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	2024-07-29	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	2023-07-29	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

- Upstream sonde was not calibrated this week as it could not be removed from the river due to high flows and debris. Triton and FortisBC working on a plan to remove the trapped sonde. No discharges occurred.
- 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

1. The downstream sonde/data logger was removed July 16th as there was not enough water in the watercourse to log data. BCER was notified.
2. 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.
3. The Long-Term concentration of Dissolved Copper was exceeded in the end of pipe sample performed on July 30th, the concentration being 0.00124mg/L. Receiving Environment Upstream had a Dissolved Copper value of 0.00063mg/L and Downstream 0.00049mg/L. FortisBC QP is reviewing the results.
4. Triton sampled directly from the water treatment plant tank for an end of pipe sample as per the permit requirements. FortisBC is working with the contractor to assess whether the tank at the water treatment plant is an appropriate location for sampling end of pipe when not actively discharging.
5. During this reporting period, the Contractor discharged water for 2.5hrs releasing 76 cubic meters to the receiving environment on July 29th-30th. Note that temperature of the water ranged is below the BCWQG value of short-term daily max temperature, MWMT cannot be tabulated for two days (2.5 hours) of discharge, results in Contractor data in Appendix C.

Point of Discharge from Water Treatment System Monitoring

Table 3 below includes information on the continuous 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	2024-07-29	Yes-Appendix C	26 m^3
Woodfibre	2024-07-30	Yes-Appendix C	50 m^3

*Max discharge is 1500m^3/day

Exceedances

The Long-Term concentration of Dissolved Copper was exceeded in the end of pipe sample performed on July 30th, the concentration being 0.00124mg/L. Receiving Environment Upstream had a Dissolved Copper value of 0.00063mg/L and Downstream 0.00049mg/L. FortisBC QP is reviewing the results.

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	2024-07-30	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	2024-07-30	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.

***** 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

	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					VA24B8651-001	VA24B8651-002					
	Date Sampled					29-Jul-2024	29-Jul-2024					
	Time Sampled					09:22	10:14					
Analyte	Units	FAL-LT [1,2]	FAL-ST [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	6.34	6.55	pH at the US and DS location are outside of the recommended range and exceed short-term guidelines for BCWQ MAL. Discharge from BCR has not begun full-time, therefore, the low pH may be characteristic of the Squamish River and the local geology.	If natural pH < 6.5, no statisticaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	-	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	-	15	14.6		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	-	-	-	-	83	54					
Turbidity (field)	NTU	Varies with background, see note Lowest value for guideline is 3 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 9 NTU	Varies with background, see note Lowest value for guideline is 3 NTU	109.8	106.9		Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 8 = DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 8 = DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Oxygen (field)	mg/L	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	10.35	9.69		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	-	-	-	-	18	16.2					
Total Dissolved Solids	mg/L	-	-	-	-	44	41					
Total Suspended Solids	mg/L	Varies with background, see note	Varies with background, see note	Varies with background, see note	Varies with background, see note	104	87.9		Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: 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	-	-	-	-	0.92	0.84			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	10.4	9.3	The upstream location has medium sensitivity to acid inputs (i.e. medium buffering capacity) while the downstream location has high sensitivity to acid inputs (i.e. low buffering capcity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs. Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	0.0093	0.0089					
Total Sulfide (un-ionized as H_2S)	mg/L	0.002	-	-	-	0.0085	0.0075			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	0.0099	0.0095					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note.	Varies with pH and temperature. See note.	Varies with pH, temperature and salinity. See note.	Varies with pH, temperature and salinity. See note.	0.0638	0.0546		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	1.05	0.95				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Fluoride	mg/L	-	Varies with hardness	1.5	-	< 0.020	< 0.020		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	3	32.8	-	3.7	0.0178	0.016					
Nitrite (as N)	mg/L	Varies with chloride. See note.	Varies with chloride. See note.	-	-	< 0.0010	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.129	0.118					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.127	0.161			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO4)	mg/L	Varies with hardness. See note.	-	-	-	2.84	2.62			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	-	-	-	4.59	3.81	Total Al exceed the long-term average BCWG for FAL at both upstream and downstream locations; thus there is a risk for acute and chronic effects to FAL. However, this should not be deemed a reportable exceedance because the background total Al concentration at the upstream location is greater than that of the downstream. Discharge from BCR has not begun full-time, therefore, the high total Al concentration may be characteristic of the Squamish River and the local geology.		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.074	0.25	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00034	0.00032					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.0492	0.043			Working guideline status		
Beryllium (Be)-Total	mg/L	0.00013	-	-	0.100	< 0.00010	< 0.00010			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	0.0000792	0.0000102					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	5.2	4.66					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000115	0.000102					
Chromium (Cr) - Total	mg/L	-	-	-	-	0.001	0.00095					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	0.001	0.00095			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	0.00083	0.00076					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00496	0.00422	Total Cu exceeds the short and long-term BCWG for MAL at both upstream and downstream locations, thus there is a risk for acute and chronic effects to MAL. However, this should not be deemed a reportable exceedance because the background total Cu concentration at the upstream location is greater than that of the downstream. Discharge from BCR has not begun full-time, therefore, the high total Cu concentration may be characteristic of the Squamish River and the local geology.				
Iron (Fe)-Total	mg/L	-	1	-	-	1.88	1.74	Total Fe exceeds the short-term BCWG for FAL at both upstream and downstream locations, thus there is a risk for acute effects to FAL. 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 full-time. 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.	Varies with hardness. See Note.	0.14	0.002	0.000545	0.00044		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	-	-	-	-	0.002	0.0018					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.22	1.12					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.0469	0.0435		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	Varies with methyl mercury	-	-	-	< 0.0000050	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1/[MeHg/totalHg]. When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	7.6	46	-	-	0.000471	0.000441					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	0.00116	0.001			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	-	-	-	0.137	0.126			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	-	-	-	-	1.38	1.25					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00325	0.00292					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	< 0.000050	< 0.000050			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	9.58	8.49					
Silver (Ag)-Total	mg/L	Varies with hardness, see note	Varies with hardness, see note	0.003	0.0015	0.000013	0.00001		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	-	-	-	-	2.83	2.36					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0599	0.0521					
Sulfur (S)-Total	mg/L	-	-	-	-	1.1	0.91					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	<0.00020					
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	0.000015	0.000013			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	-	-	-	-	0.00014	0.00013					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.113	0.108					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.00008	0.000076			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	0.0052	0.00479					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0065	0.006					
Zirconium (Zr)-Total	mg/L	-	-	-	-	0.00064	0.00061					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0511	0.0339					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00012	0.00012					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0034	0.0034					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	<0.000100	<0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	<0.000050	<0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	<0.010	<0.010					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note	Varies with hardness, see note	-	-	< 0.000005	< 0.000005		Guideline is hardness dependent. Guideline is applicable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guideline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	Categorical, see note	-	-	-	3.66	3.43	Both locations have high sensitivity to acid inputs (i.e. low buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000011	< 0.000010					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note	Guideline varies with other parameters, see note	-	-	0.00037	0.00035	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 background dissolved Cu concentration at the upstream location is greater than the BCWG. 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	-	-	0.045	0.029					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	<0.0010	<0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.402	0.364					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.0056	0.00517					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000455	0.00038					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.551	0.555					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00082	0.00078					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	3.02	2.6					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.36	1.25					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0236	0.0219					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.07	0.94					
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	-	-	-	-	0.0012	0.00096					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000017	0.000016					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.0011	0.00095					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0012	< 0.0010		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life										
Color Key:		*Exceeds FAL Long term Guideline*	Exceeds FAL Short 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	Exceeds both FAL and MAL Guidelines							

[1]BC MOECCS. 2023. BC Water Qualtiy Guidelines for the Protection of Aquatic Life, Wildlife & Agriculture. Accessed from:
wqg_summary_aquaticlife_wildlife_agri.pdf (gov.bc.ca)
[2]BC MOECCS. 2021. BC Working Water Qualtiy Guidelines for the Protection of Aquatic Life, Widlife & Agriculture. Accessed from:
bc_env_working_water_quality_guidelines.pdf (gov.bc.ca)
[3]Note that long-term guidelines apply to averaged data to account for chronic impacts to aquatic life. Ideally, five samples collected at evenly spaced intervals over 30 days is considered to be the minimum number needed to calculate the long-term average of any parameter, though this may vary by parameter and site conditions. Long-term guidelines applied here are for reference only and may not indicate chronic impacts to aquatic life if exceedances occur in the short term.
[4]Background temperature ranges: Dec-Feb: 2.0-4.0C; Mar-Apr: 4.0-6.0C; May-June: 6.0-12.0C; Jul-Sept: 9.0-12.0C; Oct-Nov: 3.0-5.0
Reference: Triton Environmental Consulants Ltd. 2023. Memo - Background water quality values for the BC Rail Discharge to Squamish River
For guidelines dependent on other parameters, when hardness, pH or DOC are below the range stated in the guideline, the lowest value in the range is used to calculate the guideline.

Parameters Used to Calculate Guidelines

Analyte	Units	FAL-LT [1,2]	FAL-ST [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				6.34	6.55
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				15	14.6
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				109.80	106.90
Hardness (as CaCO3) (total)	mg/L	Laboratory tested total hardness taken at each respective sample site on the day of sampling used in guideline calculations				18	16.2
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				0.92	0.84
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				10.4	9.3
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.05	0.95

BCR Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24B8651**	Page	: 1 of 6
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 29-Jul-2024 11:50
PO	: 11964-Task 20-Phase 3C-4C	Date Analysis Commenced	: 30-Jul-2024
C-O-C number	: ----	Issue Date	: 07-Aug-2024 17:22
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Daniel Shabestani	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Owen Cheng		Metals, Burnaby, British Columbia
Paolo Obillo	Account Manager Assistant	Administration, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

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

<: less than.

