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 discharges 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	Discharge Rate (batch)	Discharge Volume (batch)	Results
BC Rail- No discharges						

*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	2024-08-12	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	2023-08-12	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

- The downstream sonde/data logger was removed July 16th as there was not enough water in the watercourse to log data. BCER was notified.
- Triton (FortisBC QP) sampled upstream and downstream of WC 309-R2, Triton went further downstream to find a location with sufficient water for a sample.
- Triton sampled end of pipe samples from a spigot off the deionizer as it was expressed as a representative and easier location for sampling. FortisBC is working with the contractor to assess whether the deionizer tank at the water treatment plant is an appropriate location for sampling end of pipe when not actively discharging.
- LC 50 sampling was taking this period, results will be reflected in the next report.
- The Short-Term guideline of Total Iron was exceeded from the sample taken from the deionizer.
- The Long-Term guideline 5 week sample average was exceeded for Dissolved Zinc.
- Included in Appendix C is data from the Water Treatment Plant and data from using a YSI downstream while discharging to document receiving environment as there was no downstream sonde in place due to the dry conditions.

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	2024-08-12	Yes-Appendix C	57 m^3
Woodfibre	2024-08-13	Yes-Appendix C	66 m^3
Woodfibre	2024-08-14	Yes-Appendix C	18 m^3
Woodfibre	2024-08-15	Yes-Appendix C	0 m^3
Woodfibre	2024-08-16	Yes-Appendix C	83 m^3
Woodfibre	2024-08-17	Yes-Appendix C	57 m^3
Woodfibre	2024-08-18	Yes-Appendix C	71 m^3

*Max discharge is 1500m^3/day

Exceedances

As mentioned above, the Short-Term guideline of Total Iron was exceeded from the sample taken from the deionizer. The Long-Term guideline 5-week sample average was exceeded for Dissolved Zinc.

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
Woodfibre Upstream	2024-08-13	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	2024-08-13	No-Sonde Removed	Full set of lab sample results, photo and documentation are provided in Appendix D. Note that Sonde was removed on July 16th, 2024 due to dry conditions. Contractor used a YSI to do in situ readings during discharges.

* 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					VA24C0160-001	VA24C0160-002					
	Date Sampled					12-Aug-2024	12-Aug-2024					
	Time Sampled					09:52	11:27					
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	7.13	7.16		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]	-	12.4	13.6		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	-	-	-	-	24	23					
Turbidity (field)	NTU	Varies with background, see note Guideline = 207	Varies with background, see note Guideline = 199.6 5-week discrete sampling average = 203.8 (DS)	Varies with background, see note Guideline = 207	Varies with background, see note Guideline = 199.6 5-week discrete sampling average = 203.8 (DS)	199.0	**380.0**	**Turbidity at the downstream location exceeds BCWQ FAL and MAL short-term and long-term guidelines.** Discharge from BCR has not begun full-time, therefore, the high turbidity is likely due to natural variability.	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	10.45	9.64		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	-	-	-	-	21.4	36.3					
Total Dissolved Solids	mg/L	-	-	-	-	48	43					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 260	Varies with background, see note Guideline = 208.4 5-week discrete sampling average = 190.2 (DS)	Varies with background, see note Guideline = 260	Varies with background, see note Guideline = 208.4 5-week discrete sampling average = 190.2 (DS)	235	**402**	**TSS at the downstream location exceeds both BCWQ FAL and MAL short-term guidelines.** Discharge from BCR has not begun full-time, therefore, the high TSS is likely due to natural variability.	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	-	-	-	-	0.62	0.72			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	9.2	7.9	The upstream and downstream location both 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	0.0016					
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	0.0017					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. Guideline = 18.8	Varies with pH and temperature. See note. Guideline = 1.78	Varies with pH, temperature and salinity. See note. Guideline = 131	Varies with pH, temperature and salinity. See note. Guideline = 14	0.06	0.048		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	0.89	0.78				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 = 0.714	-	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	0.0117	0.012					
Nitrite (as N)	mg/L	Varies with chloride. See note. Guideline = 0.06	Varies with chloride. See note. Guideline = 0.02	-	-	< 0.0010	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.116	0.182					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.186	0.318			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	-	-	2.61	2.23			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 = 0.025 US 5-week field average = 6.40 (US1) DS 5-week field average = 7.34 (DS1)	-	-	*6.61*	*14.8*	**Total Al exceed the long-term average BCWG for FAL at both upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun, therefore, the high total Al concentration may be characteristic of the Squamish River and the local geology and natural varibility.		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	0.00046	0.00055					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.07	0.104			Working guideline status		
Beryllium (Be)-Total	mg/L	-	0.00013	-	0.100	< 0.00010	0.000112			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	0.0000228	0.0000293					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	5.65	9.08					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000183	0.000206					
Chromium (Cr) - Total	mg/L	-	-	-	-	0.00184	0.00512					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	0.00184	0.00512			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	-	-	0.00148	0.00538					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	**0.00725**	**0.0468**	**Total Cu exceeds the short and long-term BCWG for MAL at both upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun, therefore, the high total Cu concentration may be characteristic of the Squamish River and the local geology.				
Iron (Fe)-Total	mg/L	1	-	-	-	3.13	6.35	**Total Fe exceeds the short-term BCWG for FAL at both upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the background total Fe concentration at the upstream location is greater than that of the downstream. Discharge from BCR has not begun yet. These impacts are not attributable to BCR construction activities and may be characteristic of the Squamish River and the local geology.				
Lead (Pb)-Total	mg/L	Varies with hardness. See Note. Guideline = 0.0115	Varies with hardness. See Note. Guideline = 0.00374	0.14	0.002	0.000827	0.00092		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation EXP[1.273*on(hardness)-1.460] where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP[1.273*on(hardness)-4.704] applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	0.0028	0.0034					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.78	3.32					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.715	Varies with hardness Guideline = 0.768	-	-	0.0821	0.151		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	-	-	0.000389	0.000419					
Nickel (Ni)-Total	mg/L	-	Varies with hardness Guideline = 0.025	-	0.0083	0.0019	0.00916			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	-	-	0.218	0.394			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	-	-	-	-	1.85	2.05					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00479	0.00587					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	< 0.000050	0.00007			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guideliens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	11.8	21.1					
Silver (Ag)-Total	mg/L	Varies with hardness, see note Guideline = 0.0001	Varies with hardness, see note Guideline = 0.0015	0.003	0.0015	0.000015	0.000032		Varies with hardness Guideline ranges: Hardness ≤ 100: 0.0001 Hardness > 100: 0.003	Varies with hardness Guideline ranges: Hardness ≤ 100: 0.00005 Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	2.74	3.68					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0694	0.125					
Sulfur (S)-Total	mg/L	-	-	-	-	< 0.50	< 0.50					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.0008	-	-	0.000032	0.000038			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	-	-	-	-	< 0.00030	< 0.00030					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.208	0.319					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	-	0.0085	-	-	0.000129	0.000177			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	0.00834	0.015					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010 US 5-week field average = 0.0277 DS 5-week field average = 0.0206	*0.0106*	*0.0221*	**Total Zn exceeds the BCWQ MAL long-term guidelines at both upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the background total Zn concentration at the upstream location is greater than that of the downstream. Discharge from BCR has not begun, therefore, the high total Zn concentration may be characteristic of the Squamish River and the local geology.				
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00060	< 0.00040					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	2.51	4.85					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00032	0.00035					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0451	0.0659					
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 = 0.00012	Varies with hardness, see note Guideline = 0.000066	-	-	0.0000176	0.0000206		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	-	-	4.31	5.2	The upstream location has high sensitivity to acid inputs (i.e. low buffering capacity), while the downstream location has medium sensitivity to acid inputs.		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000136	0.000131					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	0.00091	0.00194					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	0.001	0.00332					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0006	Guideline varies with other parameters, see note Guideline = 0.0002 US 5-week field average = 0.00141 DS 5-week field average = 0.00536	-	-	**0.00538**	**0.0252**	**Dissolved Cu exceeds the short-term and long-term BCWG for FAL at both the upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun full-time. These impacts are not attributable to BCR construction activities and may be characteristic of the Squamish River and the local geology.	Guideline varies with 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	-	-	-	1.83	2.9	**Dissolved Fe exceeds BCWQ FAL short-term guidelines at both the upstream and downstream location.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun. These impacts are not attributable to BCR construction activities and may be characteristic of the Squamish River and the local geology.				
Lead (Pb)-Dissolved	mg/L	-	-	-	-	0.000489	0.000527					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.0021	0.0022					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.25	1.74					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.0618	0.0987					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000326	0.000252					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	0.0011	0.0036					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	0.176	0.299					
Potassium (K)-Dissolved	mg/L	-	-	-	-	1.32	1.43					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00362	0.0041					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	5.81	7.12					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	0.00001	0.000018					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.45	1.48					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0332	0.0502					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	0.54	< 0.50					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.000024	0.000028					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	0.12	0.131					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000101	0.000131					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00513	0.00715					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.010	Varies with pH, DOC, hardness Guideline = 0.00367 DS 5-week field average = 0.0048	-	-	0.0074	**0.0121**	**Dissolved Zn exceeds both BCWQ FAL short-term and long-term guidelines.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun. These impacts are not attributable to BCR construction activities and may be characteristic of the Squamish River and the local geology.	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	-	-	-	-	< 0.00040	< 0.00040					
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				7.13	7.16
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				12.4	13.6
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				199.00	380.00
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				21.4	36.3
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				0.62	0.72
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				9.2	7.9
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				0.89	0.78

BCR Site Receiving Environment Lab Documentation

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C0160**	Page	: 1 of 6
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 12-Aug-2024 14:15
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 13-Aug-2024
C-O-C number	: ----	Issue Date	: 19-Aug-2024 21:52
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Inorganics, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia
	Analyst	Inorganics, Burnaby, British Columbia
	Senior Analyst	Inorganics, Waterloo, Ontario
	Senior Analyst	Metals, Waterloo, Ontario
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

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

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	Field Blank	Travel Blank
					Client sampling date / time	12-Aug-2024 09:52	12-Aug-2024 11:27	12-Aug-2024 11:27	12-Aug-2024 11:30	12-Aug-2024 00:00
						VA24C0160-001	VA24C0160-002	VA24C0160-003	VA24C0160-004	VA24C0160-005
						Result	Result	Result	Result	Result
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		24.000	23.000	23.000	----	----
pH, field	----	EF001/VA	0.10	pH units		7.13	7.16	7.16	----	----
Temperature, field	----	EF001/VA	0.10	°C		12.4	13.6	13.6	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		15.9	20.1	19.7	<0.60	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		21.4	36.3	33.7	<0.60	<0.60
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		48	43	43	<10	<10
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		235	402	344	<3.0	<3.0
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		9.2	7.9	7.8	<2.0	<2.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0602	0.0480	0.0478	<0.0050	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		0.89	0.78	0.78	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0117	0.0120	0.0115	<0.0050	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.116	0.182	0.175	<0.030	<0.030
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.186	0.318	0.317	<0.0020	<0.0020
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		2.61	2.23	2.25	<0.30	<0.30
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.62	0.72	0.68	<0.50	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	0.0016	<0.0015	<0.0015	<0.0015
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	0.0017	<0.0016	<0.0016	<0.0016
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		6.61	14.8	13.5	<0.0030	<0.0030
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	Field Blank	Travel Blank
					Client sampling date / time	12-Aug-2024 09:52	12-Aug-2024 11:27	12-Aug-2024 11:27	12-Aug-2024 11:30	12-Aug-2024 00:00
						VA24C0160-001	VA24C0160-002	VA24C0160-003	VA24C0160-004	VA24C0160-005
						Result	Result	Result	Result	Result
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00046	0.00055	0.00054	<0.00010	<0.00010
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0700	0.104	0.0939	<0.00010	<0.00010
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	0.000112	<0.000100	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000228	0.0000293	0.0000257	<0.0000050	<0.0000050
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		5.65	9.08	8.34	<0.050	<0.050
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000183	0.000206	0.000204	<0.000010	<0.000010
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00184	0.00512	0.00458	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00148	0.00538	0.00507	<0.00010	<0.00010
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00725	0.0468	0.0440	<0.00050	<0.00050
Iron, total	7439-89-6	E420/VA	0.010	mg/L		3.13	6.35	5.82	<0.010	<0.010
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000827	0.000920	0.000853	<0.000050	<0.000050
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0028	0.0034	0.0033	<0.0010	<0.0010
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		1.78	3.32	3.12	<0.0050	<0.0050
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0821	0.151	0.141	<0.00010	<0.00010
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	0.0000055	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000389	0.000419	0.000403	<0.000050	<0.000050
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00190	0.00916	0.00843	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.218	0.394	0.342	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.85	2.05	1.90	<0.050	<0.050
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00479	0.00587	0.00544	<0.00020	<0.00020
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	0.000070	0.000055	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		11.8	21.1	18.8	<0.10	<0.10
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		0.000015	0.000032	0.000039	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		2.74	3.68	3.27	<0.050	<0.050
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0694	0.125	0.111	<0.00020	<0.00020
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000032	0.000038	0.000038	<0.000010	<0.000010

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	Field Blank	Travel Blank
					Client sampling date / time	12-Aug-2024 09:52	12-Aug-2024 11:27	12-Aug-2024 11:27	12-Aug-2024 11:30	12-Aug-2024 00:00
						VA24C0160-001	VA24C0160-002	VA24C0160-003	VA24C0160-004	VA24C0160-005
						Result	Result	Result	Result	Result
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00030 DLM	<0.00030 DLM	<0.00030 DLM	<0.00010	<0.00010
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.208	0.319	0.283	<0.00030	<0.00030
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000129	0.000177	0.000166	<0.000010	<0.000010
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00834	0.0150	0.0135	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0106	0.0221	0.0203	0.0051 RRV	<0.0030
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00060 DLM	<0.00040 DLM	<0.00040 DLM	<0.00020	<0.00020
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		2.51	4.85	4.85	<0.0010	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00032	0.00035	0.00033	<0.00010	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0451	0.0659	0.0628	<0.00010	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.0000176	0.0000206	0.0000202	<0.0000050	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		4.31	5.20	5.05	<0.050	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000136	0.000131	0.000140	<0.000010	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		0.00091	0.00194	0.00173	<0.00050	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.00100	0.00332	0.00327	<0.00010	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00538	0.0252	0.0253	<0.00020	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		1.83	2.90	2.90	<0.010	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000489	0.000527	0.000506	<0.000050	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0021	0.0022	0.0022	<0.0010	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		1.25	1.74	1.72	<0.0050	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.0618	0.0987	0.0949	<0.00010	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000326	0.000252	0.000290	<0.000050	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00110	0.00360	0.00359	<0.00050	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	Field Blank	Travel Blank
					Client sampling date / time	12-Aug-2024 09:52	12-Aug-2024 11:27	12-Aug-2024 11:27	12-Aug-2024 11:30	12-Aug-2024 00:00
						VA24C0160-001	VA24C0160-002	VA24C0160-003	VA24C0160-004	VA24C0160-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		0.176	0.299	0.301	<0.050	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		1.32	1.43	1.40	<0.050	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00362	0.00410	0.00399	<0.00020	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		5.81	7.12	7.13	<0.050	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		0.000010	0.000018	0.000019	<0.000010	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		1.45	1.48	1.53	<0.050	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0332	0.0502	0.0510	<0.00020	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		0.54	<0.50	<0.50	<0.50	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		0.000024	0.000028	0.000027	<0.000010	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		0.120	0.131	0.143	<0.00030	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000101	0.000131	0.000122	<0.000010	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00513	0.00715	0.00690	<0.00050	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0074	0.0121	0.0203	<0.0010	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00040 DLM	<0.00040 DLM	<0.00040 DLM	<0.00020	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		0.00184	0.00512	0.00458	<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	: **VA24C0160**	Page	: 1 of 20
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone	: ----	Telephone	
Project	: 11964	Date Samples Received	: 12-Aug-2024 14:15
PO	: 11964 - Task 20 - Phase 3C-4C	Issue Date	: 19-Aug-2024 21:52
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 5		
No. of samples analysed	: 5		

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) Duplicate	E298	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Field Blank	E298	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU DS 1	E298	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US 1	E298	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) Travel Blank	E298	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Duplicate	E235.Br-L	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Travel Blank	E235.Br-L	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US 1	E235.Br-L	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Duplicate	E235.Cl	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Blank	E235.Cl	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Travel Blank	E235.Cl	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Duplicate	E235.F	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE Field Blank	E235.F	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Travel Blank	E235.F	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU US 1	E235.F	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Duplicate	E235.NO3-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Field Blank	E235.NO3-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Travel Blank	E235.NO3-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Duplicate	E235.NO2-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO2-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SQU DS 1	E235.NO2-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Travel Blank	E235.NO2-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SQU US 1	E235.NO2-L	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	13-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Duplicate	E235.SO4	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Field Blank	E235.SO4	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SQU DS 1	E235.SO4	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Travel Blank	E235.SO4	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	12-Aug-2024	13-Aug-2024	28 days	1 days	✓	13-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Duplicate	E366	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Field Blank	E366	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (lab preserved) Travel Blank	E366	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	14-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Duplicate	E372-U	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Field Blank	E372-U	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SQU DS 1	E372-U	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-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
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (lab preserved)										
Travel Blank	E372-U	12-Aug-2024	13-Aug-2024	3 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Duplicate	E509	12-Aug-2024	16-Aug-2024	28 days	4 days	✓	16-Aug-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	12-Aug-2024	16-Aug-2024	28 days	4 days	✓	16-Aug-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	12-Aug-2024	16-Aug-2024	28 days	4 days	✓	16-Aug-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	12-Aug-2024	16-Aug-2024	28 days	4 days	✓	16-Aug-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Duplicate	E421	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Field Blank	E421	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 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
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
Duplicate	EF001	12-Aug-2024	----	----	----		14-Aug-2024	----	2 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU DS 1	EF001	12-Aug-2024	----	----	----		14-Aug-2024	----	2 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU US 1	EF001	12-Aug-2024	----	----	----		14-Aug-2024	----	2 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Duplicate	E358-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Field Blank	E358-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU US 1	E358-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Duplicate	E290	12-Aug-2024	13-Aug-2024	14 days	1 days	✓	14-Aug-2024	14 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
Physical Tests : Alkalinity Species by Titration										
HDPE Field Blank	E290	12-Aug-2024	13-Aug-2024	14 days	1 days	✓	14-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU DS 1	E290	12-Aug-2024	13-Aug-2024	14 days	1 days	✓	14-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU US 1	E290	12-Aug-2024	13-Aug-2024	14 days	1 days	✓	14-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Travel Blank	E290	12-Aug-2024	13-Aug-2024	14 days	1 days	✓	14-Aug-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Duplicate	E162	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Field Blank	E162	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU DS 1	E162	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Travel Blank	E162	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU US 1	E162	12-Aug-2024	----	----	----		15-Aug-2024	7 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
Physical Tests : TSS by Gravimetry										
HDPE										
Duplicate	E160	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Field Blank	E160	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Travel Blank	E160	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	12-Aug-2024	----	----	----		15-Aug-2024	7 days	4 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Duplicate	E532	12-Aug-2024	----	----	----		14-Aug-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Field Blank	E532	12-Aug-2024	----	----	----		14-Aug-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	12-Aug-2024	----	----	----		14-Aug-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	12-Aug-2024	----	----	----		14-Aug-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
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Travel Blank	E532	12-Aug-2024	----	----	----		14-Aug-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Duplicate	E508	12-Aug-2024	15-Aug-2024	28 days	3 days	✓	15-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Field Blank	E508	12-Aug-2024	15-Aug-2024	28 days	3 days	✓	15-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU DS 1	E508	12-Aug-2024	15-Aug-2024	28 days	3 days	✓	15-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Travel Blank	E508	12-Aug-2024	15-Aug-2024	28 days	3 days	✓	15-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	12-Aug-2024	15-Aug-2024	28 days	4 days	✓	15-Aug-2024	28 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Duplicate	E420	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Field Blank	E420	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 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 Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SQU US 1	E420	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Travel Blank	E420	12-Aug-2024	15-Aug-2024	180 days	3 days	✓	15-Aug-2024	180 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Duplicate	E395	12-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Field Blank	E395	12-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) SQU DS 1	E395	12-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) SQU US 1	E395	12-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Travel Blank	E395	12-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1594131	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1593761	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1594135	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1594134	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600998	1	6	16.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1595205	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1594565	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1594133	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1594136	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1594137	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1594138	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1599002	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1595513	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1598986	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1595131	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1593758	2	27	7.4	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593759	2	25	8.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1601710	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1598999	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1594131	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1593761	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1594135	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1594134	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600998	1	6	16.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1595205	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1594565	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1594133	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1594136	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1594137	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1594138	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1599002	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1595513	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1598986	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1595131	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1593758	2	27	7.4	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	1593759	2	25	8.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1601710	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1598999	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1594131	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1593761	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1594135	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1594134	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600998	1	6	16.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1595205	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1594565	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1594133	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1594136	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1594137	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1594138	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1599002	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1595513	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1598986	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1595131	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1593758	2	27	7.4	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593759	2	25	8.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1601710	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1598999	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1593761	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1594135	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1594134	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600998	1	6	16.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1595205	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1594565	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1594133	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1594136	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1594137	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1594138	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1595513	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1598986	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1595131	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1593758	2	27	7.4	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593759	2	25	8.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1601710	1	20	5.0	5.0	✓

Methodology References and Summaries

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

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	Chinchilla Scientific Nitrate Method, 2011	Following digestion, total nitrogen is is determined colourimetrically using a discrete analyzer utilizing the vanadium chloride reduction method. This method of analysis is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Waterloo	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

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

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

QUALITY CONTROL REPORT

Work Order	: **VA24C0160**	Page	: 1 of 18
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone	: ----	Telephone	
Project	: 11964	Date Samples Received	: 12-Aug-2024 14:15
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 13-Aug-2024
C-O-C number	: ----	Issue Date	: 19-Aug-2024 21:52
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Vancouver Inorganics, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Analyst	Vancouver Inorganics, Burnaby, British Columbia
	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
	Senior Analyst	Waterloo Metals, Waterloo, Ontario
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1594131)											
KS2403160-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	206	208	1.01%	20%	----
Physical Tests (QC Lot: 1598999)											
KS2403170-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	3.1	0.07	Diff <2x LOR	----
Physical Tests (QC Lot: 1599002)											
KS2403170-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	436	414	5.18%	20%	----
Anions and Nutrients (QC Lot: 1593758)											
KS2403160-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	1.01	0.990	2.31%	20%	----
Anions and Nutrients (QC Lot: 1593759)											
KS2403160-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0322	0.0328	1.97%	20%	----
Anions and Nutrients (QC Lot: 1593761)											
KS2403160-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0472	0.0487	0.0015	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1594133)											
KS2403160-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.186	0.179	0.008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1594134)											
KS2403160-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	62.8	62.5	0.381%	20%	----
Anions and Nutrients (QC Lot: 1594135)											
KS2403160-001	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: 1594136)											
KS2403160-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1594137)											
KS2403160-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0013	0.0012	0.00006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1594138)											
KS2403160-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	73.8	73.2	0.752%	20%	----
Anions and Nutrients (QC Lot: 1594567)											
VA24B9985-002	Anonymous	Nitrogen, total	7727-37-9	E366	3.00	mg/L	98.7	99.6	0.896%	20%	----
Anions and Nutrients (QC Lot: 1594568)											
VA24B9985-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0141	0.0143	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1594570)											
VA24B9985-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.500	mg/L	34.4	34.6	0.334%	20%	----
Organic / Inorganic Carbon (QC Lot: 1594565)											

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*
Organic / Inorganic Carbon (QC Lot: 1594565) - continued											
VA24B9985-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	41.5	44.0	5.85%	20%	----
Total Sulfides (QC Lot: 1601710)											
CG2411356-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0075	mg/L	0.438	0.411	6.27%	20%	----
Total Metals (QC Lot: 1595131)											
VA24B9888-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0034	0.0036	0.0002	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00550	0.00539	2.02%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0168	0.0172	2.44%	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	0.000167	0.000164	0.000002	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.064	0.064	0.0003	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000071	0.0000069	0.0000002	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	48.8	48.3	1.05%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000021	0.000021	0.0000003	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	0.00019	0.00019	0.000003	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.215	0.215	0.0945%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.033	0.034	0.0002	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.00130	0.00128	1.54%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0047	0.0047	0.00005	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	82.6	82.9	0.459%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.174	0.175	0.503%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00900	0.00902	0.221%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00629	0.00636	1.10%	20%	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	0.286	0.268	0.018	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	8.23	8.61	4.59%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00333	0.00329	1.32%	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	14.5	14.1	2.38%	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	52.7	51.4	2.49%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.233	0.232	0.402%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	51.7	50.6	1.99%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	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: 1595131) - continued											
VA24B9888-001	Anonymous	Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	0.00034	0.00034	0.000004	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	0.00011	0.00010	0.000004	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00212	0.00206	2.50%	20%	----
		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	0.0183	0.0197	0.0014	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	0.00100	0.00102	0.00002	Diff <2x LOR	----
Total Metals (QC Lot: 1598986)											
KS2403176-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1595205)											
VA24B9943-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.118	0.122	3.84%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00027	0.00026	0.000009	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00018	0.00018	0.000005	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0150	0.0153	1.46%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	12.3	12.1	2.19%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00098	0.00101	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.014	0.014	0.0005	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	0.902	0.918	1.77%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00382	0.00393	2.82%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00374	0.00372	0.371%	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	2.87	2.91	1.22%	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: 1595205) - continued											
VA24B9943-001	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00150	0.00146	0.00005	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	0.835	0.830	0.544%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.70	2.64	2.26%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0581	0.0576	0.826%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.92	2.85	0.07	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	0.00032	0.00002	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.00034	0.00034	0.000008	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000042	0.000041	0.0000004	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	0.0013	0.0014	0.0001	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: 1600998)											
VA24C0060-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1595513)											
KS2403153-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1594131)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.3	----
Physical Tests (QCLot: 1598999)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1599002)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1593758)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1593759)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1593761)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1594133)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1594134)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1594135)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1594136)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1594137)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1594138)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1594567)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1594568)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1594570)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1594565)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1601710)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Sulfides (QCLot: 1601710) - continued						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1595131)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1595131) - continued						
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	----
Total Metals (QCLot: 1598986)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1595205)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1595205) - continued						
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	----
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: 1600998)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1595513)						
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: 1594131)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1598999)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1599002)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 1593758)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	87.1	75.0	125	----
Anions and Nutrients (QCLot: 1593759)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	100	80.0	120	----
Anions and Nutrients (QCLot: 1593761)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 1594133)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	95.4	90.0	110	----
Anions and Nutrients (QCLot: 1594134)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.0	90.0	110	----
Anions and Nutrients (QCLot: 1594135)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	98.1	85.0	115	----
Anions and Nutrients (QCLot: 1594136)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	98.5	90.0	110	----
Anions and Nutrients (QCLot: 1594137)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	95.0	90.0	110	----
Anions and Nutrients (QCLot: 1594138)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1594567)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	99.2	75.0	125	----
Anions and Nutrients (QCLot: 1594568)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	91.2	80.0	120	----
Anions and Nutrients (QCLot: 1594570)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	93.7	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1594565)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1594565) - continued									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Total Sulfides (QCLot: 1601710)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	103	80.0	120	----
Total Metals (QCLot: 1595131)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	98.4	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	98.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	95.8	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	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	102	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	98.1	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	111	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	108	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	89.1	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	102	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	96.2	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: 1595131) - continued									
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	98.2	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	97.9	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.4	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	98.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	105	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	94.3	80.0	120	----
Total Metals (QCLot: 1598986)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	90.0	80.0	120	----
Dissolved Metals (QCLot: 1595205)									
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	100.0	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	96.8	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	96.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.3	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	96.5	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1595205) - continued									
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	107	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	87.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	99.0	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	96.0	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.4	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	96.8	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.2	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.4	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	96.0	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.9	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	100	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.8	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.6	80.0	120	----
Speciated Metals (QCLot: 1595513)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	101	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1593758)										
KS2403160-002	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1593759)										
KS2403160-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0510 mg/L	0.05 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 1593761)										
KS2403160-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0959 mg/L	0.1 mg/L	95.9	75.0	125	----
Anions and Nutrients (QCLot: 1594133)										
KS2403160-002	Anonymous	Fluoride	16984-48-8	E235.F	4.42 mg/L	5 mg/L	88.5	75.0	125	----
Anions and Nutrients (QCLot: 1594134)										
KS2403160-002	Anonymous	Chloride	16887-00-6	E235.Cl	485 mg/L	500 mg/L	97.0	75.0	125	----
Anions and Nutrients (QCLot: 1594135)										
KS2403160-002	Anonymous	Bromide	24959-67-9	E235.Br-L	2.39 mg/L	2.5 mg/L	95.7	75.0	125	----
Anions and Nutrients (QCLot: 1594136)										
KS2403160-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.1 mg/L	12.5 mg/L	96.7	75.0	125	----
Anions and Nutrients (QCLot: 1594137)										
KS2403160-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.23 mg/L	2.5 mg/L	89.3	75.0	125	----
Anions and Nutrients (QCLot: 1594138)										
KS2403160-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	486 mg/L	500 mg/L	97.1	75.0	125	----
Anions and Nutrients (QCLot: 1594567)										
VA24B9985-003	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1594568)										
VA24B9985-003	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0466 mg/L	0.05 mg/L	93.2	70.0	130	----
Anions and Nutrients (QCLot: 1594570)										
VA24B9985-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1594565)										
VA24B9985-003	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1601710)										
CG2411356-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	1.97 mg/L	2 mg/L	98.4	75.0	125	----
Total Metals (QCLot: 1595131)										
VA24B9888-002	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0197 mg/L	0.02 mg/L	98.7	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: 1595131) - continued										
VA24B9888-002	Anonymous	Barium, total	7440-39-3	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00906 mg/L	0.01 mg/L	90.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.098 mg/L	0.1 mg/L	98.1	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00378 mg/L	0.004 mg/L	94.4	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00913 mg/L	0.01 mg/L	91.3	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	1.84 mg/L	2 mg/L	92.1	70.0	130	----
		Lead, total	7439-92-1	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0931 mg/L	0.1 mg/L	93.1	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	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0365 mg/L	0.04 mg/L	91.3	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00361 mg/L	0.004 mg/L	90.3	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00344 mg/L	0.004 mg/L	86.1	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Tin, total	7440-31-5	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0395 mg/L	0.04 mg/L	98.6	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0183 mg/L	0.02 mg/L	91.5	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0982 mg/L	0.1 mg/L	98.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.374 mg/L	0.4 mg/L	93.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0397 mg/L	0.04 mg/L	99.3	70.0	130	----
Total Metals (QCLot: 1598986)										
VA24B9967-001	Anonymous	Mercury, total	7439-97-6	E508	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 1595205)										
VA24B9944-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.196 mg/L	0.2 mg/L	97.8	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1595205) - continued										
VA24B9944-001	Anonymous	Beryllium, dissolved	7440-41-7	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00954 mg/L	0.01 mg/L	95.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00386 mg/L	0.004 mg/L	96.5	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00932 mg/L	0.01 mg/L	93.2	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0987 mg/L	0.1 mg/L	98.7	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0370 mg/L	0.04 mg/L	92.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.61 mg/L	10 mg/L	96.1	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.27 mg/L	10 mg/L	92.7	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00369 mg/L	0.004 mg/L	92.3	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	21.6 mg/L	20 mg/L	108	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00373 mg/L	0.004 mg/L	93.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0370 mg/L	0.04 mg/L	92.5	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00405 mg/L	0.004 mg/L	101	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0950 mg/L	0.1 mg/L	95.0	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.378 mg/L	0.4 mg/L	94.6	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
Dissolved Metals (QCLot: 1600998)										
VA24C0060-006	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000968 mg/L	0 mg/L	96.8	70.0	130	----
Speciated Metals (QCLot: 1595513)										
KS2403153-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0410 mg/L	0.04 mg/L	102	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:	

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

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☑ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200%] ☐ (Laboratory opening fees may apply)]
	2 day [P2-50%] ☐		
Date and Time Required for all E&P TATs:			dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.			

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

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

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

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): VA24C0160

ALS Contact: Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
						F					P	P			F/P							
	SQU US 1			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.13 cond: 24 µS/cm temp: 12.4 °C	Aug 12/24	9:52 am																			
	SQU DS 1			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.16 cond: 23 µS/cm temp: 13.6 °C	Aug 12/24	11:27 am																			
	Duplicate 7.16 23 µS/cm 13.6 °C	Aug 12/24	11:27 am	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Field Blank	Aug 12/24	11:30am	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Trip Blank			Water	R		R	R	R	R	R	R	R	R							N	6

Environmental Division
Vancouver
Work Order Reference
VA24C0160

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to
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			
				12C, 18C			

SHIPMENT RELEASE (client use)

Released by:	Date: Aug 12/2024	Time: 14:14

FINAL SHIPMENT RECEPTION (lab use only)

Received by: SD	Date: 12-8	Time: 14:15

REFER TO BACK FOR LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

BCR Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-8-12-Renkers-7ED0D

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	08/12/2024	**Location:**	BC Rail Site
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.725282 -123.165175
Temperature(c):	Low 16 High 21	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 11:27:00 **Flow Volume (visual):** moderate

Notes: Conductivity: 23 micro Siemens per cm
Turbidity: measured in ratiometric units due to being over range.
Unable to filter bottles due to turbidity - will mention on the COC.

