45	9.99	44.29	0.02	7.30	10.42	10.29	10/26/2024 12:45	10.0	28.8	7.1	10.2	0.3
10/26/2024 13:00	9.99	37.97	0.02	7.29	10.45	3.75	10/26/2024 13:00	10.0	29.0	7.1	10.2	1.7
10/26/2024 13:15	9.99	36.39	0.02	7.17	10.43	8.73	10/26/2024 13:15	10.1	28.7	7.1	10.2	0.2
10/26/2024 13:30	10.00	32.63	0.01	6.96	10.45	5.49	10/26/2024 13:30	10.1	28.6	7.1	10.2	0.2
10/26/2024 13:45	10.03	33.35	0.01	6.98	10.40	5.93	10/26/2024 13:45	10.1	28.0	7.1	10.2	0.2
10/26/2024 14:00	10.05	32.55	0.01	6.92	10.44	3.96	10/26/2024 14:00	10.2	28.1	7.1	10.2	0.2
10/26/2024 14:15	10.15	45.52	0.02	7.33	10.36	9.63	10/26/2024 14:15	10.2	27.7	7.1	10.2	0.3
10/26/2024 14:30	10.17	40.29	0.02	7.30	10.41	4.94	10/26/2024 14:30	10.2	27.7	7.1	10.2	0.2
10/26/2024 14:45	10.19	42.82	0.02	7.31	10.36	9.11	10/26/2024 14:45	10.2	27.2	7.1	10.1	0.2
10/26/2024 15:00	10.22	44.27	0.02	7.38	10.38	5.10	10/26/2024 15:00	10.2	27.4	7.0	10.2	0.2