>: greater than.

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

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

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US1	SQU DS 1	----	----	----
					Client sampling date / time	29-Jul-2024 09:22	29-Jul-2024 10:14	----	----	----
						VA24B8651-001	VA24B8651-002	--------	--------	--------
						Result	Result	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		83.000	54.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units		6.34	6.55	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		15.0	14.6	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		10.8	10.1	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		18.0	16.2	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		44	41	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		104	87.9	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		10.4	9.3	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0638	0.0546	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		1.05	0.95	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.020	<0.020	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0178	0.0160	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.129	0.118	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.127	0.161	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		2.84	2.62	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.92	0.84	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		0.0093	0.0089	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		0.0085	0.0075	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		0.0099	0.0095	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		4.59	3.81	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US1	SQU DS 1	----	----	----
					Client sampling date / time	29-Jul-2024 09:22	29-Jul-2024 10:14	----	----	----
						VA24B8651-001	VA24B8651-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00034	0.00032	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0492	0.0430	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000792	0.0000102	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		5.20	4.66	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000115	0.000102	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00100	0.00095	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00083	0.00076	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00496	0.00422	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		1.88	1.74	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000545	0.000440	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0020	0.0018	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		1.22	1.12	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0469	0.0435	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000471	0.000441	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00116	0.00100	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.137	0.126	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.38	1.25	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00325	0.00292	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		9.58	8.49	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		0.000013	0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		2.83	2.36	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0599	0.0521	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.10	0.91	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000015	0.000013	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		0.00014	0.00013	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US1	SQU DS 1	----	----	----
					Client sampling date / time	29-Jul-2024 09:22	29-Jul-2024 10:14	----	----	----
						VA24B8651-001	VA24B8651-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.113	0.108	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000080	0.000076	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00520	0.00479	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0065	0.0060	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		0.00064	0.00061	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0511	0.0339	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00012	0.00012	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00340	0.00340	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		3.66	3.43	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000011	<0.000010	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00037	0.00035	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.045	0.029	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.402	0.364	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00560	0.00517	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000455	0.000380	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		0.551	0.555	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SQU US1	SQU DS 1	----	----	----
					Client sampling date / time	29-Jul-2024 09:22	29-Jul-2024 10:14	----	----	----
						VA24B8651-001	VA24B8651-002	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00082	0.00078	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		3.02	2.60	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		1.36	1.25	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0236	0.0219	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.07	0.94	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		0.00120	0.00096	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000017	0.000016	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00110	0.00095	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0012	<0.0010	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		0.00100	0.00095	----	----	----

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

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

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B8651**	Page	: 1 of 14
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Aegean Chan	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 631 2213	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 29-Jul-2024 11:50
PO	: 11964-Task 20-Phase 3C-4C	Issue Date	: 07-Aug-2024 17:22
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU DS 1	E298	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	04-Aug-2024	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US1	E298	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	04-Aug-2024	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US1	E235.Br-L	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US1	E235.Cl	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-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 SQU US1	E235.F	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	29-Jul-2024	30-Jul-2024	3 days	1 days	✓	30-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US1	E235.NO3-L	29-Jul-2024	30-Jul-2024	3 days	1 days	✓	30-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO2-L	29-Jul-2024	30-Jul-2024	3 days	1 days	✓	30-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US1	E235.NO2-L	29-Jul-2024	30-Jul-2024	3 days	1 days	✓	30-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US1	E235.SO4	29-Jul-2024	30-Jul-2024	28 days	1 days	✓	30-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	03-Aug-2024	28 days	5 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US1	E366	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	03-Aug-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU DS 1	E372-U	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	07-Aug-2024	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US1	E372-U	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	07-Aug-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	29-Jul-2024	02-Aug-2024	28 days	5 days	✓	02-Aug-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US1	E509	29-Jul-2024	02-Aug-2024	28 days	5 days	✓	02-Aug-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	29-Jul-2024	31-Jul-2024	180 days	2 days	✓	03-Aug-2024	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US1	E421	29-Jul-2024	31-Jul-2024	180 days	2 days	✓	03-Aug-2024	180 days	5 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU DS 1	EF001	29-Jul-2024	----	----	----		01-Aug-2024	----	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)										
SQU US1	EF001	29-Jul-2024	----	----	----		01-Aug-2024	----	3 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	02-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
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) SQU US1	E358-L	29-Jul-2024	02-Aug-2024	28 days	4 days	✓	02-Aug-2024	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU DS 1	E290	29-Jul-2024	30-Jul-2024	14 days	1 days	✓	30-Jul-2024	14 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU US1	E290	29-Jul-2024	30-Jul-2024	14 days	1 days	✓	30-Jul-2024	14 days	1 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU DS 1	E162	29-Jul-2024	----	----	----		01-Aug-2024	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU US1	E162	29-Jul-2024	----	----	----		01-Aug-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SQU DS 1	E160	29-Jul-2024	----	----	----		02-Aug-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SQU US1	E160	29-Jul-2024	----	----	----		02-Aug-2024	7 days	4 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide) SQU DS 1	E532	29-Jul-2024	----	----	----		31-Jul-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide) SQU US1	E532	29-Jul-2024	----	----	----		31-Jul-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) SQU DS 1	E508	29-Jul-2024	06-Aug-2024	28 days	8 days	✓	06-Aug-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) SQU US1	E508	29-Jul-2024	06-Aug-2024	28 days	8 days	✓	06-Aug-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SQU DS 1	E420	29-Jul-2024	31-Jul-2024	180 days	2 days	✓	04-Aug-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SQU US1	E420	29-Jul-2024	31-Jul-2024	180 days	2 days	✓	04-Aug-2024	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) SQU DS 1	E395	29-Jul-2024	----	----	----		06-Aug-2024	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) SQU US1	E395	29-Jul-2024	----	----	----		06-Aug-2024	7 days	8 days	× EHT

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

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	1570647	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1577327	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1570652	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	1570651	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1578699	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1572092	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1577324	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1570650	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1570653	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1570654	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1570655	1	17	5.8	5.0	✓
TDS by Gravimetry	E162	1576827	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1573744	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1581220	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1570607	1	17	5.8	5.0	✓
Total Nitrogen by Colourimetry	E366	1577325	1	11	9.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1577326	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580955	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1576803	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1570647	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1577327	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1570652	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	1570651	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1578699	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1572092	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1577324	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1570650	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1570653	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1570654	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1570655	1	17	5.8	5.0	✓
TDS by Gravimetry	E162	1576827	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1573744	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1581220	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1570607	1	17	5.8	5.0	✓
Total Nitrogen by Colourimetry	E366	1577325	1	11	9.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1577326	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580955	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1576803	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1570647	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1577327	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1570652	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	1570651	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1578699	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1572092	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1577324	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1570650	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1570653	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1570654	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1570655	1	17	5.8	5.0	✓
TDS by Gravimetry	E162	1576827	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1573744	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1581220	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1570607	1	17	5.8	5.0	✓
Total Nitrogen by Colourimetry	E366	1577325	1	11	9.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1577326	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580955	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1576803	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1577327	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1570652	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	1570651	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1578699	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1572092	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1577324	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1570650	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1570653	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1570654	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1570655	1	17	5.8	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1573744	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1581220	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1570607	1	17	5.8	5.0	✓
Total Nitrogen by Colourimetry	E366	1577325	1	11	9.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1577326	1	11	9.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1580955	1	11	9.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 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 H_2S concentration based on the total sulfide concentration in the sample. The H_2S 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	: **VA24B8651**	Page	: 1 of 17
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Aegean Chan	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 631 2213	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 29-Jul-2024 11:50
PO	: 11964-Task 20-Phase 3C-4C	Date Analysis Commenced	: 30-Jul-2024
C-O-C number	: ----	Issue Date	: 07-Aug-2024 17:22
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Daniel Shabestani	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Paolo Obillo	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
Sam Silveira	Analyst	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	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: 1570647)											
FJ2402161-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	153	154	0.460%	20%	----
Physical Tests (QC Lot: 1576803)											
FJ2402196-004	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1576827)											
FJ2402196-004	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	98	101	3	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1570650)											
FJ2402161-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.380	0.375	1.22%	20%	----
Anions and Nutrients (QC Lot: 1570651)											
FJ2402161-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1570652)											
FJ2402161-001	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: 1570653)											
FJ2402161-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0091	0.0071	0.0020	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1570654)											
FJ2402161-001	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: 1570655)											
FJ2402161-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	206	206	0.0764%	20%	----
Anions and Nutrients (QC Lot: 1577325)											
VA24B8651-001	SQU US1	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.129	0.131	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1577326)											
VA24B8804-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1577327)											
VA24B8647-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0082	0.0083	0.0001	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1577324)											
VA24B8671-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.63	1.68	0.05	Diff <2x LOR	----
Total Sulfides (QC Lot: 1580955)											
RG2401186-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0075	mg/L	0.0271	0.0272	0.00003	Diff <2x LOR	----
Total Metals (QC Lot: 1570607)											
VA24B8547-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0440	0.0404	8.46%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1570607) - continued											
VA24B8547-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00134	0.00130	3.54%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0706	0.0686	2.99%	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	0.0000251	0.0000212	0.0000039	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	13.7	14.4	4.77%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000051	0.000049	0.000002	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	0.00025	0.00024	0.000005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00308	0.00302	0.00006	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	1.60	1.54	3.63%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000646	0.000653	0.988%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	1.33	1.32	0.416%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	1.81	1.81	0.413%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000697	0.000665	4.74%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	0.303	0.300	0.002	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00066	0.00067	0.000005	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000111	0.000107	0.000004	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	1.11	1.10	0.794%	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	0.582	0.576	1.10%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.120	0.120	0.386%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	2.72	2.61	0.11	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<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	0.00039	0.00041	0.00002	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00264	0.00263	0.634%	20%	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000014	0.000015	0.0000009	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: 1570607) - continued											
VA24B8547-001	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	0.0055	0.0053	0.0002	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: 1581220)											
VA24B8569-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000070	0.0000086	0.0000016	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1572092)											
FJ2402164-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0057	0.0051	0.0006	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00980	0.00989	0.833%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	1.32	1.35	2.48%	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	0.018	0.017	0.0004	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	85.0	88.0	3.54%	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	0.00119	0.00104	0.00015	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	32.3	33.2	2.65%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0197	0.0195	0.931%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	22.7	23.5	3.76%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.263	0.271	2.98%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00189	0.00196	3.79%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.914	0.958	4.67%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00040	0.00038	0.00002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000070	0.000092	0.000021	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.58	5.59	0.222%	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	14.0	14.3	2.32%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.243	0.248	2.02%	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: 1572092) - continued											
FJ2402164-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<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	0.000018	0.000016	0.000001	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00096	0.00100	0.00004	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0043	0.0044	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00090	mg/L	<0.00090	<0.00090	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1578699)											
VA24B8472-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1573744)											
VA24B8651-001	SQU US1	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: 1570647)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1576803)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1576827)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1570650)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1570651)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1570652)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1570653)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1570654)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1570655)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1577325)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1577326)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1577327)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1577324)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1580955)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1570607)						
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: 1570607) - 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: 1581220)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1572092)						
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: 1572092) - 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: 1578699)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1573744)						
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: 1570647)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.7	85.0	115	----
Physical Tests (QCLot: 1576803)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1576827)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 1570650)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1570651)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1570652)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1570653)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1570654)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	106	90.0	110	----
Anions and Nutrients (QCLot: 1570655)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1577325)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 1577326)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	89.9	80.0	120	----
Anions and Nutrients (QCLot: 1577327)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1577324)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 1580955)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 1570607)									