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	Total hexavalent chromium and total trivalent chromium	
TSS	Yes	**Anions**	Yes		
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:**	Yes
Nutrients	Yes	**VOC/VPH**	No	Total hexavalent chromium and total trivalent chromium	
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

Cleaning sensors within the sonde and PVC pipe

Photos

Photo: 1

Location: SQU DS1

Description: Up view

Photo: 2

Location: SQU DS1

Description: Across view

Photos

Photo: 3

Location: SQU DS1

Description:

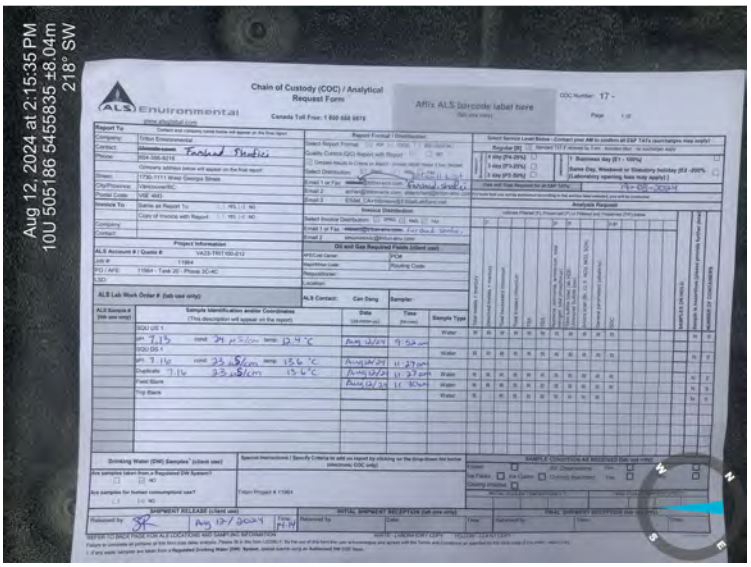

Photo: 4

Location: SQU DS1

Description: Signed lab 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

2024-8-12-Renkers-FBB2C

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	08/12/2024	**Location:**	BC Rail Site
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 16 High 21	**Permit:**	AE 111824
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 09:52:00 **Flow Volume (visual):** moderate

Notes: Conductivity: 24 micro Siemens per cm
Turbidity: measured in ratiometric units due to being over range.
Unable to pull sonde out of the river for maintenance. Stuck on rock.
Unable to filter bottles due to turbidity - will mention on the COC

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Total hexavalent chromium and total trivalent chromium
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:** Yes Total hexavalent chromium and total trivalent chromium
Nutrients	Yes	**VOC/VPH**	No	
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 US1

Description: Upstream view

Photo: 2

Location: SQU US1

Description: Across view

Photos

Photo: 3

Location: SQU US1

Description: Downstream view

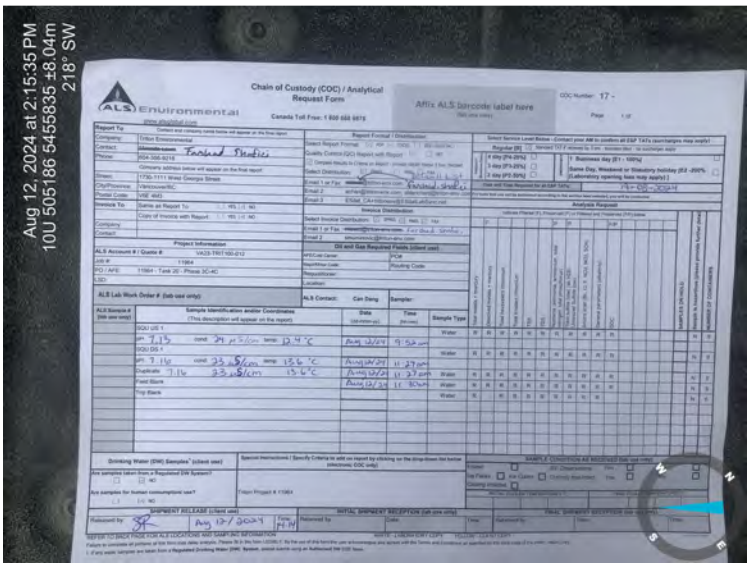

Photo: 4

Location: SQU US1

Description: Signed lab 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:			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					VA24C0307-001					
	Date Sampled					13-Aug-2024					
	Time Sampled					10:30					
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	7.0-8.7	7.23		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	-	**18.8 (5 weeks average 19.5°C)**	**Temperature exceeds the MWMT of 18°C and Max +/- 1°C from background.** **Temperature cannot be compared accurately to guidelines because temperature is taken once discretely each week and is not collected throughout the week.**	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 salmoind species present, Mean Weekly Max Temperature guidline 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	-	-	-	-	180					
Turbidity (field)	NTU	Varies with background, see note Guideline = 8.8	Varies with background, see note Guideline = 3.74 5-week discrete sampling average = 9.4 (EOP)	Varies with background, see note Guideline = 8.8	Varies with background, see note Guideline = 3.74 5-week discrete sampling average = 9.4 (EOP)	**17.4**	**Turbidity exceeds both the short and long term BC WQG for FAL and MAL;** however, this is only based on a single data point collected weekly and does not confirm whether it remained above the guideline for a duration of 24 h.	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.	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.	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	-	-	-	-	60					
Total Dissolved Solids	mg/L	-	-	-	-	88					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 28.0	Varies with background, see note Guideline = 8.34 5-week discrete sampling average = 6.20 (EOP)	Varies with background, see note Guideline = 28.0	Varies with background, see note Guideline = 8.34 5-week discrete sampling average = 6.20 (EOP)	9.3		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	-	-	-	-	0.72			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	-	-	69	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. Guideline = 6.69	Varies with pH and temperature. See note. Guideline = 1.33	Varies with pH and temperature. See note. Guideline = 15	Varies with pH, temperature and salinity. See note. Guideline = 2.4	0.0325		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	> 110% of background	< 90% of background	1				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 = 0.396	-	1.5	-	0.271		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	< 0.0050					
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		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	-	-	-	-	0.124					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0022			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	-	-	5.06			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 = 0.120 5-week discrete sampling averages = **EOP (0.058), US (0.105), DS (0.085)**	-	-	0.0177			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	-	-	0.00012					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00105					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.00436			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	0.016					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	< 0.0000050					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	22.6					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000018					
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	0.00093					
Iron (Fe)-Total	mg/L	1	-	-	-	**1.54**	**Total Fe exceeds the short-term BWQG for FAL, thus there is a potential risk for adverse effects to FAL.**				
Lead (Pb)-Total	mg/L	Varies with hardness. See Note. Guideline = 0.00419	Varies with hardness. See Note. Guideline = 0.00346	0.14	0.002	0.000403		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation EXP[1.273*on(hardness)-1.460] where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP[1.273*on(hardness)-4.704] applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	0.005					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.88					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.816	Varies with hardness Guideline = 0.768	-	-	0.00642		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			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	-	-	0.0154					
Nickel (Ni)-Total	mg/L	-	Varies with hardness Guideline = 0.025	-	0.0083	0.00164			Working guideline status. Guideline varies with hardness. Refer to BC Water Quality Guidelines for more information. Hardness 0 ≤ 60: 0.025 Hardness > 60 ≤ 180: Guideline = (EXP((0.76 * (LN(hardness)) + 1.06))/1000) Hardness ≥ 180: 0.15		Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	< 0.050			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	2.44					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00491					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	0.000097			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidleiens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidleiens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidleiens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidleiens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	5.96					
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		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	-	-	-	-	3.69					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0527					
Sulfur (S)-Total	mg/L	-	-	-	-	1.59					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.0008	-	-	0.000019			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	-	-	-	-	0.00037					
Tungsten (W)-Total	mg/L	-	-	-	-	0.00027					
Uranium (U)-Total	mg/L	-	0.0085	-	-	0.00295			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0053					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020					
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0035					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	0.00011					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00094					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00388					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.016					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note Guideline = 0.000053	Varies with hardness, see note Guideline = 0.000036	-	-	0.0000075		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	-	-	22.2	The WLNG EOP has low sensitivity to acid inputs (i.e. high buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000018					
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 Guideline = 0.0042	Guideline varies with other parameters, see note Guideline = 0.00060 5-week discrete sampling average = **EOP (0.00064), US1 (0.0006), DS1 (0.00049)**	-	-	***0.0006***	**Dissolved Cu exceeds the long-term BWQG for FAL, thus there is a potential risk for adverse effects to 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	-	-	-	0.245					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	0.000217					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.005					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.915					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00594					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.0151					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	0.00142					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	2.46					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00499					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	0.000094					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	6.09					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	3.88					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0511					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.78					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.000019					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	0.00027					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.00284					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.009	Varies with pH, DOC, hardness Guideline = 0.0033 5-week discrete sampling average = **EOP (0.00518), US1 (0.00104), DS1 (0.00154)**	-	-	***0.0044***	**Dissolved Zn exceeds the long-term BWQG for FAL, thus there is a potential risk for adverse effects to 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	-	-	< 1.00			Working guideline status		
Dichloropropylene, trans-1,3-	µg/L	-		-	-	< 0.50					
Tetrachloroethylene	µg/L	-	110	-	-	< 0.50			Working guideline status		
Trichloroethane, 1,1,1-	µg/L	-	-	-	-	< 0.50					
Trichloroethylene	µg/L	-	21	-	-	< 0.50			Working guideline status		
Vinyl chloride	µg/L	-	-	-	-	< 0.40					
Benzene	µg/L	-	40	-	110	< 0.50			Interim guideline status		Interim guideline status
Ethylbenzene	µg/L	-	200	-	250	< 0.50			Interim guideline status		Interim guideline status
Methyl-tert-butyl ether [MTBE]	µg/L	3400	-	440	-	< 0.50					
Styrene	µg/L	-	72	-	-	< 0.50			Working guideline status		
Toluene	µg/L	-	0.5	-	-	< 0.40					
Xylene, m+p-	µg/L	-	-	-	-	< 0.40					
Xylene, o-	µg/L	-	-	-	-	< 0.30					
Xylenes, total	µg/L	-	30	-	-	< 0.50					
BTEX, total	µg/L	-		-	-	< 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	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Values: WLNG EOP	Values: WLNG US 13-Aug-2024
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.23	7.85
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				18.8 (5 weeks average 19.5°C)	17
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				17.40	0.76
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				60	9.7
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				0.72	1.98
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				69	9.7
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1	0.66
Total Suspended Solids	mg/L	Laboratory tested total suspended solids tested at the lab used in guideline calculations				9.3	< 3.0

Woodfibre Site Sample Lab Documentation

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CERTIFICATE OF ANALYSIS

Work Order	: **VA24C0307**	Page	: 1 of 11
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 13-Aug-2024 17:55
PO	: 11964 - Task 30 - Phase 3C-4C	Date Analysis Commenced	: 14-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 15:58
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Inorganics, Burnaby, British Columbia
	Lab Assistant	Metals, Burnaby, British Columbia
	Laboratory Analyst	Inorganics, Edmonton, Alberta
	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia
	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
	Department Manager - Metals	Inorganics, Burnaby, British Columbia
	Lab Assistant	Inorganics, Burnaby, British Columbia
	Senior Analyst	Inorganics, Waterloo, Ontario
	Senior Analyst	Metals, Waterloo, Ontario
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

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

<: less than.

>: greater than.

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

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
					VA24C0307-001	--------	--------	--------	--------
					Result	----	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		180.00	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.23	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		18.8	----	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		59.2	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		60.0	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		88	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		9.3	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		69.0	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0325	----	----	----	----
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		1.00	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.271	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.124	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0022	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		5.06	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.72	----	----	----	----
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		0.0177	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		0.00012	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C0307-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00105	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00436	----	----	----	----
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		0.016	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		22.6	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000018	----	----	----	----
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		0.00093	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		1.54	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000403	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0050	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.880	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00642	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.0154	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00164	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.44	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00491	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000097	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		5.96	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		3.69	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0527	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.59	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000019	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C0307-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00037	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00027	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.00295	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0053	----	----	----	----
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		0.0035	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		0.00011	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00094	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00388	----	----	----	----
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		0.016	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.0000075	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		22.2	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000018	----	----	----	----
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		0.245	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000217	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0050	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.915	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00594	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0151	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00142	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C0307-001	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		2.46	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00499	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000094	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		6.09	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		3.88	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0511	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.78	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		0.000019	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		0.00027	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.00284	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0044	----	----	----	----
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/WT	0.00050	mg/L		<0.00050	----	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	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	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C0307-001	--------	--------	--------	--------
						Result	----	----	----	----
Volatile Organic Compounds										
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L		<0.75	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C0307-001	--------	--------	--------	--------
						Result	----	----	----	----
Volatile Organic Compounds [Fuels]										
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	----	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	----	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	----	----	----	----
HEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
LEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
VPHw	----	EC580A/VA	100	µg/L		<100	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		81.0	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		104	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		83.9	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		98.6	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	----	----	----	----
					Client sampling date / time	13-Aug-2024 10:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24C0307-001	--------	--------	--------	--------
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		102	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		106	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		103	----	----	----	----
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	%		101	----	----	----	----

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	: **VA24C0307**	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	: 13-Aug-2024 17:55
PO	: 11964 - Task 30 - Phase 3C-4C	Issue Date	: 20-Aug-2024 15:58
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)

- 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
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) WLNG EOP Tank	E562	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG EOP Tank	E298	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP Tank	E235.Br-L	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP Tank	E235.Cl	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG EOP Tank	E235.F	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG EOP Tank	E235.NO3-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WLNG EOP Tank	E235.NO2-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 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 : Sulfate in Water by IC										
HDPE										
WLNG EOP Tank	E235.SO4	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG EOP Tank	E366	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG EOP Tank	E372-U	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG EOP Tank	E509	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG EOP Tank	E421	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	16-Aug-2024	180 days	3 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG EOP Tank	EF001	13-Aug-2024	----	----	----		15-Aug-2024	----	2 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
WLNG EOP Tank	E680E	13-Aug-2024	16-Aug-2024	7 days	3 days	✓	19-Aug-2024	40 days	3 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP Tank	E601A	13-Aug-2024	19-Aug-2024	14 days	6 days	✓	20-Aug-2024	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WLNG EOP Tank	E581.VH+F1	13-Aug-2024	17-Aug-2024	14 days	4 days	✓	17-Aug-2024	14 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)										
WLNG EOP Tank	E358-L	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG EOP Tank	E290	13-Aug-2024	15-Aug-2024	14 days	2 days	✓	15-Aug-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG EOP Tank	E162	13-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG EOP Tank	E160	13-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP Tank	E641A	13-Aug-2024	19-Aug-2024	14 days	6 days	✓	20-Aug-2024	40 days	0 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG EOP Tank	E532	13-Aug-2024	----	----	----		15-Aug-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG EOP Tank	E508	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG EOP Tank	E420	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	17-Aug-2024	180 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG EOP Tank	E395	13-Aug-2024	----	----	----		19-Aug-2024	7 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
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP Tank	E611C	13-Aug-2024	17-Aug-2024	14 days	4 days	✓	17-Aug-2024	14 days	4 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	1596828	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600675	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1600072	1	2	50.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1599868	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1604870	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1597754	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1604869	1	10	10.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1601725	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1601724	1	16	6.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1596828	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1604537	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600675	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1600072	1	2	50.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
PAHs in Water by Hexane LVI GC-MS	E641A	1604538	1	14	7.1	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1599868	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1604870	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1597754	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1604869	1	10	10.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1601725	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1601724	1	16	6.2	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1596828	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1604537	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600675	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1600072	1	2	50.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1604538	1	14	7.1	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1599868	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1604870	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1597754	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1604869	1	10	10.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1601725	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1601724	1	16	6.2	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	1596231	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1600675	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1599868	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1597754	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1601725	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1601724	1	16	6.2	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 - 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.
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 - 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.
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH C6-C10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

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

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
Glycols Extraction and Derivatization (BC Only)	EP680E ALS Environmental - Vancouver	Water	EPA 8015D (mod)	Aqueous sample is derivatized and extracted with orgaic solvent.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C0307**	Page	: 1 of 23
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 13-Aug-2024 17:55
PO	: 11964 - Task 30 - Phase 3C-4C	Date Analysis Commenced	: 14-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 15:59
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Vancouver Inorganics, Burnaby, British Columbia
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
	Senior Analyst	Waterloo Metals, Waterloo, Ontario
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1596828)											
FJ2402386-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	238	236	0.464%	20%	----
Physical Tests (QC Lot: 1604869)											
VA24C0307-001	WLNG EOP Tank	Solids, total suspended [TSS]	----	E160	3.0	mg/L	9.3	3.7	5.6	Diff <2x LOR	----
Physical Tests (QC Lot: 1604870)											
VA24C0307-001	WLNG EOP Tank	Solids, total dissolved [TDS]	----	E162	13	mg/L	88	85	2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596231)											
KS2403176-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596232)											
VA24C0307-001	WLNG EOP Tank	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.124	0.117	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596233)											
VA24C0216-013	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: 1596829)											
VA24C0307-001	WLNG EOP Tank	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.06	5.05	0.214%	20%	----
Anions and Nutrients (QC Lot: 1596830)											
VA24C0307-001	WLNG EOP Tank	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.00	1.00	0.010	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596831)											
VA24C0307-001	WLNG EOP Tank	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596832)											
VA24C0307-001	WLNG EOP Tank	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: 1596833)											
VA24C0307-001	WLNG EOP Tank	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.271	0.267	1.74%	20%	----
Anions and Nutrients (QC Lot: 1596834)											
VA24C0307-001	WLNG EOP Tank	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1596229)											
VA24C0307-001	WLNG EOP Tank	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.72	0.60	0.12	Diff <2x LOR	----
Total Sulfides (QC Lot: 1604387)											
RG2401272-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0075	mg/L	0.169	0.171	1.24%	20%	----
Total Metals (QC Lot: 1596382)											
VA24C0202-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0858	0.0986	13.8%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00058	0.00058	0.0000008	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: 1596382) - continued											
VA24C0202-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00543	0.00587	7.80%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0451	0.0453	0.428%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000169	0.0000155	0.0000014	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	41.1	39.6	3.72%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000038	0.000039	0.0000010	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	0.00031	0.00032	0.00001	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00070	0.00071	0.00001	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.216	0.243	11.8%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000186	0.000217	0.000031	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0071	0.0069	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	15.4	15.3	0.731%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0686	0.0687	0.138%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000254	0.000257	0.000003	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00146	0.00148	0.00002	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	1.18	1.18	0.237%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00124	0.00138	0.00013	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000156	0.000181	0.000025	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	4.72	4.64	1.73%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000018	0.000022	0.000003	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	2.20	2.16	1.95%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.209	0.209	0.0272%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	27.2	26.8	1.34%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00296	0.00342	14.3%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00130	0.00131	0.340%	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: 1596382) - continued											
VA24C0202-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1599914)											
VA24C0217-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1596385)											
VA24C0202-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0083	0.0076	0.0007	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00051	0.00052	0.000008	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00436	0.00431	0.948%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0461	0.0460	0.390%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000186	0.0000187	0.0000002	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	40.4	37.7	6.90%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000012	0.000013	0.0000003	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00022	0.00022	0.000010	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00047	0.00048	0.00001	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.014	0.014	0.0004	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	0.0068	0.0064	0.0003	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	16.6	16.6	0.480%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0640	0.0632	1.16%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00224	0.00230	2.50%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00126	0.00125	0.00001	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	1.18	1.14	3.74%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00118	0.00113	0.00004	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000172	0.000182	0.000011	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.51	4.52	0.0818%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.25	2.13	5.62%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.203	0.208	2.36%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1596385) - continued											
VA24C0202-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	25.8	25.8	0.0312%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00126	0.00129	2.44%	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	0.0014	0.0014	0.00003	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1600675)											
KS2403155-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1597754)											
VA24C0307-001	WLNG EOP Tank	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1599868)											
CG2411499-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0020	mg/L	0.0109	0.0108	0.00005	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1601724)											
VA24C0156-001	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: 1601724) - continued											
VA24C0156-001	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: 1601725)											
VA24C0307-001	WLNG EOP Tank	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Glycols (QC Lot: 1600072)											
VA24C0307-001	WLNG EOP Tank	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: 1596828)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1604869)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1604870)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1596231)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1596232)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1596233)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1596829)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1596830)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1596831)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1596832)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1596833)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1596834)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1596229)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1604387)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1596382)						
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: 1596382) - 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: 1599914)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1596385)						
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: 1596385) - 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: 1600675)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1597754)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Aggregate Organics (QCLot: 1599868)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1601724)						
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: 1601724) - 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: 1601725)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 1604537)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1604538)						
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: 1604538) - 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: 1600072)						
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: 1596828)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1604869)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1604870)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1596231)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	89.8	85.0	115	----
Anions and Nutrients (QCLot: 1596232)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	95.9	75.0	125	----
Anions and Nutrients (QCLot: 1596233)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	90.4	80.0	120	----
Anions and Nutrients (QCLot: 1596829)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1596830)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1596831)									
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: 1596832)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.6	90.0	110	----
Anions and Nutrients (QCLot: 1596833)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.5	90.0	110	----
Anions and Nutrients (QCLot: 1596834)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1596229)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.9	80.0	120	----
Total Sulfides (QCLot: 1604387)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	108	80.0	120	----
Total Metals (QCLot: 1596382)									

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: 1596382) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	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	110	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	99.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	113	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	92.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	112	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	107	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	109	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 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
Total Metals (QCLot: 1596382) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.8	80.0	120	----
Total Metals (QCLot: 1599914)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	92.2	80.0	120	----
Dissolved Metals (QCLot: 1596385)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.5	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	93.0	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.7	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	96.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	93.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	95.8	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	95.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.3	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.2	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	112	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	95.0	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.8	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	100	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	96.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	99.8	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	85.6	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	96.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.4	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Dissolved Metals (QCLot: 1596385) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.3	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	94.0	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.8	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.4	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.4	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	97.8	80.0	120	----
Speciated Metals (QCLot: 1597754)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	99.2	80.0	120	----
Aggregate Organics (QCLot: 1599868)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	101	85.0	115	----
Volatile Organic Compounds (QCLot: 1601724)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	98.2	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	97.8	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	110	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	99.0	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	100	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	94.3	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	93.3	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	93.7	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	84.2	70.0	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
Volatile Organic Compounds (QCLot: 1601724) - continued									
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	99.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	70.4	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	70.4	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	99.9	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	106	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	108	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	91.1	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	112	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	106	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	102	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	104	70.0	130	----
Hydrocarbons (QCLot: 1601725)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	108	70.0	130	----
Hydrocarbons (QCLot: 1604537)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	100	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	106	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1604538)									
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	118	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	124	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	108	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	130	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	116	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: 1604538) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	125	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	108	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	119	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	113	60.0	130	----
Glycols (QCLot: 1600072)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	102	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	98.0	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	94.3	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	104	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: 1596231)										
VA24C0078-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0870 mg/L	0.1 mg/L	87.0	75.0	125	----
Anions and Nutrients (QCLot: 1596232)										
VA24C0310-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
Anions and Nutrients (QCLot: 1596233)										
VA24C0307-001	WLNG EOP Tank	Phosphorus, total	7723-14-0	E372-U	0.0483 mg/L	0.05 mg/L	96.6	70.0	130	----
Anions and Nutrients (QCLot: 1596829)										
VA24C0310-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1596830)										
VA24C0310-001	Anonymous	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1596831)										
VA24C0310-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1596832)										
VA24C0310-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.505 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1596833)										
VA24C0310-001	Anonymous	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1596834)										
VA24C0310-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.525 mg/L	0.5 mg/L	105	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1596229)										
VA24C0310-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.40 mg/L	5 mg/L	108	70.0	130	----
Total Sulfides (QCLot: 1604387)										
RG2401272-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	1.02 mg/L	1 mg/L	102	75.0	125	----
Total Metals (QCLot: 1596382)										
VA24C0209-001	Anonymous	Aluminum, total	7429-90-5	E420	0.201 mg/L	0.2 mg/L	100	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0182 mg/L	0.02 mg/L	90.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Boron, total	7440-42-8	E420	0.096 mg/L	0.1 mg/L	96.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00372 mg/L	0.004 mg/L	93.0	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1596382) - continued										
VA24C0209-001	Anonymous	Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.3	70.0	130	----
		Copper, total	7440-50-8	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Iron, total	7439-89-6	E420	1.85 mg/L	2 mg/L	92.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0955 mg/L	0.1 mg/L	95.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.34 mg/L	10 mg/L	93.4	70.0	130	----
		Potassium, total	7440-09-7	E420	3.89 mg/L	4 mg/L	97.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Silicon, total	7440-21-3	E420	8.96 mg/L	10 mg/L	89.6	70.0	130	----
		Silver, total	7440-22-4	E420	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Sodium, total	7440-23-5	E420	2.04 mg/L	2 mg/L	102	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	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00370 mg/L	0.004 mg/L	92.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Tin, total	7440-31-5	E420	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0393 mg/L	0.04 mg/L	98.4	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00402 mg/L	0.004 mg/L	100	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.370 mg/L	0.4 mg/L	92.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
Total Metals (QCLot: 1599914)										
VA24C0217-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000934 mg/L	0 mg/L	93.4	70.0	130	----
Dissolved Metals (QCLot: 1596385)										
VA24C0209-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.198 mg/L	0.2 mg/L	99.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0183 mg/L	0.02 mg/L	91.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00971 mg/L	0.01 mg/L	97.1	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.094 mg/L	0.1 mg/L	93.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00960 mg/L	0.01 mg/L	96.0	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0391 mg/L	0.04 mg/L	97.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1596385) - continued										
VA24C0209-001	Anonymous	Copper, dissolved	7440-50-8	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.115 mg/L	0.1 mg/L	115	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	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0385 mg/L	0.04 mg/L	96.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.66 mg/L	10 mg/L	96.6	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.75 mg/L	4 mg/L	93.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.29 mg/L	10 mg/L	92.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00373 mg/L	0.004 mg/L	93.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	1.97 mg/L	2 mg/L	98.6	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	0.0385 mg/L	0.04 mg/L	96.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.405 mg/L	0.4 mg/L	101	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
Dissolved Metals (QCLot: 1600675)										
KS2403155-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000848 mg/L	0 mg/L	84.8	70.0	130	----
Speciated Metals (QCLot: 1597754)										
VA24C0307-001	WLNG EOP Tank	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
Aggregate Organics (QCLot: 1599868)										
CG2411499-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0208 mg/L	0.02 mg/L	104	75.0	125	----
Volatile Organic Compounds (QCLot: 1601724)										
VA24C0156-001	Anonymous	Benzene	71-43-2	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Bromoform	75-25-2	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	94.9 µg/L	100 µg/L	94.9	60.0	140	----
		Chlorobenzene	108-90-7	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Chloroethane	75-00-3	E611C	103 µg/L	100 µg/L	103	50.0	150	----
		Chloroform	67-66-3	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Chloromethane	74-87-3	E611C	93.6 µg/L	100 µg/L	93.6	50.0	150	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1601724) - continued										
VA24C0156-001	Anonymous	Dibromochloromethane	124-48-1	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	88.2 µg/L	100 µg/L	88.2	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	81.7 µg/L	100 µg/L	81.7	60.0	140	----
		Dichloromethane	75-09-2	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	75.1 µg/L	100 µg/L	75.1	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	74.5 µg/L	100 µg/L	74.5	60.0	140	----
		Ethylbenzene	100-41-4	E611C	97.8 µg/L	100 µg/L	97.8	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Styrene	100-42-5	E611C	100 µg/L	100 µg/L	100	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	116 µg/L	100 µg/L	116	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	92.0 µg/L	100 µg/L	92.0	60.0	140	----
		Toluene	108-88-3	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	107 µg/L	100 µg/L	107	60.0	140	----
		Trichloroethylene	79-01-6	E611C	89.4 µg/L	100 µg/L	89.4	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	102 µg/L	100 µg/L	102	50.0	150	----
		Vinyl chloride	75-01-4	E611C	92.1 µg/L	100 µg/L	92.1	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	196 µg/L	200 µg/L	98.1	60.0	140	----
		Xylene, o-	95-47-6	E611C	101 µg/L	100 µg/L	101	60.0	140	----
Hydrocarbons (QCLot: 1601725)										
VA24C0413-005	Anonymous	VHw (C6-C10)	----	E581.VH+F1	6400 µg/L	6310 µg/L	101	60.0	140	----

ALS Environmental

www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

COC Number: 17 -

Affix ALS barcode label here
(lab use only)

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: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☑ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked

Select 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: Aug 30/2024

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 30 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	C0307	ALS Contact:	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS, TDS, T-Alkalinity,Anions scan (Br, Cl, F,	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus, phenols)	VOC/VPH	EPH, PAH, LEPH/HEPH	DOC	Glycols	General parameters (alkalinity)	SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
						F				P	P	P	P	F/P					
	LUNG EOP Tank	Aug 13/24	10:30am	Water	R	R	R	R	R	R	R	R	R	R	R	R			15
	pH: 7.23 cond: 180 uS/cm temp: 18.8																		
	~~Duplicate~~			Water	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			~~15~~
	~~Field Blank~~			Water	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			~~15~~
	~~Trip Blank~~			Water	~~R~~		~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~		~~R~~	~~R~~			~~11~~

Environmental Division
Vancouver
Work Order Reference
VA24C0307

Telephone : +1 604 253 4188

on report by clicking on the drop-down list below
nic COC only)

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

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

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

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				13			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released	Date: Aug 13/2024	Time: 5:45 pm	Received by:	Date:	Time:	Received by:	Date: Aug 13	Time: 5:55pm

REFER TO ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2012 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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-8-13-Renkers-E7EAE

Project Component:	Tunnel	**Site Name:**	WLNG Treatment Discharge
Inspection Date:	08/13/2024	**Location:**	WLNG
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.669351 -123.248439
Temperature(c):	Low 16 High 22	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:30:00 **Flow Volume (visual):** N/A

Notes: Sampled from WLNG EOP tank directly
Conductivity: 180 micro Siemens per cm

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Total hexavalent chromium and total trivalent chromium
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:** No Total hexavalent chromium and total trivalent chromium
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

Photos

Photo: 1

Location: WLNG EOP TANK

Description: Tank containing treated water

Photo: 2

Location: WLNG EOP TANK

Description: Spout connected to tank

Photos

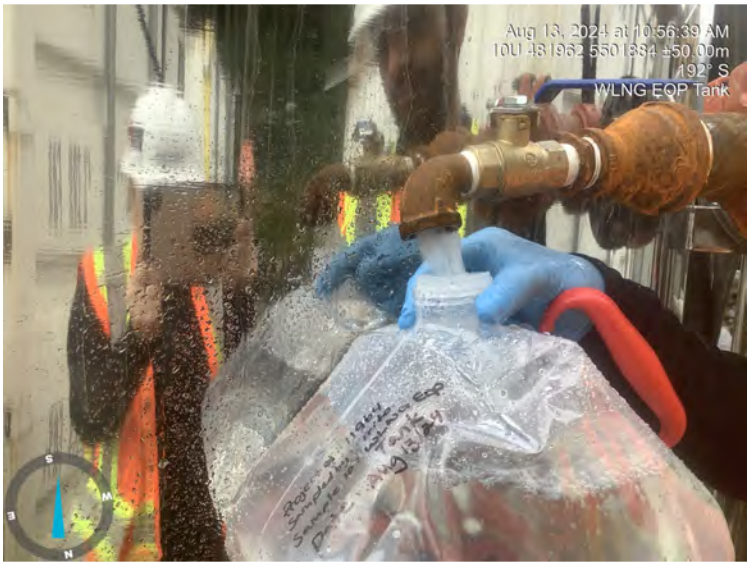

Photo: 3

Location: WLNG EOP TANK

Description: Filling LC50 sample

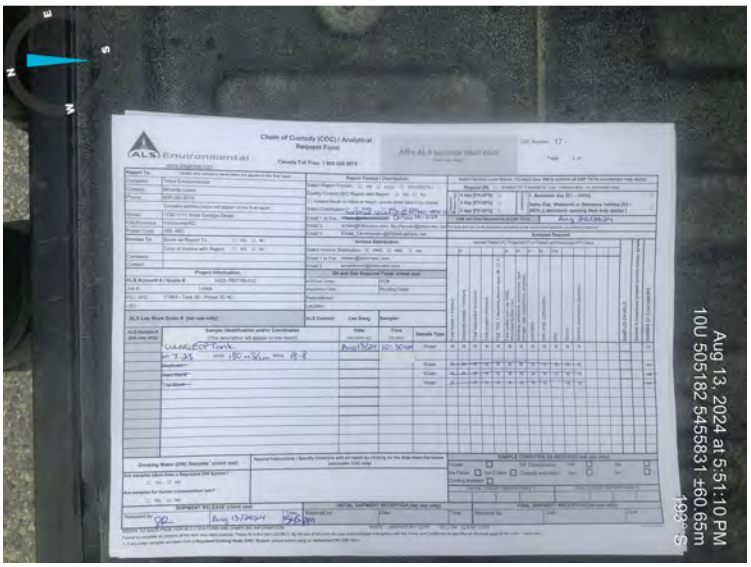

Photo: 4

Location: WLNG EOP TANK

Description: Signed COC for water samples

Photos

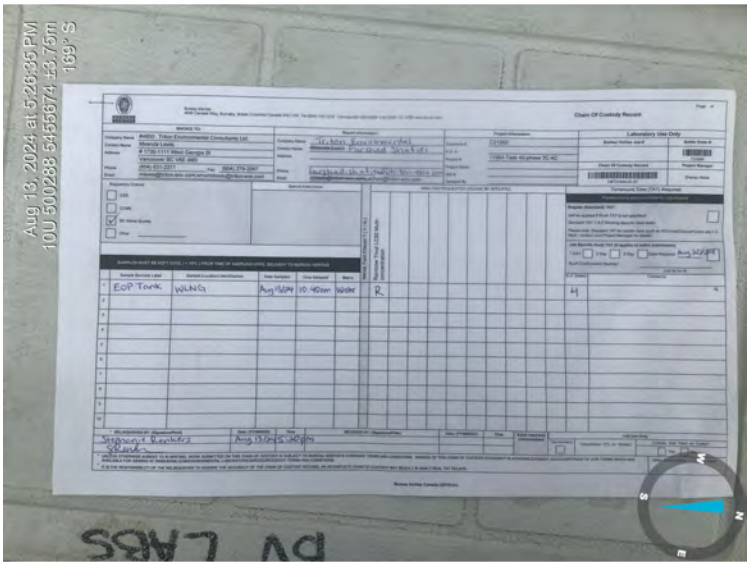

Photo: 5

Location: WLNG EOP TANK

Description: Signed COC for LC50

Sign Off

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

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**August 12th to August 18th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 22nd**

Table of Contents:

1. Executive Summary and Field Notes:

To meet water quality standards, we discharged water daily for a few hours to ensure proper dilution of the water downstream. A YSI device was deployed downstream to monitor the temperature, recording data every 15 minutes to ensure compliance with the maximum allowable temperature. The discharged water mixed with downstream flow, and temperatures consistently remained below 19°C. All relevant parameters were measured using YSI instruments and WTP probes. The total discharge volume up to August 11th was 1,263.581 m³.

Daily Volume Summary:

Table 1. Daily Summary of Discharge Volumes.

Date	Location	Volume (m3)	Comments
August 12	WoodFibre(WF)	57	N/A
August 13	WF	66	N/A
August 14	WF	18	N/A
August 15	WF	0	N/A
August 16	WF	83	N/A
August 17	WF	57	N/A
August 18	WF	71	N/A
Total		352	N/A

2. Discharge Parameter Summary:

Table 2. Discharge Event Summary.

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/12/2024	21:00:00	7	0.321725	0	1,267	19.2	271
8/12/2024	21:15:00	7.1	0.38607	0	1,273	19.2	267
8/12/2024	21:30:00	7.1	0.39364	0	1,278	19.2	262
8/12/2024	21:45:00	7.2	0.39364	0	1,284	19.2	261
8/12/2024	22:00:00	7.2	0.382285	0	1,290	19.2	261
8/12/2024	22:15:00	7.2	0.397425	0	1,296	19.1	261
8/12/2024	22:30:00	7.2	0.382285	0	1,302	19.1	261
8/12/2024	22:45:00	7.3	0.3785	0	1,308	19.1	261
8/12/2024	23:00:00	7.2	0.374715	0	1,313	19.1	279
8/12/2024	23:15:00	6.8	0.38607	0	1,319	19.1	302
8/12/2024	23:30:00	6.7	0	0	1,324	19.1	307
8/13/2024	0:00:00	6.9	0.389855	0	1,329	18.6	282
8/13/2024	0:15:00	7	0.389855	0	1,335	18.5	276
8/13/2024	10:30:00	7.2	1.616195	0	1,350	18	265
8/13/2024	10:45:00	7.2	1.514	0	1,362	18	263
8/13/2024	22:45:00	7.2	0.389855	0	1,367	19	271
8/13/2024	23:00:00	7.2	0.382285	0	1,373	19.1	269
8/13/2024	23:15:00	7.2	0.382285	0	1,378	19.1	269
8/13/2024	23:30:00	7.2	0.382285	0	1,384	19.1	269
8/13/2024	23:45:00	7.2	0.374715	0	1,390	19.1	270
8/14/2024	0:00:00	7.2	0.3785	0	1,395	19.1	270
8/14/2024	0:15:00	7.2	0.3785	0	1,400	19.1	271
8/14/2024	0:30:00	7.2	0	0	1,402	19.3	269
8/16/2024	12:30:00	7.2	0.556395	0.1	1,409	20.4	269
8/16/2024	12:45:00	7.2	0.541255	0	1,417	20.9	269
8/16/2024	13:00:00	7.2	0.518545	0	1,425	21.1	269
8/16/2024	13:15:00	7.2	0.49205	0.1	1,432	21.3	269

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**August 12th to August 18th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 22nd**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/16/2024	13:30:00	7.1	0.47691	0	1,439	21.5	269
8/16/2024	13:45:00	7.1	0.457985	0	1,446	21.7	269
8/16/2024	14:00:00	7.3	0.382285	0	1,450	20.6	266
8/16/2024	21:30:00	7.3	0.3785	0	1,452	21.3	269
8/16/2024	21:45:00	7.3	0.374715	0	1,458	21.3	269
8/16/2024	22:00:00	7.3	0.37093	0	1,463	21.2	271
8/16/2024	22:15:00	6.9	0.37093	4	1,469	21.2	299
8/16/2024	22:30:00	6.7	1.214985	6.8	1,472	21.2	304
8/16/2024	22:45:00	6.9	0.35579	0	1,474	21.1	284
8/16/2024	23:00:00	7	0.35579	0	1,479	21.1	276
8/16/2024	23:15:00	7.1	0	0	1,485	21.1	269
8/17/2024	3:45:00	7.2	0.38607	0	1,485	20.1	272
8/17/2024	4:00:00	7.2	0.382285	0	1,491	20	272
8/17/2024	4:15:00	7.2	0.4542	0	1,497	19.9	270
8/17/2024	4:30:00	7.2	0.450415	0	1,504	19.8	270
8/17/2024	4:45:00	7.2	0.457985	0	1,511	19.7	270
8/17/2024	5:00:00	7.2	0	0	1,516	19.6	270
8/17/2024	21:45:00	7.1	0.276305	0	1,520	24	264
8/17/2024	22:00:00	6.8	0.276305	0	1,524	24.1	288
8/17/2024	22:15:00	6.7	0	0	1,525	24.2	292
8/17/2024	22:30:00	6.7	0.268735	0	1,527	24.1	295
8/17/2024	22:45:00	6.8	1.07494	0	1,528	24	276
8/17/2024	23:00:00	6.9	0.276305	0	1,529	23.8	266
8/17/2024	23:15:00	7	0.276305	0	1,533	23.8	263
8/17/2024	23:30:00	7	0.268735	0	1,537	23.8	258
8/17/2024	23:45:00	7	0.37093	0	1,542	23.8	258
8/18/2024	0:00:00	7.1	0.37093	0	1,548	23.8	256
8/18/2024	0:15:00	7.1	0.37093	0	1,553	23.7	256
8/18/2024	0:30:00	7.1	0	0	1,558	23.7	256
8/18/2024	3:15:00	7	0.38607	0	1,559	23.7	261
8/18/2024	3:30:00	7.1	0.3785	0	1,565	23.3	259
8/18/2024	3:45:00	7.1	0.3785	0	1,571	23	259
8/18/2024	4:00:00	7.1	0.382285	0	1,576	22.6	259

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/18/2024	4:15:00	7.2	0.382285	0	1,582	22.5	259
8/18/2024	4:30:00	7.2	0	0	1,587	22.4	259
8/18/2024	21:30:00	7.1	0.738075	0	1,589	23.6	238
8/18/2024	21:45:00	7.1	0.39364	0	1,594	23.6	237
8/18/2024	22:00:00	7.1	0.3785	0	1,600	23.6	237
8/18/2024	22:15:00	7.2	0.4542	0	1,607	23.5	238
8/18/2024	22:30:00	7.2	0.63588	0	1,613	23.5	238

Table 3. In-Situ Parameters

Date	Time	Temperature (°C)	ORP (mV)	DO (ppm)	Salinity (ppt)	Visible sheen
8/12/2024	20:36	18.7	102.4	8.42	0.97	No
8/13/2024	10:15	17.7	139.2	9.55	1.20	No
8/13/2024	22:24	18.7	78.2	8.89	1.22	No
8/16/2024	12:13	18.0	176.4	9.43	0.07	No
8/16/2024	21:09	16.5	174.7	9.25	0.07	No
8/17/2024	00:07	16.3	206.6	9.45	0.06	No
8/17/2024	20:38	17.2	130.8	9.10	0.07	No
8/18/2024	00:56	17	216.7	9.42	0.06	No
8/18/2024	11:46	16.4	187.4	9.46	0.06	No
8/19/2024	02:31	16.2	215.1	9.45	0.07	No

3. Calibration Log:

Table 4. Calibration Log

Date	Unit	pH	Conductivity/Temp.	Salinity	NTU	Completed By
8/09/2024	YSI	✓	✓	✓	✓	SD
8/11/2024	WTP	✓	✓	N/A	✓	N/A