10/26/2024 15:15	10.23	47.72	0.02	7.39	10.32	7.69	10/26/2024 15:15	10.2	26.8	7.1	10.1	0.2
10/26/2024 15:30	10.12	31.82	0.01	7.04	10.40	3.40	10/26/2024 15:30	10.2	27.3	7.0	10.1	0.3
10/26/2024 15:45	10.11	32.79	0.01	7.02	10.36	3.43	10/26/2024 15:45	10.2	27.0	7.1	10.1	0.2
10/26/2024 16:00	10.11	31.76	0.01	6.98	10.40	3.90	10/26/2024 16:00	10.2	27.2	7.1	10.1	0.2
10/26/2024 16:15	10.11	32.56	0.01	6.98	10.35	5.17	10/26/2024 16:15	10.2	27.1	7.1	10.1	0.3
10/26/2024 16:30	10.24	49.36	0.02	7.35	10.35	6.38	10/26/2024 16:30	10.2	27.1	7.1	10.1	0.2
10/26/2024 16:45	10.25	48.80	0.02	7.40	10.31	5.06	10/26/2024 16:45	10.2	26.9	7.1	10.1	0.2
10/26/2024 17:00	10.26	46.91	0.02	7.38	10.35	3.70	10/26/2024 17:00	10.2	27.0	7.1	10.1	0.2
10/26/2024 17:15	10.13	33.33	0.01	7.06	10.32	5.62	10/26/2024 17:15	10.1	26.9	7.0	10.1	0.4
10/26/2024 17:30	10.11	31.82	0.01	7.01	10.39	3.53	10/26/2024 17:30	10.1	26.8	7.1	10.1	0.3
10/26/2024 17:45	10.10	31.82	0.01	6.98	10.33	3.52	10/26/2024 17:45	10.1	26.5	7.1	10.1	0.2
10/26/2024 18:00	10.09	31.09	0.01	6.93	10.39	3.38	10/26/2024 18:00	10.1	26.8	7.1	10.1	0.2
10/26/2024 18:15	10.17	41.24	0.02	7.27	10.32	4.89	10/26/2024 18:15	10.1	26.1	7.1	10.1	0.4
10/26/2024 18:30	10.24	48.68	0.02	7.39	10.33	4.38	10/26/2024 18:30	10.1	26.9	7.1	10.1	0.2
10/26/2024 18:45	10.24	49.11	0.02	7.41	10.30	8.34	10/26/2024 18:45	10.1	28.9	7.1	10.1	0.3
10/26/2024 19:00	10.10	31.95	0.01	6.99	10.38	3.61	10/26/2024 19:00	10.1	30.1	7.1	10.1	0.2
10/26/2024 19:15	10.09	33.38	0.01	7.03	10.32	3.64	10/26/2024 19:15	10.1	34.2	7.1	10.1	0.2
10/26/2024 19:30	10.22	50.39	0.02	7.35	10.35	4.88	10/26/2024 19:30	10.1	37.9	7.2	10.1	0.5
10/26/2024 19:45	10.24	52.74	0.02	7.43	10.28	3.83	10/26/2024 19:45	10.1	42.5	7.2	10.1	1.5
10/26/2024 20:00	10.20	47.84	0.02	7.34	10.33	6.94	10/26/2024 20:00	10.1	45.7	7.3	10.1	2.0
10/26/2024 20:15	10.21	52.39	0.02	7.38	10.28	5.38	10/26/2024 20:15	10.1	48.0	7.3	10.1	2.4
10/26/2024 20:30	10.21	51.62	0.02	7.36	10.32	6.20	10/26/2024 20:30	10.1	54.2	7.3	10.1	4.0
10/26/2024 20:45	10.21	56.98	0.03	7.39	10.29	9.03	10/26/2024 20:45	10.1	61.9	7.4	10.1	7.1
10/26/2024 21:00	10.21	55.31	0.02	7.39	10.33	9.50	10/26/2024 21:00	10.1	66.3	7.4	10.1	4.6
10/26/2024 21:15	10.11	58.89	0.03	7.18	10.30	10.30	10/26/2024 21:15	10.2	72.0	7.4	10.1	4.8