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: 1570607) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	105	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	94.8	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	97.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.9	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	96.1	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	97.0	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	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	100.0	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	96.9	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	99.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	104	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	118	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	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	109	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.9	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	99.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	96.2	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	95.6	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.6	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	93.0	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	95.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1570607) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.4	80.0	120	----
Total Metals (QCLot: 1581220)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.7	80.0	120	----
Dissolved Metals (QCLot: 1572092)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	97.0	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.3	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	95.6	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	98.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.3	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.0	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.7	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	95.6	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	97.2	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	95.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.8	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	91.7	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.8	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.4	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	95.1	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	104	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1572092) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	96.9	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.4	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.5	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	99.4	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.7	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.4	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	98.7	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.0	80.0	120	----
Speciated Metals (QCLot: 1573744)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	100	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: 1570650)										
FJ2402161-002	Anonymous	Fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1570651)										
FJ2402161-002	Anonymous	Chloride	16887-00-6	E235.Cl	106 mg/L	100 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1570652)										
FJ2402161-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.494 mg/L	0.5 mg/L	98.9	75.0	125	----
Anions and Nutrients (QCLot: 1570653)										
FJ2402161-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.63 mg/L	2.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1570654)										
FJ2402161-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.533 mg/L	0.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1570655)										
FJ2402161-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1577325)										
VA24B8651-002	SQU DS 1	Nitrogen, total	7727-37-9	E366	0.418 mg/L	0.4 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 1577326)										
VA24B8806-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0488 mg/L	0.05 mg/L	97.5	70.0	130	----
Anions and Nutrients (QCLot: 1577327)										
VA24B8647-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.101 mg/L	0.1 mg/L	101	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1577324)										
VA24B8671-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1580955)										
RG2401186-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	452 mg/L	500 mg/L	90.4	75.0	125	----
Total Metals (QCLot: 1570607)										
VA24B8547-002	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.4	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00925 mg/L	0.01 mg/L	92.5	70.0	130	----
		Boron, total	7440-42-8	E420	0.092 mg/L	0.1 mg/L	92.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00985 mg/L	0.01 mg/L	98.5	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1570607) - continued										
VA24B8547-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Iron, total	7439-89-6	E420	1.99 mg/L	2 mg/L	99.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0184 mg/L	0.02 mg/L	92.1	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0895 mg/L	0.1 mg/L	89.5	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	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.4 mg/L	10 mg/L	104	70.0	130	----
		Potassium, total	7440-09-7	E420	3.80 mg/L	4 mg/L	95.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0416 mg/L	0.04 mg/L	104	70.0	130	----
		Silicon, total	7440-21-3	E420	9.74 mg/L	10 mg/L	97.4	70.0	130	----
		Silver, total	7440-22-4	E420	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		Sodium, total	7440-23-5	E420	1.95 mg/L	2 mg/L	97.4	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	20.4 mg/L	20 mg/L	102	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00362 mg/L	0.004 mg/L	90.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Tin, total	7440-31-5	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0397 mg/L	0.04 mg/L	99.4	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	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0986 mg/L	0.1 mg/L	98.6	70.0	130	----
		Zinc, total	7440-66-6	E420	0.385 mg/L	0.4 mg/L	96.2	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
Total Metals (QCLot: 1581220)										
VA24B8569-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000888 mg/L	0 mg/L	88.8	70.0	130	----
Dissolved Metals (QCLot: 1572092)										
FJ2402164-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.184 mg/L	0.2 mg/L	92.1	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0194 mg/L	0.02 mg/L	97.3	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00898 mg/L	0.01 mg/L	89.8	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.090 mg/L	0.1 mg/L	90.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0100 mg/L	0.01 mg/L	100	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0179 mg/L	0.02 mg/L	89.7	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
Dissolved Metals (QCLot: 1572092) - continued										
FJ2402164-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0175 mg/L	0.02 mg/L	87.6	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.83 mg/L	2 mg/L	91.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0938 mg/L	0.1 mg/L	93.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0361 mg/L	0.04 mg/L	90.2	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.00 mg/L	10 mg/L	90.0	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.65 mg/L	4 mg/L	91.3	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.37 mg/L	10 mg/L	93.7	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00307 mg/L	0.004 mg/L	76.7	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	18.7 mg/L	20 mg/L	93.6	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00366 mg/L	0.004 mg/L	91.6	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0356 mg/L	0.04 mg/L	89.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0937 mg/L	0.1 mg/L	93.7	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.367 mg/L	0.4 mg/L	91.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1578699)										
VA24B8472-006	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000913 mg/L	0 mg/L	91.3	70.0	130	----
Speciated Metals (QCLot: 1573744)										
VA24B8651-001	SQU US1	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0409 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:	Miranda Lewis
Phone:	604-356-9218
	Company address below will appear on the final report
Street:	1730-1111 West Georgia Street
City/Province:	Vancouver/BC
Postal Code:	V6E 4M3
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☑ ☐ NO
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax ~~mlewis@triton-env.com~~ Default list
Email 2 achan@triton-env.com; sblanchard@triton-env.com
Email 3 ESdat_CA+tritonenv@ESdatLabSync.net

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☑ MAIL ☑ FAX
Email 1 or Fax mlewis@triton-env.com
Email 2 smuminovic@triton-env.com

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: 07 ~~dd-mmm-yy~~ Aug 24

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):	8651	ALS Contact: Can Dang	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further 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: 6.34 cond: 83 µS/cm temp: 15.0 °C	29-Jul-24	~~09~~:22																			
	SQU DS 1			Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.55 cond: 54 µS/cm temp: 14.6 °C	29-Jul-24	10:14																			
	~~Duplicate~~			~~Water~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~							~~N~~	~~9~~
	~~Field Blank~~			~~Water~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~							~~N~~	~~9~~
	~~Trip Blank~~			~~Water~~	R		R	R	R	R	R	R	R	R								~~N~~	~~6~~

Environmental Division
Vancouver
Work Order Reference
VA24B8651

Telephone : +1 604 253 4188

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

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

Are samples for human consumption/ use? ☐ ☑ NO

Special Instructions / Speci

-down list below

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			
				12			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
[illegible]	29 July 24	11:47				CW	July 29	1150

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**.

BCR Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-7-29-Chycoski-D3099

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	07/29/2024	**Location:**	BC Rail Site
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.725282 -123.165175
Temperature(c):	Low 15 High 18	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 10:14:00 **Flow Volume (visual):** moderate

Notes: Conductivity: 54 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:**	
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**VOC/VPH**	No	**QA Samples:**	No
Nutrients	Yes	**EPH, PAH, LEPH/HEPH**	No		
DOC	Yes	**Trout LC50**	No		

Logger Maintenance

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

Describe Logger Maintenance

Cleaned logger and PVC pipe

Photos

Photo: 1

Location: SQU DS 1

Description: US view

Photo: 2

Location: SQU DS 1

Description: Across view

Photos

Photo: 3

Location: SQU DS 1

Description: DS view

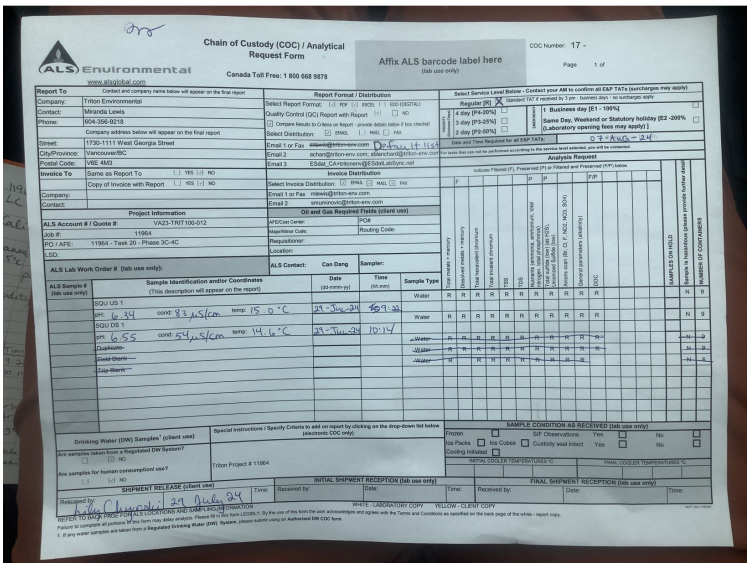

Photo: 4

Location: SQU DS 1

Description: Lab COC

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-7-29-Chycoski-136E4

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	07/29/2024	**Location:**	BC Rail Site
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 15 High 18	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 09:22:00 **Flow Volume (visual):** moderate

Notes: Conductivity: 83 micro Siemens per cm
Unable to pull sonde out of the river for maintenance. Stuck on rock.