APPENDIX A: WTP LOG

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/12/2024	0:00:00	6.8	0	0	1,264	Open	Closed	22.3	287
8/12/2024	0:15:00	6.8	0	0	1,264	Open	Closed	22.3	287
8/12/2024	0:30:00	6.8	0	0	1,264	Open	Closed	22.2	291
8/12/2024	0:45:00	6.8	0	0	1,264	Open	Closed	22.2	289
8/12/2024	1:00:00	6.8	0	0	1,264	Open	Closed	22.1	289
8/12/2024	1:15:00	6.8	0	0	1,264	Open	Closed	22	288
8/12/2024	1:30:00	6.8	0	0	1,264	Open	Closed	22	291
8/12/2024	1:45:00	6.8	0	0	1,264	Open	Closed	21.9	290
8/12/2024	2:00:00	6.8	0	0	1,264	Open	Closed	21.9	291
8/12/2024	2:15:00	6.8	0	0	1,264	Open	Closed	21.8	291
8/12/2024	2:30:00	6.8	0	0	1,264	Open	Closed	21.8	292
8/12/2024	2:45:00	6.8	0	0	1,264	Open	Closed	21.7	292
8/12/2024	3:00:00	6.8	0	0	1,264	Open	Closed	21.7	292
8/12/2024	3:15:00	6.8	0	0	1,264	Open	Closed	21.6	292
8/12/2024	3:30:00	6.8	0	0	1,264	Open	Closed	21.6	292
8/12/2024	3:45:00	6.8	0	0	1,264	Open	Closed	21.6	292
8/12/2024	4:00:00	6.8	0	0	1,264	Open	Closed	21.5	292
8/12/2024	4:15:00	6.8	0	0	1,264	Open	Closed	21.5	292
8/12/2024	4:30:00	6.8	0	0	1,264	Open	Closed	21.4	292

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/12/2024	4:45:00	6.8	0	0	1,264	Open	Closed	21.4	294
8/12/2024	5:00:00	6.8	0	0	1,264	Open	Closed	21.4	293
8/12/2024	5:15:00	6.8	0	0	1,264	Open	Closed	21.3	293
8/12/2024	5:30:00	6.8	0	0	1,264	Open	Closed	21.3	294
8/12/2024	5:45:00	6.8	0	0	1,264	Open	Closed	21.3	294
8/12/2024	6:00:00	6.8	0	0	1,264	Open	Closed	21.3	293
8/12/2024	6:15:00	6.8	0	0	1,264	Open	Closed	21.3	293
8/12/2024	6:30:00	6.8	0	0	1,264	Open	Closed	21.2	294
8/12/2024	6:45:00	7	1.02195	0	1,264	Open	Closed	20.5	284
8/12/2024	7:00:00	7.1	0	0	1,264	Open	Closed	20.1	279
8/12/2024	7:15:00	7	0	0	1,264	Open	Closed	20.2	275
8/12/2024	7:30:00	7.1	0.53747	0	1,264	Open	Closed	19.9	272
8/12/2024	7:45:00	7.2	1.033305	0	1,264	Open	Closed	19.5	268
8/12/2024	8:00:00	7.2	0.54504	0	1,264	Open	Closed	19.4	265
8/12/2024	8:15:00	7.2	0	0	1,264	Open	Closed	19.4	263
8/12/2024	8:30:00	7.2	0	0	1,264	Open	Closed	19.5	263
8/12/2024	8:45:00	7.2	1.018165	0	1,264	Open	Closed	19.3	260
8/12/2024	9:00:00	7.3	0	0	1,264	Open	Closed	19.3	260
8/12/2024	9:15:00	7.3	1.018165	0	1,264	Open	Closed	19.3	261
8/12/2024	9:30:00	7.2	0	0	1,264	Open	Closed	19.4	260
8/12/2024	9:45:00	7.2	1.02952	0	1,264	Open	Closed	19.3	260
8/12/2024	10:00:00	7.3	0	0	1,264	Open	Closed	19.3	259

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/12/2024	10:15:00	7.2	0	0	1,264	Open	Closed	19.4	258
8/12/2024	10:30:00	7.2	0	0	1,264	Open	Closed	19.5	258
8/12/2024	10:45:00	7.3	1.04466	0	1,264	Open	Closed	19.3	259
8/12/2024	11:00:00	7.3	0	0	1,264	Open	Closed	19.3	259
8/12/2024	11:15:00	7.3	1.01438	0	1,264	Open	Closed	19.4	257
8/12/2024	11:30:00	7.3	0.50719	0	1,264	Open	Closed	19.3	257
8/12/2024	11:45:00	7.3	0	0	1,264	Open	Closed	19.4	257
8/12/2024	12:00:00	7.3	0	0	1,264	Open	Closed	19.5	257
8/12/2024	12:15:00	7.3	0	0	1,264	Open	Closed	19.4	257
8/12/2024	12:30:00	7.2	0	0	1,264	Open	Closed	19.6	257
8/12/2024	12:45:00	7.2	0	0	1,264	Open	Closed	19.6	257
8/12/2024	13:00:00	7.2	0	0	1,264	Open	Closed	19.7	257
8/12/2024	13:15:00	7.2	0	0	1,264	Open	Closed	19.8	257
8/12/2024	13:30:00	7.2	0	0	1,264	Open	Closed	19.9	257
8/12/2024	13:45:00	7.2	0	0	1,264	Open	Closed	20	259
8/12/2024	14:00:00	7.2	1.1355	0	1,264	Open	Closed	19.5	257
8/12/2024	14:15:00	7.3	1.623765	0	1,264	Open	Closed	19.3	257
8/12/2024	14:30:00	7.4	1.09008	0	1,264	Open	Closed	19.2	257
8/12/2024	14:45:00	7.4	1.593485	0	1,264	Open	Closed	19.3	257
8/12/2024	15:00:00	7.4	0	0	1,264	Open	Closed	19.4	257
8/12/2024	15:15:00	7.3	0	0	1,264	Open	Closed	19.5	257
8/12/2024	15:30:00	7.3	0	0	1,264	Open	Closed	19.7	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	**August 12th to August 18th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 22nd**

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/12/2024	15:45:00	7.3	0	0	1,264	Open	Closed	19.8	257
8/12/2024	16:00:00	7.3	0	0	1,264	Open	Closed	20	257
8/12/2024	16:15:00	7.3	0	0	1,264	Open	Closed	20.1	257
8/12/2024	16:30:00	7.3	0	0	1,264	Open	Closed	20.3	259
8/12/2024	16:45:00	7.3	0	0	1,264	Open	Closed	20.4	259
8/12/2024	17:00:00	7.2	0	0	1,264	Open	Closed	20.5	257
8/12/2024	17:15:00	7.2	0	0	1,264	Open	Closed	20.5	259
8/12/2024	17:30:00	7.2	0	0	1,264	Open	Closed	20.6	261
8/12/2024	17:45:00	7.2	0	0	1,264	Open	Closed	20.7	261
8/12/2024	18:00:00	7.2	0	0	1,264	Open	Closed	20.7	261
8/12/2024	18:15:00	7.2	0	0	1,264	Open	Closed	20.8	262
8/12/2024	18:30:00	7.2	0	0	1,264	Open	Closed	20.8	264
8/12/2024	18:45:00	7.2	0	0	1,264	Open	Closed	20.8	263
8/12/2024	19:00:00	7.2	0	0	1,264	Open	Closed	20.9	263
8/12/2024	19:15:00	7.2	0	0	1,264	Open	Closed	20.9	264
8/12/2024	19:30:00	7.2	0	0	1,264	Open	Closed	20.9	264
8/12/2024	19:45:00	7.2	0	0	1,264	Open	Closed	20.9	264
8/12/2024	20:00:00	7.2	0	0	1,264	Open	Closed	20.9	263
8/12/2024	20:15:00	7.2	0	0	1,264	Open	Closed	20.9	262
8/12/2024	20:30:00	7.3	1.093865	0	1,264	Open	Closed	19.3	261
8/12/2024	20:45:00	6.9	0.68887	0	1,264	Open	Closed	19.2	271
8/12/2024	21:00:00	7	0.321725	0	1,267	Closed	Open	19.2	271

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/12/2024	21:15:00	7.1	0.38607	0	1,273	Closed	Open	19.2	267
8/12/2024	21:30:00	7.1	0.39364	0	1,278	Closed	Open	19.2	262
8/12/2024	21:45:00	7.2	0.39364	0	1,284	Closed	Open	19.2	261
8/12/2024	22:00:00	7.2	0.382285	0	1,290	Closed	Open	19.2	261
8/12/2024	22:15:00	7.2	0.397425	0	1,296	Closed	Open	19.1	261
8/12/2024	22:30:00	7.2	0.382285	0	1,302	Closed	Open	19.1	261
8/12/2024	22:45:00	7.3	0.3785	0	1,308	Closed	Open	19.1	261
8/12/2024	23:00:00	7.2	0.374715	0	1,313	Closed	Open	19.1	279
8/12/2024	23:15:00	6.8	0.38607	0	1,319	Closed	Open	19.1	302
8/12/2024	23:30:00	6.7	0	0	1,324	Closed	Open	19.1	307
8/12/2024	23:45:00	6.8	1.46101	0	1,324	Open	Closed	18.8	288
8/13/2024	0:00:00	6.9	0.389855	0	1,329	Closed	Open	18.6	282
8/13/2024	0:15:00	7	0.389855	0	1,335	Closed	Open	18.5	276
8/13/2024	0:30:00	7	0	0	1,335	Open	Closed	18.6	273
8/13/2024	0:45:00	7	0	0	1,335	Open	Closed	18.8	270
8/13/2024	1:00:00	7	0	0	1,335	Open	Closed	18.9	271
8/13/2024	1:15:00	7	0	0	1,335	Open	Closed	19	270
8/13/2024	1:30:00	7	0	0	1,335	Open	Closed	19.1	270
8/13/2024	1:45:00	7	0	0	1,335	Open	Closed	19.2	270
8/13/2024	2:00:00	7	0	0	1,335	Open	Closed	19.3	270
8/13/2024	2:15:00	7	0	0	1,335	Open	Closed	19.3	270
8/13/2024	2:30:00	7	0	0	1,335	Open	Closed	19.3	270

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/13/2024	2:45:00	6.9	0	0	1,335	Open	Closed	19.4	268
8/13/2024	3:00:00	6.9	0	0	1,335	Open	Closed	19.4	268
8/13/2024	3:15:00	6.9	0	0	1,335	Open	Closed	19.4	268
8/13/2024	3:30:00	6.9	0	0	1,335	Open	Closed	19.5	268
8/13/2024	3:45:00	7	0	0	1,335	Open	Closed	18.6	267
8/13/2024	4:00:00	7	0	0	1,335	Open	Closed	18.7	268
8/13/2024	4:15:00	7	0	0	1,335	Open	Closed	18.8	272
8/13/2024	4:30:00	7	0	0	1,335	Open	Closed	18.8	272
8/13/2024	4:45:00	7	0	0	1,335	Open	Closed	18.9	272
8/13/2024	5:00:00	7	0	0	1,335	Open	Closed	18.9	272
8/13/2024	5:15:00	7	0	0	1,335	Open	Closed	19	271
8/13/2024	5:30:00	7	0	0	1,335	Open	Closed	19	272
8/13/2024	5:45:00	7	0	0	1,335	Open	Closed	19	272
8/13/2024	6:00:00	7	0	0	1,335	Open	Closed	19.1	272
8/13/2024	6:15:00	7	0	0	1,335	Open	Closed	19.1	273
8/13/2024	6:30:00	7	0	0	1,335	Open	Closed	19.2	273
8/13/2024	6:45:00	7	0	0	1,335	Open	Closed	19.2	274
8/13/2024	7:00:00	7	0	0	1,335	Open	Closed	19.2	274
8/13/2024	7:15:00	7	0	0	1,335	Open	Closed	19.2	273
8/13/2024	7:30:00	7	0	0	1,335	Open	Closed	19.2	273
8/13/2024	7:45:00	7	0	0	1,335	Open	Closed	19.2	273
8/13/2024	8:00:00	6.9	0	0	1,335	Open	Closed	19.2	277

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/13/2024	8:15:00	6.9	0	0	1,335	Open	Closed	19.2	276
8/13/2024	8:30:00	6.9	0	0	1,335	Open	Closed	19.2	277
8/13/2024	8:45:00	6.9	0	0	1,335	Open	Closed	19.3	276
8/13/2024	9:00:00	7	1.404235	0	1,335	Open	Closed	18.5	277
8/13/2024	9:15:00	7.1	1.389095	0	1,335	Open	Closed	17.9	268
8/13/2024	9:30:00	7.2	1.442085	0	1,335	Open	Closed	17.7	267
8/13/2024	9:45:00	7.2	1.58213	0	1,335	Open	Closed	17.7	265
8/13/2024	10:00:00	7	1.570775	0	1,335	Open	Closed	17.8	269
8/13/2024	10:15:00	7	1.578345	0	1,335	Open	Closed	17.9	266
8/13/2024	10:30:00	7.2	1.616195	0	1,350	Closed	Open	18	265
8/13/2024	10:45:00	7.2	1.514	0	1,362	Closed	Open	18	263
8/13/2024	11:00:00	7.3	1.52157	0	1,362	Open	Closed	18.1	264
8/13/2024	11:15:00	7	1.53671	0	1,362	Open	Closed	18.3	271
8/13/2024	11:30:00	7.1	0	0	1,362	Open	Closed	18.4	267
8/13/2024	11:45:00	7.1	0	0	1,362	Open	Closed	18.6	266
8/13/2024	12:00:00	7.1	0	0	1,362	Open	Closed	18.9	266
8/13/2024	12:15:00	7.1	0	0	1,362	Open	Closed	19.1	267
8/13/2024	12:30:00	7.2	1.52157	0	1,362	Open	Closed	18.5	264
8/13/2024	12:45:00	7.2	1.514	0	1,362	Open	Closed	18.3	264
8/13/2024	13:00:00	7.1	1.472365	0	1,362	Open	Closed	18.4	271
8/13/2024	13:15:00	7	1.48372	0	1,362	Open	Closed	18.5	269
8/13/2024	13:30:00	7.2	1.487505	0	1,362	Open	Closed	18.5	266

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/13/2024	13:45:00	7.2	1.442085	0	1,362	Open	Closed	18.6	266
8/13/2024	14:00:00	7.3	1.46101	0	1,362	Open	Closed	18.7	266
8/13/2024	14:15:00	7	1.442085	0	1,362	Open	Closed	18.8	272
8/13/2024	14:30:00	7.1	0	0	1,362	Open	Closed	18.9	269
8/13/2024	14:45:00	7.1	0	0	1,362	Open	Closed	19.2	267
8/13/2024	15:00:00	7.1	0	0	1,362	Open	Closed	19.5	269
8/13/2024	15:15:00	7.1	0	0	1,362	Open	Closed	19.8	268
8/13/2024	15:30:00	7.1	0	0	1,362	Open	Closed	20.1	267
8/13/2024	15:45:00	7.1	0	0	1,362	Open	Closed	20.3	268
8/13/2024	16:00:00	7.1	0	0	1,362	Open	Closed	20.5	268
8/13/2024	16:15:00	7.1	0	0	1,362	Open	Closed	20.7	266
8/13/2024	16:30:00	7.1	0	0	1,362	Open	Closed	20.8	268
8/13/2024	16:45:00	7.1	0	0	1,362	Open	Closed	21	268
8/13/2024	17:00:00	7.1	0	0	1,362	Open	Closed	21.1	268
8/13/2024	17:15:00	7	0	0	1,362	Open	Closed	21.2	268
8/13/2024	17:30:00	7	0	0	1,362	Open	Closed	21.3	268
8/13/2024	17:45:00	7	0	0	1,362	Open	Closed	21.4	269
8/13/2024	18:00:00	7	0	0	1,362	Open	Closed	21.4	269
8/13/2024	18:15:00	7	0	0	1,362	Open	Closed	21.5	269
8/13/2024	18:30:00	7	0	0	1,362	Open	Closed	21.5	269
8/13/2024	18:45:00	7	0	0	1,362	Open	Closed	21.6	270
8/13/2024	19:00:00	7	0	0	1,362	Open	Closed	21.6	271

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/13/2024	19:15:00	7	0	0	1,362	Open	Closed	21.6	271
8/13/2024	19:30:00	7	0	0	1,362	Open	Closed	21.7	271
8/13/2024	19:45:00	7	0	0	1,362	Open	Closed	21.7	271
8/13/2024	20:00:00	7	0	0	1,362	Open	Closed	21.7	267
8/13/2024	20:15:00	7	0	0	1,362	Open	Closed	21.6	267
8/13/2024	20:30:00	7	0	0	1,362	Open	Closed	21.6	267
8/13/2024	20:45:00	7	0	0	1,362	Open	Closed	21.5	269
8/13/2024	21:00:00	7	0	0	1,362	Open	Closed	21.4	269
8/13/2024	21:15:00	7	0	0	1,362	Open	Closed	21.4	269
8/13/2024	21:30:00	7	0	0	1,362	Open	Closed	21.3	268
8/13/2024	21:45:00	7.1	0	0	1,362	Open	Closed	19.2	271
8/13/2024	22:00:00	7	0	0	1,362	Open	Closed	19.4	271
8/13/2024	22:15:00	7.1	1.479935	0	1,362	Open	Closed	19.1	270
8/13/2024	22:30:00	7.2	1.40802	0	1,362	Open	Closed	19	270
8/13/2024	22:45:00	7.2	0.389855	0	1,367	Closed	Open	19	271
8/13/2024	23:00:00	7.2	0.382285	0	1,373	Closed	Open	19.1	269
8/13/2024	23:15:00	7.2	0.382285	0	1,378	Closed	Open	19.1	269
8/13/2024	23:30:00	7.2	0.382285	0	1,384	Closed	Open	19.1	269
8/13/2024	23:45:00	7.2	0.374715	0	1,390	Closed	Open	19.1	270
8/14/2024	0:00:00	7.2	0.3785	0	1,395	Closed	Open	19.1	270
8/14/2024	0:15:00	7.2	0.3785	0	1,400	Closed	Open	19.1	271
8/14/2024	0:30:00	7.2	0	0	1,402	Closed	Open	19.3	269

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/14/2024	0:45:00	7.1	0	0	1,402	Open	Closed	19.4	272
8/14/2024	1:00:00	7.1	0	0	1,402	Open	Closed	19.6	271
8/14/2024	1:15:00	7.1	0	0	1,402	Open	Closed	19.7	271
8/14/2024	1:30:00	7.1	0	0	1,402	Open	Closed	19.8	270
8/14/2024	1:45:00	7.1	0	0	1,402	Open	Closed	19.8	270
8/14/2024	2:00:00	7.1	0	0	1,402	Open	Closed	19.9	270
8/14/2024	2:15:00	7.1	0	0	1,402	Open	Closed	19.9	269
8/14/2024	2:30:00	7.1	0	0	1,402	Open	Closed	19.9	269
8/14/2024	2:45:00	7.1	0	0	1,402	Open	Closed	19.9	269
8/14/2024	3:00:00	7.1	0	0	1,402	Open	Closed	19.9	269
8/14/2024	3:15:00	7.1	0	0	1,402	Open	Closed	20	269
8/14/2024	3:30:00	7.1	0	0	1,402	Open	Closed	20	270
8/14/2024	3:45:00	7.1	0	0	1,402	Open	Closed	20	269
8/14/2024	4:00:00	7.1	0	0	1,402	Open	Closed	20	269
8/14/2024	4:15:00	7.1	0	0	1,402	Open	Closed	19.1	271
8/14/2024	4:30:00	7.1	0	0	1,402	Open	Closed	19.2	270
8/14/2024	4:45:00	7.1	0	0	1,402	Open	Closed	19.2	274
8/14/2024	5:00:00	7.1	0	0	1,402	Open	Closed	19.3	273
8/14/2024	5:15:00	7.1	0	0	1,402	Open	Closed	19.3	273
8/14/2024	5:30:00	7.1	0	0	1,402	Open	Closed	19.3	274
8/14/2024	5:45:00	7.1	0	0	1,402	Open	Closed	19.4	274
8/14/2024	6:00:00	7.1	0	0	1,402	Open	Closed	19.4	275

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/14/2024	6:15:00	7.1	0	0	1,402	Open	Closed	19.5	274
8/14/2024	6:30:00	7.1	0	0	1,402	Open	Closed	19.5	275
8/14/2024	6:45:00	7.1	0	0	1,402	Open	Closed	19.5	274
8/14/2024	7:00:00	7.1	0	0	1,402	Open	Closed	19.5	275
8/14/2024	7:15:00	7.1	1.38531	0	1,402	Open	Closed	18.8	276
8/14/2024	7:30:00	7.2	1.336105	0	1,402	Open	Closed	18.4	272
8/14/2024	7:45:00	7.2	0	0	1,402	Open	Closed	18.5	271
8/14/2024	8:00:00	7.2	0	0	1,402	Open	Closed	18.6	272
8/14/2024	8:15:00	7.2	0	0	1,402	Open	Closed	18.7	271
8/14/2024	8:30:00	7.2	0	0	1,402	Open	Closed	18.8	272
8/14/2024	8:45:00	7.2	0	0	1,402	Open	Closed	18.8	270
8/14/2024	9:00:00	7.2	0	0	1,402	Open	Closed	18.9	270
8/14/2024	9:15:00	7.2	0	0	1,402	Open	Closed	19	270
8/14/2024	9:30:00	7.2	0	0	1,402	Open	Closed	19.1	270
8/14/2024	9:45:00	7.2	0	0	1,402	Open	Closed	19.2	269
8/14/2024	10:00:00	7.2	0	0	1,402	Open	Closed	19.3	270
8/14/2024	10:15:00	7.2	0	0	1,402	Open	Closed	19.5	270
8/14/2024	10:30:00	7.2	1.320965	0	1,402	Open	Closed	18.8	269
8/14/2024	10:45:00	7.2	1.290685	0	1,402	Open	Closed	18.7	272
8/14/2024	11:00:00	7.1	1.275545	0	1,402	Open	Closed	18.7	271
8/14/2024	11:15:00	7.2	1.30961	0	1,402	Open	Closed	18.8	269
8/14/2024	11:30:00	7.3	1.27933	0	1,402	Open	Closed	19	267

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/14/2024	11:45:00	7	1.275545	0	1,402	Open	Closed	19.2	272
8/14/2024	12:00:00	7	0	0	1,402	Open	Closed	19.4	274
8/14/2024	12:15:00	7	0	0	1,402	Open	Closed	19.9	274
8/14/2024	12:30:00	6.9	0	0	1,402	Open	Closed	20.2	272
8/14/2024	12:45:00	6.9	0	0	1,402	Open	Closed	20.7	274
8/14/2024	13:00:00	6.9	0	0	1,402	Open	Closed	21.1	273
8/14/2024	13:15:00	6.9	0	0	1,402	Open	Closed	21.4	274
8/14/2024	13:30:00	6.9	0	0	1,402	Open	Closed	21.8	273
8/14/2024	13:45:00	6.9	0	0	1,402	Open	Closed	22.2	273
8/14/2024	14:00:00	6.9	0	0	1,402	Open	Closed	22.5	274
8/14/2024	14:15:00	7	1.298255	0	1,402	Open	Closed	20.5	269
8/14/2024	14:30:00	7.1	0	0	1,402	Open	Closed	20.8	270
8/14/2024	14:45:00	7.1	0	0	1,402	Open	Closed	21.3	268
8/14/2024	15:00:00	7.1	0	0	1,402	Open	Closed	21.8	270
8/14/2024	15:15:00	7.1	0	0	1,402	Open	Closed	22.2	268
8/14/2024	15:30:00	7.1	0	0	1,402	Open	Closed	22.6	268
8/14/2024	15:45:00	7.1	0	0	1,402	Open	Closed	22.9	267
8/14/2024	16:00:00	7.1	0	0	1,402	Open	Closed	23.2	267
8/14/2024	16:15:00	7.1	0	0	1,402	Open	Closed	23.5	267
8/14/2024	16:30:00	7.1	0	0	1,402	Open	Closed	23.7	267
8/14/2024	16:45:00	7.1	0	0	1,402	Open	Closed	24	267
8/14/2024	17:00:00	7.1	0	0	1,402	Open	Closed	24.2	267

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/14/2024	17:15:00	7.1	0	0	1,402	Open	Closed	24.3	267
8/14/2024	17:30:00	7.1	0	0	1,402	Open	Closed	24.5	267
8/14/2024	17:45:00	7	0	0	1,402	Open	Closed	24.6	267
8/14/2024	18:00:00	7	0	0	1,402	Open	Closed	24.7	267
8/14/2024	18:15:00	7	0	0	1,402	Open	Closed	24.7	267
8/14/2024	18:30:00	7	0	0	1,402	Open	Closed	24.8	267
8/14/2024	18:45:00	7	0	0	1,402	Open	Closed	24.9	268
8/14/2024	19:00:00	7	0	0	1,402	Open	Closed	24.9	268
8/14/2024	19:15:00	7	0	0	1,402	Open	Closed	24.9	268
8/14/2024	19:30:00	7	0	0	1,402	Open	Closed	24.9	268
8/14/2024	19:45:00	7	0	0	1,402	Open	Closed	24.9	268
8/14/2024	20:00:00	7	1.426945	0	1,402	Open	Closed	24.8	266
8/14/2024	20:15:00	7.1	0	0	1,402	Open	Closed	21.8	267
8/14/2024	20:30:00	7	0	0	1,402	Open	Closed	22	267
8/14/2024	20:45:00	7	0	0	1,402	Open	Closed	22.3	269
8/14/2024	21:00:00	7.1	1.305825	0	1,402	Open	Closed	21.3	269
8/14/2024	21:15:00	7.2	1.2869	0	1,402	Open	Closed	21.2	267
8/14/2024	21:30:00	7.3	1.214985	0	1,402	Open	Closed	21.1	267
8/14/2024	21:45:00	7	0	0	1,402	Open	Closed	21.2	276
8/14/2024	22:00:00	6.9	0	0	1,402	Open	Closed	21.3	281
8/14/2024	22:15:00	6.9	1.275545	0	1,402	Open	Closed	21.2	282
8/14/2024	22:30:00	7	1.275545	0	1,402	Open	Closed	21	276

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/14/2024	22:45:00	7.2	1.222555	0	1,402	Open	Closed	21	273
8/14/2024	23:00:00	7.2	1.192275	0	1,402	Open	Closed	21	271
8/14/2024	23:15:00	7.2	1.207415	0	1,402	Open	Closed	21	269
8/14/2024	23:30:00	7.3	1.199845	0	1,402	Open	Closed	21	269
8/14/2024	23:45:00	7	1.192275	0	1,402	Open	Closed	21	278
8/15/2024	0:00:00	7	1.17335	0	1,402	Open	Closed	20.9	273
8/15/2024	0:15:00	7.1	1.16578	0	1,402	Open	Closed	20.9	271
8/15/2024	0:30:00	7.2	1.14307	0	1,402	Open	Closed	20.9	269
8/15/2024	0:45:00	7.2	1.146855	0	1,402	Open	Closed	20.9	269
8/15/2024	1:00:00	7.2	1.12036	0	1,402	Open	Closed	21	269
8/15/2024	1:15:00	7.2	0	0	1,402	Open	Closed	21	267
8/15/2024	1:30:00	7.2	1.139285	0	1,402	Open	Closed	20.9	267
8/15/2024	1:45:00	7.2	1.109005	0	1,402	Open	Closed	20.9	268
8/15/2024	2:00:00	7.2	0	0	1,402	Open	Closed	21	267
8/15/2024	2:15:00	7.2	0	0	1,402	Open	Closed	21	267
8/15/2024	2:30:00	7.1	0	0	1,402	Open	Closed	21	267
8/15/2024	2:45:00	7.1	0	0	1,402	Open	Closed	20.9	267
8/15/2024	3:00:00	7.1	0	0	1,402	Open	Closed	20.9	267
8/15/2024	3:15:00	7.1	0	0	1,402	Open	Closed	20.8	267
8/15/2024	3:30:00	7.1	0	0	1,402	Open	Closed	20.8	267
8/15/2024	3:45:00	7.1	0	0	1,402	Open	Closed	20.7	267
8/15/2024	4:00:00	7.1	1.116575	0	1,402	Open	Closed	20.7	268

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/15/2024	4:15:00	7.2	1.08251	0	1,402	Open	Closed	20.6	270
8/15/2024	4:30:00	7.2	1.078725	0	1,402	Open	Closed	20.6	269
8/15/2024	4:45:00	7.2	0	0	1,402	Open	Closed	20.6	269
8/15/2024	5:00:00	7.2	0	0	1,402	Open	Closed	20.6	268
8/15/2024	5:15:00	7.1	0	0	1,402	Open	Closed	20.5	268
8/15/2024	5:30:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	5:45:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	6:00:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	6:15:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	6:30:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	6:45:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	7:00:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	7:15:00	7.1	0	0	1,402	Open	Closed	20.4	269
8/15/2024	7:30:00	7.1	0	0	1,402	Open	Closed	20.3	268
8/15/2024	7:45:00	7.1	0	0	1,402	Open	Closed	20.3	268
8/15/2024	8:00:00	7.2	0.99167	0	1,402	Open	Closed	20.2	268
8/15/2024	8:15:00	7.3	0.97653	0	1,402	Open	Closed	20.1	269
8/15/2024	8:30:00	7.1	0	0	1,402	Open	Closed	20.1	275
8/15/2024	8:45:00	7	1.086295	0	1,402	Open	Closed	20.1	278
8/15/2024	9:00:00	7.1	1.033305	0	1,402	Open	Closed	19.7	272
8/15/2024	9:15:00	7.1	0	0	1,402	Open	Closed	19.7	272
8/15/2024	9:30:00	7.1	0	0	1,402	Open	Closed	19.7	270

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/15/2024	9:45:00	7.1	0	0	1,402	Open	Closed	19.8	269
8/15/2024	10:00:00	7.1	0	0	1,402	Open	Closed	19.9	269
8/15/2024	10:15:00	7.1	0	0	1,402	Open	Closed	20	269
8/15/2024	10:30:00	7.1	0	0	1,402	Open	Closed	20.2	267
8/15/2024	10:45:00	7.1	0	0	1,402	Open	Closed	20.3	267
8/15/2024	11:00:00	7.1	0	0	1,402	Open	Closed	20.4	266
8/15/2024	11:15:00	7.1	0	0	1,402	Open	Closed	20.6	267
8/15/2024	11:30:00	7.1	0	0	1,402	Open	Closed	20.7	267
8/15/2024	11:45:00	7.1	0	0	1,402	Open	Closed	20.9	268
8/15/2024	12:00:00	7	0	0	1,402	Open	Closed	21	266
8/15/2024	12:15:00	7	0	0	1,402	Open	Closed	21.1	266
8/15/2024	12:30:00	7	0	0	1,402	Open	Closed	21.3	268
8/15/2024	12:45:00	7	0	0	1,402	Open	Closed	21.4	268
8/15/2024	13:00:00	7	0	0	1,402	Open	Closed	21.5	266
8/15/2024	13:15:00	7	0	0	1,402	Open	Closed	21.6	266
8/15/2024	13:30:00	7	0	0	1,402	Open	Closed	21.9	266
8/15/2024	13:45:00	7	0	0	1,402	Open	Closed	22.1	266
8/15/2024	14:00:00	7	0	0	1,402	Open	Closed	22.2	264
8/15/2024	14:15:00	7	0	0	1,402	Open	Closed	22.3	264
8/15/2024	14:30:00	7	0	0	1,402	Open	Closed	22.4	264
8/15/2024	14:45:00	7	0	0	1,402	Open	Closed	22.5	264
8/15/2024	15:00:00	7	0	0	1,402	Open	Closed	22.6	266

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/15/2024	15:15:00	7	0	0	1,402	Open	Closed	22.8	266
8/15/2024	15:30:00	7	0	0	1,402	Open	Closed	22.9	266
8/15/2024	15:45:00	7	0	0	1,402	Open	Closed	23	266
8/15/2024	16:00:00	7	0	0	1,402	Open	Closed	23.1	266
8/15/2024	16:15:00	7	0	0	1,402	Open	Closed	23.2	266
8/15/2024	16:30:00	7	0	0	1,402	Open	Closed	23.2	266
8/15/2024	16:45:00	7	0	0	1,402	Open	Closed	23.3	266
8/15/2024	17:00:00	7	0	0	1,402	Open	Closed	23.4	266
8/15/2024	17:15:00	7	0	0	1,402	Open	Closed	23.5	265
8/15/2024	17:30:00	7	0	0	1,402	Open	Closed	23.6	265
8/15/2024	17:45:00	7	0	0	1,402	Open	Closed	23.6	265
8/15/2024	18:00:00	7	0	0	1,402	Open	Closed	23.7	264
8/15/2024	18:15:00	7	0	0	1,402	Open	Closed	23.8	265
8/15/2024	18:30:00	7	0	0	1,402	Open	Closed	23.8	265
8/15/2024	18:45:00	7	0	0	1,402	Open	Closed	23.9	265
8/15/2024	19:00:00	7	0	0	1,402	Open	Closed	23.9	265
8/15/2024	19:15:00	7	0	0	1,402	Open	Closed	23.9	265
8/15/2024	19:30:00	7	0	0	1,402	Open	Closed	24	265
8/15/2024	19:45:00	7	0	0	1,402	Open	Closed	24	265
8/15/2024	20:00:00	7	0	0	1,402	Open	Closed	24	265
8/15/2024	20:15:00	7	0	0	1,402	Open	Closed	23.9	264
8/15/2024	20:30:00	7	0	0	1,402	Open	Closed	23.8	264

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/15/2024	20:45:00	7.1	1.040875	0	1,402	Open	Closed	20.9	268
8/15/2024	21:00:00	7.2	0.972745	27.6	1,402	Open	Closed	20.5	266
8/15/2024	21:15:00	7.2	0.950035	97.2	1,402	Open	Closed	20.3	266
8/15/2024	21:30:00	7.2	0.942465	140	1,402	Open	Closed	20.2	266
8/15/2024	21:45:00	7.3	0.92354	189.3	1,402	Open	Closed	20.3	266
8/15/2024	22:00:00	7.3	0.90083	149.3	1,402	Open	Closed	20.3	266
8/15/2024	22:15:00	7.3	0.889475	125.8	1,402	Open	Closed	20.3	266
8/15/2024	22:30:00	7.3	0.881905	107	1,402	Open	Closed	20.3	266
8/15/2024	22:45:00	7.3	0.844055	16.8	1,402	Open	Closed	20.2	266
8/15/2024	23:00:00	7.3	0.81756	0	1,402	Open	Closed	20.2	264
8/15/2024	23:15:00	7.3	0.806205	0	1,402	Open	Closed	20.2	264
8/15/2024	23:30:00	7.3	0.80242	0	1,402	Open	Closed	20.2	264
8/15/2024	23:45:00	7.3	0.77971	0	1,402	Open	Closed	20.2	264
8/16/2024	0:00:00	7	0.77214	0	1,402	Open	Closed	20.2	278
8/16/2024	0:15:00	6.9	0.768355	0	1,402	Open	Closed	20.2	282
8/16/2024	0:30:00	7	0.753215	0	1,402	Open	Closed	20.2	274
8/16/2024	0:45:00	7.1	0.74943	0	1,402	Open	Closed	20.2	269
8/16/2024	1:00:00	7.1	0	0	1,402	Open	Closed	20.3	269
8/16/2024	1:15:00	7.2	0.957605	0	1,402	Open	Closed	20.1	267
8/16/2024	1:30:00	7.2	1.003025	0	1,402	Open	Closed	20.1	267
8/16/2024	1:45:00	7.2	0	0	1,402	Open	Closed	20.2	267
8/16/2024	2:00:00	7.1	0	0	1,402	Open	Closed	20.3	267

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/16/2024	2:15:00	7.1	0	0	1,402	Open	Closed	20.3	267
8/16/2024	2:30:00	7.1	0	0	1,402	Open	Closed	20.4	267
8/16/2024	2:45:00	7.1	0	0	1,402	Open	Closed	20.2	267
8/16/2024	3:00:00	7.1	0	0	1,402	Open	Closed	20.2	268
8/16/2024	3:15:00	7.1	0	0	1,402	Open	Closed	20.2	271
8/16/2024	3:30:00	7.1	0	0	1,402	Open	Closed	20.2	271
8/16/2024	3:45:00	7.1	0	0	1,402	Open	Closed	20.3	271
8/16/2024	4:00:00	7.2	0.624525	0	1,402	Open	Closed	20	269
8/16/2024	4:15:00	7.1	0	0	1,402	Open	Closed	20	269
8/16/2024	4:30:00	7.1	0	0	1,402	Open	Closed	20	269
8/16/2024	4:45:00	7.1	0	0	1,402	Open	Closed	20.1	269
8/16/2024	5:00:00	7.1	0	0	1,402	Open	Closed	20.1	269
8/16/2024	5:15:00	7.1	0	0	1,402	Open	Closed	20.1	268
8/16/2024	5:30:00	7.1	0	0	1,402	Open	Closed	20.1	268
8/16/2024	5:45:00	7.1	0	0	1,402	Open	Closed	20.2	271
8/16/2024	6:00:00	7.1	0	0	1,402	Open	Closed	20.2	271
8/16/2024	6:15:00	7.1	0	0	1,402	Open	Closed	20.3	271
8/16/2024	6:30:00	7.1	0	0	1,402	Open	Closed	20.3	270
8/16/2024	6:45:00	7.1	0.753215	0	1,402	Open	Closed	20	271
8/16/2024	7:00:00	7.2	0.77971	0	1,402	Open	Closed	19.8	269
8/16/2024	7:15:00	7.2	0.730505	0	1,402	Open	Closed	19.7	269
8/16/2024	7:30:00	7.2	0	0	1,402	Open	Closed	19.6	269