10/26/2024 21:30	10.17	66.34	0.03	7.32	10.33	9.15	10/26/2024 21:30	10.2	73.2	7.4	10.1	4.2
10/26/2024 21:45	10.13	68.78	0.03	7.23	10.29	9.20	10/26/2024 21:45	10.2	77.6	7.4	10.1	3.0
10/26/2024 22:00	10.11	66.43	0.03	7.21	10.34	8.91	10/26/2024 22:00	10.2	82.2	7.5	10.1	2.8
10/26/2024 22:15	10.11	73.32	0.03	7.22	10.31	9.71	10/26/2024 22:15	10.2	88.9	7.5	10.1	3.8
10/26/2024 22:30	10.12	71.81	0.03	7.24	10.35	8.02	10/26/2024 22:30	10.2	96.7	7.5	10.1	5.0
10/26/2024 22:45	10.15	83.17	0.04	7.29	10.30	10.26	10/26/2024 22:45	10.2	99.1	7.5	10.1	7.0
10/26/2024 23:00	10.24	80.44	0.04	7.43	10.31	13.10	10/26/2024 23:00	10.3	102.0	7.6	10.1	9.6
10/26/2024 23:15	10.26	93.02	0.04	7.43	10.25	17.55	10/26/2024 23:15	10.4	112.6	7.6	10.1	47.2
10/26/2024 23:30	10.30	76.37	0.04	7.37	10.27	45.70	10/26/2024 23:30	10.5	104.1	7.6	10.1	109.7
10/26/2024 23:45	10.38	103.56	0.05	7.39	10.22	126.16	10/26/2024 23:45	10.5	88.1	7.6	10.1	72.8
10/27/2024 0:00	10.42	90.01	0.04	7.35	10.22	133.20	10/27/2024 0:00	10.4	76.3	7.5	10.1	22.2
10/27/2024 0:15	10.42	77.04	0.04	7.31	10.20	54.01	10/27/2024 0:15	10.4	66.3	7.5	10.1	15.0
10/27/2024 0:30	10.40	67.92	0.03	7.27	10.20	28.89	10/27/2024 0:30	10.4	59.7	7.3	10.1	8.4
10/27/2024 0:45	10.39	65.68	0.03	7.22	10.21	24.32	10/27/2024 0:45	10.4	53.0	7.4	10.1	5.0
10/27/2024 1:00	10.35	53.41	0.02	7.10	10.21	21.85	10/27/2024 1:00	10.4	48.1	7.3	10.0	4.3
10/27/2024 1:15	10.35	50.54	0.02	7.04	10.20	12.76	10/27/2024 1:15	10.4	45.4	7.3	10.1	1.9
10/27/2024 1:30	10.35	41.21	0.02	7.07	10.22	10.49	10/27/2024 1:30	10.4	42.0	7.2	10.0	16.8
10/27/2024 1:45	10.36	43.54	0.02	7.09	10.24	12.32	10/27/2024 1:45	10.4	39.3	7.2	10.1	2.4
10/27/2024 2:00	10.36	35.58	0.02	7.07	10.23	8.83	10/27/2024 2:00	10.4	37.5	7.2	10.0	2.0
10/27/2024 2:15	10.40	44.00	0.02	7.18	10.21	13.37	10/27/2024 2:15	10.4	36.4	7.2	10.0	1.2
10/27/2024 2:30	10.40	35.12	0.02	7.19	10.20	9.73	10/27/2024 2:30	10.4	37.0	7.2	10.0	1.0
10/27/2024 2:45	10.39	39.73	0.02	7.19	10.24	10.29	10/27/2024 2:45	10.4	37.0	7.2	10.0	2.0
10/27/2024 3:00	10.40	36.50	0.02	7.20	10.19	10.67	10/27/2024 3:00	10.4	38.6	7.2	10.0	2.3
10/27/2024 3:15	10.40	44.14	0.02	7.20	10.21	15.28	10/27/2024 3:15	10.4	39.1	7.1	10.0	1.4