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Cleaned logger and replaced pH and conductivity sensor

Photos

Photo: 1

Location: SQU US 1

Description: US view

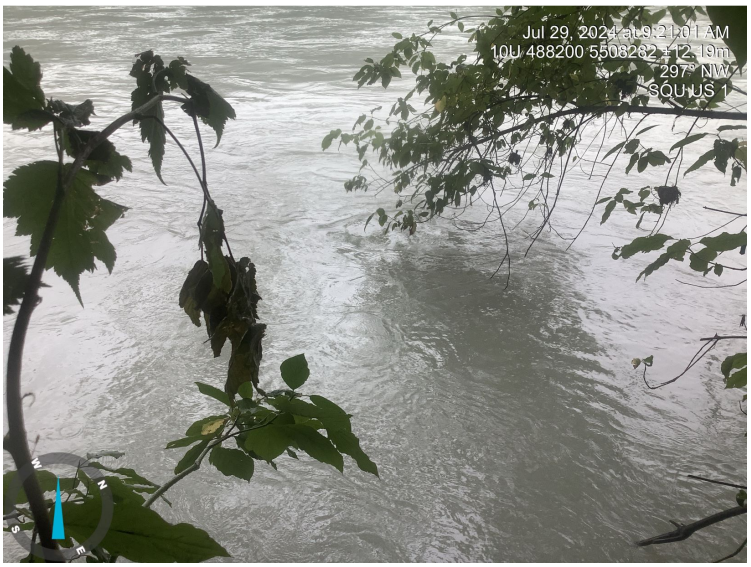

Photo: 2

Location: SQU US 1

Description: Across view

Photos

Photo: 3

Location: SQU US 1

Description: DS view

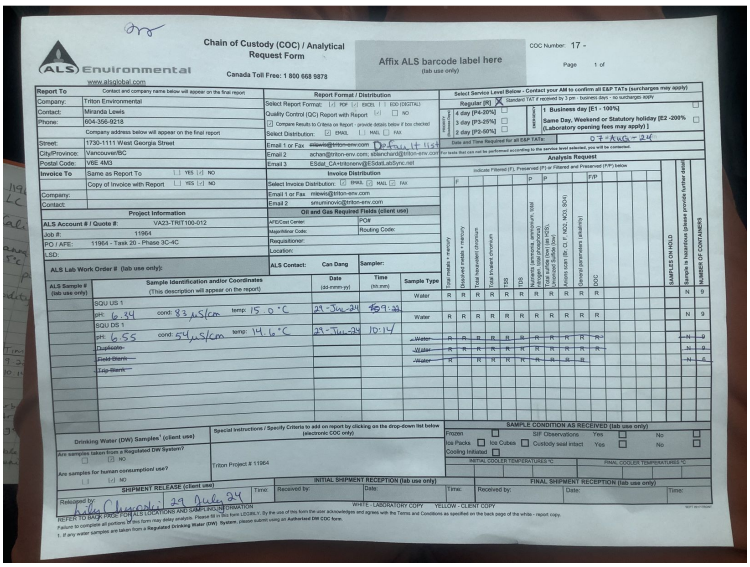

Photo: 4

Location: SQU US 1

Description: Lab COC

Sign Off

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

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

Woodfibre Site Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:	[College of Applied Biologists seal: Farshad Shafiei, RPBio 3781, CAB]		Farshad Shafiei Ph.D., R.P.Bio.	WLNG EOP	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24B8796-001					
	Date Sampled					30-Jul-2024					
	Time Sampled					09:42					
Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Water					
						N/A		Guideline notes			
In Situ Parameters											
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	6.94	pH falls outside of the acceptable short and long term BCWG range for MAL.	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	-	18.6	Temperature exceeds the MWMT of 18°C and Max +/- 1°C from background.	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 guideline is18°C, Short-term daily temperature guideline is 19°C for streams with unknown fish distribution, or Max +/- 1°C from background. Refer to footnote 4 for background temperature range for East Creek.		Guideline for marine waters are based on natural ambient conditions. Refer to footnote 4 for background temperature range for East Creek. Calculation: US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	343					
Turbidity (field)	NTU	Varies with background, see note	Varies with background, see note	Varies with background, see note	Varies with background, see note	1.99		Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 8 = DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 8 = DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
General Parameters											
Hardness (as CaCO3) (total)	mg/L	-	-	-	-	67.0					
Total Dissolved Solids	mg/L	-	-	-	-	77					
Total Suspended Solids	mg/L	Varies with background, see note	Varies with background, see note	Varies with background, see note	Varies with background, see note	< 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	-	-	-	-	0.64			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	-	-	-	77.3	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.	Varies with pH and temperature. See note.	Varies with pH, temperature and salinity. See note.	Varies with pH, temperature and salinity. See note.	< 0.0050		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	1.15				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Fluoride	mg/L	-	Varies with hardness	1.5	-	0.279		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	3	32.8	-	3.7	< 0.0050					
Nitrite (as N)	mg/L	Varies with chloride. See note.	Varies with chloride. See note.	-	-	<0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.063					
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.	-	-	-	6.06			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	-	-	-	0.0091			Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.074	0.25	-	-	0.0001					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00166					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.00704			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	0.034					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000057					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	25.1					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.00002					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00114					
Iron (Fe)-Total	mg/L	-	1	-	-	0.146					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	0.00116		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	-	-	-	-	0.0074					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.06					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.00604		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	Varies with methyl mercury	-	-	-	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1/[MeHg/totalHg]. When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	7.6	46	-	-	0.0183					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	0.00198			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	-	-	-	-	3.49					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00601					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	0.000096			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	6.24					
Silver (Ag)-Total	mg/L	Varies with hardness, see note	Varies with hardness, see note	0.003	0.0015	< 0.000010		Varies with hardness Guideline ranges: Hardness ≤ 100: 0.0001; Hardness > 100: 0.003	Varies with hardness Guideline ranges: Hardness ≤ 100: 0.00005; Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	4.28					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0637					
Sulfur (S)-Total	mg/L	-	-	-	-	1.91					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	0.000022			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	-	-	-	-	< 0.00030					
Tungsten (W)-Total	mg/L	-	-	-	-	0.00014					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.00088			Working guideline status		
Vanadium (V)-Total	mg/L	-	-	-	0.050	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0094					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020					
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0042					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	0.0001					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00149					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00993					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.033					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note	Varies with hardness, see note	-	-	< 0.0000100		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	Categorical, see note	-	-	-	24.6	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	-	-	-	-	0.00002					
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 varies with other parameters, see note	-	-	*0.00124*	**Dissolved Cu exceeds the long-term BCWG for FAL, thus there is a risk for chronic effects to FAL.** Note that LT Cu guidelines for EOP are the calculated BC BLM from US1 site as background values.	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	-	-	0.256					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	0.00072					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.0071					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.02					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.009					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.0175					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	0.00275					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	3.36					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00582					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	0.000104					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	5.89					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	4.02					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0621					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.81					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.000022					
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	-	-	-	-	0.00014					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000911					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0108		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Volatile Organic Compounds											
Chlorobenzene	µg/L	-	-	-	-	< 0.50					
Chloromethane	µg/L	-	-	-	-	< 5.0					
Dichlorobenzene, 1,2-	µg/L	0.7	-	-	42	< 0.50			Working guideline status		Working guideline status
Dichlorobenzene, 1,3-	µg/L	150	-	-	-	< 0.50			Working guideline status		
Dichlorobenzene, 1,4-	µg/L	26	-	-	-	< 0.50			Working guideline status		
Dichloropropane, 1,2-	µg/L	-	-	-	-	< 0.50					
Dichloropropylene, cis+trans-1,3-	µg/L	-	-	-	-	< 0.75					
Dichloropropylene, cis-1,3-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethane, 1,1,2,2-	µg/L	-	-	-	-	< 0.20					
Trichloroethane, 1,1,2-	µg/L	-	-	-	-	< 0.50					
Trichlorofluoromethane	µg/L	-	-	-	-	< 0.50					
Carbon tetrachloride	µg/L	-	-	-	-	< 0.50					
Chloroethane	µg/L	-	-	-	-	< 0.50					
Dichloroethane, 1,1-	µg/L	-	-	-	-	< 0.50					
Dichloroethane, 1,2-	µg/L	100	-	-	-	< 0.50			Working guideline status		
Dichloroethylene, 1,1-	µg/L	-	-	-	-	< 0.50					
Dichloroethylene, cis-1,2-	µg/L	-	-	-	-	< 0.50					
Dichloroethylene, trans-1,2-	µg/L	-	-	-	-	< 0.50					
Dichloromethane	µg/L	98.1	-	-	-	< 1.00			Working guideline status		
Dichloropropylene, trans-1,3-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethylene	µg/L	110	-	-	-	< 0.50			Working guideline status		
Trichloroethane, 1,1,1-	µg/L	-	-	-	-	< 0.50					
Trichloroethylene	µg/L	21	-	-	-	< 0.50			Working guideline status		
Vinyl chloride	µg/L	-	-	-	-	< 0.40					
Benzene	µg/L	40	-	-	110	< 0.50			Interim guideline status		Interim guideline status
Ethylbenzene	µg/L	200	-	-	250	< 0.50			Interim guideline status		Interim guideline status
Methyl-tert-butyl ether [MTBE]	µg/L	-	3400	440	-	< 0.50					
Styrene	µg/L	72	-	-	-	< 0.50			Working guideline status		
Toluene	µg/L	0.5	-	-	-	< 0.40					
Xylene, m+p-	µg/L	-	-	-	-	< 0.40					
Xylene, o-	µg/L	-	-	-	-	< 0.30					
Xylenes, total	µg/L	30	-	-	-	< 0.50					
Bromodichloromethane	µg/L	-	-	-	-	< 0.50					
Bromoform	µg/L	-	-	-	-	< 0.50					
Chloroform	µg/L	1.8	-	-	-	< 0.50			Working guideline status		
Dibromochloromethane	µg/L	-	-	-	-	< 0.50					
Hydrocarbons											
EPH (C10-C19)	µg/L	-	-	-	-	< 250					
EPH (C19-C32)	µg/L	-	-	-	-	< 250					
VHw (C6-C10)	µg/L	-	-	-	-	< 100					
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	4	0.1	-	-	< 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	4	0.2	-	-	< 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	0.012					Guideline is for total methylated napthalene and is presented here for reference.
Methylnaphthalene, 2-	µg/L	-	-	-	1	0.014					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 BCAWWQG Long term Guideline*	Exceeds BCAWWQG Short term Guideline	Exceeds BCAWWQG MAL Short term Guideline	*Exceeds BCAWWQG MAL Long term Guideline*						
Color Key:			Exceeds BCAWWQG Short and Long-Term Guideline	Exceeds BCAWWQG MAL Short and Long-term Guidelines	Exceeds both BCAWWQG FAL and MAL Guidelines						