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/16/2024	7:45:00	7.2	1.39288	0	1,402	Open	Closed	19.7	268
8/16/2024	8:00:00	7.2	0	0	1,402	Open	Closed	19.6	268
8/16/2024	8:15:00	7.2	0.77214	8.7	1,402	Open	Closed	19.7	269
8/16/2024	8:30:00	7.2	0	0	1,402	Open	Closed	19.5	268
8/16/2024	8:45:00	7.3	0.57532	0	1,402	Open	Closed	19.4	267
8/16/2024	9:00:00	7.3	0	0	1,402	Open	Closed	19.4	264
8/16/2024	9:15:00	7.3	0.55261	0	1,402	Open	Closed	19.5	264
8/16/2024	9:30:00	7.3	0.31794	0	1,402	Open	Closed	19.6	264
8/16/2024	9:45:00	7.3	0.53747	0	1,402	Open	Closed	19.6	264
8/16/2024	10:00:00	7.3	0.624525	0	1,402	Open	Closed	19.7	262
8/16/2024	10:15:00	7.3	0.61317	0	1,402	Open	Closed	19.8	268
8/16/2024	10:30:00	7	0	0	1,402	Open	Closed	19.9	281
8/16/2024	10:45:00	7	0.62074	410.8	1,402	Open	Closed	19.9	286
8/16/2024	11:00:00	7.1	0.601815	0	1,402	Open	Closed	20	276
8/16/2024	11:15:00	7.1	0.450415	0	1,402	Open	Closed	20	274
8/16/2024	11:30:00	7.2	0.495835	0	1,402	Open	Closed	20	274
8/16/2024	11:45:00	7.2	0.55261	0	1,402	Open	Closed	20.1	272
8/16/2024	12:00:00	7.2	0.56018	0	1,402	Open	Closed	20.1	273
8/16/2024	12:15:00	7.2	0.57532	0	1,402	Closed	Open	20.2	272
8/16/2024	12:30:00	7.2	0.556395	0.1	1,409	Closed	Open	20.4	269
8/16/2024	12:45:00	7.2	0.541255	0	1,417	Closed	Open	20.9	269
8/16/2024	13:00:00	7.2	0.518545	0	1,425	Closed	Open	21.1	269

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/16/2024	13:15:00	7.2	0.49205	0.1	1,432	Closed	Open	21.3	269
8/16/2024	13:30:00	7.1	0.47691	0	1,439	Closed	Open	21.5	269
8/16/2024	13:45:00	7.1	0.457985	0	1,446	Closed	Open	21.7	269
8/16/2024	14:00:00	7.3	0.382285	0	1,450	Closed	Open	20.6	266
8/16/2024	14:15:00	7.5	1.4383	20.3	1,450	Open	Closed	20.6	268
8/16/2024	14:30:00	7.6	1.404235	8.8	1,450	Open	Closed	20.7	268
8/16/2024	14:45:00	7.5	0	5.8	1,450	Open	Closed	21	266
8/16/2024	15:00:00	7.4	0	5.1	1,450	Open	Closed	21.3	266
8/16/2024	15:15:00	7.5	1.404235	6.5	1,450	Open	Closed	21	266
8/16/2024	15:30:00	7.5	0	2.4	1,450	Open	Closed	21.2	267
8/16/2024	15:45:00	7.4	0	2.3	1,450	Open	Closed	21.5	266
8/16/2024	16:00:00	7.4	0	1.8	1,450	Open	Closed	21.8	266
8/16/2024	16:15:00	7.4	0	1.7	1,450	Open	Closed	22	266
8/16/2024	16:30:00	7.4	0	1.4	1,450	Open	Closed	22.3	267
8/16/2024	16:45:00	7.4	0	1.4	1,450	Open	Closed	22.5	266
8/16/2024	17:00:00	7.4	0	3.6	1,450	Open	Closed	22.7	267
8/16/2024	17:15:00	7.4	0	12.3	1,450	Open	Closed	22.9	267
8/16/2024	17:30:00	7.4	0	29.9	1,450	Open	Closed	23.1	267
8/16/2024	17:45:00	7.4	0	59.1	1,450	Open	Closed	23.2	267
8/16/2024	18:00:00	7.4	0	67.3	1,450	Open	Closed	23.4	268
8/16/2024	18:15:00	7.3	0	97.1	1,450	Open	Closed	23.5	268
8/16/2024	18:30:00	7.3	0	124.9	1,450	Open	Closed	23.5	268

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/16/2024	18:45:00	7.3	0	154.8	1,450	Open	Closed	23.6	268
8/16/2024	19:00:00	7.3	0	4.8	1,450	Open	Closed	23.7	268
8/16/2024	19:15:00	7.3	0	31.9	1,450	Open	Closed	23.7	268
8/16/2024	19:30:00	7.3	0	44.9	1,450	Open	Closed	23.7	270
8/16/2024	19:45:00	7.3	0	84.5	1,450	Open	Closed	23.8	269
8/16/2024	20:00:00	7.3	0	143	1,450	Open	Closed	23.8	270
8/16/2024	20:15:00	7.3	0	45.4	1,450	Open	Closed	23.7	269
8/16/2024	20:30:00	7.4	0	60	1,450	Open	Closed	21.6	268
8/16/2024	20:45:00	7.5	0	75.6	1,450	Open	Closed	21.2	269
8/16/2024	21:00:00	7.3	0.46934	0	1,450	Open	Closed	21.3	271
8/16/2024	21:15:00	7.3	0.46934	0	1,450	Open	Closed	21.3	269
8/16/2024	21:30:00	7.3	0.3785	0	1,452	Closed	Open	21.3	269
8/16/2024	21:45:00	7.3	0.374715	0	1,458	Closed	Open	21.3	269
8/16/2024	22:00:00	7.3	0.37093	0	1,463	Closed	Open	21.2	271
8/16/2024	22:15:00	6.9	0.37093	4	1,469	Closed	Open	21.2	299
8/16/2024	22:30:00	6.7	1.214985	6.8	1,472	Closed	Open	21.2	304
8/16/2024	22:45:00	6.9	0.35579	0	1,474	Closed	Open	21.1	284
8/16/2024	23:00:00	7	0.35579	0	1,479	Closed	Open	21.1	276
8/16/2024	23:15:00	7.1	0	0	1,485	Closed	Open	21.1	269
8/16/2024	23:30:00	7	0	0	1,485	Open	Closed	21.2	269
8/16/2024	23:45:00	7	0	0	1,485	Open	Closed	21.2	269
8/17/2024	0:00:00	7	0	0	1,485	Open	Closed	21.2	269

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/17/2024	0:15:00	7	0	0	1,485	Open	Closed	21.2	269
8/17/2024	0:30:00	7	0	0	1,485	Open	Closed	21.1	271
8/17/2024	0:45:00	7	0	0	1,485	Open	Closed	21.1	271
8/17/2024	1:00:00	7	0	0	1,485	Open	Closed	21	271
8/17/2024	1:15:00	7	0	0	1,485	Open	Closed	20.9	270
8/17/2024	1:30:00	7	0	0	1,485	Open	Closed	20.9	270
8/17/2024	1:45:00	7	0	0	1,485	Open	Closed	20.8	272
8/17/2024	2:00:00	6.9	0	0	1,485	Open	Closed	20.7	272
8/17/2024	2:15:00	6.9	0	0	1,485	Open	Closed	20.7	272
8/17/2024	2:30:00	6.9	0	0	1,485	Open	Closed	20.6	273
8/17/2024	2:45:00	6.9	0	0	1,485	Open	Closed	20.6	273
8/17/2024	3:00:00	6.9	0	0	1,485	Open	Closed	20.5	275
8/17/2024	3:15:00	6.9	0	0	1,485	Open	Closed	20.4	275
8/17/2024	3:30:00	7.1	1.305825	0	1,485	Open	Closed	20.4	272
8/17/2024	3:45:00	7.2	0.38607	0	1,485	Closed	Open	20.1	272
8/17/2024	4:00:00	7.2	0.382285	0	1,491	Closed	Open	20	272
8/17/2024	4:15:00	7.2	0.4542	0	1,497	Closed	Open	19.9	270
8/17/2024	4:30:00	7.2	0.450415	0	1,504	Closed	Open	19.8	270
8/17/2024	4:45:00	7.2	0.457985	0	1,511	Closed	Open	19.7	270
8/17/2024	5:00:00	7.2	0	0	1,516	Closed	Open	19.6	270
8/17/2024	5:15:00	7.1	0	0	1,516	Open	Closed	19.6	273
8/17/2024	5:30:00	7.1	0	0	1,516	Open	Closed	19.6	273

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/17/2024	5:45:00	7.1	0	0	1,516	Open	Closed	19.5	275
8/17/2024	6:00:00	7.1	0	0	1,516	Open	Closed	19.5	275
8/17/2024	6:15:00	7.1	0	0	1,516	Open	Closed	19.5	275
8/17/2024	6:30:00	7.1	0	0	1,516	Open	Closed	19.5	275
8/17/2024	6:45:00	6.9	1.411805	0	1,516	Open	Closed	19.3	284
8/17/2024	7:00:00	7.1	1.063585	0	1,516	Open	Closed	19.1	273
8/17/2024	7:15:00	7.2	1.010595	0	1,516	Open	Closed	19.2	272
8/17/2024	7:30:00	7.3	0.897045	0	1,516	Open	Closed	19.2	272
8/17/2024	7:45:00	7	1.08251	0.2	1,516	Open	Closed	19.2	275
8/17/2024	8:00:00	7.2	0.87812	0	1,516	Open	Closed	19.2	270
8/17/2024	8:15:00	7.1	0	0	1,516	Open	Closed	19.3	270
8/17/2024	8:30:00	7.1	0	0	1,516	Open	Closed	19.4	271
8/17/2024	8:45:00	7.1	0	0	1,516	Open	Closed	19.4	272
8/17/2024	9:00:00	7.1	0	0	1,516	Open	Closed	19.4	272
8/17/2024	9:15:00	7.1	0	0	1,516	Open	Closed	19.5	272
8/17/2024	9:30:00	7.1	0	0	1,516	Open	Closed	19.5	272
8/17/2024	9:45:00	7.2	1.313395	0	1,516	Open	Closed	19.4	270
8/17/2024	10:00:00	7	0.995455	23.2	1,516	Open	Closed	19.4	273
8/17/2024	10:15:00	7.1	1.283115	47.1	1,516	Open	Closed	19.4	271
8/17/2024	10:30:00	7.3	1.093865	38.3	1,516	Open	Closed	19.6	268
8/17/2024	10:45:00	7	1.351245	142	1,516	Open	Closed	19.9	274
8/17/2024	11:00:00	7.1	0.889475	408.1	1,516	Open	Closed	20.1	272

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/17/2024	11:15:00	7.2	1.71082	336.7	1,516	Open	Closed	20.3	272
8/17/2024	11:30:00	7.2	2.26343	241	1,516	Open	Closed	20.5	271
8/17/2024	11:45:00	7.3	0	210.1	1,516	Open	Closed	20.7	269
8/17/2024	12:00:00	7.2	0	172.7	1,516	Open	Closed	21	268
8/17/2024	12:15:00	7.1	2.259645	189.4	1,516	Open	Closed	21	269
8/17/2024	12:30:00	7.1	1.078725	70.2	1,516	Open	Closed	20.6	268
8/17/2024	12:45:00	7.2	1.12036	31	1,516	Open	Closed	21.3	266
8/17/2024	13:00:00	7.2	1.283115	30.6	1,516	Open	Closed	21.5	264
8/17/2024	13:15:00	7.2	1.08251	18	1,516	Open	Closed	21.6	261
8/17/2024	13:30:00	7.1	1.071155	25.4	1,516	Open	Closed	21.8	263
8/17/2024	13:45:00	7.2	1.06737	8.6	1,516	Open	Closed	22	258
8/17/2024	14:00:00	7.3	1.18849	24.4	1,516	Open	Closed	22.2	255
8/17/2024	14:15:00	6.9	1.199845	46.5	1,516	Open	Closed	22.5	261
8/17/2024	14:30:00	7.1	1.192275	24	1,516	Open	Closed	22.6	255
8/17/2024	14:45:00	7.2	1.169565	9.8	1,516	Open	Closed	22.7	253
8/17/2024	15:00:00	7.3	1.17335	12.4	1,516	Open	Closed	22.9	252
8/17/2024	15:15:00	6.9	1.003025	21.2	1,516	Open	Closed	23.1	262
8/17/2024	15:30:00	7	0	11.6	1,516	Open	Closed	23.4	258
8/17/2024	15:45:00	6.9	0	9.4	1,516	Open	Closed	23.9	258
8/17/2024	16:00:00	6.9	0	4.6	1,516	Open	Closed	24.4	260
8/17/2024	16:15:00	6.9	0	3.1	1,516	Open	Closed	24.8	260
8/17/2024	16:30:00	6.9	0	2.2	1,516	Open	Closed	25.2	260

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/17/2024	16:45:00	6.9	0	1.7	1,516	Open	Closed	25.6	261
8/17/2024	17:00:00	6.9	0	6.1	1,516	Open	Closed	25.9	261
8/17/2024	17:15:00	6.9	0	4.5	1,516	Open	Closed	26.2	261
8/17/2024	17:30:00	6.9	0	4.3	1,516	Open	Closed	26.4	261
8/17/2024	17:45:00	6.9	0	4.7	1,516	Open	Closed	26.6	261
8/17/2024	18:00:00	6.9	0	4.6	1,516	Open	Closed	26.8	261
8/17/2024	18:15:00	6.9	0	3.8	1,516	Open	Closed	27	261
8/17/2024	18:30:00	6.9	0	3.9	1,516	Open	Closed	27.1	261
8/17/2024	18:45:00	6.9	0	4.5	1,516	Open	Closed	27.2	263
8/17/2024	19:00:00	6.9	0	3.4	1,516	Open	Closed	27.3	263
8/17/2024	19:15:00	6.9	0	3.5	1,516	Open	Closed	27.3	262
8/17/2024	19:30:00	6.9	0	3	1,516	Open	Closed	27.4	262
8/17/2024	19:45:00	6.9	0	3.5	1,516	Open	Closed	27.4	261
8/17/2024	20:00:00	6.9	0	2.4	1,516	Open	Closed	27.4	260
8/17/2024	20:15:00	6.9	0.99167	11.1	1,516	Open	Closed	25	261
8/17/2024	20:30:00	7.1	0	1.6	1,516	Open	Closed	24	256
8/17/2024	20:45:00	7	0	0.5	1,516	Open	Closed	24.2	256
8/17/2024	21:00:00	7.2	1.18092	1	1,516	Open	Closed	24	256
8/17/2024	21:15:00	7.2	0.942465	0	1,516	Open	Closed	24.1	253
8/17/2024	21:30:00	7.3	0.31794	0	1,516	Open	Closed	24.1	255
8/17/2024	21:45:00	7.1	0.276305	0	1,520	Closed	Open	24	264
8/17/2024	22:00:00	6.8	0.276305	0	1,524	Closed	Open	24.1	288

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/17/2024	22:15:00	6.7	0	0	1,525	Closed	Open	24.2	292
8/17/2024	22:30:00	6.7	0.268735	0	1,527	Closed	Open	24.1	295
8/17/2024	22:45:00	6.8	1.07494	0	1,528	Closed	Open	24	276
8/17/2024	23:00:00	6.9	0.276305	0	1,529	Closed	Open	23.8	266
8/17/2024	23:15:00	7	0.276305	0	1,533	Closed	Open	23.8	263
8/17/2024	23:30:00	7	0.268735	0	1,537	Closed	Open	23.8	258
8/17/2024	23:45:00	7	0.37093	0	1,542	Closed	Open	23.8	258
8/18/2024	0:00:00	7.1	0.37093	0	1,548	Closed	Open	23.8	256
8/18/2024	0:15:00	7.1	0.37093	0	1,553	Closed	Open	23.7	256
8/18/2024	0:30:00	7.1	0	0	1,558	Closed	Open	23.7	256
8/18/2024	0:45:00	7	0	0	1,558	Open	Closed	23.8	257
8/18/2024	1:00:00	7	0	0	1,558	Open	Closed	23.8	257
8/18/2024	1:15:00	7	0	0	1,558	Open	Closed	23.9	258
8/18/2024	1:30:00	7	0	0	1,558	Open	Closed	23.9	258
8/18/2024	1:45:00	7	0	0	1,558	Open	Closed	23.9	258
8/18/2024	2:00:00	7	0	0	1,558	Open	Closed	23.9	258
8/18/2024	2:15:00	7	0	0	1,558	Open	Closed	23.9	260
8/18/2024	2:30:00	7	0	0	1,558	Open	Closed	24	260
8/18/2024	2:45:00	7	0	0	1,558	Open	Closed	23.9	259
8/18/2024	3:00:00	7	0	0	1,558	Open	Closed	23.9	259
8/18/2024	3:15:00	7	0.38607	0	1,559	Closed	Open	23.7	261
8/18/2024	3:30:00	7.1	0.3785	0	1,565	Closed	Open	23.3	259

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/18/2024	3:45:00	7.1	0.3785	0	1,571	Closed	Open	23	259
8/18/2024	4:00:00	7.1	0.382285	0	1,576	Closed	Open	22.6	259
8/18/2024	4:15:00	7.2	0.382285	0	1,582	Closed	Open	22.5	259
8/18/2024	4:30:00	7.2	0	0	1,587	Closed	Open	22.4	259
8/18/2024	4:45:00	7.1	0	0	1,587	Open	Closed	22.5	259
8/18/2024	5:00:00	7.1	0	0	1,587	Open	Closed	22.6	259
8/18/2024	5:15:00	7	0	0	1,587	Open	Closed	22.6	259
8/18/2024	5:30:00	7	0	0	1,587	Open	Closed	22.6	259
8/18/2024	5:45:00	7	0	0	1,587	Open	Closed	22.6	259
8/18/2024	6:00:00	7	0	0	1,587	Open	Closed	22.6	259
8/18/2024	6:15:00	7	0	0	1,587	Open	Closed	22.7	259
8/18/2024	6:30:00	7	0	0	1,587	Open	Closed	22.7	259
8/18/2024	6:45:00	7	0	0	1,587	Open	Closed	22.7	259
8/18/2024	7:00:00	7	0	0	1,587	Open	Closed	22.6	259
8/18/2024	7:15:00	7.1	0.987885	0	1,587	Open	Closed	21.7	261
8/18/2024	7:30:00	7.2	0.94625	0	1,587	Open	Closed	21.2	257
8/18/2024	7:45:00	6.9	0.84027	0	1,587	Open	Closed	21.2	117
8/18/2024	8:00:00	6.8	0.912185	0	1,587	Open	Closed	21.2	117
8/18/2024	8:15:00	6.8	0.897045	0	1,587	Open	Closed	21.3	117
8/18/2024	8:30:00	6.8	0.881905	0	1,587	Open	Closed	21.4	117
8/18/2024	8:45:00	6.8	0.730505	0	1,587	Open	Closed	21.5	117
8/18/2024	9:00:00	6.8	0.760785	0	1,587	Open	Closed	21.6	117

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/18/2024	9:15:00	6.8	0.757	0	1,587	Open	Closed	21.7	118
8/18/2024	9:30:00	6.8	0.836485	0	1,587	Open	Closed	21.8	118
8/18/2024	9:45:00	6.8	0.844055	0	1,587	Open	Closed	21.8	118
8/18/2024	10:00:00	6.8	0.80999	0	1,587	Open	Closed	21.9	118
8/18/2024	10:15:00	6.8	0.813775	0	1,587	Open	Closed	22	118
8/18/2024	10:30:00	6.8	0.791065	0	1,587	Open	Closed	22.1	119
8/18/2024	10:45:00	6.8	0.775925	0	1,587	Open	Closed	22.2	119
8/18/2024	11:00:00	6.8	0.66616	0	1,587	Open	Closed	22.3	118
8/18/2024	11:15:00	6.8	0.67373	0	1,587	Open	Closed	22.4	119
8/18/2024	11:30:00	6.8	1.33232	0	1,587	Open	Closed	22.4	119
8/18/2024	11:45:00	6.8	1.18849	0	1,587	Open	Closed	22.5	119
8/18/2024	12:00:00	6.8	1.1355	0	1,587	Open	Closed	22.6	119
8/18/2024	12:15:00	6.8	0.9841	0	1,587	Open	Closed	22.7	119
8/18/2024	12:30:00	6.8	1.048445	0	1,587	Open	Closed	22.8	119
8/18/2024	12:45:00	6.8	0	0	1,587	Open	Closed	22.8	119
8/18/2024	13:00:00	6.8	0	0	1,587	Open	Closed	22.9	119
8/18/2024	13:15:00	6.8	0	0	1,587	Open	Closed	22.9	119
8/18/2024	13:30:00	6.8	0	0	1,587	Open	Closed	22.9	119
8/18/2024	13:45:00	6.8	1.02195	0	1,587	Open	Closed	22.9	119
8/18/2024	14:00:00	6.8	1.06737	0	1,587	Open	Closed	22.9	119
8/18/2024	14:15:00	6.8	1.457225	0	1,587	Open	Closed	23	119
8/18/2024	14:30:00	6.8	1.426945	0	1,587	Open	Closed	23.1	119

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/18/2024	14:45:00	6.8	1.222555	0	1,587	Open	Closed	23.1	119
8/18/2024	15:00:00	6.8	1.184705	0	1,587	Open	Closed	23.2	119
8/18/2024	15:15:00	7.4	1.53671	75.8	1,587	Open	Closed	23.4	119
8/18/2024	15:30:00	7.4	0	73.8	1,587	Open	Closed	23.9	235
8/18/2024	15:45:00	7.2	0	63.5	1,587	Open	Closed	24	235
8/18/2024	16:00:00	7.2	0	64.7	1,587	Open	Closed	24.1	235
8/18/2024	16:15:00	7.2	0	61.4	1,587	Open	Closed	24.2	235
8/18/2024	16:30:00	7.2	0	58.2	1,587	Open	Closed	24.3	235
8/18/2024	16:45:00	7.2	0	57.8	1,587	Open	Closed	24.4	238
8/18/2024	17:00:00	7.2	0	56.2	1,587	Open	Closed	24.5	238
8/18/2024	17:15:00	7.2	0	50.3	1,587	Open	Closed	24.5	238
8/18/2024	17:30:00	7.2	0	49.2	1,587	Open	Closed	24.6	238
8/18/2024	17:45:00	7.1	0	44.3	1,587	Open	Closed	24.7	238
8/18/2024	18:00:00	7.1	0	45.9	1,587	Open	Closed	24.7	238
8/18/2024	18:15:00	7.1	0	44	1,587	Open	Closed	24.8	238
8/18/2024	18:30:00	7.1	0	38.5	1,587	Open	Closed	24.8	238
8/18/2024	18:45:00	7.1	0	39.5	1,587	Open	Closed	24.9	238
8/18/2024	19:00:00	7.1	0	35.5	1,587	Open	Closed	24.9	238
8/18/2024	19:15:00	7.1	0	34.4	1,587	Open	Closed	24.9	237
8/18/2024	19:30:00	7.1	0	31.6	1,587	Open	Closed	24.9	237
8/18/2024	19:45:00	7.1	0	31.4	1,587	Open	Closed	24.9	236
8/18/2024	20:00:00	7.1	0	33	1,587	Open	Closed	24.8	237

Date	Time	Discharge pH	Flow rate (m3/min)	Discharge NTU	Total Flow (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/18/2024	20:15:00	7.1	0	26.4	1,587	Open	Closed	24.8	236
8/18/2024	20:30:00	7.2	0.897045	98.9	1,587	Open	Closed	23	251
8/18/2024	20:45:00	7.1	0	3.4	1,587	Open	Closed	23.1	241
8/18/2024	21:00:00	7.1	0.88569	11	1,587	Open	Closed	23.2	241
8/18/2024	21:15:00	7.1	0.859195	0	1,587	Open	Closed	23.5	237
8/18/2024	21:30:00	7.1	0.738075	0	1,589	Closed	Open	23.6	238
8/18/2024	21:45:00	7.1	0.39364	0	1,594	Closed	Open	23.6	237
8/18/2024	22:00:00	7.1	0.3785	0	1,600	Closed	Open	23.6	237
8/18/2024	22:15:00	7.2	0.4542	0	1,607	Closed	Open	23.5	238
8/18/2024	22:30:00	7.2	0.63588	0	1,613	Closed	Open	23.5	238
8/18/2024	22:45:00	7.2	0.61317	0	1,613	Open	Closed	23.4	240
8/18/2024	23:00:00	7.1	0	0	1,613	Open	Closed	23.3	239
8/18/2024	23:15:00	7.1	0	0	1,613	Open	Closed	23.2	239
8/18/2024	23:30:00	7.1	0	0	1,613	Open	Closed	23.2	239
8/18/2024	23:45:00	7	0	0	1,613	Open	Closed	23	239

Appendix B: YSI Data Log

Date	Time	Temperature °C	DO %	DO mg/L	Salinity ppt	pH	ORP mV
8/16/2024	12:34:42PM	17.7	99.6	9.5	0.07	8.18	180.3
8/16/2024	12:47:18PM	17.5	99.9	9.55	0.07	8.18	183
8/16/2024	01:10:28PM	17.6	100.8	9.62	0.07	8.21	185.1
8/16/2024	01:24:23PM	17.4	101.1	9.68	0.06	8.19	187.1
8/16/2024	01:32:20PM	17.1	100.3	9.67	0.05	8.17	150.9
8/16/2024	01:51:20PM	17.1	101.2	9.7	0.05	8.21	185.1
8/16/2024	09:07:32PM	16.5	94.7	9.24	0.07	8.09	176.2
8/16/2024	09:22:32PM	16.5	94.9	9.27	0.07	8.09	175.9
8/16/2024	09:37:32PM	16.4	94.9	9.28	0.07	8.09	179.4
8/16/2024	09:52:32PM	16.4	94.9	9.29	0.07	8.09	182.1
8/16/2024	10:07:31PM	16.4	95	9.3	0.07	8.07	185.2
8/16/2024	10:22:31PM	16.3	95	9.31	0.07	8.06	188.1
8/16/2024	10:37:31PM	16.2	97.4	9.56	0.07	8.08	192.2
8/16/2024	10:52:31PM	16.2	97.4	9.56	0.06	7.99	198.1
8/16/2024	11:07:31PM	16.3	96.6	9.48	0.06	7.94	201.4
8/16/2024	11:22:31PM	16.3	97.2	9.53	0.06	7.97	202.1
8/16/2024	11:37:31PM	16.3	97.7	9.58	0.06	7.98	204.1
8/16/2024	11:52:31PM	16.3	97.1	9.52	0.06	7.97	205.4
8/17/2024	00:07:31AM	16.3	96.5	9.45	0.06	7.97	206.6

Date	Time	Temperature °C	DO %	DO mg/L	Salinity ppt	pH	ORP mV
8/17/2024	00:22:31AM	16.3	96.1	9.43	0.06	7.97	207.7
8/17/2024	00:37:31AM	16.3	95.9	9.41	0.06	7.97	208.5
8/17/2024	00:52:31AM	16.2	95.7	9.4	0.06	7.98	209
8/17/2024	01:07:31AM	16.2	95.6	9.4	0.07	7.98	209.8
8/17/2024	01:22:31AM	16.1	95.5	9.4	0.07	7.99	210.5
8/17/2024	01:37:31AM	16.1	95.5	9.4	0.07	8	211.1
8/17/2024	01:52:30AM	16.1	95.3	9.39	0.07	8	211.3
8/17/2024	02:07:30AM	16.1	95.3	9.39	0.07	8	211.1
8/17/2024	02:22:30AM	16	95.3	9.39	0.07	8.02	211.2
8/17/2024	02:37:30AM	16	95.3	9.4	0.07	8.02	211.3
8/17/2024	02:52:30AM	16	95.2	9.4	0.07	8.03	211
8/17/2024	03:07:30AM	16	95.2	9.4	0.07	8.03	211.1
8/17/2024	03:22:30AM	15.9	95.2	9.4	0.07	8.03	211.2
8/17/2024	03:37:30AM	15.9	95.2	9.41	0.07	8.03	211.5
8/17/2024	03:52:30AM	15.9	95.2	9.42	0.07	8.03	212.2
8/17/2024	04:07:30AM	15.8	95.1	9.42	0.07	8.04	212.5
8/17/2024	04:22:30AM	15.8	95.1	9.42	0.07	8.04	212.8
8/17/2024	04:37:30AM	15.8	95.1	9.42	0.07	8.04	213.3
8/17/2024	04:52:30AM	15.8	97.8	9.7	0.06	8.06	215
8/17/2024	05:07:30AM	16	97.8	9.65	0.06	8.05	217.2
8/17/2024	05:22:30AM	16.1	97.6	9.6	0.06	8.05	218

Date	Time	Temperature °C	DO %	DO mg/L	Salinity ppt	pH	ORP mV
8/17/2024	05:37:29AM	16.2	97	9.54	0.06	8.05	218.7
8/17/2024	05:52:29AM	16.1	96.4	9.49	0.06	8.05	218.1
8/17/2024	06:07:29AM	16	96.2	9.48	0.06	8.06	217.7
8/17/2024	06:22:29AM	16	96	9.47	0.06	8.06	214
8/17/2024	06:37:29AM	15.9	95.9	9.48	0.06	8.06	214.7
8/17/2024	06:52:29AM	15.9	96.1	9.5	0.07	8.07	215.5
8/17/2024	07:07:29AM	15.9	96.2	9.52	0.07	8.07	215.9
8/17/2024	07:22:29AM	15.9	96.3	9.54	0.07	8.08	215.4
8/17/2024	10:11:07PM	16.8	94	9.11	0.07	8.04	198.4
8/17/2024	10:26:07PM	16.8	94	9.12	0.07	8.05	202.3
8/17/2024	10:41:07PM	16.8	94	9.12	0.07	8.05	205.3
8/17/2024	10:56:06PM	16.7	93.9	9.13	0.07	8.05	208.3
8/17/2024	11:11:06PM	16.7	94	9.14	0.07	8.05	210.8
8/17/2024	11:26:06PM	16.7	95.6	9.3	0.07	8.05	212.7
8/17/2024	11:41:06PM	16.6	96	9.35	0.07	8.05	214.7
8/17/2024	11:56:06PM	16.6	96.3	9.39	0.07	8.06	215.5
8/18/2024	00:11:06AM	16.6	97.1	9.47	0.06	8.06	214.7
8/18/2024	00:26:06AM	16.7	97.5	9.49	0.06	8.06	215
8/18/2024	00:41:06AM	16.8	97.2	9.43	0.06	8.05	214.8
8/18/2024	00:56:06AM	17	97.4	9.42	0.06	8.04	216.7
8/18/2024	01:11:06AM	17	96.9	9.35	0.06	8.04	217.4

Date	Time	Temperature °C	DO %	DO mg/L	Salinity ppt	pH	ORP mV
8/18/2024	01:26:06AM	17	96.6	9.32	0.06	8.04	217.6
8/18/2024	01:41:06AM	17	96.3	9.3	0.06	8.03	218.2
8/18/2024	01:56:06AM	17	96.2	9.29	0.06	8.03	218.7
8/18/2024	02:11:06AM	17	95.9	9.27	0.06	8.04	219.8
8/18/2024	02:26:06AM	16.9	95.7	9.26	0.06	8.04	220
8/18/2024	02:41:06AM	16.9	95.5	9.25	0.06	8.04	220.3
8/18/2024	02:56:05AM	16.9	95.5	9.25	0.07	8.02	220.8
8/18/2024	03:11:05AM	16.9	95.4	9.24	0.07	8.02	221
8/18/2024	03:26:05AM	16.8	95.4	9.25	0.07	8.02	220.8
8/18/2024	03:41:05AM	16.8	95.4	9.26	0.07	8.02	221.1
8/18/2024	03:56:05AM	16.8	95.4	9.26	0.07	8.03	221.6
8/18/2024	04:11:05AM	16.7	96.5	9.37	0.07	8.07	222.7
8/18/2024	04:26:05AM	16.8	97.1	9.43	0.06	8.04	225.3
8/18/2024	08:40:50AM						
8/18/2024	08:40:58AM	18.3	102.8	9.67	0.16	8.3	173.3
8/18/2024	08:44:48AM	18.4	102.9	9.65	0.16	8.16	189.3
8/18/2024	08:46:22PM	16.8	94.7	9.18	0.07	8.17	149.1
8/18/2024	09:01:22PM	16.5	96.1	9.38	0.07	8.1	149
8/18/2024	09:16:22PM	16.5	96.1	9.39	0.07	8.08	154.3
8/18/2024	09:31:22PM	16.4	96.1	9.4	0.07	8.07	158.5
8/18/2024	09:46:22PM	16.4	96	9.4	0.07	8.05	161.6

Date	Time	Temperature °C	DO %	DO mg/L	Salinity ppt	pH	ORP mV
8/18/2024	10:01:22PM	16.4	96.1	9.41	0.07	8.07	164.3
8/18/2024	10:16:22PM	16.3	96.1	9.42	0.07	8.07	167.2
8/18/2024	10:31:22PM	16.3	97.3	9.55	0.07	8.09	171.1
8/18/2024	10:46:22PM	16.2	98.1	9.63	0.06	8.05	175.8
8/18/2024	11:01:22PM	16.4	97.7	9.55	0.06	8.04	179.1
8/18/2024	11:16:22PM	16.5	97.2	9.49	0.06	8.04	182.4
8/18/2024	11:31:21PM	16.5	97	9.47	0.06	8.04	185.7
8/18/2024	11:46:21PM	16.4	96.8	9.46	0.06	8.04	187.4
8/19/2024	00:01:21AM	16.4	96.6	9.45	0.06	8.04	190.8
8/19/2024	00:16:21AM	16.4	96.4	9.44	0.07	8.04	193.9
8/19/2024	00:31:21AM	16.4	96.4	9.44	0.07	8.04	196.8
8/19/2024	00:46:21AM	16.3	96.3	9.44	0.07	8.04	199.8
8/19/2024	01:01:21AM	16.3	96.3	9.45	0.07	8.05	201.8
8/19/2024	01:16:21AM	16.3	96.3	9.44	0.07	8.04	204.3
8/19/2024	01:31:21AM	16.3	96.1	9.43	0.07	8.04	206.9
8/19/2024	01:46:21AM	16.2	96.2	9.44	0.07	8.05	209.1
8/19/2024	02:01:21AM	16.2	96.2	9.44	0.07	8.05	211.2
8/19/2024	02:16:21AM	16.2	96.1	9.44	0.07	8.05	213.5
8/19/2024	02:31:21AM	16.2	96.1	9.45	0.07	8.05	215.1
8/19/2024	02:46:21AM	16.1	96.1	9.45	0.07	8.04	217
8/19/2024	03:01:21AM	16.1	96.1	9.46	0.07	8.04	218.7

Date	Time	Temperature °C	DO %	DO mg/L	Salinity ppt	pH	ORP mV
8/19/2024	03:16:20AM	16.1	98	9.66	0.07	8.07	222.6
8/19/2024	03:31:20AM	16.2	98.2	9.64	0.06	8.03	226.9
8/19/2024	03:46:20AM	16.5	98.2	9.59	0.05	8.02	229.7
8/19/2024	04:01:20AM	16.6	98.1	9.56	0.05	8.01	232.2
8/19/2024	04:16:20AM	16.7	98.1	9.53	0.05	8.01	233.7