10/27/2024 3:30	10.40	37.80	0.02	7.21	10.19	17.24	10/27/2024 3:30	10.4	42.2	7.2	10.0	1.7
10/27/2024 3:45	10.39	45.31	0.02	7.10	10.19	9.94	10/27/2024 3:45	10.4	45.4	7.2	10.0	2.6
10/27/2024 4:00	10.38	45.00	0.02	7.13	10.18	12.20	10/27/2024 4:00	10.4	48.1	7.3	10.0	5.2
10/27/2024 4:15	10.37	46.83	0.02	7.11	10.17	10.24	10/27/2024 4:15	10.4	49.6	7.3	10.1	3.6
10/27/2024 4:30	10.37	45.45	0.02	7.15	10.19	12.86	10/27/2024 4:30	10.4	52.6	7.2	10.0	4.6
10/27/2024 4:45	10.37	46.59	0.02	7.14	10.18	17.57	10/27/2024 4:45	10.4	52.5	7.3	10.0	4.9
10/27/2024 5:00	10.32	46.11	0.02	7.04	10.18	16.60	10/27/2024 5:00	10.3	49.8	7.3	10.0	4.2
10/27/2024 5:15	10.32	46.86	0.02	7.01	10.19	12.00	10/27/2024 5:15	10.3	45.7	7.3	10.1	3.8
10/27/2024 5:30	10.31	43.81	0.02	7.01	10.18	12.45	10/27/2024 5:30	10.3	42.2	7.3	10.1	2.8
10/27/2024 5:45	10.29	42.31	0.02	6.97	10.19	7.81	10/27/2024 5:45	10.3	39.2	7.2	10.1	1.4
10/27/2024 6:00	10.29	37.95	0.02	6.95	10.21	11.11	10/27/2024 6:00	10.3	38.5	7.2	10.0	2.1
10/27/2024 6:15	10.32	38.90	0.02	7.03	10.20	10.50	10/27/2024 6:15	10.3	41.6	7.2	10.1	14.0
10/27/2024 6:30	10.34	39.74	0.02	7.04	10.19	16.67	10/27/2024 6:30	10.4	47.6	7.2	10.1	8.2
10/27/2024 6:45	10.36	43.72	0.02	7.08	10.20	20.96	10/27/2024 6:45	10.4	48.5	7.4	10.1	6.5
10/27/2024 7:00	10.38	47.34	0.02	7.10	10.20	20.18	10/27/2024 7:00	10.4	45.9	7.3	10.1	6.3
10/27/2024 7:15	10.36	45.95	0.02	7.01	10.20	18.12	10/27/2024 7:15	10.4	42.0	7.3	10.1	3.0
10/27/2024 7:30	10.36	40.68	0.02	6.95	10.21	12.42	10/27/2024 7:30	10.4	38.9	7.2	10.0	2.5
10/27/2024 7:45	10.36	39.32	0.02	6.95	10.21	11.21	10/27/2024 7:45	10.3	35.5	7.2	10.1	3.6
10/27/2024 8:00	10.36	35.81	0.02	6.95	10.21	13.28	10/27/2024 8:00	10.3	33.5	7.1	10.0	1.4
10/27/2024 8:15	10.37	36.08	0.02	7.00	10.21	12.23	10/27/2024 8:15	10.3	30.9	7.2	10.1	1.6
10/27/2024 8:30	10.36	35.16	0.02	7.00	10.22	10.77	10/27/2024 8:30	10.3	30.4	7.1	10.1	1.6
10/27/2024 8:45	10.35	33.27	0.01	6.99	10.22	12.51	10/27/2024 8:45	10.3	29.2	7.1	10.1	0.9
10/27/2024 9:00	10.38	33.65	0.01	7.02	10.21	11.76	10/27/2024 9:00	10.3	28.5	7.1	10.1	1.0
10/27/2024 9:15	10.34	29.06	0.01	6.89	10.23	6.93	10/27/2024 9:15	10.3	27.7	7.1	10.1	1.5
10/27/2024 9:30	10.34	27.36	0.01	6.87	10.23	7.85	10/27/2024 9:30	10.3	27.2	7.1	10.1	0.8