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

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

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

[4]Background temperature ranges: Dec-Feb: 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	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Values: WLNG EOP	Values: WLNG US 30-Jul-2024
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				6.94	7.4
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				18.6	16.3
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				1.99	2.56
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				67	8.6
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				0.64	2.75
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				77.3	9.5
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.15	0.94
Total Suspended Solids	mg/L	Laboratory tested total suspended solids tested at the lab used in guideline calculations				3	< 3.0

Woodfibre Site Sample Lab Documentation

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 4800 Triton Environmental Consultants Ltd., Vancouver Job Number: C458018

Client Project Name & Number: 11964-Task 40-phase 3C-4C

Test Result:

96 hrs LC50 % vol/vol (95% CL): >100 (N/A) Statistical Method: Visual

Sample Name : WLNG EOP

Description:	CLEAR AND COLOURLESS			Sample Number:	CSK021-01
Sample Collected:	Jul 30, 2024 10:15 AM	Sampling Method :	N/A	Site Collection:	N/A
Sample Collected By:	N/A	Volume Received:	8 x ECO10	Avg Temp Arrival:	16 °C Storage: 2-6°C
Sample Received:	Jul 30, 2024 05:00 PM	pH:	7.4	Dissolved Oxygen:	9.7 mg/L
Analysis Start :	Aug 01, 2024 02:20 PM	Temperature :	15 °C	Sample Conductance:	157 µS/cm

Concentration	Temperature (°C)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (mg/L)	pH	pH	Conductivity (uS/cm)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)
% vol/vol	Initial	96 hrs	Initial	96 hrs	Initial	96 hrs	Initial	96 hrs	96 hrs	96 hrs
0	16	15	9.9	10.0	7.5	7.8	54	0	0	0
6.25	15	15	10.1	9.9	7.4	7.7	60	0	0	0
12.5	15	15	10.1	9.9	7.3	7.7	69	0	0	0
25	15	15	10.2	9.9	7.3	7.7	84	0	0	0
50	15	15	10.1	9.9	7.3	7.8	114	0	0	0
100	15	15	9.9	9.9	7.2	7.9	158	0	0	0

Comments : All fish appeared and behaved normally at 24 hours, 48 hours, 72 hours, and 96 hours into testing.

Culture/Control/Dilution Water Burnaby Municipal Dechlorinated Water

Hardness: 24 mg/L $CaCO_3$ Other parameters available on request.

Test Conditions Test concentration : 0,6.25,12.5,25,50,100 (% vol/vol)

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	30 min.	Rate of Aeration	6.5±1 mL/ (min*L)
Test Volume :	15 L	Vessel Volume :	20L	Test pH Adjusted:	No
Loading Density :	0.3 g/L	Photoperiod :	16:8 (light: dark)		

Test Organism : Rainbow Trout *(Oncorhynchus mykiss)* Source : Aqua Farm

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.4 ± 0.1 g	Length (Mean) +- SD :	3.83 ± 0.35 cm
Culture Water Renewal :	≥ 1L/min/kg fish	Weight (Range) :	0.3 – 0.7 g	Length (Range) :	3.50 – 4.50 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Zinc Test Date: Jul 17, 2024

Test Endpoint 96 hrs LC50 (95% confidence interval) : 0.21 (0.15, 0.30)mg/L Statistical Method : Probit

Historical Mean LC50 (warning limits) : 0.17 (0.10, 0.29) mg/L Concentration : 0,0.04,0.08,0.16,0.32,0.64 mg/L

Test Method BV Lab's BBY2SOP-00004 is based on the latest version of EPS 1/RM9 and EPS 1 /RM13.

Method Deviations : None.

Analyst : Guilherme De Faria Silva Naves, Ryan Colman, Yihui (Phyllis) Fang

Verified By : Kimberly Tamaki, Scientist, Ecotoxicology Date: Aug 13, 2024 04:07 PM

CERTIFICATE OF ANALYSIS

Work Order	: **VA24B8796**	Page	: 1 of 9
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 30-Jul-2024 17:20
PO	: 11964-Task 30-Phase3C-4C	Date Analysis Commenced	: 31-Jul-2024
C-O-C number	: ----	Issue Date	: 08-Aug-2024 15:17
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Daniel Shabestani	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Paolo Obillo	Account Manager Assistant	Administration, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°C	degrees celsius
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.

Workorder Comments

Sample Trip Blank: Container for phenols analysis not received at laboratory, but requested on Chain of Custody / analytical request form; subsample cannot be obtained from other containers to meet request. The requested analysis cannot be performed.

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*
HTDC	*Hold time exceeded for dilution or re-analysis. Reported results are consistent with initial results (tested within hold time), and are valid and defensible.*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
						VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		343.00	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units		6.94	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		18.6	----	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		65.6	64.7	<0.60	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		67.0	67.5	<0.60	<0.60	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		77	80	<10	<10	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	<3.0	<3.0	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		77.3	77.3	<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	<0.0050	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		1.15	1.14	<0.50	<0.50	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.279	0.266	<0.020	<0.020	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	<0.0050	<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	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.063	0.058	<0.030	<0.030	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0022	0.0021	<0.0020	<0.0020	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		6.06	6.04	<0.30	<0.30	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		0.64	0.63	<0.50	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015 HTDC	<0.0015 HTDC	<0.0015	<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	<0.0016	<0.0016	<0.0016	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0091	0.0088	<0.0030	<0.0030	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		0.00010	0.00011	<0.00010	<0.00010	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00166	0.00159	<0.00010	<0.00010	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00704	0.00704	<0.00010	<0.00010	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<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	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.034	0.034	<0.010	<0.010	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000057	0.0000053	<0.0000050	<0.0000050	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		25.1	25.3	<0.050	<0.050	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000020	0.000019	<0.000010	<0.000010	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<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	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00114	0.00148	<0.00050	<0.00050	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.146	0.146	<0.010	<0.010	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.00116	0.00115	<0.000050	<0.000050	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0074	0.0072	<0.0010	<0.0010	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		1.06	1.05	<0.0050	<0.0050	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00604	0.00613	<0.00010	<0.00010	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.0183	0.0181	<0.000050	<0.000050	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00198	0.00197	<0.00050	<0.00050	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		3.49	3.49	<0.050	<0.050	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00601	0.00592	<0.00020	<0.00020	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000096	0.000105	<0.000050	<0.000050	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		6.24	6.21	<0.10	<0.10	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		4.28	4.32	<0.050	<0.050	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0637	0.0626	<0.00020	<0.00020	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.91	2.00	<0.50	<0.50	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000022	0.000024	<0.000010	<0.000010	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<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 EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
						VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Total Metals										
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00014	0.00015	<0.00010	<0.00010	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000880	0.000878	<0.000010	<0.000010	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0094	0.0091	<0.0030	<0.0030	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0042	0.0028	<0.0010	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		0.00010	<0.00010	<0.00010	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00149	0.00156	<0.00010	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00993 DTC	0.00997 DTC	<0.00010	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.033	0.031	<0.010	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000100 DLM	<0.0000100 DLM	<0.0000050	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		24.6	24.2	<0.050	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000020	0.000019	<0.000010	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00124	0.00125	<0.00020	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.256 DTC	0.261 DTC	<0.010	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000720	0.000717	<0.000050	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0071	0.0069	<0.0010	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		1.02	1.03	<0.0050	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00900 DTC	0.00906 DTC	<0.00010	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0175	0.0173	<0.000050	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00275	0.00270	<0.00050	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		3.36	3.38	<0.050	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
						VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00582	0.00571	<0.00020	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000104	0.000069	<0.000050	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		5.89	6.01	<0.050	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		4.02	3.95	<0.050	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0621	0.0607	<0.00020	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.81	1.82	<0.50	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		0.000022	0.000021	<0.000010	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		0.00014	0.00013	<0.00010	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000911	0.000898	<0.000010	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0108	0.0104	<0.0010	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	0.00093	<0.00050	<0.00050	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Aggregate Organics										
Phenols, total (4AAP)	----	E562/EO	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloromethane	74-87-3	E611C/VA	5.0	µg/L		<5.0	<5.0	<5.0	<5.0	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
						VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L		<0.75	<0.75	<0.75	<0.75	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
						VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Volatile Organic Compounds [THMs]										
Bromoform	75-25-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroform	67-66-3	E611C/VA	0.50	µg/L		<0.50	<0.50	0.60 RRV	<0.50	----
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	<250	<250	<250	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	<250	<250	<250	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	<100	<100	<100	----
HEPHw	----	EC600A/VA	250	µg/L		<250	<250	<250	<250	----
LEPHw	----	EC600A/VA	250	µg/L		<250	<250	<250	<250	----
VPHw	----	EC580A/VA	100	µg/L		<100	<100	<100	<100	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		100	98.2	104	96.5	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		122	108	111	119	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		97.7	96.0	96.8	97.2	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		101	101	101	100	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	<0.015	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG EOP Tank	Duplicate	Field Blank	Trip Blank	----
					Client sampling date / time	30-Jul-2024 09:42	30-Jul-2024 09:42	30-Jul-2024 10:02	30-Jul-2024 00:00	----
						VA24B8796-001	VA24B8796-002	VA24B8796-003	VA24B8796-004	--------
						Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons										
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		0.012	0.014	<0.010	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		0.014	0.014	<0.010	<0.010	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	<0.020	<0.020	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		111	112	112	108	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		110	113	108	107	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		106	108	105	103	----
Glycols										
Diethylene glycol	111-46-6	E680E/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	----
Ethylene glycol	107-21-1	E680E/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	----
Propylene glycol, 1,2-	57-55-6	E680E/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	----
Triethylene glycol	112-27-6	E680E/VA	5.0	mg/L		<5.0	<5.0	<5.0	<5.0	----
Glycols, total (EG+DEG+PG)	----	E680E/VA	10	mg/L		<10	<10	<10	<10	----
Glycols Surrogates										
Propanediol, 1,3-	504-63-2	E680E/VA	1.0	%		111	108	115	116	----