Appendix C: Photos

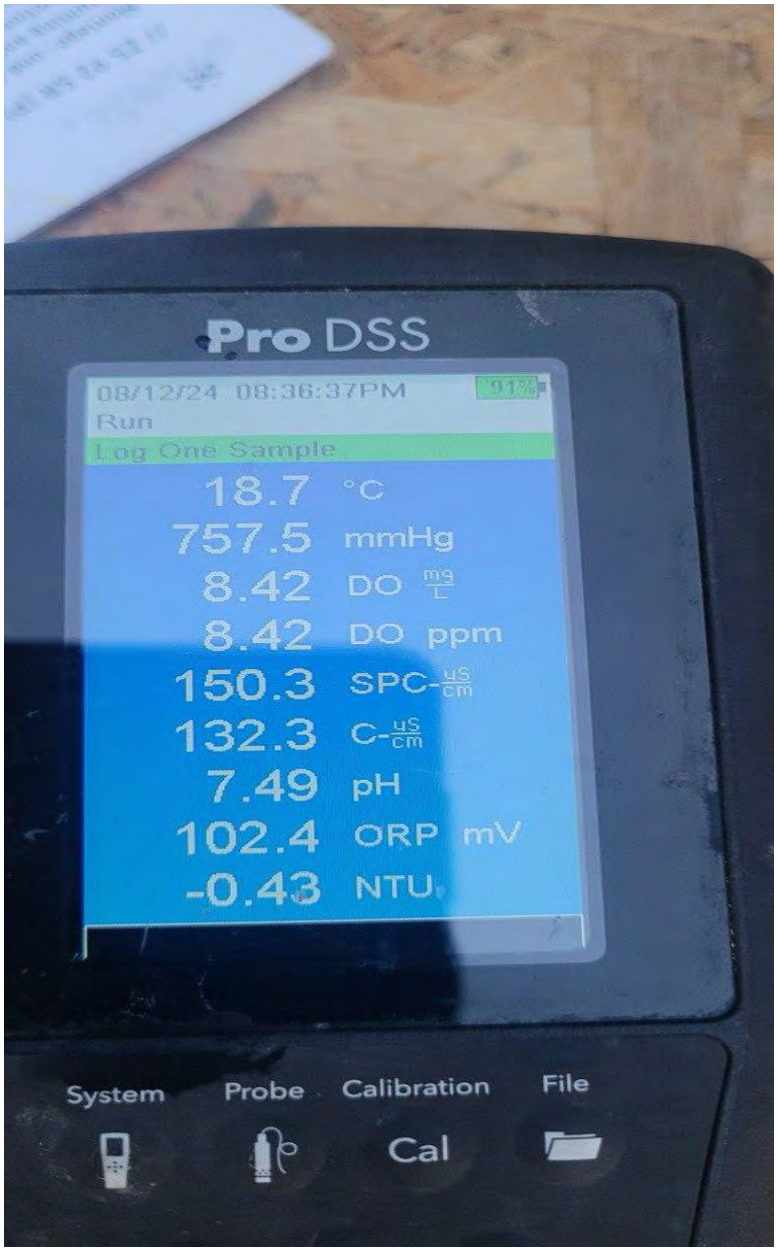

Photo 1: YSI 08/12/2024

Photo 2: Top of the WTP tank 08/12/2024

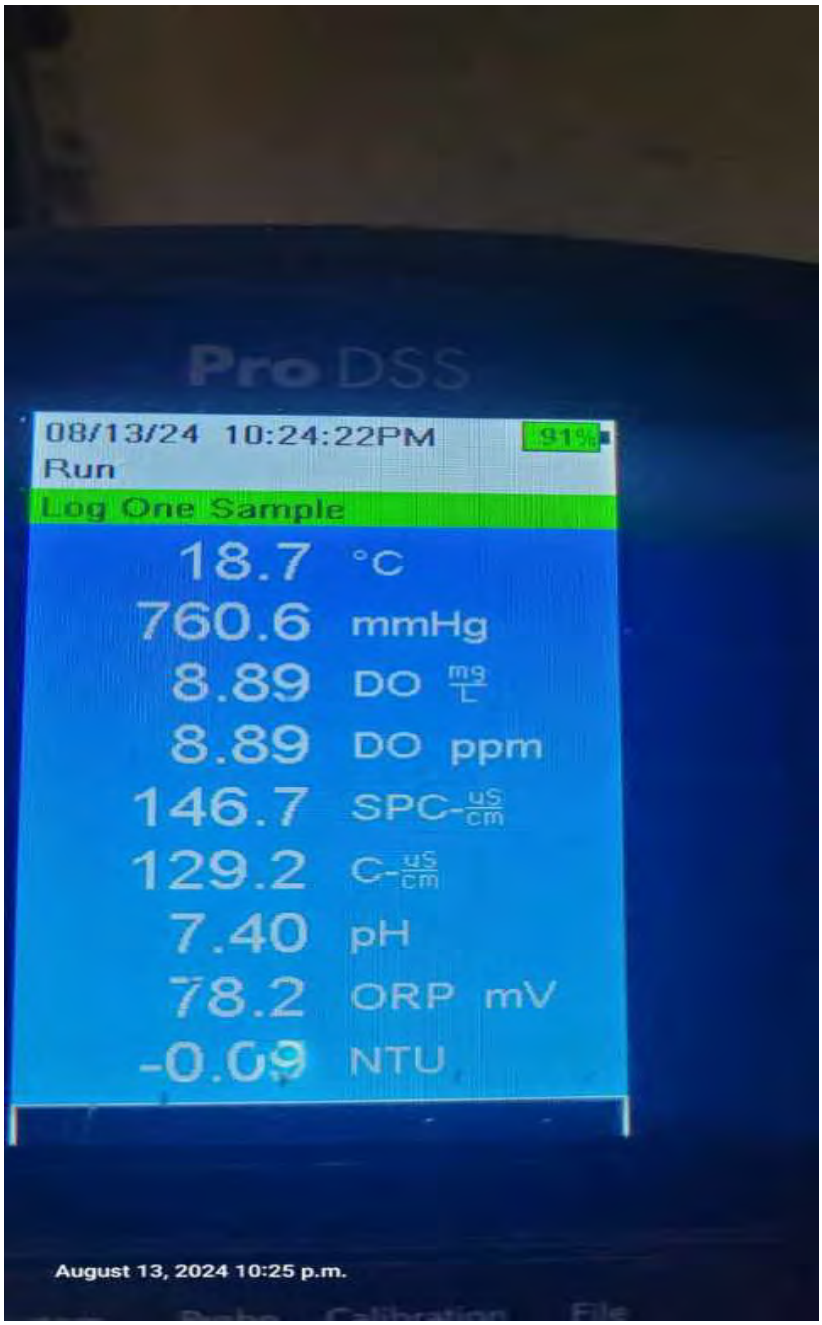

Photo 3: YSI 08/13/2024

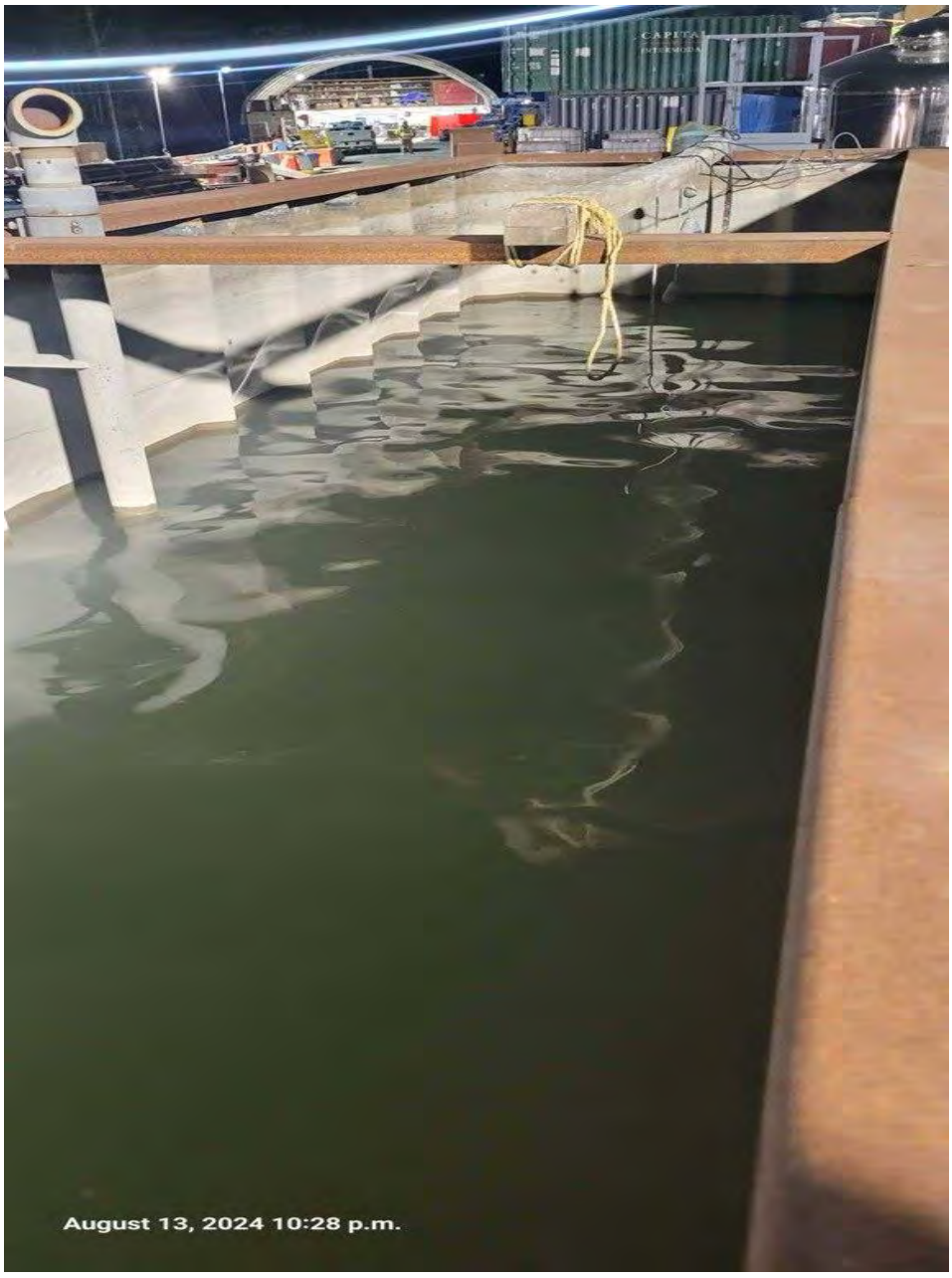

Photo 4: Top of the WTP tank 08/13/2024

Photo 5: Discharge point 08/13/2024

Photo 6: YSI 08/13/2024

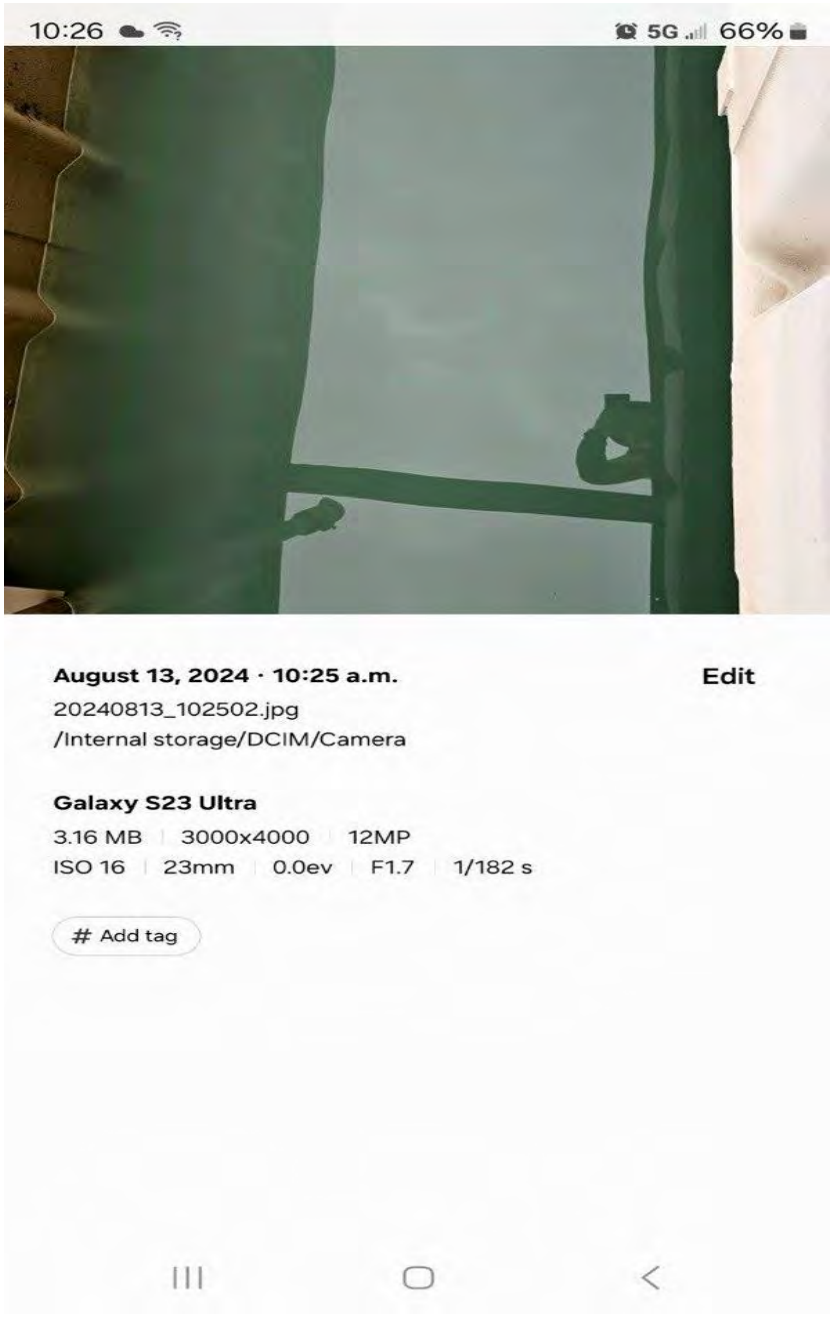

Photo 7: Top of the WTP tank 08/13/2024

Photo 8: YSI 08/16/2024

Photo 9: Downstream 08/16/2024

Photo 10: YSI 08/16/2024

Photo 11: Top of the WTP tank 08/16/2024

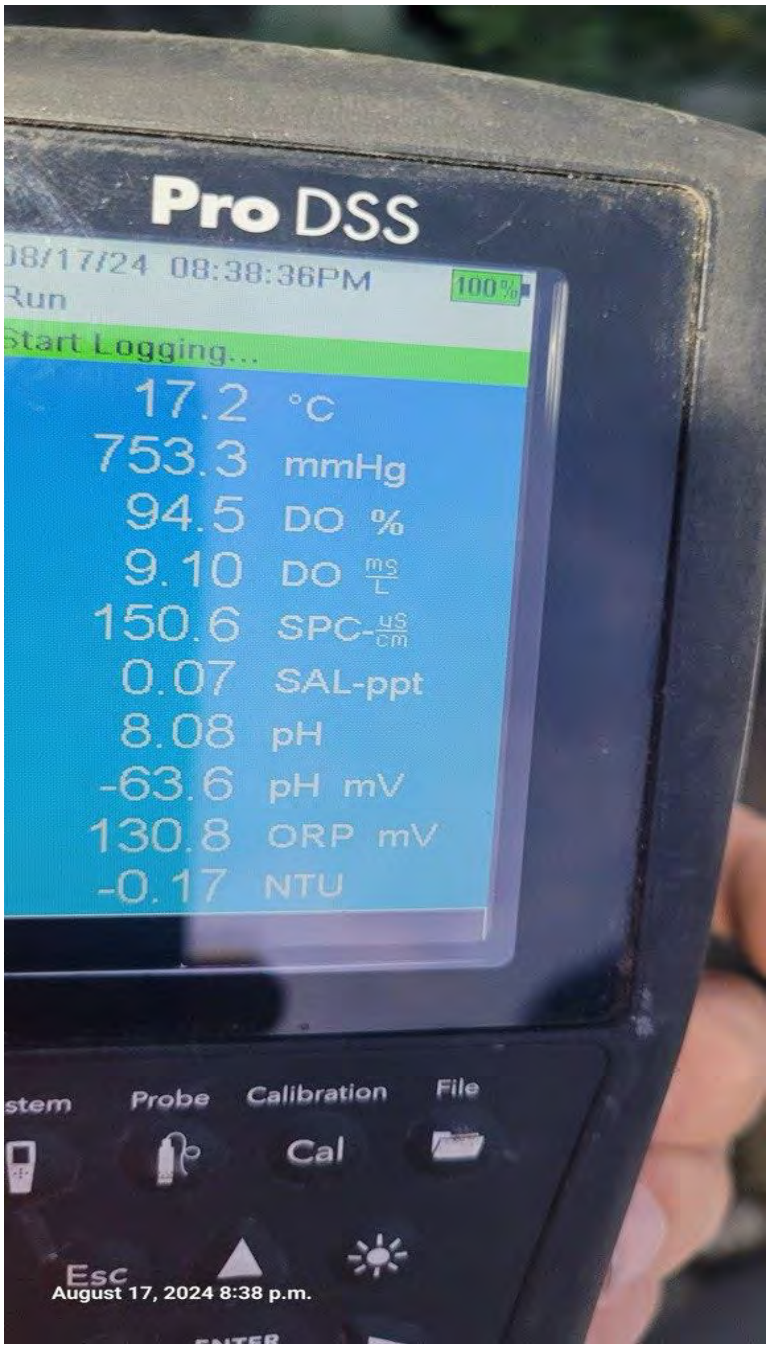

Photo 12: YSI 08/17/2024

Photo 13: Top of the WTP tank 08/17/2024

Photo 14: Discharge point 08/17/2024

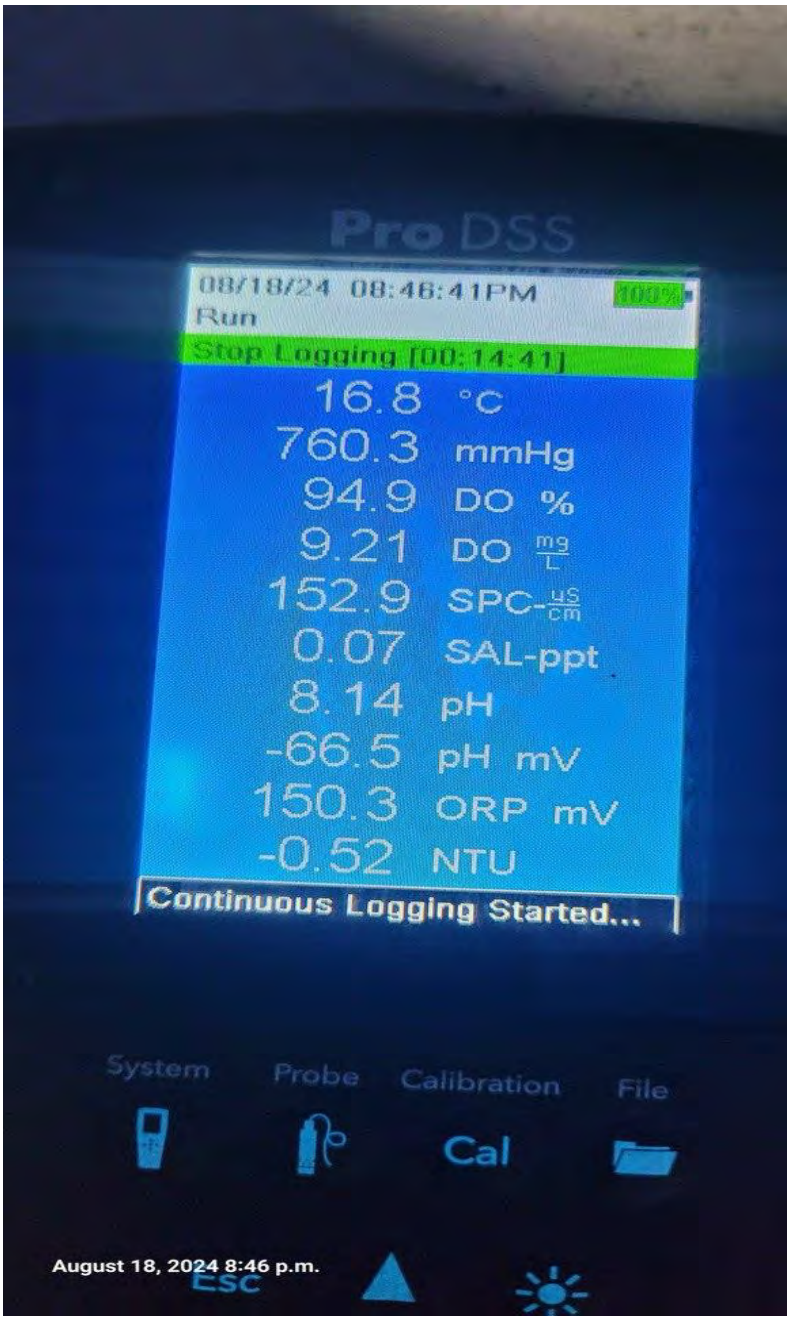

Photo 15: YSI 08/18/2024

Photo 16: Discharge point 08/18/2024

Photo 17: Top of the WTP tank 08/18/2024

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.	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					VA24C0310-001	VA24C0310-002					
	Date Sampled					13-Aug-2024	13-Aug-2024					
	Time Sampled					10:46	12:14					
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	7.85	7.66		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]	-	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C [4]	-	17	16.7		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	-	-	-	-	4.6	169					
Turbidity (field)	NTU	Varies with background, see note Guideline = 8.8	Varies with background, see note Guideline = 3.74 5-week discrete sampling average = 2.60 (DS)	Varies with background, see note Guideline = 8.8	Varies with background, see note Guideline = 3.74 5-week discrete sampling average = 2.60 (DS)	0.76	2.07		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	8.64	-		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	-	-	-	-	9.7	77.9					
Total Dissolved Solids	mg/L	-	-	-	-	33	86					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 28.0	Varies with background, see note LT Guideline = 8.34 5-week discrete sampling average = 5.34 (DS)	Varies with background, see note Guideline = 28.0	Varies with background, see note Guideline = 8.34 5-week discrete sampling average = 5.34 (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	-	-	-	-	1.98	1.66			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	9.7	77.9	The upstream location has high sensitivity to acid inputs (i.e. high buffering capacity), while the downstream has low sensitivity to acid inputs.		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 = 6.69	Varies with pH and temperature. See note. Guideline = 1.33	Varies with pH and temperature. See note. Guideline = 15	Varies with pH, temperature and salinity. See note. Guideline = 2.4	< 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	0.66	0.81				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 = 0.396	-	1.5	-	0.022	0.039		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	0.027	0.0724					
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	< 0.0010		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	-	-	-	-	0.091	0.141					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0055	0.0073			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	-	-	2.36	2.6			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 = 0.120 US 5-week field average = 0.105 DS 5-week field average = 0.085	-	-	0.101	0.033			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	0.00017	0.00012					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.00497	0.0131			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	0.015					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000067	0.0000111					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	3.22	25.7					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000012	0.000015					
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	0.00066	0.00068					
Iron (Fe)-Total	mg/L	1	-	-	-	0.121	0.276					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note. Guideline = 0.00418	Varies with hardness. See Note. Guideline = 0.00346	0.14	0.002	0.000074	0.000104		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation EXP[1.273*on(hardness)-1.460] where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP[1.273*on(hardness)-4.704] applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.31	1.02					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.816	Varies with hardness Guideline = 0.768	-	-	0.00495	0.0286		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	-	-	0.000537	0.00195					
Nickel (Ni)-Total	mg/L	-	Varies with hardness Guideline = 0.025	-	0.0083	< 0.00050	< 0.00050			Working guideline status. Guideline varies with hardness. Refer to BC Water Quality Guidelines for more information. Hardness 0 ≤ 60: 0.025 Hardness > 60 ≤ 180: Guideline = (EXP((0.76 * (LN(hardness)) + 1.06))/1000) Hardness ≥ 180: 0.15		Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	< 0.050	< 0.050			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	0.292	0.719					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00082	0.00143					
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 guideliens 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	-	-	-	-	4.91	5.36					
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	-	-	-	-	1.94	2.67					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.016	0.0706					
Sulfur (S)-Total	mg/L	-	-	-	-	< 0.60	0.73					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.0008	-	-	< 0.000010	< 0.000010			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to 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	-	-	-	-	0.00208	0.00072					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	-	0.0085	-	-	0.000078	0.00007			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	< 0.00050	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	< 0.0030	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0391	0.0106					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00015	< 0.00010					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00517	0.0139					
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	0.015					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note Guideline = 0.000053	Varies with hardness, see note Guideline = 0.000036	-	-	< 0.0000050	0.0000062		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	-	Categorical, see note	-	-	3.06	26	The upstream location has high sensitivity to acid inputs (i.e. low buffering capacity) while the downstream location has low sensitivity to acid inputs (i.e. high buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000011	0.000016					
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 = 0.0006 US 5-week average = 0.0006 DS 5-week average = 0.00049	-	-	0.00055	0.00055		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	-	-	-	0.052	0.034					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.309	1.07					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00133	0.0198					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000524	0.00186					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.316	0.724					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00083	0.00154					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.99	5.5					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.96	2.72					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.016	0.0712					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	0.72	0.92					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	<0.00020	<0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	<0.000010	<0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	<0.00010	<0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	<0.00010	<0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	<0.00010	<0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000064	0.000064					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.009	Varies with pH, DOC, hardness Guideline = 0.0033	-	-	0.0011	0.0015		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 guideline.

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)	Values: WLNG DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.85	7.66
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				17	16.7
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				0.76	2.07
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				9.7	77.9
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				1.98	1.66
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				9.7	77.9
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				0.66	0.81

Woodfibre Site Receiving Environment Lab Documentation

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CERTIFICATE OF ANALYSIS

Work Order	: **VA24C0310**	Page	: 1 of 6
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 13-Aug-2024 17:55
PO	: 11964-Task 20-Phase 3C-4C	Date Analysis Commenced	: 14-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 16:00
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Inorganics, Burnaby, British Columbia
	Lab Assistant	Metals, Burnaby, British Columbia
	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia
	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
	Lab Analyst	Metals, Burnaby, British Columbia
	Lab Assistant	Inorganics, Burnaby, British Columbia
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

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

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	*Description*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	Duplicate	Field Blank	Trip Blank
					Client sampling date / time	13-Aug-2024 10:46	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14
						VA24C0310-001	VA24C0310-002	VA24C0310-003	VA24C0310-004	VA24C0310-005
						Result	Result	Result	Result	Result
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		46.000	169.00	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.85	7.66	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		17.0	16.7	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		8.91	69.3	67.3	<0.60	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		9.32	68.4	70.1	<0.60	<0.60
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		33	86	88	<10	<10
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	<3.0	<3.0	<3.0
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		9.7	77.9	77.5	<2.0	<2.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	0.0053 RRV	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		0.66	0.81	0.80	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.022	0.039	0.038	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0270	0.0724	0.0722	<0.0050	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.091	0.141	0.141	<0.030	<0.030
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0055	0.0073	0.0060	<0.0020	<0.0020
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		2.36	2.60	2.59	<0.30	<0.30
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		1.98	1.66	1.64	<0.50	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	<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	<0.0016	<0.0016	<0.0016
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.101	0.0329	0.0321	<0.0030	<0.0030
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	Duplicate	Field Blank	Trip Blank
					Client sampling date / time	13-Aug-2024 10:46	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14
						VA24C0310-001	VA24C0310-002	VA24C0310-003	VA24C0310-004	VA24C0310-005
						Result	Result	Result	Result	Result
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00017	0.00012	0.00012	<0.00010	<0.00010
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00497	0.0131	0.0132	<0.00010	<0.00010
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	0.015	0.016	<0.010	<0.010
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000067	0.0000111	0.0000136	<0.0000050	<0.0000050
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		3.22	25.7	26.4	<0.050	<0.050
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000012	0.000015	0.000016	<0.000010	<0.000010
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00066	0.00068	0.00071	<0.00050	<0.00050
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.121	0.276	0.290	<0.010	<0.010
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000074	0.000104	0.000108	<0.000050	<0.000050
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.310	1.02	1.01	<0.0050	<0.0050
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00495	0.0286	0.0282	<0.00010	<0.00010
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000537	0.00195	0.00195	<0.000050	<0.000050
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.292	0.719	0.704	<0.050	<0.050
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00082	0.00143	0.00133	<0.00020	<0.00020
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		4.91	5.36	5.16	<0.10	<0.10
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		1.94	2.67	2.67	<0.050	<0.050
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0160	0.0706	0.0730	<0.00020	<0.00020
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		0.60	0.73	0.66	<0.50	<0.50
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	Duplicate	Field Blank	Trip Blank
					Client sampling date / time	13-Aug-2024 10:46	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14
						VA24C0310-001	VA24C0310-002	VA24C0310-003	VA24C0310-004	VA24C0310-005
						Result	Result	Result	Result	Result
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00208	0.00072	0.00084	<0.00030	<0.00030
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000078	0.000070	0.000069	<0.000010	<0.000010
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0391	0.0106	0.0107	<0.0010	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00015	<0.00010	<0.00010	<0.00010	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00517	0.0139	0.0138	<0.00010	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	0.015	0.015	<0.010	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	0.0000062	0.0000087	<0.0000050	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		3.06	26.0	25.2	<0.050	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000011	0.000016	0.000015	<0.000010	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00055	0.00055	0.00057	<0.00020	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.052	0.034	0.032	<0.010	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.309	1.07	1.07	<0.0050	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00133	0.0198	0.0197	<0.00010	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000524	0.00186	0.00188	<0.000050	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	Duplicate	Field Blank	Trip Blank
					Client sampling date / time	13-Aug-2024 10:46	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14	13-Aug-2024 12:14
						VA24C0310-001	VA24C0310-002	VA24C0310-003	VA24C0310-004	VA24C0310-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		0.316	0.724	0.716	<0.050	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00083	0.00154	0.00147	<0.00020	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		4.99	5.50	5.48	<0.050	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		1.96	2.72	2.81	<0.050	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0160	0.0712	0.0726	<0.00020	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		0.72	0.92	0.94	<0.50	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000064	0.000064	0.000067	<0.000010	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0011	0.0015	0.0015	<0.0010	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chromium, trivalent [Cr III], total	16065-83-1	EC535/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<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	: **VA24C0310**	Page	: 1 of 20
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 13-Aug-2024 17:55
PO	: 11964-Task 20-Phase 3C-4C	Issue Date	: 20-Aug-2024 16:00
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 5		
No. of samples analysed	: 5		

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) Duplicate	E298	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Field Blank	E298	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG DS 1	E298	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG US 1	E298	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) Trip Blank	E298	13-Aug-2024	14-Aug-2024	3 days	1 days	✓	16-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Duplicate	E235.Br-L	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-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 : Bromide in Water by IC (Low Level)										
HDPE										
Trip Blank	E235.Br-L	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.Br-L	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.Br-L	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Duplicate	E235.Cl	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Field Blank	E235.Cl	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Trip Blank	E235.Cl	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WLNG DS 1	E235.Cl	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WLNG US 1	E235.Cl	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Duplicate	E235.F	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-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 Field Blank	E235.F	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Trip Blank	E235.F	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG DS 1	E235.F	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG US 1	E235.F	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Duplicate	E235.NO3-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Field Blank	E235.NO3-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Trip Blank	E235.NO3-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.NO3-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG US 1	E235.NO3-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Duplicate	E235.NO2-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO2-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Trip Blank	E235.NO2-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO2-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO2-L	13-Aug-2024	15-Aug-2024	3 days	2 days	✓	15-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Duplicate	E235.SO4	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Field Blank	E235.SO4	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Trip Blank	E235.SO4	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG DS 1	E235.SO4	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-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 : Sulfate in Water by IC										
HDPE WLNG US 1	E235.SO4	13-Aug-2024	15-Aug-2024	28 days	2 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Duplicate	E366	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Field Blank	E366	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG DS 1	E366	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG US 1	E366	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	16-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (lab preserved) Trip Blank	E366	13-Aug-2024	14-Aug-2024	3 days	1 days	✓	16-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Duplicate	E372-U	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Field Blank	E372-U	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) WLNG DS 1	E372-U	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-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 : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG US 1	E372-U	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (lab preserved)										
Trip Blank	E372-U	13-Aug-2024	14-Aug-2024	3 days	1 days	✓	15-Aug-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Duplicate	E509	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG DS 1	E509	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG US 1	E509	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Duplicate	E421	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	16-Aug-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Field Blank	E421	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	16-Aug-2024	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG DS 1	E421	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	16-Aug-2024	180 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
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG US 1	E421	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	16-Aug-2024	180 days	3 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG DS 1	EF001	13-Aug-2024	----	----	----		15-Aug-2024	----	2 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG US 1	EF001	13-Aug-2024	----	----	----		15-Aug-2024	----	2 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Duplicate	E358-L	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Field Blank	E358-L	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG DS 1	E358-L	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG US 1	E358-L	13-Aug-2024	14-Aug-2024	28 days	1 days	✓	15-Aug-2024	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Duplicate	E290	13-Aug-2024	15-Aug-2024	14 days	2 days	✓	15-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Field Blank	E290	13-Aug-2024	15-Aug-2024	14 days	2 days	✓	15-Aug-2024	14 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
Physical Tests : Alkalinity Species by Titration										
HDPE										
Trip Blank	E290	13-Aug-2024	15-Aug-2024	14 days	2 days	✓	15-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG DS 1	E290	13-Aug-2024	15-Aug-2024	14 days	2 days	✓	15-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG US 1	E290	13-Aug-2024	15-Aug-2024	14 days	2 days	✓	15-Aug-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
Duplicate	E162	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
Field Blank	E162	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
Trip Blank	E162	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	13-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Duplicate	E160	13-Aug-2024	----	----	----		19-Aug-2024	7 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
Physical Tests : TSS by Gravimetry										
HDPE										
Field Blank	E160	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Trip Blank	E160	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	13-Aug-2024	----	----	----		19-Aug-2024	7 days	7 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Duplicate	E532	13-Aug-2024	----	----	----		14-Aug-2024	28 days	1 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Field Blank	E532	13-Aug-2024	----	----	----		14-Aug-2024	28 days	1 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Trip Blank	E532	13-Aug-2024	----	----	----		14-Aug-2024	28 days	1 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG DS 1	E532	13-Aug-2024	----	----	----		14-Aug-2024	28 days	1 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG US 1	E532	13-Aug-2024	----	----	----		14-Aug-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
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Duplicate	E508	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Field Blank	E508	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Trip Blank	E508	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG DS 1	E508	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG US 1	E508	13-Aug-2024	16-Aug-2024	28 days	3 days	✓	16-Aug-2024	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Duplicate	E420	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	17-Aug-2024	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Field Blank	E420	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	17-Aug-2024	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Trip Blank	E420	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	17-Aug-2024	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG DS 1	E420	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	17-Aug-2024	180 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG US 1	E420	13-Aug-2024	16-Aug-2024	180 days	3 days	✓	17-Aug-2024	180 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Duplicate	E395	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Field Blank	E395	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Trip Blank	E395	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG DS 1	E395	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG US 1	E395	13-Aug-2024	----	----	----		19-Aug-2024	7 days	6 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1596828	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1601109	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1604870	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1596672	1	13	7.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1604869	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1596828	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1601109	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1604870	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1596672	1	13	7.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	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	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1604869	1	10	10.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1596828	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1601109	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1604870	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1596672	1	13	7.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1604387	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1604869	1	10	10.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1596231	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1596834	1	8	12.5	5.0	✓
Chloride in Water by IC	E235.Cl	1596830	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1601109	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1596385	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1596229	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1596833	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1596831	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1596832	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1596829	1	10	10.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1596672	1	13	7.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1599914	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1596382	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1596232	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1596233	1	16	6.2	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	1604387	1	20	5.0	5.0	✓

Methodology References and Summaries

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

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 ALS Environmental - Vancouver	Water	Chinchilla Scientific Nitrate Method, 2011	Following digestion, total nitrogen is is determined colourimetrically using a discrete analyzer utilizing the vanadium chloride reduction method. This method of analysis is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Vancouver	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Vancouver	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
Field pH,EC,Salinity, 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.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C0310**	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	: 13-Aug-2024 17:55
PO	: 11964-Task 20-Phase 3C-4C	Date Analysis Commenced	: 14-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 16:01
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Analyst	Vancouver Inorganics, Burnaby, British Columbia
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1596828)											
FJ2402386-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	238	236	0.464%	20%	----
Physical Tests (QC Lot: 1604869)											
VA24C0307-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	9.3	3.7	5.6	Diff <2x LOR	----
Physical Tests (QC Lot: 1604870)											
VA24C0307-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	88	85	2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596231)											
KS2403176-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596232)											
VA24C0307-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.124	0.117	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596233)											
VA24C0216-013	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: 1596829)											
VA24C0307-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.06	5.05	0.214%	20%	----
Anions and Nutrients (QC Lot: 1596830)											
VA24C0307-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.00	1.00	0.010	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596831)											
VA24C0307-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1596832)											
VA24C0307-001	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: 1596833)											
VA24C0307-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.271	0.267	1.74%	20%	----
Anions and Nutrients (QC Lot: 1596834)											
VA24C0307-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1596229)											
VA24C0307-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.72	0.60	0.12	Diff <2x LOR	----
Total Sulfides (QC Lot: 1604387)											
RG2401272-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0075	mg/L	0.169	0.171	1.24%	20%	----
Total Metals (QC Lot: 1596382)											
VA24C0202-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0858	0.0986	13.8%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00058	0.00058	0.0000008	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: 1596382) - continued											
VA24C0202-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00543	0.00587	7.80%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0451	0.0453	0.428%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000169	0.0000155	0.0000014	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	41.1	39.6	3.72%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000038	0.000039	0.0000010	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	0.00031	0.00032	0.00001	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00070	0.00071	0.00001	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.216	0.243	11.8%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000186	0.000217	0.000031	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0071	0.0069	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	15.4	15.3	0.731%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0686	0.0687	0.138%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000254	0.000257	0.000003	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00146	0.00148	0.00002	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	1.18	1.18	0.237%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00124	0.00138	0.00013	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000156	0.000181	0.000025	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	4.72	4.64	1.73%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000018	0.000022	0.000003	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	2.20	2.16	1.95%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.209	0.209	0.0272%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	27.2	26.8	1.34%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00296	0.00342	14.3%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00130	0.00131	0.340%	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: 1596382) - continued											
VA24C0202-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1599914)											
VA24C0217-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1596385)											
VA24C0202-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0083	0.0076	0.0007	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00051	0.00052	0.000008	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00436	0.00431	0.948%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0461	0.0460	0.390%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000186	0.0000187	0.0000002	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	40.4	37.7	6.90%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000012	0.000013	0.0000003	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00022	0.00022	0.000010	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00047	0.00048	0.00001	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.014	0.014	0.0004	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	0.0068	0.0064	0.0003	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	16.6	16.6	0.480%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0640	0.0632	1.16%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00224	0.00230	2.50%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00126	0.00125	0.00001	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	1.18	1.14	3.74%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00118	0.00113	0.00004	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000172	0.000182	0.000011	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.51	4.52	0.0818%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.25	2.13	5.62%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.203	0.208	2.36%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1596385) - continued											
VA24C0202-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	25.8	25.8	0.0312%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00126	0.00129	2.44%	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	0.0014	0.0014	0.00003	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1601109)											
VA24C0078-024	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1596672)											
VA24C0305-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1596828)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1604869)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1604870)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1596231)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1596232)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1596233)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1596829)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1596830)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1596831)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1596832)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1596833)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1596834)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1596229)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1604387)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1596382)						
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: 1596382) - 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: 1599914)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1596385)						
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: 1596385) - 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: 1601109)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1596672)						
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: 1596828)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1604869)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1604870)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1596231)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	89.8	85.0	115	----
Anions and Nutrients (QCLot: 1596232)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	95.9	75.0	125	----
Anions and Nutrients (QCLot: 1596233)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	90.4	80.0	120	----
Anions and Nutrients (QCLot: 1596829)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1596830)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1596831)									
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: 1596832)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.6	90.0	110	----
Anions and Nutrients (QCLot: 1596833)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.5	90.0	110	----
Anions and Nutrients (QCLot: 1596834)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1596229)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.9	80.0	120	----
Total Sulfides (QCLot: 1604387)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	108	80.0	120	----
Total Metals (QCLot: 1596382)									

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: 1596382) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	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	110	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	99.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	113	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	92.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	112	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	107	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	109	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	109	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1596382) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.8	80.0	120	----
Total Metals (QCLot: 1599914)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	92.2	80.0	120	----
Dissolved Metals (QCLot: 1596385)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.5	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	93.0	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.7	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	96.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	93.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	95.8	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	95.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.3	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.2	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	112	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	95.0	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.8	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	100	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	96.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	99.8	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	85.6	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	96.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1596385) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.3	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	94.0	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.8	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.4	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.4	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.3	80.0	120	----
Speciated Metals (QCLot: 1596672)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	99.8	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1596231)										
VA24C0078-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0870 mg/L	0.1 mg/L	87.0	75.0	125	----
Anions and Nutrients (QCLot: 1596232)										
VA24C0310-001	WLNG US 1	Nitrogen, total	7727-37-9	E366	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
Anions and Nutrients (QCLot: 1596233)										
VA24C0307-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0483 mg/L	0.05 mg/L	96.6	70.0	130	----
Anions and Nutrients (QCLot: 1596829)										
VA24C0310-001	WLNG US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1596830)										
VA24C0310-001	WLNG US 1	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1596831)										
VA24C0310-001	WLNG US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1596832)										
VA24C0310-001	WLNG US 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.505 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1596833)										
VA24C0310-001	WLNG US 1	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1596834)										
VA24C0310-001	WLNG US 1	Bromide	24959-67-9	E235.Br-L	0.525 mg/L	0.5 mg/L	105	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1596229)										
VA24C0310-001	WLNG US 1	Carbon, dissolved organic [DOC]	----	E358-L	5.40 mg/L	5 mg/L	108	70.0	130	----
Total Sulfides (QCLot: 1604387)										
RG2401272-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	1.02 mg/L	1 mg/L	102	75.0	125	----
Total Metals (QCLot: 1596382)										
VA24C0209-001	Anonymous	Aluminum, total	7429-90-5	E420	0.201 mg/L	0.2 mg/L	100	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0182 mg/L	0.02 mg/L	90.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Boron, total	7440-42-8	E420	0.096 mg/L	0.1 mg/L	96.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00372 mg/L	0.004 mg/L	93.0	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1596382) - continued										
VA24C0209-001	Anonymous	Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.3	70.0	130	----
		Copper, total	7440-50-8	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Iron, total	7439-89-6	E420	1.85 mg/L	2 mg/L	92.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0955 mg/L	0.1 mg/L	95.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.34 mg/L	10 mg/L	93.4	70.0	130	----
		Potassium, total	7440-09-7	E420	3.89 mg/L	4 mg/L	97.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Silicon, total	7440-21-3	E420	8.96 mg/L	10 mg/L	89.6	70.0	130	----
		Silver, total	7440-22-4	E420	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Sodium, total	7440-23-5	E420	2.04 mg/L	2 mg/L	102	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	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00370 mg/L	0.004 mg/L	92.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Tin, total	7440-31-5	E420	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0393 mg/L	0.04 mg/L	98.4	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00402 mg/L	0.004 mg/L	100	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.370 mg/L	0.4 mg/L	92.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
Total Metals (QCLot: 1599914)										
VA24C0217-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000934 mg/L	0 mg/L	93.4	70.0	130	----
Dissolved Metals (QCLot: 1596385)										
VA24C0209-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.198 mg/L	0.2 mg/L	99.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0183 mg/L	0.02 mg/L	91.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00971 mg/L	0.01 mg/L	97.1	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.094 mg/L	0.1 mg/L	93.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00960 mg/L	0.01 mg/L	96.0	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0391 mg/L	0.04 mg/L	97.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1596385) - continued										
VA24C0209-001	Anonymous	Copper, dissolved	7440-50-8	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.115 mg/L	0.1 mg/L	115	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	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0385 mg/L	0.04 mg/L	96.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.66 mg/L	10 mg/L	96.6	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.75 mg/L	4 mg/L	93.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.29 mg/L	10 mg/L	92.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00373 mg/L	0.004 mg/L	93.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	1.97 mg/L	2 mg/L	98.6	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	0.0385 mg/L	0.04 mg/L	96.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.405 mg/L	0.4 mg/L	101	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
Dissolved Metals (QCLot: 1601109)										
VA24C0078-025	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000990 mg/L	0 mg/L	99.0	70.0	130	----
Speciated Metals (QCLot: 1596672)										
VA24C0305-002	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.131 mg/L	0.125 mg/L	105	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

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

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

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

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

Date and Time Required for all E&P TATs: dd-mmm-yy Aug 20/2024

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 Contact:	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
						F					P	P			F/P							
	WLNG US 1	Aug 13/24	10:46am	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.85 cond: 46 uS/cm temp: 17.0°C																					
	WLNG DS 1	Aug 13/24	12:14pm	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.66 cond: 169 uS/cm temp: 16.7°C																					
	Duplicate	Aug 13/24	12:14pm	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Field Blank	Aug 13/24	12:14pm	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	Trip Blank	Aug 13/24	12:14pm	Water	R		R	R	R	R	R	R	R	R							N	6

Environmental Division
Vancouver
Work Order Reference
VA24C0310

Telephone : +1 604 263 4188

Drinking Water (DW) Samples[1] (

Are samples taken from a Regulated DW S

☐ ☑ NO

Are samples for human consumption/ use?