10/27/2024 9:45	10.34	26.93	0.01	6.87	10.23	8.27	10/27/2024 9:45	10.3	26.7	7.1	10.1	0.6
10/27/2024 10:00	10.39	30.32	0.01	7.06	10.22	6.89	10/27/2024 10:00	10.3	26.5	7.1	10.1	0.8
10/27/2024 10:15	10.40	30.89	0.01	7.05	10.21	8.17	10/27/2024 10:15	10.4	26.1	7.1	10.1	0.6
10/27/2024 10:30	10.43	29.49	0.01	7.07	10.21	8.69	10/27/2024 10:30	10.4	26.0	7.1	10.1	0.7
10/27/2024 10:45	10.43	29.33	0.01	7.08	10.20	6.02	10/27/2024 10:45	10.4	25.7	7.1	10.1	0.5
10/27/2024 11:00	10.43	30.85	0.01	7.07	10.21	6.47	10/27/2024 11:00	10.3	26.0	7.1	10.1	0.7
10/27/2024 11:15	10.42	32.96	0.01	7.05	10.21	7.79	10/27/2024 11:15	10.3	26.7	7.1	10.1	2.5
10/27/2024 11:30	10.42	32.40	0.01	7.07	10.22	8.87	10/27/2024 11:30	10.3	27.1	7.1	10.1	0.8
10/27/2024 11:45	10.42	33.97	0.01	7.06	10.20	11.65	10/27/2024 11:45	10.3	27.2	7.1	10.1	0.7
10/27/2024 12:00	10.40	32.11	0.01	7.06	10.21	8.06	10/27/2024 12:00	10.3	30.3	7.2	10.1	0.6
10/27/2024 12:15	10.37	28.43	0.01	6.92	10.22	5.41	10/27/2024 12:15	10.3	30.4	7.2	10.1	0.6
10/27/2024 12:30	10.37	28.59	0.01	6.94	10.24	6.51	10/27/2024 12:30	10.3	31.2	7.2	10.1	1.1
10/27/2024 12:45	10.36	30.59	0.01	6.95	10.24	5.30	10/27/2024 12:45	10.3	33.9	7.2	10.1	0.8
10/27/2024 13:00	10.34	29.09	0.01	6.91	10.24	6.04	10/27/2024 13:00	10.3	40.4	7.3	10.1	1.5
10/27/2024 13:15	10.33	29.19	0.01	6.92	10.23	10.58	10/27/2024 13:15	10.3	44.9	7.3	10.1	1.9
10/27/2024 13:30	10.37	34.02	0.01	7.08	10.22	10.08	10/27/2024 13:30	10.3	48.3	7.4	10.1	1.6
10/27/2024 13:45	10.40	48.37	0.02	7.19	10.22	13.61	10/27/2024 13:45	10.3	48.9	7.3	10.1	1.5
10/27/2024 14:00	10.37	44.17	0.02	7.12	10.23	9.93	10/27/2024 14:00	10.3	49.5	7.4	10.1	1.2
10/27/2024 14:15	10.35	44.31	0.02	7.06	10.23	6.71	10/27/2024 14:15	10.3	48.5	7.3	10.1	0.9
10/27/2024 14:30	10.39	47.46	0.02	7.21	10.22	11.68	10/27/2024 14:30	10.3	47.1	7.4	10.1	0.8
10/27/2024 14:45	10.35	39.60	0.02	7.03	10.25	8.04	10/27/2024 14:45	10.3	45.0	7.3	10.1	0.9
10/27/2024 15:00	10.33	36.70	0.02	7.01	10.23	8.73	10/27/2024 15:00	10.3	45.6	7.2	10.1	0.7
10/27/2024 15:15	10.31	32.82	0.01	7.03	10.24	5.24	10/27/2024 15:15	10.3	46.3	7.3	10.1	0.7
10/27/2024 15:30	10.34	37.13	0.02	7.22	10.24	11.06	10/27/2024 15:30	10.3	51.6	7.4	10.1	1.1
10/27/2024 15:45	10.32	47.40	0.02	7.21	10.23	10.71	10/27/2024 15:45	10.3	58.3	7.4	10.1	2.5