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

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

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B8796**	Page	: 1 of 22
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Miranda Lewis	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 631 2213	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 30-Jul-2024 17:20
PO	: 11964-Task 30-Phase3C-4C	Issue Date	: 08-Aug-2024 15:17
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) Duplicate	E562	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) Field Blank	E562	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) WLNG EOP Tank	E562	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Duplicate	E298	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	03-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Field Blank	E298	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	03-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG EOP Tank	E298	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	03-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) Trip Blank	E298	30-Jul-2024	01-Aug-2024	3 days	3 days	✓	03-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 Duplicate	E235.Br-L	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP Tank	E235.Br-L	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Trip Blank	E235.Br-L	30-Jul-2024	31-Jul-2024	28 days	2 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Duplicate	E235.Cl	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Blank	E235.Cl	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP Tank	E235.Cl	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Trip Blank	E235.Cl	30-Jul-2024	31-Jul-2024	28 days	2 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Duplicate	E235.F	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Field Blank	E235.F	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WLNG EOP Tank	E235.F	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Trip Blank	E235.F	30-Jul-2024	31-Jul-2024	28 days	2 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Duplicate	E235.NO3-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO3-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG EOP Tank	E235.NO3-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Trip Blank	E235.NO3-L	30-Jul-2024	31-Jul-2024	3 days	2 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Duplicate	E235.NO2-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO2-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	01-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 : Nitrite in Water by IC (Low Level)										
HDPE WLNG EOP Tank	E235.NO2-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Trip Blank	E235.NO2-L	30-Jul-2024	31-Jul-2024	3 days	2 days	✓	01-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Duplicate	E235.SO4	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Field Blank	E235.SO4	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WLNG EOP Tank	E235.SO4	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Trip Blank	E235.SO4	30-Jul-2024	31-Jul-2024	28 days	2 days	✓	01-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Duplicate	E366	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	02-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Field Blank	E366	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	02-Aug-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG EOP Tank	E366	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	02-Aug-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (lab preserved) Trip Blank	E366	30-Jul-2024	01-Aug-2024	3 days	3 days	✓	02-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	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) Field Blank	E372-U	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) WLNG EOP Tank	E372-U	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (lab preserved) Trip Blank	E372-U	30-Jul-2024	01-Aug-2024	3 days	3 days	✓	06-Aug-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) Duplicate	E509	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) Field Blank	E509	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WLNG EOP Tank	E509	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Duplicate	E421	30-Jul-2024	31-Jul-2024	180 days	1 days	✓	03-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
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Field Blank	E421	30-Jul-2024	31-Jul-2024	180 days	1 days	✓	03-Aug-2024	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG EOP Tank	E421	30-Jul-2024	31-Jul-2024	180 days	1 days	✓	03-Aug-2024	180 days	4 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG EOP Tank	EF001	30-Jul-2024	----	----	----		31-Jul-2024	----	1 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
Duplicate	E680E	30-Jul-2024	31-Jul-2024	7 days	1 days	✓	01-Aug-2024	40 days	1 days	✓
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
Field Blank	E680E	30-Jul-2024	31-Jul-2024	7 days	1 days	✓	01-Aug-2024	40 days	1 days	✓
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
Trip Blank	E680E	30-Jul-2024	31-Jul-2024	7 days	1 days	✓	01-Aug-2024	40 days	1 days	✓
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
WLNG EOP Tank	E680E	30-Jul-2024	31-Jul-2024	7 days	1 days	✓	01-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
Duplicate	E601A	30-Jul-2024	02-Aug-2024	14 days	3 days	✓	03-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
Field Blank	E601A	30-Jul-2024	02-Aug-2024	14 days	3 days	✓	03-Aug-2024	40 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
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP Tank	E601A	30-Jul-2024	02-Aug-2024	14 days	3 days	✓	03-Aug-2024	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
Trip Blank	E601A	30-Jul-2024	02-Aug-2024	14 days	4 days	✓	03-Aug-2024	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
Duplicate	E581.VH+F1	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
Field Blank	E581.VH+F1	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
Trip Blank	E581.VH+F1	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WLNG EOP Tank	E581.VH+F1	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Duplicate	E358-L	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	01-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	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	01-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG EOP Tank	E358-L	30-Jul-2024	01-Aug-2024	28 days	2 days	✓	01-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
Physical Tests : Alkalinity Species by Titration										
HDPE Duplicate	E290	30-Jul-2024	31-Jul-2024	14 days	1 days	✓	01-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Field Blank	E290	30-Jul-2024	31-Jul-2024	14 days	1 days	✓	01-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG EOP Tank	E290	30-Jul-2024	31-Jul-2024	14 days	1 days	✓	01-Aug-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Trip Blank	E290	30-Jul-2024	31-Jul-2024	14 days	2 days	✓	01-Aug-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Duplicate	E162	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Field Blank	E162	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WLNG EOP Tank	E162	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Trip Blank	E162	30-Jul-2024	----	----	----		02-Aug-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Duplicate	E160	30-Jul-2024	----	----	----		02-Aug-2024	7 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
Physical Tests : TSS by Gravimetry										
HDPE										
Field Blank	E160	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG EOP Tank	E160	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Trip Blank	E160	30-Jul-2024	----	----	----		02-Aug-2024	7 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
Duplicate	E641A	30-Jul-2024	02-Aug-2024	14 days	3 days	✓	02-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
Field Blank	E641A	30-Jul-2024	02-Aug-2024	14 days	3 days	✓	02-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP Tank	E641A	30-Jul-2024	02-Aug-2024	14 days	3 days	✓	02-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
Trip Blank	E641A	30-Jul-2024	02-Aug-2024	14 days	4 days	✓	02-Aug-2024	40 days	0 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Duplicate	E532	30-Jul-2024	----	----	----		01-Aug-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Field Blank	E532	30-Jul-2024	----	----	----		01-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)										
Trip Blank	E532	30-Jul-2024	----	----	----		01-Aug-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG EOP Tank	E532	30-Jul-2024	----	----	----		01-Aug-2024	28 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Duplicate	E508	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Field Blank	E508	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG EOP Tank	E508	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Trip Blank	E508	30-Jul-2024	02-Aug-2024	28 days	4 days	✓	02-Aug-2024	28 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Duplicate	E420	30-Jul-2024	02-Aug-2024	180 days	3 days	✓	04-Aug-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Field Blank	E420	30-Jul-2024	02-Aug-2024	180 days	3 days	✓	04-Aug-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG EOP Tank	E420	30-Jul-2024	02-Aug-2024	180 days	3 days	✓	04-Aug-2024	180 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Trip Blank	E420	30-Jul-2024	02-Aug-2024	180 days	4 days	✓	04-Aug-2024	180 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Duplicate	E395	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Field Blank	E395	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Trip Blank	E395	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG EOP Tank	E395	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Duplicate	E611C	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Field Blank	E611C	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Trip Blank	E611C	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP Tank	E611C	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	07-Aug-2024	14 days	8 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	1574447	1	14	7.1	5.0	✓
Ammonia by Fluorescence	E298	1575901	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1574452	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1574451	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1581058	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1575902	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1574450	1	14	7.1	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1573500	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1574453	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1574454	1	14	7.1	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1577460	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1574455	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	1578490	2	30	6.6	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1578634	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1575903	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1575904	1	8	12.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580579	2	36	5.5	5.0	✓
TSS by Gravimetry	E160	1578484	2	30	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1580729	1	18	5.5	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1580730	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1574447	1	14	7.1	5.0	✓
Ammonia by Fluorescence	E298	1575901	1	20	5.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1578467	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1574452	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1574451	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1581058	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1575902	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1574450	1	14	7.1	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1573500	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1574453	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1574454	1	14	7.1	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	1578468	1	10	10.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1577460	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1574455	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	1578490	2	30	6.6	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1578634	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1575903	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1575904	1	8	12.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580579	2	36	5.5	5.0	✓
TSS by Gravimetry	E160	1578484	2	30	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1580729	1	18	5.5	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1580730	1	9	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1574447	1	14	7.1	5.0	✓
Ammonia by Fluorescence	E298	1575901	1	20	5.0	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1578467	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1574452	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1574451	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1581058	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1575902	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1574450	1	14	7.1	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1573500	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1574453	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1574454	1	14	7.1	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1578468	1	10	10.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1577460	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1574455	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	1578490	2	30	6.6	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1578634	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1575903	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1575904	1	8	12.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580579	2	36	5.5	5.0	✓
TSS by Gravimetry	E160	1578484	2	30	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1580729	1	18	5.5	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1580730	1	9	11.1	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	1575901	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1574452	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1574451	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1581058	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1575902	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1574450	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1574453	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1574454	1	14	7.1	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1577460	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1574455	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1578634	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1575903	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1575904	1	8	12.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580579	2	36	5.5	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1580729	1	18	5.5	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1580730	1	9	11.1	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 H_2S concentration based on the total sulfide concentration in the sample. The H_2S 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.