☐ ☑ NO

Triton project # 11964

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

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				13			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Aug 13/2024	Time: 545pm	Received by:	Date:	Time:	Received	Date: Aug 13	Time: 5:55pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

Woodfibre Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-8-13-Renkers-27AF1

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	08/13/2024	**Location:**	WLNG
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 16 High 22	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:46:00 **Flow Volume (visual):** low

Notes: Conductivity: 46 micro Siemens per cm

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Total hexavalent chromium and total trivalent chromium
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:** No Total hexavalent chromium and total trivalent chromium
Nutrients	Yes	**VOC/VPH**	No	
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: WLNG EAS US1

Description: Up view

Photo: 2

Location: WLNG EAS US1

Description: Across view

Photos

Photo: 3

Location: WLNG EAS US1

Description: Down view

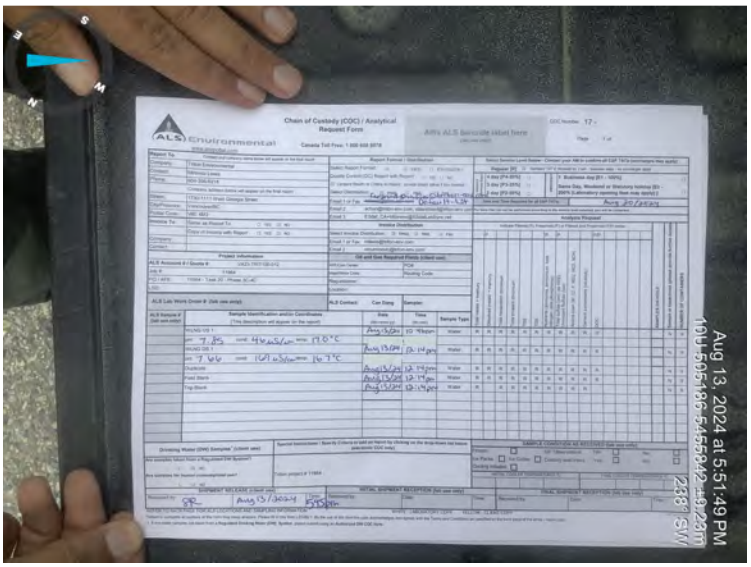

Photo: 4

Location: WLNG EAS US1

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

2024-8-13-Renkers-A87C6

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	08/13/2024	**Location:**	WLNG
Triton QP:	Stephanie Renkers	**Latitude/Longitude:**	49.6683 -123.247958
Temperature(c):	Low 16 High 22	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 12:14:00 **Flow Volume (visual):** low

Notes: Conductivity: 169 micro Siemens per cm

Not able to sample at usual EAS DS 1 due to low flows. Sampled downstream instead at 10U 482107 5501786.

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Total hexavalent chromium and total trivalent chromium
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:** Yes Total hexavalent chromium and total trivalent chromium
Nutrients	Yes	**VOC/VPH**	No	
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: WLNG EAS DS1

Description: Up view

Photo: 2

Location: WLNG EAS DS1

Description: Across view

Photos

Photo: 3

Location: WLNG EAS DS1

Description: Down view

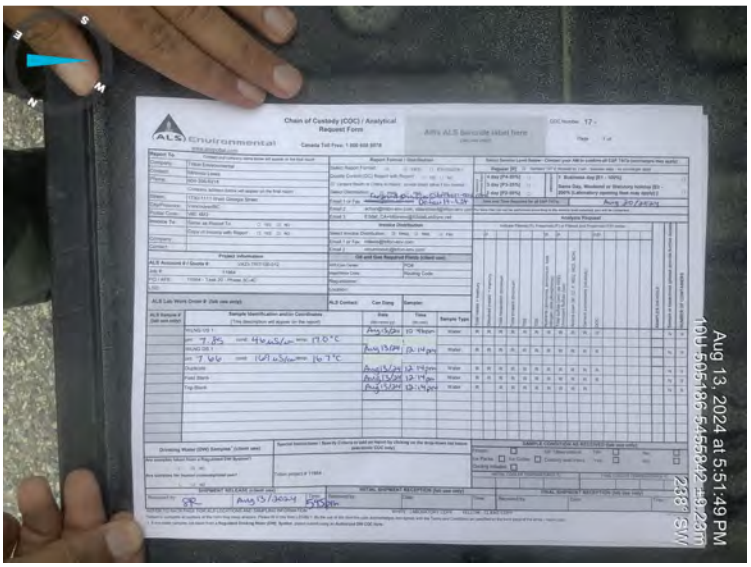

Photo: 4

Location: WLNG EAS DS1

Description: Signed COC

Sign Off

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

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

Received	Temperature C	Specific Conductivity ÂµS/cm	Salinity PSU	pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU	TL Battery V
8/18/2024 23:50	16.39	22.33	0.01	7.24	365.42	8.48	0.55	12.12
8/18/2024 23:40	16.41	22.56	0.01	7.19	365.11	8.51	0.54	12.21
8/18/2024 23:30	16.42	22.49	0.01	7.27	365.01	8.49	0.57	12.21
8/18/2024 23:20	16.44	22.6	0.01	7.24	364.85	8.51	0.53	12.21
8/18/2024 23:10	16.45	22.43	0.01	7.31	362.72	8.49	0.55	12.21
8/18/2024 23:00	16.48	22.57	0.01	7.26	364.21	8.49	0.57	12.21
8/18/2024 22:50	16.49	22.59	0.01	7.2	364.33	8.49	0.55	12.21
8/18/2024 22:40	16.51	22.54	0.01	7.19	364.38	8.46	0.55	12.21
8/18/2024 22:30	16.53	22.51	0.01	7.22	362.31	8.47	0.58	12.24
8/18/2024 22:20	16.56	22.66	0.01	7.2	364.28	8.46	0.54	12.24
8/18/2024 22:10	16.58	22.6	0.01	7.15	362.88	8.45	0.57	12.24
8/18/2024 22:00	16.61	22.55	0.01	7.15	364.03	8.45	0.55	12.24
8/18/2024 21:50	16.63	22.53	0.01	7.18	362.55	8.45	0.54	12.17
8/18/2024 21:40	16.66	22.57	0.01	7.15	363.87	8.44	0.58	12.24
8/18/2024 21:30	16.68	22.55	0.01	7.21	362.95	8.45	0.55	12.24
8/18/2024 21:20	16.71	22.58	0.01	7.15	364.32	8.43	0.57	12.17
8/18/2024 21:10	16.73	22.55	0.01	7.21	365.19	8.43	0.58	12.17
8/18/2024 21:00	16.75	22.56	0.01	7.15	364.11	8.43	0.55	12.19
8/18/2024 20:50	16.77	22.5	0.01	7.17	364.79	8.43	0.58	12.19
8/18/2024 20:40	16.8	22.56	0.01	7.16	363.6	8.42	0.57	12.29
8/18/2024 20:30	16.81	22.57	0.01	7.17	363.69	8.43	0.6	12.17
8/18/2024 20:20	16.84	22.53	0.01	7.16	363.36	8.43	0.57	12.19
8/18/2024 20:10	16.85	22.55	0.01	7.18	363.21	8.45	0.57	12.21
8/18/2024 20:00	16.88	22.58	0.01	7.16	362.84	8.44	0.57	12.21
8/18/2024 19:50	16.89	22.47	0.01	7.24	361.01	8.46	0.59	12.36
8/18/2024 19:40	16.91	22.52	0.01	7.17	362.64	8.47	0.56	12.41
8/18/2024 19:30	16.92	22.52	0.01	7.18	362.26	8.46	0.57	12.43
8/18/2024 19:20	16.93	22.55	0.01	7.18	362.03	8.46	0.58	12.45
8/18/2024 19:10	16.94	22.48	0.01	7.16	363.27	8.45	0.61	12.48
8/18/2024 19:00	16.95	22.59	0.01	7.18	361.78	8.45	0.57	12.45
8/18/2024 18:50	16.96	22.54	0.01	7.17	362.85	8.44	0.59	12.36
8/18/2024 18:40	16.97	22.64	0.01	7.18	361.31	8.45	0.61	12.43
8/18/2024 18:30	16.98	22.53	0.01	7.2	360.11	8.45	0.59	12.43
8/18/2024 18:20	17	22.68	0.01	7.18	360.85	8.45	0.58	12.45
8/18/2024 18:10	17	22.54	0.01	7.18	361.26	8.48	0.58	12.5
8/18/2024 18:00	17.02	22.69	0.01	7.19	360.49	8.47	0.59	12.45
8/18/2024 17:50	17.04	22.5	0.01	7.24	357.69	8.5	0.57	12.53
8/18/2024 17:40	17.06	22.48	0.01	7.2	358.97	8.49	0.74	12.48
8/18/2024 17:30	17.04	22.46	0.01	7.26	358	8.49	0.6	12.55
8/18/2024 17:20	17.05	22.47	0.01	7.21	358.59	8.49	0.6	12.5
8/18/2024 17:10	17.08	22.43	0.01	7.23	358.81	8.54	0.58	12.69

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/18/2024 17:00	17.08	22.55	0.01	7.22	357.44	8.52	0.62	12.69
8/18/2024 16:50	17.06	22.29	0.01	7.24	357.38	8.51	0.61	12.65
8/18/2024 16:40	17.07	22.58	0.01	7.22	357.14	8.52	0.58	12.84
8/18/2024 16:30	17.07	22.27	0.01	7.33	353.77	8.56	0.57	13.36
8/18/2024 16:20	17.09	22.48	0.01	7.24	355.63	8.58	0.58	12.76
8/18/2024 16:10	17.08	22.43	0.01	7.28	354.78	8.6	0.6	13.44
8/18/2024 16:00	17.06	22.53	0.01	7.25	354.57	8.6	0.61	13.41
8/18/2024 15:50	17.07	22.43	0.01	7.29	353.35	8.65	0.59	13.36
8/18/2024 15:40	17.09	22.52	0.01	7.28	352.42	8.65	0.58	13.41
8/18/2024 15:30	17.08	22.44	0.01	7.29	351.84	8.64	0.6	13.2
8/18/2024 15:20	16.99	22.51	0.01	7.27	352.91	8.66	0.59	13.51
8/18/2024 15:10	16.97	22.48	0.01	7.3	353.13	8.69	0.57	13.32
8/18/2024 15:00	16.9	22.58	0.01	7.26	353.7	8.69	0.59	13.22
8/18/2024 14:50	16.87	22.58	0.01	7.3	353.04	8.66	0.58	13.03
8/18/2024 14:40	16.84	22.64	0.01	7.25	355.68	8.61	0.6	12.88
8/18/2024 14:30	16.83	22.59	0.01	7.27	354.98	8.62	0.55	12.91
8/18/2024 14:20	16.84	22.69	0.01	7.25	355.2	8.65	0.59	12.86
8/18/2024 14:10	16.84	22.67	0.01	7.28	354.91	8.68	0.59	12.91
8/18/2024 14:00	16.81	22.71	0.01	7.25	355.29	8.66	0.56	13.22
8/18/2024 13:50	16.78	22.62	0.01	7.27	355.25	8.63	0.58	12.84
8/18/2024 13:40	16.77	22.84	0.01	7.23	356.09	8.6	0.57	12.69
8/18/2024 13:30	16.77	22.74	0.01	7.27	356.09	8.6	0.57	12.79
8/18/2024 13:20	16.76	22.86	0.01	7.24	355.86	8.61	0.57	12.76
8/18/2024 13:10	16.74	22.79	0.01	7.27	355.6	8.61	0.56	12.74
8/18/2024 13:00	16.73	22.89	0.01	7.26	356.46	8.55	0.59	12.69
8/18/2024 12:50	16.73	22.81	0.01	7.26	355.88	8.59	0.59	12.67
8/18/2024 12:40	16.73	22.84	0.01	7.23	355.17	8.55	0.57	12.6
8/18/2024 12:30	16.73	22.55	0.01	7.26	355.41	8.59	0.59	12.55
8/18/2024 12:20	16.72	22.58	0.01	7.22	355.68	8.58	0.65	12.67
8/18/2024 12:10	16.7	22.49	0.01	7.23	357.2	8.55	0.58	12.69
8/18/2024 12:00	16.7	22.63	0.01	7.2	356.82	8.55	0.56	12.55
8/18/2024 11:50	16.71	22.37	0.01	7.29	354.36	8.59	0.6	12.57
8/18/2024 11:40	16.69	22.52	0.01	7.21	357.17	8.6	0.6	12.84
8/18/2024 11:30	16.66	22.38	0.01	7.2	359.99	8.55	0.58	12.5
8/18/2024 11:20	16.67	22.47	0.01	7.18	359.52	8.56	0.56	12.41
8/18/2024 11:10	16.66	22.3	0.01	7.28	357.05	8.55	0.62	12.41
8/18/2024 11:00	16.67	22.45	0.01	7.17	360.63	8.54	0.58	12.33
8/18/2024 10:50	16.66	22.27	0.01	7.25	358.69	8.52	0.57	12.29
8/18/2024 10:40	16.67	22.41	0.01	7.18	360.07	8.54	0.57	12.36
8/18/2024 10:30	16.68	22.26	0.01	7.26	358.71	8.57	0.55	12.53
8/18/2024 10:20	16.69	22.34	0.01	7.21	358.3	8.63	0.55	12.62
8/18/2024 10:10	16.66	22.32	0.01	7.28	357	8.62	0.55	13.29
8/18/2024 10:00	16.64	22.39	0.01	7.2	359.29	8.57	0.55	12.43
8/18/2024 9:50	16.63	22.42	0.01	7.31	355.93	8.55	0.56	12.36
8/18/2024 9:40	16.63	22.51	0.01	7.19	359.64	8.52	0.58	12.36
8/18/2024 9:30	16.63	22.34	0.01	7.24	359.82	8.52	0.57	12.36
8/18/2024 9:20	16.63	22.57	0.01	7.18	359.72	8.52	0.57	12.29

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/18/2024 9:10	16.63	22.47	0.01	7.3	356.15	8.52	0.56	12.29
8/18/2024 9:00	16.63	22.61	0.01	7.18	359.71	8.51	0.6	12.26
8/18/2024 8:50	16.62	22.56	0.01	7.21	359.1	8.48	0.57	12.17
8/18/2024 8:40	16.62	22.63	0.01	7.16	359.79	8.46	0.58	12.12
8/18/2024 8:30	16.62	22.6	0.01	7.23	358.48	8.43	0.56	11.97
8/18/2024 8:20	16.62	22.71	0.01	7.15	358.86	8.42	0.6	12.09
8/18/2024 8:10	16.63	22.5	0.01	7.18	359.62	8.43	0.59	12.07
8/18/2024 8:00	16.63	22.68	0.01	7.16	358.48	8.41	0.59	12.07
8/18/2024 7:50	16.64	22.37	0.01	7.24	356.17	8.41	0.59	12.07
8/18/2024 7:40	16.65	22.49	0.01	7.15	359.94	8.42	0.57	12.07
8/18/2024 7:30	16.65	22.27	0.01	7.22	359.58	8.45	0.56	12.07
8/18/2024 7:20	16.66	22.39	0.01	7.14	361.59	8.44	0.58	11.97
8/18/2024 7:10	16.66	22.42	0.01	7.2	360.23	8.43	0.58	11.88
8/18/2024 7:00	16.67	22.42	0.01	7.15	360.73	8.41	0.55	12.07
8/18/2024 6:50	16.68	22.5	0.01	7.24	358.45	8.42	0.57	12.09
8/18/2024 6:40	16.69	22.49	0.01	7.15	360.25	8.4	0.58	12.09
8/18/2024 6:30	16.7	22.5	0.01	7.21	358.85	8.4	0.56	12.09
8/18/2024 6:20	16.71	22.56	0.01	7.14	360	8.38	0.57	12.09
8/18/2024 6:10	16.73	22.36	0.01	7.21	358.23	8.4	0.56	12
8/18/2024 6:00	16.74	22.58	0.01	7.14	360.11	8.36	0.57	11.97
8/18/2024 5:50	16.75	22.4	0.01	7.18	359.82	8.37	0.59	12
8/18/2024 5:40	16.77	22.58	0.01	7.15	359.91	8.36	0.57	12.02
8/18/2024 5:30	16.79	22.64	0.01	7.16	359.77	8.36	0.59	12.09
8/18/2024 5:20	16.8	22.66	0.01	7.14	359.89	8.35	0.58	12.02
8/18/2024 5:10	16.82	22.54	0.01	7.19	361.17	8.34	0.58	12.02
8/18/2024 5:00	16.83	22.52	0.01	7.14	361.82	8.38	0.57	12.02
8/18/2024 4:50	16.84	22.51	0.01	7.22	363.05	8.39	0.58	12.02
8/18/2024 4:40	16.85	22.57	0.01	7.14	365.22	8.4	0.59	12.05
8/18/2024 4:30	16.86	22.45	0.01	7.25	363.22	8.38	0.58	12.14
8/18/2024 4:20	16.87	22.54	0.01	7.13	365.57	8.38	0.57	12.17
8/18/2024 4:10	16.89	22.48	0.01	7.2	364.81	8.38	0.56	12.17
8/18/2024 4:00	16.9	22.57	0.01	7.13	366.25	8.37	0.58	12.17
8/18/2024 3:50	16.91	22.44	0.01	7.19	365.84	8.37	0.58	12.17
8/18/2024 3:40	16.92	22.58	0.01	7.12	367.89	8.35	0.6	12.17
8/18/2024 3:30	16.93	22.52	0.01	7.18	366.88	8.37	0.58	12.17
8/18/2024 3:20	16.94	22.51	0.01	7.12	367.51	8.36	0.59	12.19
8/18/2024 3:10	16.95	22.38	0.01	7.18	366.9	8.37	0.59	12.19
8/18/2024 3:00	16.96	22.51	0.01	7.13	367.68	8.38	0.58	12.19
8/18/2024 2:50	16.96	22.15	0.01	7.14	368.19	8.37	0.6	12.19
8/18/2024 2:40	16.97	22.48	0.01	7.15	367.03	8.37	0.56	12.17
8/18/2024 2:30	16.98	22.41	0.01	7.14	368.65	8.37	0.57	12.09
8/18/2024 2:20	16.98	22.55	0.01	7.15	367.71	8.37	0.58	12.17
8/18/2024 2:10	16.99	22.3	0.01	7.17	368.46	8.35	0.59	12.17
8/18/2024 2:00	16.99	22.6	0.01	7.14	368.63	8.36	0.59	12.19
8/18/2024 1:50	17	22.41	0.01	7.17	368	8.34	0.57	12.12
8/18/2024 1:40	17	22.59	0.01	7.15	368.45	8.34	0.6	12.21
8/18/2024 1:30	17	22.46	0.01	7.2	366.49	8.33	0.57	12.21

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/18/2024 1:20	17	22.56	0.01	7.13	369.4	8.34	0.58	12.21
8/18/2024 1:10	17	22.53	0.01	7.15	369.04	8.32	0.6	12.19
8/18/2024 1:00	17	22.6	0.01	7.14	369.46	8.33	0.59	12.19
8/18/2024 0:50	16.99	22.49	0.01	7.17	368.64	8.34	0.59	12.21
8/18/2024 0:40	16.99	22.6	0.01	7.13	369.47	8.33	0.57	12.21
8/18/2024 0:30	16.98	22.58	0.01	7.17	368.13	8.31	0.59	12.21
8/18/2024 0:20	16.97	22.67	0.01	7.13	370.13	8.31	0.57	12.21
8/18/2024 0:10	16.97	22.62	0.01	7.12	370.9	8.29	0.58	12.21
8/18/2024 0:00	16.98	22.72	0.01	7.11	371.24	8.29	0.6	12.21
8/17/2024 23:50	16.99	22.74	0.01	7.13	370.7	8.3	0.59	12.21
8/17/2024 23:40	17.01	22.7	0.01	7.11	372.55	8.29	0.58	12.21
8/17/2024 23:30	17.02	22.67	0.01	7.14	371.7	8.29	0.62	12.14
8/17/2024 23:20	17.03	22.74	0.01	7.12	373.65	8.27	0.6	12.24
8/17/2024 23:10	17.05	22.6	0.01	7.1	374.95	8.28	0.6	12.14
8/17/2024 23:00	17.06	22.62	0.01	7.11	373.33	8.26	0.57	12.14
8/17/2024 22:50	17.08	22.59	0.01	7.15	372.98	8.26	0.59	12.24
8/17/2024 22:40	17.1	22.77	0.01	7.11	374.8	8.27	0.58	12.17
8/17/2024 22:30	17.12	22.38	0.01	7.11	375.38	8.26	0.58	12.14
8/17/2024 22:20	17.14	22.77	0.01	7.12	375.27	8.26	0.6	12.24
8/17/2024 22:10	17.17	22.65	0.01	7.13	375.27	8.26	0.59	12.24
8/17/2024 22:00	17.19	22.67	0.01	7.12	375.54	8.24	0.59	12.26
8/17/2024 21:50	17.21	22.69	0.01	7.1	377.78	8.24	0.6	12.26
8/17/2024 21:40	17.23	22.79	0.01	7.12	377.6	8.24	0.59	12.26
8/17/2024 21:30	17.25	22.71	0.01	7.09	379.78	8.26	0.59	12.26
8/17/2024 21:20	17.27	22.79	0.01	7.12	378.63	8.24	0.59	12.26
8/17/2024 21:10	17.29	22.65	0.01	7.12	378.81	8.23	0.59	12.17
8/17/2024 21:00	17.31	22.73	0.01	7.11	379.51	8.23	0.6	12.26
8/17/2024 20:50	17.32	22.68	0.01	7.12	379.85	8.22	0.59	12.26
8/17/2024 20:40	17.34	22.74	0.01	7.12	379.73	8.23	0.61	12.29
8/17/2024 20:30	17.35	22.32	0.01	7.15	378.76	8.22	0.61	12.19
8/17/2024 20:20	17.37	22.73	0.01	7.12	380.87	8.23	0.6	12.29
8/17/2024 20:10	17.38	22.37	0.01	7.17	378.56	8.24	0.61	12.29
8/17/2024 20:00	17.39	22.59	0.01	7.13	380.59	8.23	0.61	12.29
8/17/2024 19:50	17.4	22.39	0.01	7.14	380.33	8.25	0.6	12.21
8/17/2024 19:40	17.41	22.58	0.01	7.13	380.83	8.25	0.61	12.31
8/17/2024 19:30	17.42	22.51	0.01	7.12	381.98	8.26	0.61	12.33
8/17/2024 19:20	17.43	22.53	0.01	7.13	380.31	8.28	0.61	12.38
8/17/2024 19:10	17.44	22.51	0.01	7.18	378.66	8.27	0.62	12.38
8/17/2024 19:00	17.45	22.51	0.01	7.13	380.44	8.29	0.61	12.41
8/17/2024 18:50	17.46	22.52	0.01	7.14	380.42	8.28	0.63	12.43
8/17/2024 18:40	17.49	22.47	0.01	7.14	379.74	8.29	0.61	12.36
8/17/2024 18:30	17.49	22.11	0.01	7.18	377.64	8.3	0.63	12.53
8/17/2024 18:20	17.52	22.49	0.01	7.14	379.19	8.29	0.62	12.57
8/17/2024 18:10	17.54	22.38	0.01	7.17	376.97	8.3	0.63	12.57
8/17/2024 18:00	17.56	22.35	0.01	7.17	376.04	8.31	0.62	12.57
8/17/2024 17:50	17.57	22.28	0.01	7.18	375.75	8.31	0.61	12.45
8/17/2024 17:40	17.58	22.35	0.01	7.18	375.03	8.32	0.6	12.55

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/17/2024 17:30	17.57	22.21	0.01	7.2	373.5	8.32	0.61	12.6
8/17/2024 17:20	17.56	22.19	0.01	7.19	373.77	8.36	0.6	12.45
8/17/2024 17:10	17.54	22.03	0.01	7.23	370.76	8.37	0.63	12.48
8/17/2024 17:00	17.55	22.15	0.01	7.2	372.67	8.38	0.62	12.48
8/17/2024 16:50	17.53	22.06	0.01	7.21	372.4	8.39	0.59	12.6
8/17/2024 16:40	17.54	21.96	0.01	7.22	371.72	8.39	0.62	12.67
8/17/2024 16:30	17.54	21.65	0.01	7.26	369.5	8.42	0.61	13.05
8/17/2024 16:20	17.55	21.98	0.01	7.23	370.74	8.44	0.61	13.2
8/17/2024 16:10	17.53	21.79	0.01	7.25	369.97	8.44	0.62	13.2
8/17/2024 16:00	17.52	21.83	0.01	7.25	369.06	8.47	0.61	13.2
8/17/2024 15:50	17.51	21.79	0.01	7.29	366.43	8.47	0.63	13.22
8/17/2024 15:40	17.51	21.83	0.01	7.25	368.41	8.49	0.59	13.24
8/17/2024 15:30	17.5	21.64	0.01	7.27	367.17	8.51	0.61	12.96
8/17/2024 15:20	17.5	21.79	0.01	7.26	366.84	8.53	0.63	12.98
8/17/2024 15:10	17.47	21.61	0.01	7.33	362.43	8.54	0.6	13.2
8/17/2024 15:00	17.45	21.77	0.01	7.27	365.48	8.55	0.6	13.32
8/17/2024 14:50	17.41	21.66	0.01	7.29	363.54	8.57	0.62	13.24
8/17/2024 14:40	17.37	21.74	0.01	7.28	363.41	8.58	0.6	13.05
8/17/2024 14:30	17.32	21.63	0.01	7.34	359.44	8.6	0.61	13.12
8/17/2024 14:20	17.28	21.67	0.01	7.28	361.75	8.63	0.6	13.2
8/17/2024 14:10	17.19	21.64	0.01	7.32	359.04	8.66	0.6	13.27
8/17/2024 14:00	17.11	21.66	0.01	7.27	360.69	8.66	0.59	13.27
8/17/2024 13:50	17.04	21.6	0.01	7.37	355.02	8.67	0.57	13.29
8/17/2024 13:40	17.03	21.62	0.01	7.28	359.35	8.68	0.58	13.29
8/17/2024 13:30	16.99	21.55	0.01	7.28	358.56	8.71	0.58	13.32
8/17/2024 13:20	16.98	21.69	0.01	7.29	357.93	8.72	0.59	13.22
8/17/2024 13:10	16.95	21.56	0.01	7.32	355.39	8.73	0.56	13.34
8/17/2024 13:00	16.95	21.74	0.01	7.29	357.01	8.74	0.56	13.36
8/17/2024 12:50	16.92	21.65	0.01	7.31	355.82	8.75	0.56	13.27
8/17/2024 12:40	16.9	21.63	0.01	7.29	356.18	8.79	0.56	13.39
8/17/2024 12:30	16.9	21.63	0.01	7.31	354.34	8.79	0.56	13.39
8/17/2024 12:20	16.91	21.72	0.01	7.29	355.46	8.8	0.59	13.27
8/17/2024 12:10	16.93	21.72	0.01	7.27	356.13	8.79	0.57	13.27
8/17/2024 12:00	16.93	21.69	0.01	7.3	354.95	8.8	0.6	13.39
8/17/2024 11:50	16.92	21.69	0.01	7.29	354.51	8.84	0.58	13.39
8/17/2024 11:40	16.92	21.66	0.01	7.31	353.56	8.84	0.56	13.39
8/17/2024 11:30	16.87	21.59	0.01	7.32	352.75	8.85	0.56	13.39
8/17/2024 11:20	16.78	21.6	0.01	7.3	353.81	8.87	0.58	13.39
8/17/2024 11:10	16.65	21.48	0.01	7.33	351.84	8.86	0.55	13.41
8/17/2024 11:00	16.5	21.6	0.01	7.29	354.29	8.89	0.55	13.41
8/17/2024 10:50	16.35	21.5	0.01	7.31	352.31	8.9	0.54	13.41
8/17/2024 10:40	16.2	21.48	0.01	7.26	355.31	8.9	0.53	13.34
8/17/2024 10:30	16.05	21.42	0.01	7.24	355.76	8.89	0.53	13.36
8/17/2024 10:20	15.92	21.6	0.01	7.23	356.32	8.88	0.55	13.46
8/17/2024 10:10	15.82	21.5	0.01	7.27	353.56	8.87	0.55	13.48
8/17/2024 10:00	15.76	21.56	0.01	7.22	355.78	8.86	0.5	13.51
8/17/2024 9:50	15.71	21.35	0.01	7.24	353.76	8.86	0.52	13.51

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/17/2024 9:40	15.68	21.5	0.01	7.21	355.89	8.84	0.51	13.15
8/17/2024 9:30	15.64	21.54	0.01	7.2	355.09	8.86	0.5	12.93
8/17/2024 9:20	15.62	21.63	0.01	7.21	354.72	8.86	0.51	12.84
8/17/2024 9:10	15.59	21.46	0.01	7.25	351.32	8.84	0.52	12.76
8/17/2024 9:00	15.56	21.63	0.01	7.2	353.99	8.83	0.51	12.55
8/17/2024 8:50	15.54	21.44	0.01	7.22	352.13	8.83	0.53	12.5
8/17/2024 8:40	15.53	21.61	0.01	7.2	354.06	8.82	0.49	12.6
8/17/2024 8:30	15.51	21.45	0.01	7.18	353.79	8.82	0.5	12.5
8/17/2024 8:20	15.5	21.65	0.01	7.18	354.17	8.79	0.5	12.45
8/17/2024 8:10	15.48	21.62	0.01	7.2	352.48	8.79	0.5	12.41
8/17/2024 8:00	15.48	21.75	0.01	7.18	353.94	8.79	0.47	12.43
8/17/2024 7:50	15.48	21.55	0.01	7.19	352.13	8.77	0.5	12.36
8/17/2024 7:40	15.47	21.75	0.01	7.17	353.11	8.76	0.5	12.31
8/17/2024 7:30	15.47	21.68	0.01	7.19	350.07	8.77	0.51	12.24
8/17/2024 7:20	15.47	21.82	0.01	7.16	351.72	8.76	0.61	12.19
8/17/2024 7:10	15.47	21.65	0.01	7.15	349.78	8.74	0.5	12.05
8/17/2024 7:00	15.48	21.85	0.01	7.16	349.06	8.74	0.49	12
8/17/2024 6:50	15.49	21.7	0.01	7.15	355.81	8.71	0.51	12.07
8/17/2024 6:40	15.5	21.92	0.01	7.15	356.88	8.7	0.48	12.07
8/17/2024 6:30	15.51	21.87	0.01	7.11	357.82	8.7	0.5	12
8/17/2024 6:20	15.53	21.94	0.01	7.15	357.4	8.7	0.52	11.97
8/17/2024 6:10	15.56	21.75	0.01	7.12	357.92	8.66	0.61	12.07
8/17/2024 6:00	15.58	21.95	0.01	7.14	357.91	8.68	0.52	12.07
8/17/2024 5:50	15.6	21.76	0.01	7.13	357.57	8.68	0.6	11.97
8/17/2024 5:40	15.62	21.95	0.01	7.15	358.75	8.66	0.52	11.95
8/17/2024 5:30	15.64	21.93	0.01	7.15	357.81	8.66	0.51	11.95
8/17/2024 5:20	15.65	22.02	0.01	7.15	356.93	8.66	0.51	11.95
8/17/2024 5:10	15.67	21.89	0.01	7.14	356.13	8.65	0.51	12.07
8/17/2024 5:00	15.68	21.99	0.01	7.14	356.77	8.67	0.5	12.07
8/17/2024 4:50	15.69	21.98	0.01	7.12	357.38	8.65	0.52	12.07
8/17/2024 4:40	15.71	22	0.01	7.14	357.56	8.65	0.51	12
8/17/2024 4:30	15.73	21.79	0.01	7.13	356.88	8.64	0.52	12.07
8/17/2024 4:20	15.75	22.02	0.01	7.15	357.02	8.64	0.51	12.07
8/17/2024 4:10	15.77	21.79	0.01	7.14	356.41	8.63	0.54	12.07
8/17/2024 4:00	15.79	22.02	0.01	7.14	356.86	8.62	0.54	12
8/17/2024 3:50	15.81	21.82	0.01	7.14	356.28	8.64	0.51	12.07
8/17/2024 3:40	15.84	22.04	0.01	7.14	356.4	8.64	0.53	12.09
8/17/2024 3:30	15.87	21.99	0.01	7.12	357.58	8.6	0.54	12.09
8/17/2024 3:20	15.89	22.05	0.01	7.15	357.12	8.61	0.54	12.09
8/17/2024 3:10	15.91	21.84	0.01	7.12	357.97	8.61	0.53	12.09
8/17/2024 3:00	15.93	22.05	0.01	7.15	358.23	8.6	0.55	12
8/17/2024 2:50	15.95	21.88	0.01	7.12	359.54	8.6	0.52	12.12
8/17/2024 2:40	15.97	22.04	0.01	7.14	360.6	8.61	0.52	12.05
8/17/2024 2:30	15.98	22.04	0.01	7.14	360.56	8.61	0.49	12.12
8/17/2024 2:20	15.99	22.09	0.01	7.14	360.74	8.58	0.52	12.12
8/17/2024 2:10	16	21.92	0.01	7.18	358.22	8.58	0.51	12.05
8/17/2024 2:00	16.02	22.11	0.01	7.14	361.63	8.57	0.51	12.12