10/27/2024 16:00	10.32	47.61	0.02	7.17	10.23	6.74	10/27/2024 16:00	10.3	65.5	7.5	10.1	7.3
10/27/2024 16:15	10.24	51.02	0.02	7.11	10.24	8.48	10/27/2024 16:15	10.3	66.4	7.5	10.1	10.1
10/27/2024 16:30	10.29	58.69	0.03	7.20	10.24	14.52	10/27/2024 16:30	10.3	61.1	7.5	10.1	6.5
10/27/2024 16:45	10.28	61.34	0.03	7.23	10.25	22.58	10/27/2024 16:45	10.2	54.0	7.4	10.1	8.6
10/27/2024 17:00	10.28	52.83	0.02	7.21	10.24	16.41	10/27/2024 17:00	10.2	49.8	7.4	10.1	3.2
10/27/2024 17:15	10.27	47.71	0.02	7.17	10.24	12.06	10/27/2024 17:15	10.2	44.9	7.4	10.1	2.7
10/27/2024 17:30	10.25	45.67	0.02	7.14	10.24	8.31	10/27/2024 17:30	10.2	41.5	7.3	10.1	2.1
10/27/2024 17:45	10.24	40.62	0.02	7.13	10.26	9.59	10/27/2024 17:45	10.2	38.5	7.3	10.1	1.4
10/27/2024 18:00	10.23	38.17	0.02	7.06	10.25	9.46	10/27/2024 18:00	10.2	36.5	7.3	10.1	1.6
10/27/2024 18:15	10.24	39.76	0.02	7.12	10.25	7.99	10/27/2024 18:15	10.2	34.1	7.2	10.1	2.1
10/27/2024 18:30	10.20	32.81	0.01	6.99	10.26	7.19	10/27/2024 18:30	10.2	34.3	7.2	10.1	1.8
10/27/2024 18:45	10.20	34.25	0.01	6.95	10.26	9.12	10/27/2024 18:45	10.2	34.5	7.2	10.1	1.0
10/27/2024 19:00	10.23	35.49	0.02	7.06	10.25	9.12	10/27/2024 19:00	10.2	37.7	7.3	10.1	2.3
10/27/2024 19:15	10.24	39.46	0.02	7.08	10.26	8.27	10/27/2024 19:15	10.2	38.3	7.3	10.1	2.0
10/27/2024 19:30	10.24	38.61	0.02	7.12	10.26	8.28	10/27/2024 19:30	10.2	41.9	7.3	10.1	1.8
10/27/2024 19:45	10.21	40.33	0.02	7.07	10.27	10.95	10/27/2024 19:45	10.2	44.3	7.3	10.1	2.3
10/27/2024 20:00	10.20	38.93	0.02	7.07	10.25	13.24	10/27/2024 20:00	10.1	48.9	7.4	10.1	2.7
10/27/2024 20:15	10.18	45.38	0.02	7.09	10.27	9.46	10/27/2024 20:15	10.1	48.0	7.4	10.1	4.6
10/27/2024 20:30	10.18	45.47	0.02	7.08	10.27	14.98	10/27/2024 20:30	10.1	49.5	7.3	10.1	2.9
10/27/2024 20:45	10.18	46.43	0.02	7.12	10.27	10.12	10/27/2024 20:45	10.2	48.3	7.4	10.2	4.9
10/27/2024 21:00	10.18	46.64	0.02	7.12	10.28	10.85	10/27/2024 21:00	10.2	46.8	7.4	10.1	3.7
10/27/2024 21:15	10.15	44.92	0.02	7.02	10.28	13.48	10/27/2024 21:15	10.1	44.0	7.4	10.1	3.3
10/27/2024 21:30	10.16	39.51	0.02	7.01	10.28	10.53	10/27/2024 21:30	10.1	42.8	7.3	10.1	1.9
10/27/2024 21:45	10.16	38.49	0.02	7.05	10.29	12.87	10/27/2024 21:45	10.1	40.8	7.3	10.1	2.4
10/27/2024 22:00	10.16	35.68	0.02	7.07	10.29	10.00	10/27/2024 22:00	10.1	39.2	7.2	10.1	1.5
10/27/2024 22:15	10.16	39.79	0.02	7.05	10.29	8.56	10/27/2024 22:15	10.1	36.9	7.2	10.1	6.7
10/27/2024 22:30	10.15	36.94	0.02	7.06	10.29	10.84	10/27/2024 22:30	10.1	35.4	7.2	10.1	1.4
10/27/2024 22:45	10.14	38.94	0.02	7.05	10.30	8.55	10/27/2024 22:45	10.1	33.4	7.2	10.2	2.5
10/27/2024 23:00	10.13	34.96	0.02	7.04	10.29	15.37	10/27/2024 23:00	10.1	32.3	7.2	10.1	0.8
10/27/2024 23:15	10.13	36.62	0.02	7.01	10.30	10.84	10/27/2024 23:15	10.1	31.1	7.2	10.2	0.7
10/27/2024 23:30	10.12	31.34	0.01	6.93	10.29	7.21	10/27/2024 23:30	10.1	30.4	7.2	10.1	1.2
10/27/2024 23:45	10.14	33.64	0.01	7.02	10.31	8.39	10/27/2024 23:45	10.1	31.9	7.2	10.1	1.8