QUALITY CONTROL REPORT

Work Order	: **VA24B8796**	Page	: 1 of 23
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Miranda Lewis	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 631 2213	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 30-Jul-2024 17:20
PO	: 11964-Task 30-Phase3C-4C	Date Analysis Commenced	: 31-Jul-2024
C-O-C number	: ----	Issue Date	: 08-Aug-2024 15:18
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Daniel Shabestani	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario
Paolo Obillo	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Edmonton Inorganics, Edmonton, Alberta
Sam Silveira	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1574447)											
FJ2402193-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	279	279	0.0359%	20%	----
Physical Tests (QC Lot: 1578484)											
FJ2402228-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	8.0	8.2	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1578485)											
VA24B8796-003	Field Blank	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1578490)											
FJ2402228-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1320	1330	1.47%	20%	----
Physical Tests (QC Lot: 1578491)											
VA24B8796-003	Field Blank	Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	<10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1574450)											
YL2401014-001	Anonymous	Fluoride	16984-48-8	E235.F	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1574451)											
YL2401014-001	Anonymous	Chloride	16887-00-6	E235.Cl	25.0	mg/L	1870	1790	4.34%	20%	----
Anions and Nutrients (QC Lot: 1574452)											
YL2401014-001	Anonymous	Bromide	24959-67-9	E235.Br-L	2.50	mg/L	17.1	16.3	0.838	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1574453)											
YL2401014-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1574454)											
YL2401014-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1574455)											
YL2401014-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	15.0	mg/L	961	920	4.33%	20%	----
Anions and Nutrients (QC Lot: 1575901)											
VA24B8722-001	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: 1575903)											
VA24B8796-003	Field Blank	Nitrogen, total	7727-37-9	E366	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1575904)											
VA24B8957-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.269	0.272	1.01%	20%	----
Organic / Inorganic Carbon (QC Lot: 1575902)											
VA24B8722-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.14	1.23	0.09	Diff <2x LOR	----
Total Sulfides (QC Lot: 1580579)											

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 Sulfides (QC Lot: 1580579) - continued											
CG2410634-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0018	0.0016	0.0002	Diff <2x LOR	----
Total Sulfides (QC Lot: 1580582)											
CG2410649-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1573344)											
KS2402949-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00148	0.00147	0.590%	20%	----
		Barium, total	7440-39-3	E420	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.100	mg/L	23.5	23.5	0.122%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000010	0.000011	0.0000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	0.00170	0.00172	0.00002	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.030	mg/L	0.518	0.513	0.972%	20%	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	20.9	20.9	0.0263%	20%	----
		Manganese, total	7439-96-5	E420	0.00200	mg/L	0.0365	0.0366	0.305%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00941	0.00948	0.676%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00084	0.00086	0.00002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	0.050	0.0002	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	2.90	2.88	0.628%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00358	0.00351	1.90%	20%	----
		Selenium, total	7782-49-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	8.73	8.74	0.0438%	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	2.00	mg/L	21.4	20.8	2.90%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0402	0.0402	0.0529%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	5.62	5.70	1.37%	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: 1573344) - continued											
KS2402949-001	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	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00024	0.00024	0.000003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000100	mg/L	0.000334	0.000338	0.000004	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	0.00033	0.00013	Diff <2x LOR	----
Total Metals (QC Lot: 1578634)											
FJ2402196-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1573358)											
VA24B8799-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.406	0.416	2.22%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0102	0.00985	4.06%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	0.000083	0.000080	0.000003	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	0.000297	0.000298	0.187%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	11.7	11.9	1.56%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000044	0.000046	0.000002	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	0.00231	0.00234	1.45%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00467	0.00485	3.76%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.052	0.052	0.0003	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000161	0.000158	0.000003	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0019	0.0019	0.00001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	0.734	0.750	2.17%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.216	0.225	4.32%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00087	0.00091	0.00004	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.107	0.107	0.0002	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1573358) - continued											
VA24B8799-001	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.824	0.813	1.32%	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	0.252	0.220	0.032	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0698	0.0718	2.83%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	12.2	11.4	6.66%	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	0.000091	0.000090	0.000002	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	0.0304	0.0305	0.299%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1581058)											
VA24B8676-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1575229)											
HA2401786-001	Anonymous	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: 1577460)											
TY2408075-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	0.0021	0.0022	0.00008	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1580730)											
VA24B8524-001	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	----

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: 1580730) - continued											
VA24B8524-001	Anonymous	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	----
		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	6.55	6.12	6.87%	30%	----
		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	0.32	0.01	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1580729)											
VA24B8524-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Glycols (QC Lot: 1573500)											
VA24B8676-001	Anonymous	Diethylene glycol	111-46-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Ethylene glycol	107-21-1	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Propylene glycol, 1,2-	57-55-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Triethylene glycol	112-27-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1574447)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1578484)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1578485)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1578490)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1578491)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1574450)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1574451)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1574452)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1574453)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1574454)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1574455)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1575901)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1575903)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1575904)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1575902)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1580579)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Sulfides (QCLot: 1580582)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1573344)						
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: 1573344) - 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: 1578634)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1573358)						
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: 1573358) - 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: 1581058)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1575229)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Aggregate Organics (QCLot: 1577460)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1580730)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1580730) - continued						
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	----
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: 1578467)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1580729)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1578468)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1578468) - continued						
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	----
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: 1573500)						
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: 1574447)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1578484)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1578485)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	107	85.0	115	----
Physical Tests (QCLot: 1578490)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1578491)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.8	85.0	115	----
Anions and Nutrients (QCLot: 1574450)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.8	90.0	110	----
Anions and Nutrients (QCLot: 1574451)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1574452)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1574453)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1574454)									
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: 1574455)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1575901)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 1575903)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1575904)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	97.7	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1575902)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.7	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 Sulfides (QCLot: 1580579)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 1580582)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	107	80.0	120	----
Total Metals (QCLot: 1573344)									
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	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	96.1	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	92.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.0	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	93.6	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	92.2	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	93.9	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.6	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	103	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.2	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	112	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.0	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	119	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	89.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.5	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	95.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1573344) - continued									
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	93.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.6	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	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	93.9	80.0	120	----
Total Metals (QCLot: 1578634)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	92.1	80.0	120	----
Dissolved Metals (QCLot: 1573358)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.3	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	93.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	93.3	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	95.1	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	99.2	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1573358) - continued									
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	97.5	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	106	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.2	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.5	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.5	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	99.7	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.2	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.2	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.6	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.3	80.0	120	----
Speciated Metals (QCLot: 1575229)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	100	80.0	120	----
Aggregate Organics (QCLot: 1577460)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	96.4	85.0	115	----
Volatile Organic Compounds (QCLot: 1580730)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	97.6	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	97.1	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	97.0	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	98.6	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	98.5	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	92.6	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	97.5	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	98.1	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	100.0	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: 1580730) - continued									
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	99.2	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	93.7	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	94.7	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	89.8	70.0	130	----
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	96.7	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	95.6	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	96.6	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	91.0	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	98.3	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	94.6	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	93.0	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	93.8	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	98.3	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	97.5	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	95.2	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	107	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	96.1	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	94.3	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	92.3	70.0	130	----
Hydrocarbons (QCLot: 1578467)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	97.7	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	100	70.0	130	----
Hydrocarbons (QCLot: 1580729)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	77.4	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1578468)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	117	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: 1578468) - continued									
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	117	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	126	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	122	60.0	130	----
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	118	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	111	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	118	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	105	60.0	130	----
Glycols (QCLot: 1573500)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	117	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	111	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	108	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	120	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: 1574450)										
VA24B8759-001	Anonymous	Fluoride	16984-48-8	E235.F	0.983 mg/L	1 mg/L	98.3	75.0	125	----
Anions and Nutrients (QCLot: 1574451)										
VA24B8759-001	Anonymous	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1574452)										
VA24B8759-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.524 mg/L	0.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1574453)										
VA24B8759-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.61 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1574454)										
VA24B8759-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.516 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1574455)										
VA24B8759-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1575901)										
VA24B8722-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0986 mg/L	0.1 mg/L	98.6	75.0	125	----
Anions and Nutrients (QCLot: 1575903)										
VA24B8796-004	Trip Blank	Nitrogen, total	7727-37-9	E366	0.416 mg/L	0.4 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 1575904)										
VA24B8957-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0560 mg/L	0.05 mg/L	112	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1575902)										
VA24B8722-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.94 mg/L	5 mg/L	98.8	70.0	130	----
Total Sulfides (QCLot: 1580579)										
CG2410634-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.198 mg/L	0.2 mg/L	99.2	75.0	125	----
Total Sulfides (QCLot: 1580582)										
CG2410688-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.235 mg/L	0.2 mg/L	118	75.0	125	----
Total Metals (QCLot: 1573344)										
VA24B8690-001	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0365 mg/L	0.04 mg/L	91.4	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00876 mg/L	0.01 mg/L	87.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.081 mg/L	0.1 mg/L	80.7	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1573344) - continued										
VA24B8690-001	Anonymous	Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00938 mg/L	0.01 mg/L	93.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Copper, total	7440-50-8	E420	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Iron, total	7439-89-6	E420	1.88 mg/L	2 mg/L	94.0	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0820 mg/L	0.1 mg/L	82.0	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0182 mg/L	0.02 mg/L	91.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.8 mg/L	10 mg/L	108	70.0	130	----
		Potassium, total	7440-09-7	E420	3.83 mg/L	4 mg/L	95.8	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Silicon, total	7440-21-3	E420	9.83 mg/L	10 mg/L	98.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.00374 mg/L	0.004 mg/L	93.5	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	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00337 mg/L	0.004 mg/L	84.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Tin, total	7440-31-5	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0391 mg/L	0.04 mg/L	97.9	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0182 mg/L	0.02 mg/L	91.3	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E420	0.377 mg/L	0.4 mg/L	94.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
Total Metals (QCLot: 1578634)										
FJ2402196-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000805 mg/L	0 mg/L	80.5	70.0	130	----
Dissolved Metals (QCLot: 1573358)										
VA24B8799-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	ND mg/L	----	ND	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00944 mg/L	0.01 mg/L	94.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.093 mg/L	0.1 mg/L	93.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00412 mg/L	0.004 mg/L	103	70.0	130	----
		Calcium, dissolved	7440-70-2	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: 1573358) - continued										
VA24B8799-002	Anonymous	Cesium, dissolved	7440-46-2	E421	0.0103 mg/L	0.01 mg/L	103	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.97 mg/L	2 mg/L	98.5	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	0.943 mg/L	1 mg/L	94.3	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.52 mg/L	10 mg/L	95.2	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.99 mg/L	4 mg/L	99.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.66 mg/L	10 mg/L	96.6	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00407 mg/L	0.004 mg/L	102	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	18.4 mg/L	20 mg/L	92.1	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0424 mg/L	0.04 mg/L	106	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0374 mg/L	0.04 mg/L	93.5	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0962 mg/L	0.1 mg/L	96.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.406 mg/L	0.4 mg/L	102	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1581058)										
VA24B8796-001	WLNG EOP Tank	Mercury, dissolved	7439-97-6	E509	0.0000914 mg/L	0 mg/L	91.4	70.0	130	----
Speciated Metals (QCLot: 1575229)										
HA2401786-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0406 mg/L	0.04 mg/L	102	70.0	130	----
Aggregate Organics (QCLot: 1577460)										
TY2408075-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0211 mg/L	0.02 mg/L	106	75.0	125	----
Volatile Organic Compounds (QCLot: 1580730)										
VA24B8524-001	Anonymous	Benzene	71-43-2	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Bromoform	75-25-2	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Chlorobenzene	108-90-7	E611C	104 µg/L	100 µg/L	104	60.0	140	----