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/17/2024 1:50	16.03	21.91	0.01	7.18	359.43	8.59	0.62	12.02
8/17/2024 1:40	16.05	22.16	0.01	7.14	361.6	8.57	0.55	12.02
8/17/2024 1:30	16.07	22.01	0.01	7.19	358.68	8.58	0.53	12.14
8/17/2024 1:20	16.09	22.12	0.01	7.14	362.88	8.57	0.54	12.14
8/17/2024 1:10	16.11	22.12	0.01	7.15	362.26	8.56	0.53	12.07
8/17/2024 1:00	16.13	22.23	0.01	7.14	361.92	8.57	0.54	12.17
8/17/2024 0:50	16.16	22.1	0.01	7.15	360.92	8.55	0.54	12.07
8/17/2024 0:40	16.18	22.25	0.01	7.14	361.53	8.54	0.55	12.07
8/17/2024 0:30	16.2	22.18	0.01	7.22	357.33	8.54	0.54	12.07
8/17/2024 0:20	16.23	22.26	0.01	7.14	362.57	8.55	0.54	12.07
8/17/2024 0:10	16.25	22.14	0.01	7.14	362.14	8.53	0.53	12.19
8/17/2024 0:00	16.27	22.31	0.01	7.14	362.26	8.52	0.53	12.19
8/16/2024 23:50	16.28	22.24	0.01	7.14	362.64	8.54	0.55	12.19
8/16/2024 23:40	16.31	22.32	0.01	7.15	363.4	8.51	0.54	12.19
8/16/2024 23:30	16.33	22.15	0.01	7.15	363.78	8.52	0.56	12.21
8/16/2024 23:20	16.36	22.35	0.01	7.14	365.17	8.51	0.84	12.21
8/16/2024 23:10	16.38	22.4	0.01	7.19	363.66	8.5	0.56	12.21
8/16/2024 23:00	16.4	22.43	0.01	7.14	366.74	8.51	0.55	12.21
8/16/2024 22:50	16.42	22.43	0.01	7.17	366.97	8.5	0.55	12.21
8/16/2024 22:40	16.45	22.45	0.01	7.14	367.47	8.49	0.56	12.21
8/16/2024 22:30	16.47	22.3	0.01	7.21	366.45	8.48	0.54	12.12
8/16/2024 22:20	16.49	22.48	0.01	7.13	369.33	8.47	0.57	12.14
8/16/2024 22:10	16.5	22.43	0.01	7.19	370.06	8.48	0.55	12.21
8/16/2024 22:00	16.52	22.52	0.01	7.14	370.98	8.48	0.57	12.21
8/16/2024 21:50	16.54	22.45	0.01	7.2	371.71	8.47	0.57	12.12
8/16/2024 21:40	16.56	22.56	0.01	7.13	373.21	8.46	0.56	12.12
8/16/2024 21:30	16.58	22.5	0.01	7.18	372.73	8.46	0.56	12.14
8/16/2024 21:20	16.61	22.58	0.01	7.13	375.69	8.46	0.56	12.24
8/16/2024 21:10	16.62	22.52	0.01	7.24	372.86	8.46	0.53	12.24
8/16/2024 21:00	16.65	22.54	0.01	7.13	376.91	8.43	0.54	12.24
8/16/2024 20:50	16.66	22.46	0.01	7.2	373.72	8.45	0.58	12.14
8/16/2024 20:40	16.68	22.52	0.01	7.14	376.78	8.46	0.55	12.24
8/16/2024 20:30	16.69	22.28	0.01	7.16	376.23	8.44	0.56	12.24
8/16/2024 20:20	16.71	22.5	0.01	7.14	377.39	8.45	0.58	12.26
8/16/2024 20:10	16.73	22.36	0.01	7.22	373.57	8.45	0.56	12.29
8/16/2024 20:00	16.75	22.44	0.01	7.15	377.59	8.45	0.57	12.29
8/16/2024 19:50	16.76	22.33	0.01	7.21	374.24	8.45	0.57	12.29
8/16/2024 19:40	16.78	22.34	0.01	7.15	377.12	8.46	0.57	12.31
8/16/2024 19:30	16.8	22.23	0.01	7.19	375.85	8.47	0.59	12.31
8/16/2024 19:20	16.82	22.29	0.01	7.16	377.63	8.49	0.58	12.26
8/16/2024 19:10	16.83	22.17	0.01	7.23	374.2	8.49	0.57	12.41
8/16/2024 19:00	16.85	22.12	0.01	7.16	377.47	8.49	0.55	12.41
8/16/2024 18:50	16.86	22.05	0.01	7.15	378.91	8.52	0.57	12.41
8/16/2024 18:40	16.88	22.09	0.01	7.17	377.11	8.51	0.57	12.29
8/16/2024 18:30	16.88	22.04	0.01	7.21	375.57	8.51	0.59	12.38
8/16/2024 18:20	16.9	22.1	0.01	7.17	377.41	8.51	0.58	12.38
8/16/2024 18:10	16.9	21.9	0.01	7.23	374.96	8.52	0.56	12.31

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/16/2024 18:00	16.92	21.98	0.01	7.2	376.15	8.54	0.59	12.31
8/16/2024 17:50	16.92	21.84	0.01	7.28	371.7	8.56	0.58	12.38
8/16/2024 17:40	16.94	21.83	0.01	7.22	374.78	8.58	0.6	12.55
8/16/2024 17:30	16.95	21.65	0.01	7.26	373.1	8.58	0.59	12.65
8/16/2024 17:20	16.96	21.75	0.01	7.24	374.2	8.59	0.59	12.62
8/16/2024 17:10	16.97	21.64	0.01	7.27	372.88	8.63	0.57	12.93
8/16/2024 17:00	16.97	21.72	0.01	7.25	373.42	8.63	0.62	13.34
8/16/2024 16:50	16.96	21.64	0.01	7.32	370.14	8.64	0.59	13.2
8/16/2024 16:40	16.96	21.62	0.01	7.26	373.27	8.67	0.58	13.48
8/16/2024 16:30	16.96	21.6	0.01	7.33	369.41	8.69	0.57	13.39
8/16/2024 16:20	16.95	21.61	0.01	7.28	371.94	8.73	0.58	13.44
8/16/2024 16:10	16.91	21.45	0.01	7.31	370.78	8.7	0.59	13.44
8/16/2024 16:00	16.88	21.66	0.01	7.29	372.09	8.73	0.59	13.46
8/16/2024 15:50	16.85	21.47	0.01	7.25	373.87	8.73	0.57	13.46
8/16/2024 15:40	16.83	21.47	0.01	7.27	371.91	8.73	0.57	13.27
8/16/2024 15:30	16.82	21.46	0.01	7.29	370.02	8.73	0.57	13.46
8/16/2024 15:20	16.81	21.58	0.01	7.29	369.87	8.75	0.59	13.24
8/16/2024 15:10	16.82	21.55	0.01	7.31	368.48	8.76	0.58	13.44
8/16/2024 15:00	16.83	21.61	0.01	7.29	368.82	8.77	0.58	13.44
8/16/2024 14:50	16.82	21.55	0.01	7.3	369.13	8.76	0.56	13.34
8/16/2024 14:40	16.8	21.6	0.01	7.3	368.3	8.78	0.58	13.46
8/16/2024 14:30	16.74	21.6	0.01	7.3	369.29	8.82	0.56	13.48
8/16/2024 14:20	16.66	21.53	0.01	7.29	369.26	8.81	0.55	13.46
8/16/2024 14:10	16.62	21.41	0.01	7.37	365.39	8.83	0.57	13.48
8/16/2024 14:00	16.58	21.49	0.01	7.29	370.06	8.82	0.58	13.51
8/16/2024 13:50	16.53	21.49	0.01	7.33	368.83	8.82	0.55	13.48
8/16/2024 13:40	16.5	21.62	0.01	7.27	372.01	8.81	0.55	13.51
8/16/2024 13:30	16.48	21.61	0.01	7.33	369.31	8.8	0.53	13.53
8/16/2024 13:20	16.45	21.71	0.01	7.27	371.93	8.82	0.58	13.53
8/16/2024 13:10	16.42	21.66	0.01	7.3	370.78	8.81	0.55	13.53
8/16/2024 13:00	16.39	21.62	0.01	7.25	373.26	8.78	0.55	13.56
8/16/2024 12:50	16.38	21.78	0.01	7.27	373.12	8.76	0.53	13.27
8/16/2024 12:40	16.37	21.76	0.01	7.23	374.09	8.75	0.55	13.17
8/16/2024 12:30	16.36	21.76	0.01	7.28	373.04	8.73	0.58	13.15
8/16/2024 12:20	16.36	21.75	0.01	7.24	374.2	8.76	0.54	12.98
8/16/2024 12:10	16.36	21.64	0.01	7.22	375.12	8.75	0.57	13.03
8/16/2024 12:00	16.36	21.62	0.01	7.24	374.23	8.78	0.55	12.93
8/16/2024 11:50	16.36	21.7	0.01	7.31	371.52	8.77	0.54	12.79
8/16/2024 11:40	16.35	21.82	0.01	7.23	375.43	8.77	0.56	12.91
8/16/2024 11:30	16.33	21.84	0.01	7.24	375.65	8.77	0.53	12.86
8/16/2024 11:20	16.32	21.8	0.01	7.23	375.81	8.73	0.56	13
8/16/2024 11:10	16.32	21.75	0.01	7.24	375.71	8.74	0.56	12.81
8/16/2024 11:00	16.32	21.81	0.01	7.22	376.7	8.73	0.55	13
8/16/2024 10:50	16.32	21.79	0.01	7.26	374.83	8.74	0.55	12.96
8/16/2024 10:40	16.32	21.83	0.01	7.22	376.64	8.73	0.53	12.96
8/16/2024 10:30	16.31	21.84	0.01	7.26	374.26	8.76	0.54	12.79
8/16/2024 10:20	16.32	21.77	0.01	7.22	375.71	8.76	0.55	12.98

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/16/2024 10:10	16.32	21.82	0.01	7.24	375.89	8.76	0.53	13.08
8/16/2024 10:00	16.32	21.73	0.01	7.2	375.8	8.8	0.53	13.27
8/16/2024 9:50	16.29	21.89	0.01	7.25	375.58	8.79	0.55	13.24
8/16/2024 9:40	16.28	21.82	0.01	7.24	376.67	8.79	0.55	13.24
8/16/2024 9:30	16.27	21.76	0.01	7.25	377.19	8.79	0.54	13.17
8/16/2024 9:20	16.25	21.85	0.01	7.22	378.01	8.78	0.54	13.08
8/16/2024 9:10	16.23	21.86	0.01	7.22	378.77	8.78	0.54	12.91
8/16/2024 9:00	16.21	21.85	0.01	7.18	379.93	8.77	0.53	12.88
8/16/2024 8:50	16.18	21.88	0.01	7.21	379.79	8.76	0.54	12.84
8/16/2024 8:40	16.16	21.85	0.01	7.19	380.66	8.76	0.52	12.81
8/16/2024 8:30	16.14	21.86	0.01	7.2	381.61	8.73	0.52	12.62
8/16/2024 8:20	16.13	21.93	0.01	7.19	382.39	8.73	0.55	12.6
8/16/2024 8:10	16.12	21.98	0.01	7.2	382.3	8.7	0.53	12.5
8/16/2024 8:00	16.1	22.14	0.01	7.15	384.52	8.68	0.55	12.31
8/16/2024 7:50	16.09	22	0.01	7.2	384.05	8.65	0.54	12.26
8/16/2024 7:40	16.08	22.15	0.01	7.14	386.39	8.65	0.53	12.21
8/16/2024 7:30	16.08	22.13	0.01	7.18	385.05	8.63	0.54	12.19
8/16/2024 7:20	16.08	22.23	0.01	7.13	386.11	8.62	0.53	12.17
8/16/2024 7:10	16.08	22.32	0.01	7.17	385.6	8.61	0.54	12.17
8/16/2024 7:00	16.08	22.22	0.01	7.12	387.04	8.6	0.54	12.14
8/16/2024 6:50	16.08	22.12	0.01	7.14	387.74	8.59	0.53	12.12
8/16/2024 6:40	16.09	22.29	0.01	7.12	387.59	8.58	0.55	12.12
8/16/2024 6:30	16.1	22.16	0.01	7.12	390.04	8.57	0.53	12
8/16/2024 6:20	16.12	22.26	0.01	7.12	388.38	8.56	0.61	12
8/16/2024 6:10	16.13	22.27	0.01	7.13	388.67	8.58	0.5	12.12
8/16/2024 6:00	16.14	22.28	0.01	7.11	388.35	8.55	0.53	12.12
8/16/2024 5:50	16.14	22.24	0.01	7.12	390.4	8.55	0.53	12.02
8/16/2024 5:40	16.15	22.24	0.01	7.11	390.54	8.56	0.55	12.09
8/16/2024 5:30	16.15	22.23	0.01	7.14	388.34	8.55	0.53	12.09
8/16/2024 5:20	16.16	22.29	0.01	7.11	389.92	8.53	0.55	12
8/16/2024 5:10	16.16	22.21	0.01	7.11	390.78	8.56	0.55	12.02
8/16/2024 5:00	16.17	22.14	0.01	7.11	390	8.52	0.54	12.12
8/16/2024 4:50	16.17	22.17	0.01	7.15	388.47	8.52	0.52	12.14
8/16/2024 4:40	16.18	22.23	0.01	7.11	389.52	8.54	0.52	12.14
8/16/2024 4:30	16.19	22.07	0.01	7.13	389.06	8.55	0.54	12.14
8/16/2024 4:20	16.19	22.21	0.01	7.12	389.33	8.55	0.53	12.14
8/16/2024 4:10	16.2	22.12	0.01	7.13	388.65	8.52	0.56	12.14
8/16/2024 4:00	16.2	22.13	0.01	7.12	389.39	8.54	0.52	12.14
8/16/2024 3:50	16.21	22.13	0.01	7.11	390.58	8.53	0.53	12.14
8/16/2024 3:40	16.21	22.16	0.01	7.11	389.34	8.54	0.53	12.14
8/16/2024 3:30	16.22	22.21	0.01	7.13	388.64	8.54	0.55	12.07
8/16/2024 3:20	16.23	22.21	0.01	7.12	388.58	8.52	0.56	12.14
8/16/2024 3:10	16.24	22.18	0.01	7.14	388.67	8.51	0.56	12.17
8/16/2024 3:00	16.25	22.17	0.01	7.12	388.73	8.53	0.54	12.17
8/16/2024 2:50	16.26	22.16	0.01	7.14	389	8.5	0.55	12.17
8/16/2024 2:40	16.27	22.23	0.01	7.12	387.97	8.51	0.54	12.07
8/16/2024 2:30	16.29	22.07	0.01	7.17	386.22	8.54	0.73	12.07

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/16/2024 2:20	16.31	22.26	0.01	7.13	388.98	8.52	0.53	12.09
8/16/2024 2:10	16.32	22.29	0.01	7.13	390.23	8.5	0.54	12.19
8/16/2024 2:00	16.35	22.27	0.01	7.13	388.72	8.51	0.55	12.19
8/16/2024 1:50	16.36	22.33	0.01	7.2	385.06	8.5	0.57	12.19
8/16/2024 1:40	16.38	22.25	0.01	7.13	388.63	8.49	0.54	12.19
8/16/2024 1:30	16.4	22.4	0.01	7.16	387.68	8.5	0.53	12.09
8/16/2024 1:20	16.42	22.28	0.01	7.13	389.09	8.5	0.56	12.07
8/16/2024 1:10	16.44	22.49	0.01	7.13	389.65	8.48	0.55	12.19
8/16/2024 1:00	16.47	22.35	0.01	7.1	389.28	8.49	0.55	12.21
8/16/2024 0:50	16.49	22.29	0.01	7.2	385.81	8.48	0.54	12.21
8/16/2024 0:40	16.51	22.48	0.01	7.13	389.48	8.49	0.59	12.12
8/16/2024 0:30	16.53	22.48	0.01	7.2	386.28	8.47	0.55	12.21
8/16/2024 0:20	16.55	22.48	0.01	7.13	389.82	8.47	0.56	12.21
8/16/2024 0:10	16.57	22.51	0.01	7.16	389.02	8.46	0.54	12.12
8/16/2024 0:00	16.59	22.5	0.01	7.13	388.98	8.44	0.57	12.12
8/15/2024 23:50	16.61	22.65	0.01	7.14	389.08	8.43	0.56	12.12
8/15/2024 23:40	16.63	22.57	0.01	7.13	388.68	8.45	0.73	12.12
8/15/2024 23:30	16.65	22.63	0.01	7.13	390.06	8.43	0.55	12.14
8/15/2024 23:20	16.67	22.61	0.01	7.13	389.2	8.43	0.56	12.24
8/15/2024 23:10	16.68	22.55	0.01	7.14	389.82	8.42	0.58	12.24
8/15/2024 23:00	16.7	22.54	0.01	7.13	388.93	8.45	0.57	12.14
8/15/2024 22:50	16.72	22.69	0.01	7.19	386.43	8.41	0.59	12.24
8/15/2024 22:40	16.74	22.72	0.01	7.12	389.27	8.42	0.58	12.24
8/15/2024 22:30	16.75	22.85	0.01	7.15	388.58	8.42	0.57	12.24
8/15/2024 22:20	16.77	22.72	0.01	7.12	388.93	8.44	0.56	12.26
8/15/2024 22:10	16.78	22.76	0.01	7.16	388.24	8.4	0.55	12.26
8/15/2024 22:00	16.8	22.64	0.01	7.12	388.82	8.41	0.56	12.24
8/15/2024 21:50	16.81	22.81	0.01	7.18	386.33	8.39	0.57	12.26
8/15/2024 21:40	16.82	22.71	0.01	7.12	388.89	8.39	0.57	12.12
8/15/2024 21:30	16.83	22.73	0.01	7.14	387.31	8.4	0.58	12.14
8/15/2024 21:20	16.85	22.66	0.01	7.12	387.89	8.4	0.58	12.26
8/15/2024 21:10	16.86	22.6	0.01	7.2	384.36	8.39	0.6	12.26
8/15/2024 21:00	16.87	22.69	0.01	7.13	387.39	8.39	0.59	12.26
8/15/2024 20:50	16.88	22.68	0.01	7.19	384.27	8.4	0.58	12.26
8/15/2024 20:40	16.9	22.64	0.01	7.11	387.22	8.4	0.59	12.29
8/15/2024 20:30	16.91	22.5	0.01	7.21	382.16	8.41	0.59	12.29
8/15/2024 20:20	16.93	22.69	0.01	7.13	386.72	8.38	0.59	12.19
8/15/2024 20:10	16.94	22.59	0.01	7.18	382.77	8.42	0.56	12.19
8/15/2024 20:00	16.95	22.55	0.01	7.13	384.96	8.41	0.58	12.21
8/15/2024 19:50	16.96	22.54	0.01	7.12	384.7	8.44	0.57	12.38
8/15/2024 19:40	16.97	22.48	0.01	7.14	382.97	8.43	0.59	12.41
8/15/2024 19:30	16.99	22.41	0.01	7.15	383.52	8.42	0.61	12.45
8/15/2024 19:20	17	22.36	0.01	7.13	382.13	8.45	0.59	12.5
8/15/2024 19:10	17.01	22.46	0.01	7.16	382.67	8.42	0.59	12.55
8/15/2024 19:00	17.03	22.38	0.01	7.14	381.83	8.44	0.61	12.53
8/15/2024 18:50	17.03	22.29	0.01	7.15	382.51	8.44	0.56	12.55
8/15/2024 18:40	17.04	22.29	0.01	7.15	381.94	8.45	0.61	12.55

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/15/2024 18:30	17.05	22.11	0.01	7.18	381.09	8.46	0.6	12.5
8/15/2024 18:20	17.07	22.22	0.01	7.17	381.48	8.45	0.6	12.48
8/15/2024 18:10	17.08	22.16	0.01	7.22	379.51	8.48	0.58	12.43
8/15/2024 18:00	17.1	22.11	0.01	7.2	380.38	8.5	0.59	12.57
8/15/2024 17:50	17.12	22.21	0.01	7.21	379.8	8.52	0.6	12.6
8/15/2024 17:40	17.14	22.1	0.01	7.22	378.39	8.54	0.58	12.6
8/15/2024 17:30	17.13	22.06	0.01	7.22	379.03	8.54	0.59	12.72
8/15/2024 17:20	17.13	21.91	0.01	7.23	377.78	8.57	0.6	12.53
8/15/2024 17:10	17.13	21.94	0.01	7.26	376.97	8.58	0.6	12.88
8/15/2024 17:00	17.11	21.82	0.01	7.25	376.79	8.61	0.58	12.91
8/15/2024 16:50	17.1	21.95	0.01	7.28	375.8	8.61	0.61	12.98
8/15/2024 16:40	17.1	21.87	0.01	7.26	376.72	8.62	0.59	13.1
8/15/2024 16:30	17.1	21.92	0.01	7.25	378.07	8.65	0.58	13.48
8/15/2024 16:20	17.08	21.84	0.01	7.27	375.25	8.65	0.59	13.41
8/15/2024 16:10	17.05	21.78	0.01	7.29	374.77	8.64	0.62	13.44
8/15/2024 16:00	17.04	21.93	0.01	7.26	376.27	8.63	0.58	13.46
8/15/2024 15:50	17.03	21.79	0.01	7.31	373.41	8.63	0.57	13.48
8/15/2024 15:40	17.03	21.74	0.01	7.26	375.06	8.67	0.59	13.44
8/15/2024 15:30	17.03	21.8	0.01	7.26	376.64	8.69	0.58	13.44
8/15/2024 15:20	17.02	21.69	0.01	7.27	374.74	8.69	0.57	13.44
8/15/2024 15:10	16.98	21.68	0.01	7.29	374.95	8.7	0.59	13.44
8/15/2024 15:00	16.96	21.77	0.01	7.27	375.2	8.71	0.58	13.44
8/15/2024 14:50	16.96	21.74	0.01	7.28	375.68	8.72	0.57	13.24
8/15/2024 14:40	16.92	21.72	0.01	7.27	375.71	8.74	0.6	13.24
8/15/2024 14:30	16.9	21.74	0.01	7.28	376.06	8.73	0.58	13.46
8/15/2024 14:20	16.87	21.72	0.01	7.27	375.25	8.74	0.63	13.36
8/15/2024 14:10	16.86	21.73	0.01	7.33	373.22	8.75	0.57	13.46
8/15/2024 14:00	16.84	21.75	0.01	7.27	375.3	8.76	0.57	13.46
8/15/2024 13:50	16.83	21.46	0.01	7.3	375.64	8.76	0.58	13.34
8/15/2024 13:40	16.81	21.67	0.01	7.28	374.86	8.8	0.56	13.46
8/15/2024 13:30	16.76	21.49	0.01	7.31	375.57	8.78	0.59	13.48
8/15/2024 13:20	16.7	21.68	0.01	7.26	376.64	8.78	0.58	13.36
8/15/2024 13:10	16.65	21.6	0.01	7.31	375	8.75	0.57	13.36
8/15/2024 13:00	16.64	21.72	0.01	7.25	377.63	8.74	0.57	13.51
8/15/2024 12:50	16.63	21.59	0.01	7.29	376.69	8.76	0.57	13.48
8/15/2024 12:40	16.62	21.61	0.01	7.26	377.14	8.77	0.54	13.48
8/15/2024 12:30	16.62	21.62	0.01	7.27	378	8.77	0.57	13.48
8/15/2024 12:20	16.61	21.48	0.01	7.26	376.61	8.8	0.55	13.39
8/15/2024 12:10	16.6	21.74	0.01	7.29	376.07	8.79	0.54	13.48
8/15/2024 12:00	16.59	21.58	0.01	7.26	376.57	8.82	0.56	13.48
8/15/2024 11:50	16.57	21.7	0.01	7.3	376.8	8.84	0.55	13.48
8/15/2024 11:40	16.54	21.57	0.01	7.27	376.37	8.82	0.59	13.48
8/15/2024 11:30	16.53	21.68	0.01	7.28	375.79	8.83	0.55	13.46
8/15/2024 11:20	16.55	21.6	0.01	7.28	375.64	8.86	0.57	13.46
8/15/2024 11:10	16.56	21.64	0.01	7.29	376.08	8.86	0.59	13.34
8/15/2024 11:00	16.57	21.56	0.01	7.28	374.05	8.9	0.55	13.46
8/15/2024 10:50	16.44	21.64	0.01	7.27	376.29	8.88	0.54	13.44

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/15/2024 10:40	16.42	21.67	0.01	7.27	375.69	8.89	0.54	13.46
8/15/2024 10:30	16.37	21.55	0.01	7.29	375.7	8.86	0.56	13.48
8/15/2024 10:20	16.22	21.81	0.01	7.25	377.98	8.86	0.53	13.48
8/15/2024 10:10	16.15	21.67	0.01	7.24	378.55	8.86	0.51	13.51
8/15/2024 10:00	16.1	21.72	0.01	7.23	378.68	8.88	0.54	13.48
8/15/2024 9:50	16.07	21.71	0.01	7.22	380.11	8.86	0.51	13.51
8/15/2024 9:40	16.05	21.61	0.01	7.2	379.43	8.83	0.52	13.2
8/15/2024 9:30	16.01	21.79	0.01	7.22	379.47	8.82	0.55	13.29
8/15/2024 9:20	15.97	21.79	0.01	7.18	380.44	8.79	0.53	12.93
8/15/2024 9:10	15.94	21.65	0.01	7.21	380.2	8.79	0.52	12.84
8/15/2024 9:00	15.93	21.72	0.01	7.19	380.17	8.8	0.52	12.74
8/15/2024 8:50	15.9	21.68	0.01	7.24	378.11	8.78	0.55	12.74
8/15/2024 8:40	15.89	21.78	0.01	7.18	380.95	8.78	0.56	12.55
8/15/2024 8:30	15.87	21.58	0.01	7.24	378.49	8.76	0.53	12.5
8/15/2024 8:20	15.86	21.85	0.01	7.17	381.6	8.75	0.55	12.48
8/15/2024 8:10	15.85	21.76	0.01	7.17	382.02	8.7	0.51	12.36
8/15/2024 8:00	15.85	21.93	0.01	7.15	382.87	8.69	0.54	12.31
8/15/2024 7:50	15.86	21.86	0.01	7.22	379.64	8.7	0.52	12.29
8/15/2024 7:40	15.86	21.86	0.01	7.16	382.8	8.69	0.53	12.19
8/15/2024 7:30	15.86	21.74	0.01	7.21	380.56	8.7	0.54	12.14
8/15/2024 7:20	15.86	22.02	0.01	7.12	384.3	8.67	0.53	12.17
8/15/2024 7:10	15.87	21.92	0.01	7.19	382.56	8.66	0.56	12.14
8/15/2024 7:00	15.88	22	0.01	7.14	383.89	8.66	0.51	12.14
8/15/2024 6:50	15.89	21.93	0.01	7.16	383.37	8.63	0.54	12.12
8/15/2024 6:40	15.9	22.03	0.01	7.13	384.29	8.64	0.52	12.17
8/15/2024 6:30	15.91	21.89	0.01	7.17	382.46	8.63	0.53	12.17
8/15/2024 6:20	15.93	22.02	0.01	7.13	384.2	8.62	0.53	12.14
8/15/2024 6:10	15.94	21.9	0.01	7.16	383.64	8.61	0.5	12.05
8/15/2024 6:00	15.96	22.01	0.01	7.14	384.9	8.59	0.52	12.05
8/15/2024 5:50	15.98	21.97	0.01	7.16	384.41	8.62	0.52	12.07
8/15/2024 5:40	16	22.16	0.01	7.12	383.59	8.6	0.54	12.17
8/15/2024 5:30	16.01	21.92	0.01	7.2	380.99	8.6	0.52	12.17
8/15/2024 5:20	16.03	22.02	0.01	7.14	384.02	8.6	0.52	12.05
8/15/2024 5:10	16.05	22.19	0.01	7.12	385.19	8.58	0.54	12.17
8/15/2024 5:00	16.07	22.02	0.01	7.13	383.5	8.59	0.53	12.17
8/15/2024 4:50	16.09	22.03	0.01	7.19	381.46	8.58	0.55	12.07
8/15/2024 4:40	16.11	22.06	0.01	7.13	384.16	8.59	0.55	12.07
8/15/2024 4:30	16.12	22.02	0.01	7.18	382.36	8.58	0.53	12.07
8/15/2024 4:20	16.14	22.05	0.01	7.13	383.64	8.58	0.54	12.17
8/15/2024 4:10	16.15	22	0.01	7.14	383.33	8.58	0.53	12.19
8/15/2024 4:00	16.17	22.08	0.01	7.13	383.63	8.57	0.52	12.17
8/15/2024 3:50	16.18	22.14	0.01	7.14	383.46	8.56	0.54	12.19
8/15/2024 3:40	16.2	22.09	0.01	7.13	383.04	8.56	0.53	12.19
8/15/2024 3:30	16.22	22.19	0.01	7.17	381.18	8.56	0.56	12.19
8/15/2024 3:20	16.24	22.11	0.01	7.13	382.44	8.55	0.59	12.19
8/15/2024 3:10	16.26	22.1	0.01	7.18	381.19	8.54	0.51	12.09
8/15/2024 3:00	16.29	22.17	0.01	7.13	382.53	8.53	0.56	12.19

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/15/2024 2:50	16.31	22.19	0.01	7.16	380.76	8.56	0.54	12.19
8/15/2024 2:40	16.33	22.19	0.01	7.13	381.55	8.55	0.54	12.09
8/15/2024 2:30	16.35	22.22	0.01	7.16	380.96	8.53	0.55	12.12
8/15/2024 2:20	16.37	22.19	0.01	7.14	381.3	8.54	0.56	12.09
8/15/2024 2:10	16.39	22.09	0.01	7.15	381.24	8.53	0.56	12.09
8/15/2024 2:00	16.41	22.21	0.01	7.12	381.6	8.53	0.55	12.17
8/15/2024 1:50	16.43	22.26	0.01	7.18	378.88	8.51	0.59	12.09
8/15/2024 1:40	16.45	22.29	0.01	7.13	380.86	8.48	0.57	12.12
8/15/2024 1:30	16.48	22.21	0.01	7.15	380.39	8.5	0.54	12.19
8/15/2024 1:20	16.5	22.22	0.01	7.12	381.67	8.5	0.55	12.21
8/15/2024 1:10	16.52	22.31	0.01	7.14	381.22	8.48	0.59	12.19
8/15/2024 1:00	16.55	22.25	0.01	7.12	381.5	8.48	0.56	12.19
8/15/2024 0:50	16.57	22.33	0.01	7.13	381.61	8.48	0.57	12.12
8/15/2024 0:40	16.59	22.26	0.01	7.13	381.43	8.48	0.53	12.21
8/15/2024 0:30	16.61	22.43	0.01	7.13	381.19	8.48	0.56	12.14
8/15/2024 0:20	16.63	22.3	0.01	7.13	380.69	8.48	0.55	12.21
8/15/2024 0:10	16.65	22.46	0.01	7.14	380.21	8.46	0.55	12.24
8/15/2024 0:00	16.67	22.41	0.01	7.13	379.88	8.46	0.58	12.21
8/14/2024 23:50	16.69	22.47	0.01	7.15	378.39	8.46	0.57	12.14
8/14/2024 23:40	16.71	22.43	0.01	7.12	379.03	8.45	0.58	12.24
8/14/2024 23:30	16.73	22.18	0.01	7.22	375.08	8.45	0.55	12.24
8/14/2024 23:20	16.76	22.47	0.01	7.13	378.81	8.44	0.55	12.24
8/14/2024 23:10	16.78	22.53	0.01	7.18	376.21	8.44	0.57	12.24
8/14/2024 23:00	16.8	22.47	0.01	7.12	378.7	8.43	0.87	12.24
8/14/2024 22:50	16.82	22.57	0.01	7.15	377.69	8.42	0.59	12.14
8/14/2024 22:40	16.85	22.49	0.01	7.14	378.41	8.42	0.56	12.14
8/14/2024 22:40	16.85	22.49	0.01	7.14	378.41	8.42	0.56	12.14
8/14/2024 22:30	16.87	22.48	0.01	7.13	379.51	8.43	0.56	12.24
8/14/2024 22:20	16.9	22.45	0.01	7.13	378.78	8.4	0.56	12.14
8/14/2024 22:10	16.92	22.53	0.01	7.11	380.09	8.4	0.59	12.24
8/14/2024 22:00	16.94	22.49	0.01	7.12	378.8	8.38	0.59	12.26
8/14/2024 21:50	16.97	22.71	0.01	7.17	376.33	8.4	0.61	12.26
8/14/2024 21:40	16.99	22.56	0.01	7.14	377.46	8.39	0.59	12.26
8/14/2024 21:30	17.01	22.61	0.01	7.16	375.54	8.38	0.59	12.26
8/14/2024 21:20	17.03	22.61	0.01	7.13	376.48	8.38	0.59	12.26
8/14/2024 21:10	17.05	22.64	0.01	7.12	377.07	8.36	0.58	12.17
8/14/2024 21:00	17.08	22.52	0.01	7.13	376.09	8.38	0.6	12.26
8/14/2024 20:50	17.1	22.26	0.01	7.13	376.56	8.36	0.58	12.19
8/14/2024 20:40	17.12	22.42	0.01	7.13	376.59	8.37	0.59	12.29
8/14/2024 20:30	17.14	22.54	0.01	7.15	376.38	8.37	0.6	12.29
8/14/2024 20:20	17.17	22.48	0.01	7.14	375.76	8.37	0.59	12.31
8/14/2024 20:10	17.19	22.39	0.01	7.13	376.07	8.37	0.6	12.31
8/14/2024 20:00	17.21	22.38	0.01	7.14	375.95	8.38	0.6	12.33
8/14/2024 19:50	17.23	22.46	0.01	7.18	375.03	8.39	0.65	12.33
8/14/2024 19:40	17.25	22.43	0.01	7.15	375.45	8.38	0.61	12.24
8/14/2024 19:30	17.27	22.43	0.01	7.17	375.4	8.37	0.59	12.36
8/14/2024 19:20	17.29	22.41	0.01	7.16	374.95	8.37	0.6	12.26

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/14/2024 19:10	17.31	22.51	0.01	7.21	374.23	8.38	0.59	12.29
8/14/2024 19:00	17.34	22.36	0.01	7.16	374.29	8.38	0.59	12.43
8/14/2024 18:50	17.36	22.34	0.01	7.16	374.45	8.4	0.6	12.45
8/14/2024 18:40	17.39	22.24	0.01	7.15	374.91	8.39	0.62	12.41
8/14/2024 18:30	17.4	22.47	0.01	7.21	373.56	8.37	0.63	12.53
8/14/2024 18:20	17.42	22.22	0.01	7.18	373.15	8.39	0.61	12.6
8/14/2024 18:10	17.43	22.43	0.01	7.27	370.09	8.4	0.61	12.6
8/14/2024 18:00	17.45	22.19	0.01	7.18	372.06	8.41	0.59	12.62
8/14/2024 17:50	17.46	22.2	0.01	7.2	372.12	8.42	0.63	12.62
8/14/2024 17:40	17.46	22.14	0.01	7.18	371.3	8.4	0.62	12.5
8/14/2024 17:30	17.47	21.83	0.01	7.2	370.98	8.41	0.62	12.53
8/14/2024 17:20	17.49	21.98	0.01	7.21	370.56	8.42	0.63	12.6
8/14/2024 17:10	17.53	21.57	0.01	7.27	367.3	8.42	0.59	12.5
8/14/2024 17:00	17.54	21.87	0.01	7.21	370.62	8.44	0.62	12.67
8/14/2024 16:50	17.54	21.87	0.01	7.25	368.38	8.43	0.62	12.69
8/14/2024 16:40	17.57	21.85	0.01	7.22	368.75	8.44	0.63	12.67
8/14/2024 16:30	17.6	21.48	0.01	7.29	366.14	8.48	0.63	13.22
8/14/2024 16:20	17.61	21.73	0.01	7.23	368.9	8.48	0.63	13.22
8/14/2024 16:10	17.61	21.51	0.01	7.3	367.4	8.5	0.63	13.22
8/14/2024 16:00	17.61	21.75	0.01	7.25	367.6	8.51	0.62	13.12
8/14/2024 15:50	17.61	21.87	0.01	7.31	367.79	8.52	0.62	13.15
8/14/2024 15:40	17.63	21.71	0.01	7.27	365.1	8.54	0.62	13.15
8/14/2024 15:30	17.62	21.37	0.01	7.32	361.73	8.54	0.61	13.03
8/14/2024 15:20	17.62	21.64	0.01	7.27	364.82	8.57	0.6	13.05
8/14/2024 15:10	17.6	21.71	0.01	7.31	362.06	8.59	0.63	13.27
8/14/2024 15:10	17.6	21.71	0.01	7.31	362.06	8.59	0.63	13.27
8/14/2024 15:00	17.58	21.63	0.01	7.27	363.76	8.57	0.62	13.34
8/14/2024 14:50	17.55	21.48	0.01	7.33	360.11	8.58	0.68	13.12
8/14/2024 14:40	17.52	21.52	0.01	7.26	364.3	8.6	0.61	13.1
8/14/2024 14:30	17.5	21.67	0.01	7.34	365.02	8.62	0.61	13.32
8/14/2024 14:20	17.48	21.61	0.01	7.28	362.59	8.65	0.62	13.32
8/14/2024 14:10	17.4	21.62	0.01	7.34	362.12	8.66	0.59	13.29
8/14/2024 14:00	17.33	21.66	0.01	7.27	361.54	8.64	0.64	13.2
8/14/2024 13:50	17.29	21.36	0.01	7.28	361.27	8.69	0.59	13.29
8/14/2024 13:40	17.27	21.55	0.01	7.28	361.35	8.69	0.59	13.32
8/14/2024 13:30	17.26	21.41	0.01	7.3	360.45	8.7	0.61	13.34
8/14/2024 13:20	17.24	21.54	0.01	7.28	361.87	8.72	0.62	13.24
8/14/2024 13:10	17.24	21.72	0.01	7.41	360.25	8.72	0.61	13.36
8/14/2024 13:00	17.23	21.64	0.01	7.28	361.07	8.73	0.58	13.36
8/14/2024 12:50	17.21	21.65	0.01	7.28	362.07	8.75	0.6	13.39
8/14/2024 12:40	17.2	21.59	0.01	7.28	361.6	8.76	0.6	13.22
8/14/2024 12:30	17.21	21.63	0.01	7.28	362	8.76	0.63	13.39
8/14/2024 12:20	17.23	21.55	0.01	7.28	361.01	8.77	0.59	13.36
8/14/2024 12:10	17.27	21.61	0.01	7.36	359.09	8.78	0.59	13.36
8/14/2024 12:00	17.28	21.57	0.01	7.32	360.13	8.8	0.61	13.39
8/14/2024 11:50	17.28	21.59	0.01	7.34	359.04	8.82	0.59	13.39
8/14/2024 11:40	17.26	21.49	0.01	7.32	360.39	8.83	0.58	13.41