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-21-Chycoski-7561F

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	10/21/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669262 -123.248146
Temperature(c):	Low 7 High 12	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Wet

Observations

Time: 10:44:00 **Flow Volume (visual):** moderate

Notes:

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:**	No
Nutrients	Yes	**VOC/VPH**	No		
DOC	Yes	**EPH, PAH, LEPH/HEPH**	No		
		Trout LC50	No		

Logger Maintenance

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

Describe Logger Maintenance

Cleaned sensors, replaced wiper brushes, cabled to a tree and installed Vulink receiver.

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

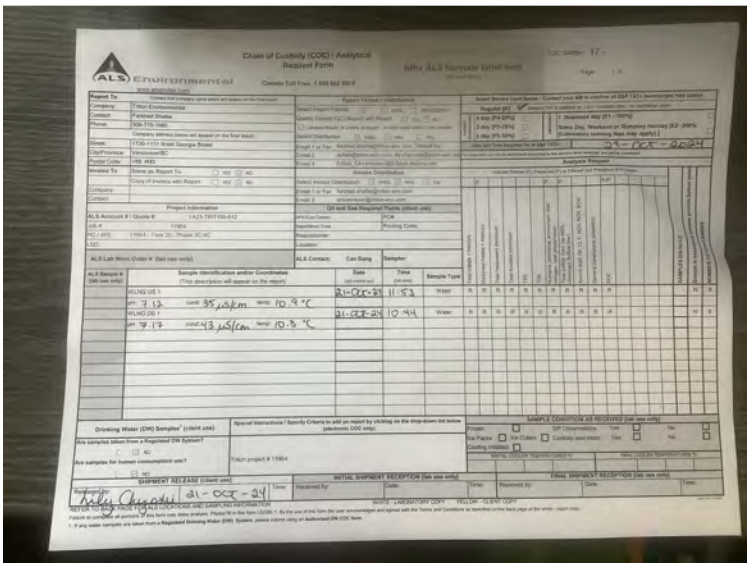


Photo: 4

Location: EAS DS 1

Description: Lab COC

Photos

Photo: 5

Location: EAS DS 1

Description: New Vulink receiver.

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-21-Chycoski-92D91

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	10/21/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 7 High 12	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Wet

Observations

Time: 11:53:00 **Flow Volume (visual):** moderate

Notes:

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:**	No
Nutrients	Yes	**VOC/VPH**	No		
DOC	Yes	**EPH, PAH, LEPH/HEPH**	No		
		Trout LC50	No		

Logger Maintenance

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

Describe Logger Maintenance

Cleaned sonde of debris, installed Vulink receiver

Photos

Photo: 1

Location: EAS US 1

Description: US view

Photo: 2

Location: EAS US 1

Description: Across view

2024-10-21-Chycoski-92D91

Photos

Photo: 3

Location: EAS US 1

Description: DS view

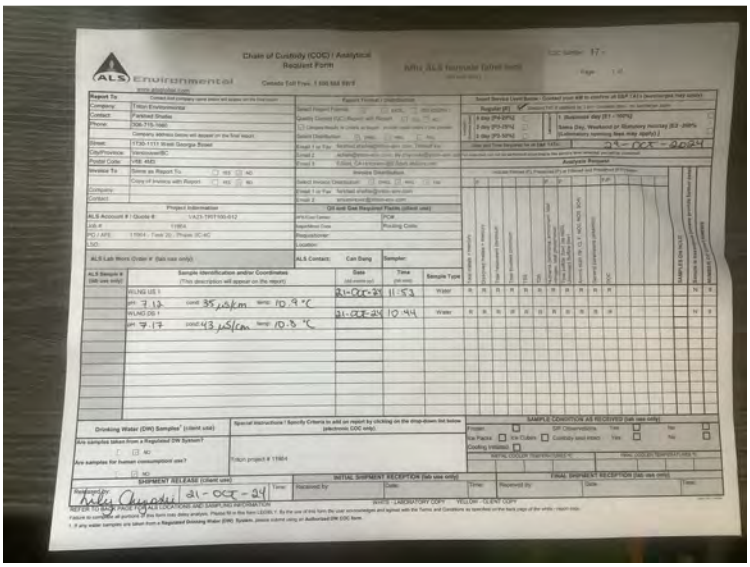


Photo: 4

Location: EAS US 1

Description: Lab COC

Sign Off

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