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/14/2024 11:30	17.17	21.36	0.01	7.34	360.06	8.84	0.66	13.29
8/14/2024 11:20	17	21.54	0.01	7.3	361.89	8.85	0.59	13.41
8/14/2024 11:10	16.96	21.5	0.01	7.32	362.75	8.86	0.61	13.41
8/14/2024 11:00	16.77	21.55	0.01	7.31	362.34	8.88	0.58	13.44
8/14/2024 10:50	16.69	21.56	0.01	7.33	363.1	8.9	0.57	13.44
8/14/2024 10:40	16.51	21.6	0.01	7.3	365.44	8.89	0.55	13.46
8/14/2024 10:30	16.42	21.68	0.01	7.34	365.04	8.89	0.57	13.46
8/14/2024 10:20	16.36	21.68	0.01	7.28	366.11	8.87	0.52	13.46
8/14/2024 10:10	16.31	21.7	0.01	7.28	366.11	8.87	0.54	13.46
8/14/2024 10:00	16.27	21.68	0.01	7.27	366.78	8.88	0.52	13.46
8/14/2024 9:50	16.24	21.68	0.01	7.26	368.47	8.84	0.54	13.15
8/14/2024 9:40	16.21	21.82	0.01	7.25	368.52	8.84	0.54	12.93
8/14/2024 9:30	16.19	21.72	0.01	7.29	366.38	8.85	0.55	12.79
8/14/2024 9:20	16.15	21.85	0.01	7.24	369.41	8.85	0.54	12.84
8/14/2024 9:10	16.11	21.92	0.01	7.25	369.01	8.84	0.53	12.76
8/14/2024 9:00	16.09	21.93	0.01	7.21	370.81	8.8	0.53	12.53
8/14/2024 8:50	16.06	22.03	0.01	7.24	369.33	8.8	0.53	12.45
8/14/2024 8:40	16.06	22.01	0.01	7.19	372.66	8.76	0.52	12.36
8/14/2024 8:30	16.05	21.92	0.01	7.2	373.63	8.74	0.54	12.24
8/14/2024 8:20	16.03	22.18	0.01	7.18	372.92	8.71	0.52	12.17
8/14/2024 8:10	16.03	22.11	0.01	7.16	375.34	8.69	0.52	12.17
8/14/2024 8:00	16.02	22.26	0.01	7.16	374.06	8.7	0.54	12.12
8/14/2024 7:50	16.02	22.26	0.01	7.18	373.07	8.68	0.52	12.09
8/14/2024 7:40	16.02	22.29	0.01	7.16	373.5	8.68	0.53	12.07
8/14/2024 7:30	16.02	22.26	0.01	7.15	374.09	8.65	0.51	12.07
8/14/2024 7:20	16.02	22.26	0.01	7.15	373.69	8.65	0.55	12.05
8/14/2024 7:10	16.03	22.29	0.01	7.15	373.34	8.65	0.52	12.05
8/14/2024 7:00	16.03	22.31	0.01	7.13	373.87	8.64	0.51	12.02
8/14/2024 6:50	16.03	22.48	0.01	7.18	374.85	8.65	0.51	11.95
8/14/2024 6:40	16.04	22.34	0.01	7.14	373.13	8.63	0.53	12.05
8/14/2024 6:30	16.04	22.27	0.01	7.13	373.69	8.61	0.55	12.05
8/14/2024 6:20	16.04	22.28	0.01	7.13	373.99	8.62	0.53	12.05
8/14/2024 6:10	16.04	22.47	0.01	7.15	373.46	8.62	0.51	12.05
8/14/2024 6:00	16.05	22.4	0.01	7.1	374.35	8.62	0.54	12.05
8/14/2024 5:50	16.05	22.39	0.01	7.11	374.7	8.62	0.55	11.97
8/14/2024 5:40	16.06	22.34	0.01	7.12	374.73	8.6	0.5	11.95
8/14/2024 5:30	16.06	22.36	0.01	7.15	373.09	8.6	0.53	12.07
8/14/2024 5:20	16.07	22.34	0.01	7.13	374.48	8.62	0.53	12.09
8/14/2024 5:10	16.07	22.42	0.01	7.18	372.42	8.6	0.52	12.09
8/14/2024 5:00	16.08	22.37	0.01	7.13	375.19	8.61	0.59	12.09
8/14/2024 4:50	16.08	22.62	0.01	7.15	375.36	8.63	0.55	12.09
8/14/2024 4:40	16.09	22.42	0.01	7.13	374.8	8.61	0.51	12.09
8/14/2024 4:30	16.1	22.54	0.01	7.2	371.99	8.59	0.54	12.02
8/14/2024 4:20	16.1	22.42	0.01	7.13	373.83	8.62	0.53	12.12
8/14/2024 4:10	16.11	22.59	0.01	7.11	374.9	8.6	0.54	12.02
8/14/2024 4:00	16.11	22.44	0.01	7.11	374.3	8.6	0.54	12.02
8/14/2024 3:50	16.11	22.35	0.01	7.14	373.1	8.6	0.54	12.12

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/14/2024 3:40	16.12	22.44	0.01	7.12	374.18	8.6	0.53	12.05
8/14/2024 3:30	16.12	22.3	0.01	7.11	374.98	8.61	0.53	12.12
8/14/2024 3:20	16.13	22.37	0.01	7.13	374.51	8.58	0.54	12.14
8/14/2024 3:10	16.13	22.58	0.01	7.13	374.81	8.59	0.53	12.05
8/14/2024 3:00	16.14	22.45	0.01	7.12	374.39	8.6	0.53	12.05
8/14/2024 2:50	16.14	22.27	0.01	7.18	372.22	8.59	0.58	12.05
8/14/2024 2:40	16.15	22.46	0.01	7.13	374.42	8.59	0.54	12.14
8/14/2024 2:30	16.15	22.57	0.01	7.14	375.23	8.6	0.54	12.17
8/14/2024 2:20	16.16	22.48	0.01	7.12	375.06	8.59	0.57	12.17
8/14/2024 2:10	16.16	22.37	0.01	7.19	372.32	8.6	0.54	12.17
8/14/2024 2:00	16.17	22.47	0.01	7.12	374.7	8.59	0.57	12.07
8/14/2024 1:50	16.17	22.35	0.01	7.14	372.74	8.59	0.53	12.07
8/14/2024 1:40	16.18	22.45	0.01	7.12	374.43	8.59	0.52	12.14
8/14/2024 1:30	16.18	22.49	0.01	7.16	372.86	8.58	0.54	12.17
8/14/2024 1:20	16.19	22.47	0.01	7.13	374.72	8.58	0.55	12.17
8/14/2024 1:10	16.19	22.49	0.01	7.17	373.16	8.59	0.55	12.17
8/14/2024 1:00	16.2	22.49	0.01	7.12	373.58	8.58	0.55	12.17
8/14/2024 0:50	16.21	22.34	0.01	7.17	373.68	8.6	0.53	12.17
8/14/2024 0:40	16.21	22.51	0.01	7.12	373.5	8.6	0.53	12.09
8/14/2024 0:30	16.22	22.41	0.01	7.14	374.93	8.59	0.53	12.09
8/14/2024 0:20	16.22	22.5	0.01	7.12	373.26	8.55	0.54	12.19
8/14/2024 0:10	16.23	22.33	0.01	7.17	373.14	8.6	0.53	12.19
8/14/2024 0:00	16.24	22.49	0.01	7.13	373.04	8.56	0.65	12.19
8/13/2024 23:50	16.24	22.35	0.01	7.13	376.08	8.57	0.56	12.19
8/13/2024 23:40	16.25	22.51	0.01	7.12	373.49	8.58	0.55	12.19
8/13/2024 23:30	16.25	22.38	0.01	7.11	377.23	8.57	0.55	12.19
8/13/2024 23:20	16.26	22.45	0.01	7.12	373.56	8.57	0.53	12.12
8/13/2024 23:10	16.26	22.53	0.01	7.15	371.88	8.57	0.52	12.21
8/13/2024 23:00	16.27	22.41	0.01	7.12	372.78	8.57	0.53	12.21
8/13/2024 22:50	16.27	22.29	0.01	7.15	374.29	8.56	0.58	12.21
8/13/2024 22:40	16.28	22.44	0.01	7.12	373.42	8.56	0.53	12.21
8/13/2024 22:30	16.28	22.39	0.01	7.13	376.17	8.56	0.55	12.21
8/13/2024 22:20	16.29	22.43	0.01	7.13	375.06	8.57	0.72	12.21
8/13/2024 22:10	16.3	22.44	0.01	7.15	373.5	8.57	2.1	12.21
8/13/2024 22:00	16.3	22.47	0.01	7.13	372.61	8.56	0.53	12.12
8/13/2024 21:50	16.31	22.53	0.01	7.13	371.37	8.57	0.54	12.12
8/13/2024 21:40	16.32	22.4	0.01	7.12	373.6	8.55	0.54	12.14
8/13/2024 21:30	16.32	22.38	0.01	7.21	368.68	8.56	0.54	12.14
8/13/2024 21:20	16.33	22.46	0.01	7.14	370.08	8.56	0.52	12.14
8/13/2024 21:10	16.33	22.44	0.01	7.13	368.45	8.55	0.56	12.24
8/13/2024 21:00	16.34	22.39	0.01	7.15	368.8	8.56	0.57	12.17
8/13/2024 20:50	16.35	22.24	0.01	7.16	368.5	8.56	0.57	12.17
8/13/2024 20:40	16.36	22.44	0.01	7.15	370.82	8.55	0.54	12.26
8/13/2024 20:30	16.36	22.3	0.01	7.19	369.8	8.55	0.55	12.17
8/13/2024 20:20	16.37	22.43	0.01	7.16	370.44	8.57	0.54	12.31
8/13/2024 20:10	16.38	22.38	0.01	7.14	368.61	8.54	0.55	12.29
8/13/2024 20:00	16.39	22.41	0.01	7.15	369.32	8.56	0.55	12.29

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/13/2024 19:50	16.4	22.23	0.01	7.19	368.59	8.57	0.55	12.31
8/13/2024 19:40	16.41	22.41	0.01	7.15	370.06	8.57	0.55	12.31
8/13/2024 19:30	16.41	22.37	0.01	7.2	364.89	8.58	0.55	12.33
8/13/2024 19:20	16.42	22.28	0.01	7.16	367.1	8.58	0.57	12.24
8/13/2024 19:10	16.43	22.2	0.01	7.17	367.65	8.56	0.56	12.36
8/13/2024 19:00		16.43	0.01	7.16	369.53	8.57	0.55	12.36
8/13/2024 18:50	16.44	22.34	0.01	7.16	367.6	8.58	0.54	12.36
8/13/2024 18:40	16.44	22.14	0.01	7.18	365.91	8.59	0.54	12.29
8/13/2024 18:30	16.45	22.09	0.01	7.18	365.93	8.62	0.56	12.29
8/13/2024 18:20	16.45	22.1	0.01	7.22	365.12	8.6	0.55	12.33
8/13/2024 18:10	16.46	22.16	0.01	7.19	365.36	8.6	0.57	12.31
8/13/2024 18:00	16.46	22.01	0.01	7.19	366.83	8.61	0.54	12.31
8/13/2024 17:50	16.47	22.06	0.01	7.2	364.63	8.64	0.57	12.36
8/13/2024 17:40	16.47	21.81	0.01	7.18	366.52	8.65	0.57	12.48
8/13/2024 17:30	16.47	22.03	0.01	7.2	364.89	8.65	0.54	12.48
8/13/2024 17:20	16.46	21.92	0.01	7.23	361.83	8.64	0.54	12.48
8/13/2024 17:10	16.46	22.02	0.01	7.2	360.59	8.64	0.55	12.53
8/13/2024 17:00	16.46	21.87	0.01	7.19	358.85	8.63	0.57	12.6
8/13/2024 16:50	16.46	21.87	0.01	7.23	358.16	8.67	0.57	12.53
8/13/2024 16:40	16.46	21.65	0.01	7.22	358.45	8.66	0.57	12.6
8/13/2024 16:30	16.47	21.87	0.01	7.22	358.02	8.68	0.56	12.55
8/13/2024 16:20	16.47	21.81	0.01	7.22	358.03	8.68	0.56	12.72
8/13/2024 16:10	16.48	21.79	0.01	7.23	357.54	8.7	0.53	12.72
8/13/2024 16:00	16.47	21.76	0.01	7.24	356.77	8.71	0.56	12.76
8/13/2024 15:50	16.48	21.76	0.01	7.23	357.19	8.7	0.54	12.74
8/13/2024 15:40	16.48	21.71	0.01	7.25	357.14	8.71	0.56	12.74
8/13/2024 15:30	16.48	21.69	0.01	7.24	357.68	8.71	0.58	12.76
8/13/2024 15:20	16.47	21.65	0.01	7.25	358.39	8.76	0.56	12.69
8/13/2024 15:10	16.47	21.68	0.01	7.26	358.32	8.75	0.56	12.74
8/13/2024 15:00	16.46	21.64	0.01	7.25	360.29	8.75	0.56	12.91
8/13/2024 14:50	16.46	21.64	0.01	7.25	359.73	8.77	0.55	12.88
8/13/2024 14:40	16.45	21.59	0.01	7.27	360.19	8.79	0.56	12.91
8/13/2024 14:30	16.44	21.62	0.01	7.26	360.79	8.8	0.53	12.96
8/13/2024 14:20	16.41	21.62	0.01	7.29	359.37	8.79	0.54	12.93
8/13/2024 14:10	16.4	21.61	0.01	7.25	361.62	8.77	0.55	12.86
8/13/2024 14:00	16.38	21.6	0.01	7.27	361.77	8.76	0.54	12.84
8/13/2024 13:50	16.37	21.71	0.01	7.24	362.97	8.76	0.55	12.72
8/13/2024 13:40	16.35	21.58	0.01	7.25	363.22	8.77	0.61	12.79
8/13/2024 13:30	16.34	21.68	0.01	7.23	362.15	8.77	0.56	12.76
8/13/2024 13:20	16.34	21.52	0.01	7.25	361.89	8.78	0.54	12.74
8/13/2024 13:10	16.33	21.75	0.01	7.25	360.53	8.78	0.54	12.76
8/13/2024 13:00	16.32	21.58	0.01	7.25	361.69	8.77	0.56	12.65
8/13/2024 12:50	16.31	21.75	0.01	7.25	360.18	8.76	0.55	12.72
8/13/2024 12:40	16.29	21.57	0.01	7.25	360.98	8.79	0.54	12.6
8/13/2024 12:30	16.29	21.65	0.01	7.25	360.43	8.78	0.54	12.69
8/13/2024 12:20	16.28	21.66	0.01	7.24	361.31	8.76	0.58	12.72
8/13/2024 12:10	16.27	21.74	0.01	7.24	360.8	8.78	0.54	12.69

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/13/2024 12:00	16.26	21.53	0.01	7.23	361.95	8.76	0.53	12.67
8/13/2024 11:50	16.25	21.76	0.01	7.23	360.94	8.74	0.56	12.55
8/13/2024 11:40	16.24	21.56	0.01	7.23	361.55	8.76	0.56	12.62
8/13/2024 11:30	16.24	21.79	0.01	7.23	361.09	8.74	0.54	12.5
8/13/2024 11:20	16.23	21.74	0.01	7.23	361.52	8.75	0.52	12.57
8/13/2024 11:10	16.22	21.72	0.01	7.22	361.44	8.76	0.55	12.53
8/13/2024 11:00	16.21	21.72	0.01	7.23	361.93	8.74	0.52	12.62
8/13/2024 10:50	16.2	21.8	0.01	7.22	361.35	8.77	0.55	12.6
8/13/2024 10:40	16.19	21.77	0.01	7.23	362.47	8.77	0.54	12.62
8/13/2024 10:30	16.19	21.74	0.01	7.24	361.25	8.8	0.56	12.55
8/13/2024 10:20	16.17	21.66	0.01	7.24	361.78	8.78	0.54	12.67
8/13/2024 10:10	16.17	21.8	0.01	7.22	362.13	8.79	0.55	12.67
8/13/2024 10:00	16.15	21.78	0.01	7.24	361.74	8.8	0.52	12.67
8/13/2024 9:50	16.13	21.8	0.01	7.21	363.78	8.79	0.54	12.62
8/13/2024 9:40	16.11	21.82	0.01	7.23	363.93	8.77	0.53	12.45
8/13/2024 9:30	16.09	21.91	0.01	7.2	366.05	8.74	0.54	12.43
8/13/2024 9:20	16.08	21.74	0.01	7.18	369.64	8.72	0.53	12.33
8/13/2024 9:10	16.08	21.92	0.01	7.17	370.05	8.72	0.54	12.26
8/13/2024 9:00	16.06	21.8	0.01	7.17	371.14	8.71	0.54	12.09
8/13/2024 8:50	16.06	21.95	0.01	7.16	371.04	8.7	0.55	12.21
8/13/2024 8:40	16.04	21.97	0.01	7.17	371.35	8.7	0.53	12.17
8/13/2024 8:30	16.04	21.93	0.01	7.15	370.92	8.68	0.54	12.12
8/13/2024 8:20	16.03	21.78	0.01	7.18	369.83	8.67	0.53	12.07
8/13/2024 8:10	16.02	22	0.01	7.15	371.15	8.66	0.52	12.05
8/13/2024 8:00	16.02	21.88	0.01	7.18	370.2	8.64	0.54	11.93
8/13/2024 7:50	16.02	21.99	0.01	7.15	370.86	8.65	0.53	12
8/13/2024 7:40	16.01	21.84	0.01	7.17	370.97	8.65	0.55	12
8/13/2024 7:30	16.01	21.91	0.01	7.15	371.07	8.64	0.53	12
8/13/2024 7:20	16.01	21.95	0.01	7.17	371.52	8.63	0.52	11.9
8/13/2024 7:10	16.02	22.05	0.01	7.14	370.66	8.61	0.54	12.02
8/13/2024 7:00	16.02	22.01	0.01	7.17	370.01	8.6	0.54	12
8/13/2024 6:50	16.02	22.07	0.01	7.14	370.16	8.59	0.52	12
8/13/2024 6:40	16.03	21.9	0.01	7.14	371.38	8.59	0.61	11.9
8/13/2024 6:30	16.04	22.02	0.01	7.13	370.97	8.59	0.54	11.9
8/13/2024 6:20	16.04	22.04	0.01	7.18	370.36	8.58	0.54	11.88
8/13/2024 6:10	16.05	22.1	0.01	7.12	370.23	8.59	0.54	11.9
8/13/2024 6:00	16.05	21.94	0.01	7.18	369.15	8.58	0.53	11.9
8/13/2024 5:50	16.06	22.09	0.01	7.13	370.68	8.57	0.56	11.97
8/13/2024 5:40	16.06	21.86	0.01	7.2	370.36	8.59	0.53	11.9
8/13/2024 5:30	16.07	22.1	0.01	7.14	371.37	8.59	0.54	11.9
8/13/2024 5:20	16.07	21.94	0.01	7.17	372.2	8.58	0.55	11.88
8/13/2024 5:10	16.08	22.1	0.01	7.14	372.51	8.61	0.52	11.88
8/13/2024 5:00	16.08	21.89	0.01	7.17	373.4	8.6	0.51	11.9
8/13/2024 4:50	16.09	22.1	0.01	7.14	372.82	8.57	0.53	12
8/13/2024 4:40	16.1	21.92	0.01	7.16	374.24	8.58	0.54	12
8/13/2024 4:30	16.1	22.11	0.01	7.14	372.49	8.57	0.54	12
8/13/2024 4:20	16.11	22.01	0.01	7.16	374.52	8.58	0.53	12

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/13/2024 4:10	16.11	22.13	0.01	7.14	372.53	8.57	0.57	12
8/13/2024 4:00	16.12	21.89	0.01	7.15	374.82	8.59	0.52	12
8/13/2024 3:50	16.13	22.13	0.01	7.14	372.87	8.57	0.53	12
8/13/2024 3:40	16.13	21.9	0.01	7.14	375.46	8.57	0.54	12
8/13/2024 3:30	16.14	22.15	0.01	7.15	371.85	8.58	0.54	12
8/13/2024 3:20	16.14	21.93	0.01	7.17	372.65	8.56	0.52	11.9
8/13/2024 3:10	16.15	22.14	0.01	7.15	371.57	8.55	0.54	11.9
8/13/2024 3:00	16.16	21.93	0.01	7.14	375.4	8.55	0.54	11.9
8/13/2024 2:50	16.16	22.14	0.01	7.15	372.31	8.56	0.56	12
8/13/2024 2:40	16.17	21.93	0.01	7.14	377.04	8.55	0.54	12
8/13/2024 2:30	16.18	22.15	0.01	7.13	375.98	8.54	0.53	12
8/13/2024 2:20	16.18	22.11	0.01	7.13	377.48	8.56	0.54	11.93
8/13/2024 2:10	16.19	22.17	0.01	7.14	375.4	8.55	0.55	12.02
8/13/2024 2:00	16.19	22.17	0.01	7.14	376.92	8.56	0.54	12
8/13/2024 1:50	16.2	22.16	0.01	7.14	376.09	8.54	0.55	12.02
8/13/2024 1:40	16.21	22.16	0.01	7.12	378.56	8.54	0.61	12
8/13/2024 1:30	16.21	22.18	0.01	7.14	376.32	8.54	0.53	11.9
8/13/2024 1:20	16.22	22.07	0.01	7.16	377.26	8.56	0.56	11.9
8/13/2024 1:10	16.23	22.12	0.01	7.15	377.98	8.55	0.52	12.02
8/13/2024 1:00	16.23	22.08	0.01	7.16	379.27	8.54	0.53	12.02
8/13/2024 0:50	16.24	22.17	0.01	7.15	378.32	8.54	0.53	12.02
8/13/2024 0:40	16.25	22.13	0.01	7.15	379.02	8.53	0.52	12.02
8/13/2024 0:30	16.25	22.14	0.01	7.14	378.3	8.54	0.54	12.02
8/13/2024 0:20	16.26	22.02	0.01	7.15	379.98	8.53	0.55	12.02
8/13/2024 0:10	16.27	22.16	0.01	7.15	379	8.54	0.55	11.93
8/13/2024 0:00	16.28	22.01	0.01	7.18	379.03	8.54	0.56	11.93
8/12/2024 23:50	16.28	22.17	0.01	7.14	378.79	8.54	0.54	12.02
8/12/2024 23:40	16.29	22.22	0.01	7.16	379.01	8.53	0.53	11.93
8/12/2024 23:30	16.3	22.11	0.01	7.15	378.89	8.53	0.56	12.02
8/12/2024 23:20	16.31	22.13	0.01	7.16	379.08	8.53	0.54	12.02
8/12/2024 23:10	16.32	22.12	0.01	7.14	378.79	8.52	0.53	12.02
8/12/2024 23:00	16.32	22.27	0.01	7.13	380.72	8.54	0.56	11.93
8/12/2024 22:50	16.33	22.15	0.01	7.13	378.65	8.53	0.56	12.02
8/12/2024 22:40	16.34	22.17	0.01	7.18	377.69	8.52	0.57	11.95
8/12/2024 22:30	16.35	22.13	0.01	7.15	378.24	8.53	0.56	11.97
8/12/2024 22:20	16.35	21.98	0.01	7.15	379.91	8.53	0.57	12.07
8/12/2024 22:10	16.36	22.18	0.01	7.14	379.01	8.51	0.55	12.09
8/12/2024 22:00	16.37	22	0.01	7.26	373.97	8.51	0.56	12.09
8/12/2024 21:50	16.38	22.17	0.01	7.14	378.33	8.5	0.54	12.09
8/12/2024 21:40	16.39	22.11	0.01	7.18	377.18	8.49	0.55	12
8/12/2024 21:30	16.4	22.16	0.01	7.15	377.61	8.5	0.54	12.02
8/12/2024 21:20	16.41	22.11	0.01	7.17	376.94	8.5	0.55	12.05
8/12/2024 21:10	16.42	22.1	0.01	7.15	377.15	8.51	0.55	12.14
8/12/2024 21:00	16.43	22.06	0.01	7.18	377.2	8.5	0.55	12.14
8/12/2024 20:50	16.44	22.11	0.01	7.15	378.24	8.5	0.56	12.17
8/12/2024 20:40	16.45	22.14	0.01	7.2	376.58	8.49	0.58	12.07
8/12/2024 20:30	16.46	22.19	0.01	7.16	376.74	8.5	0.55	12.17

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/12/2024 20:20	16.47	22.03	0.01	7.16	378.29	8.5	0.55	12.09
8/12/2024 20:10	16.48	22.18	0.01	7.16	375.72	8.51	0.58	12.09
8/12/2024 20:00	16.48	22.13	0.01	7.17	376.11	8.51	0.56	12.09
8/12/2024 19:50	16.49	22.13	0.01	7.17	374.6	8.51	0.56	12.24
8/12/2024 19:40	16.5	22.15	0.01	7.17	376.18	8.51	0.55	12.17
8/12/2024 19:30	16.51	22.12	0.01	7.16	375.61	8.53	0.54	12.26
8/12/2024 19:20	16.52	22.11	0.01	7.2	374.14	8.51	0.57	12.26
8/12/2024 19:10	16.53	22.03	0.01	7.17	375.29	8.52	0.58	12.26
8/12/2024 19:00	16.53	22.1	0.01	7.19	375.23	8.52	0.56	12.26
8/12/2024 18:50	16.54	21.91	0.01	7.19	377.06	8.51	0.56	12.31
8/12/2024 18:40	16.55	22.11	0.01	7.17	375.55	8.54	0.55	12.31
8/12/2024 18:30	16.55	22.02	0.01	7.19	375.75	8.53	0.56	12.24
8/12/2024 18:20	16.56	22.03	0.01	7.17	375.41	8.54	0.57	12.38
8/12/2024 18:10	16.56	22	0.01	7.2	374.53	8.55	0.58	12.31
8/12/2024 18:00	16.56	22.01	0.01	7.19	375.09	8.56	0.6	12.38
8/12/2024 17:50	16.56	21.95	0.01	7.22	374.84	8.56	0.55	12.26
8/12/2024 17:40	16.56	22.03	0.01	7.18	375.78	8.53	0.57	12.41
8/12/2024 17:30	16.56	21.94	0.01	7.24	374.58	8.55	0.57	12.41
8/12/2024 17:20	16.57	22.06	0.01	7.2	374.44	8.53	0.58	12.38
8/12/2024 17:10	16.57	22.05	0.01	7.2	375.92	8.54	0.57	12.29
8/12/2024 17:00	16.58	22.04	0.01	7.19	374.29	8.53	0.59	12.31
8/12/2024 16:50	16.58	21.84	0.01	7.2	375.64	8.53	0.55	12.33
8/12/2024 16:40	16.59	21.99	0.01	7.2	373.46	8.53	0.57	12.48
8/12/2024 16:30	16.6	21.78	0.01	7.23	373.16	8.56	0.57	12.5
8/12/2024 16:20	16.61	21.92	0.01	7.21	373.61	8.55	0.57	12.55
8/12/2024 16:10	16.62	21.87	0.01	7.23	373.82	8.54	0.55	12.57
8/12/2024 16:00	16.63	21.91	0.01	7.21	374.07	8.55	0.57	12.48
8/12/2024 15:50	16.63	21.89	0.01	7.25	373.01	8.59	0.56	12.6
8/12/2024 15:40	16.63	21.88	0.01	7.22	373.11	8.6	0.55	12.62
8/12/2024 15:30	16.63	21.84	0.01	7.21	375.87	8.61	0.56	12.65
8/12/2024 15:20	16.63	21.86	0.01	7.22	372.76	8.62	0.53	12.62
8/12/2024 15:10	16.63	21.81	0.01	7.24	373.53	8.58	0.55	12.48
8/12/2024 15:00	16.63	21.84	0.01	7.22	372.69	8.59	0.57	12.53
8/12/2024 14:50	16.63	21.74	0.01	7.28	371.12	8.59	0.59	12.65
8/12/2024 14:40	16.64	21.82	0.01	7.22	372.54	8.61	0.58	12.65
8/12/2024 14:30	16.63	21.8	0.01	7.22	374.28	8.62	0.56	12.65
8/12/2024 14:20	16.63	21.8	0.01	7.23	371.9	8.62	0.56	12.67
8/12/2024 14:10	16.63	21.73	0.01	7.23	372.66	8.59	11.95	12.53
8/12/2024 14:00	16.63	21.8	0.01	7.22	371.22	8.62	0.58	12.6
8/12/2024 13:50	16.63	21.58	0.01	7.24	371.91	8.62	0.57	12.6
8/12/2024 13:40	16.64	21.73	0.01	7.22	371.53	8.6	0.56	12.43
8/12/2024 13:30	16.64	21.76	0.01	7.23	372.61	8.62	0.57	12.48
8/12/2024 13:20	16.64	21.71	0.01	7.22	370.75	8.63	0.55	12.6
8/12/2024 13:10	16.64	21.66	0.01	7.23	372.68	8.64	0.56	12.67
8/12/2024 13:00	16.64	21.71	0.01	7.23	370.88	8.63	0.55	12.67
8/12/2024 12:50	16.64	21.7	0.01	7.23	372.71	8.63	0.55	12.65
8/12/2024 12:40	16.64	21.76	0.01	7.23	370.56	8.66	0.57	12.67

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/12/2024 12:30	16.63	21.7	0.01	7.25	371.28	8.66	0.57	12.76
8/12/2024 12:20	16.63	21.76	0.01	7.24	370.15	8.63	0.59	12.74
8/12/2024 12:10	16.62	21.71	0.01	7.22	373.14	8.64	0.55	12.76
8/12/2024 12:00	16.61	21.78	0.01	7.23	371.59	8.63	0.57	12.69
8/12/2024 11:50	16.61	21.83	0.01	7.22	375.06	8.62	2.88	12.67
8/12/2024 11:40	16.6	21.87	0.01	7.23	371.81	8.64	0.59	12.67
8/12/2024 11:30	16.59	21.74	0.01	7.23	374.65	8.62	0.57	12.5
8/12/2024 11:20	16.59	21.95	0.01	7.22	373.34	8.62	0.56	12.57
8/12/2024 11:10	16.59	21.96	0.01	7.23	374.12	8.61	0.56	12.5
8/12/2024 11:00	16.58	22.02	0.01	7.2	372.03	8.6	0.56	12.43
8/12/2024 10:50	16.58	22	0.01	7.2	374.44	8.56	0.54	12.41
8/12/2024 10:40	16.58	22.1	0.01	7.19	371.87	8.57	0.56	12.31
8/12/2024 10:30	16.58	21.93	0.01	7.17	375.72	8.53	0.54	12.24
8/12/2024 10:20	16.59	22.17	0.01	7.19	372.26	8.53	0.57	12.09
8/12/2024 10:10	16.6	22.09	0.01	7.19	374.34	8.53	0.58	12.17
8/12/2024 10:00	16.61	22.14	0.01	7.18	373.31	8.53	0.56	12.29
8/12/2024 9:50	16.61	22.12	0.01	7.2	373	8.54	0.56	12.19
8/12/2024 9:40	16.61	22.15	0.01	7.18	373.62	8.5	0.62	12.09
8/12/2024 9:30	16.62	22.12	0.01	7.17	376.54	8.5	0.55	12.14
8/12/2024 9:20	16.62	22.2	0.01	7.17	374.23	8.5	0.57	12.09
8/12/2024 9:10	16.63	22.18	0.01	7.15	376.12	8.48	0.56	12.07
8/12/2024 9:00	16.65	22.17	0.01	7.17	372.03	8.49	0.57	11.97
8/12/2024 8:50	16.66	22.12	0.01	7.16	375.32	8.48	0.57	12.07
8/12/2024 8:40	16.67	22.18	0.01	7.17	370.97	8.47	0.56	12.07
8/12/2024 8:30	16.68	22.06	0.01	7.2	371.05	8.46	0.55	12.07
8/12/2024 8:20	16.7	22.2	0.01	7.17	370.33	8.45	0.55	12.05
8/12/2024 8:10	16.71	22.14	0.01	7.17	372.39	8.44	0.56	12.05
8/12/2024 8:00	16.73	22.25	0.01	7.18	369.83	8.45	0.63	12.05
8/12/2024 7:50	16.75	22.21	0.01	7.19	375.36	8.44	0.55	11.95
8/12/2024 7:40	16.77	22.35	0.01	7.17	373.83	8.42	0.57	12.02
8/12/2024 7:30	16.78	22.35	0.01	7.18	373.93	8.41	0.57	12.05
8/12/2024 7:20	16.8	22.43	0.01	7.17	372.77	8.42	0.56	11.93
8/12/2024 7:10	16.82	22.37	0.01	7.19	373.26	8.41	0.56	11.95
8/12/2024 7:00	16.83	22.52	0.01	7.16	372.52	8.41	0.58	12.05
8/12/2024 6:50	16.84	22.43	0.01	7.2	372.36	8.4	0.58	12.05
8/12/2024 6:40	16.85	22.54	0.01	7.17	373.6	8.41	0.58	11.95
8/12/2024 6:30	16.86	22.58	0.01	7.15	376.41	8.39	0.59	11.95
8/12/2024 6:20	16.88	22.68	0.01	7.16	373.72	8.39	0.58	11.93
8/12/2024 6:10	16.89	22.72	0.01	7.17	373.69	8.39	0.59	11.95
8/12/2024 6:00	16.9	22.72	0.01	7.15	374.13	8.37	0.58	12.05
8/12/2024 5:50	16.91	22.72	0.01	7.14	375.83	8.38	0.58	12.05
8/12/2024 5:40	16.92	22.81	0.01	7.14	373.38	8.37	0.54	12.05
8/12/2024 5:30	16.93	22.74	0.01	7.14	374.47	8.37	0.6	11.95
8/12/2024 5:20	16.94	22.8	0.01	7.13	372.53	8.37	0.58	12.05
8/12/2024 5:10	16.94	22.79	0.01	7.13	372.47	8.38	0.6	12.05
8/12/2024 5:00	16.95	22.78	0.01	7.13	371.25	8.37	0.57	11.97
8/12/2024 4:50	16.96	22.53	0.01	7.18	372.07	8.35	0.57	12.05

WLNG Upstream Raw Sonde Data 2024-08-12 to 2024-08-18

8/12/2024 4:40	16.96	22.83	0.01	7.12	372.23	8.36	0.59	12.09
8/12/2024 4:30	16.97	22.75	0.01	7.13	371.89	8.37	0.58	12.09
8/12/2024 4:20	16.97	22.81	0.01	7.12	368.92	8.36	0.59	12.09
8/12/2024 4:10	16.98	22.67	0.01	7.12	371.37	8.3	0.58	12.09
8/12/2024 4:00	16.99	22.72	0.01	7.11	370.94	8.36	0.6	12.12
8/12/2024 3:50	16.99	22.67	0.01	7.12	371.52	8.36	0.58	12.12
8/12/2024 3:40	17	22.78	0.01	7.12	369.05	8.37	0.59	12.09
8/12/2024 3:30	17.01	22.66	0.01	7.1	371.82	8.32	0.56	12.12
8/12/2024 3:20	17.02	22.7	0.01	7.12	371.7	8.35	0.63	12.12
8/12/2024 3:10	17.02	22.75	0.01	7.11	372.43	8.33	0.59	12.12
8/12/2024 3:00	17.03	22.77	0.01	7.11	370.64	8.38	0.58	12.05
8/12/2024 2:50	17.04	22.72	0.01	7.1	376.42	8.36	0.58	12.05
8/12/2024 2:40	17.04	22.79	0.01	7.12	372.93	8.34	0.56	12.05
8/12/2024 2:30	17.05	22.72	0.01	7.1	374.31	8.35	0.58	12.12
8/12/2024 2:20	17.06	22.74	0.01	7.12	371.17	8.35	0.59	12.05
8/12/2024 2:10	17.07	22.65	0.01	7.12	371.49	8.34	0.61	12.05
8/12/2024 2:00	17.07	22.67	0.01	7.12	368.28	8.34	0.61	12.07
8/12/2024 1:50	17.08	22.59	0.01	7.12	367.98	8.35	0.61	12.17
8/12/2024 1:40	17.09	22.63	0.01	7.13	364.9	8.35	0.59	12.17
8/12/2024 1:30	17.1	22.55	0.01	7.11	365.89	8.35	1.33	12.17
8/12/2024 1:20	17.11	22.6	0.01	7.12	362.43	8.34	0.57	12.17
8/12/2024 1:10	17.11	22.4	0.01	7.11	367.2	8.34	0.62	12.07
8/12/2024 1:00	17.12	22.51	0.01	7.12	364.57	8.35	0.6	12.19
8/12/2024 0:50	17.13	22.48	0.01	7.1	367.4	8.33	0.58	12.19
8/12/2024 0:40	17.14	22.49	0.01	7.13	361.9	8.34	0.62	12.19
8/12/2024 0:30	17.15	22.36	0.01	7.13	367.16	8.33	0.62	12.19
8/12/2024 0:20	17.16	22.39	0.01	7.12	367.7	8.34	0.61	12.21
8/12/2024 0:10	17.16	22.42	0.01	7.1	369.44	8.32	0.57	12.19
8/12/2024 0:00	17.17	22.4	0.01	7.12	367.64	8.33	0.73	12.19