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: 1580730) - continued										
VA24B8524-001	Anonymous	Chloroethane	75-00-3	E611C	106 µg/L	100 µg/L	106	50.0	150	----
		Chloroform	67-66-3	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Chloromethane	74-87-3	E611C	79.7 µg/L	100 µg/L	79.7	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	93.5 µg/L	100 µg/L	93.5	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	93.0 µg/L	100 µg/L	93.0	60.0	140	----
		Dichloromethane	75-09-2	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	107 µg/L	100 µg/L	107	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Ethylbenzene	100-41-4	E611C	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Styrene	100-42-5	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Toluene	108-88-3	E611C	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	101 µg/L	100 µg/L	101	60.0	140	----
		Trichloroethylene	79-01-6	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	107 µg/L	100 µg/L	107	50.0	150	----
		Vinyl chloride	75-01-4	E611C	85.0 µg/L	100 µg/L	85.0	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	200 µg/L	200 µg/L	100	60.0	140	----
		Xylene, o-	95-47-6	E611C	97.2 µg/L	100 µg/L	97.2	60.0	140	----
Hydrocarbons (QCLot: 1580729)										
VA24B8524-002	Anonymous	VHw (C6-C10)	----	E581.VH+F1	4370 µg/L	6310 µg/L	69.3	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 20 -

Page of

Environmental Division Vancouver
Work Order Reference
VA24B8796

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	Triton Environmental
Contact:	Miranda Lewis
Phone:	604-356-9218
	Company address below will appear on the final report
Street:	1730-1111 West Georgia Street
City/Province:	Vancouver/BC
Postal Code:	V6E 4M3
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax ~~mlewis@triton-env.com~~, Default list
Email 2 achan@triton-env.com; lily.chycoski@triton-env.com
Email 3 ESdat_CA+tritonenv@ESdatLabSync.net

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax mlewis@triton-env.com
Email 2 smuminovic@triton-env.com

Turnaround Time (TAT) Requested

☒ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.
Date and Time Required for all E&P TATs: ~~07-Aug-24~~ dd-mmm-yy hh:mm am/pm
For all tests with rush TATs requested, please contact your AM to confirm availability.

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

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS, TDS, T-Alkalinity,Anions scan (Br, Cl, F, NO2, NO3, SO4)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus, phenols)	VOC/VPH	EPH, PAH, LEPH/HEPH	DOC	Glycols	General parameters (alkalinity)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						F	F				P	P	P	P	F/P					
	~~BCR EOP~~			~~Water~~	15	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~pH: cond: temp:~~																			
	WLNG EOP Tank	30-Jul-24	09:42	Water	15	R	R	R	R	R	R	R	R	R	R	R	R			
	pH: 6.94 cond: 343 µS/cm temp: 18.6 °C																			
	Duplicate	30-Jul-24	09:42	Water	15	R	R	R	R	R	R	R	R	R	R	R	R			
	Field Blank	30-Jul-24	10:02	Water	15	R	R	R	R	R	R	R	R	R	R	R	R			
	Trip Blank	30-Jul-24	N/A	Water	11	R		R	R	R	R	R	R	R		R	R			

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

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☑ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				15	16		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: Lily Chycoski	Date: 30 July 24	Time: 17:14	Received by:	Date:	Time:	Received by: RJ	Date: 31/30	Time: 5:00pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

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

Woodfibre Site WTP Discharge Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-7-30-Chycoski-ED424

Project Component:	Tunnel	**Site Name:**	WLNG Treatment Discharge
Inspection Date:	07/30/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669351 -123.248439
Temperature(c):	Low 17 High 21	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 09:42:00 **Flow Volume (visual):** N/A

Notes: Conductivity: 343 micro Siemens per cm
Sample taken from tank spigot

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:** Total hexavalent chromium and total trivalent chromium
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes	
TSS	Yes	**Anions**	Yes	
TDS	Yes	**VOC/VPH**	Yes	**QA Samples:** Yes Total hexavalent chromium and total trivalent chromium
Nutrients	Yes	**EPH, PAH, LEPH/HEPH**	Yes	
DOC	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

Description: Spigot at holding tank

Photo: 2

Location: WLNG EOP

Description: US view

Photos

Photo: 3

Location: WLNG EOP

Description: Across view

Photo: 4

Location: WLNG EOP

Description: DS view

2024-7-30-Chycoski-ED424

Photos

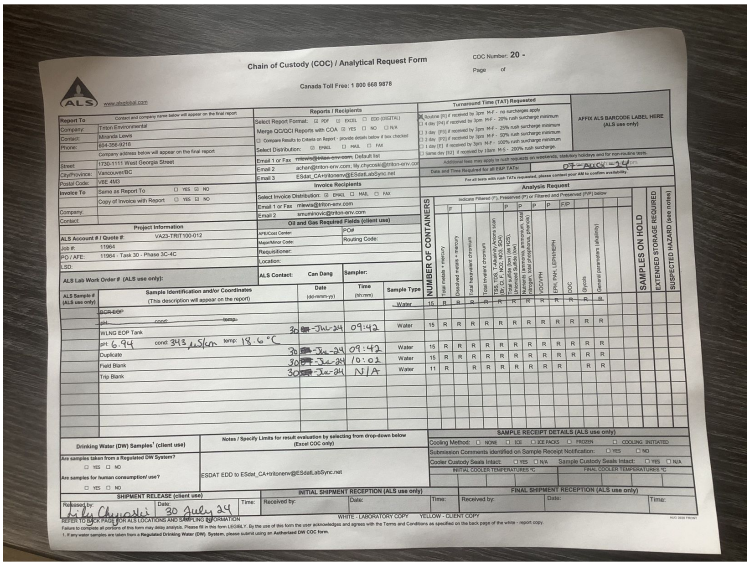


Photo: 5

Location: WLNG EOP

Description: Lab COC

Sign Off

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

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Table of Contents

1. Executive Summary

Due to elevated water temperatures, water was discharged for only a few hours over two days (July 29th to July 30th). The water treatment plant (WTP) operator did not provide photos of the top of the tanks. All parameters were measured using YSI and WTP probes, and the WTP operators (JP and GH) confirmed that no visible sheen was present in the discharged water. Total discharge prior to July 29th was 1,188 m3.

Daily Volume Summary:

Table 1. Daily Summary of Discharge Volumes.

Date	Location	Volume (m3)	Comments
July 29	WoodFibre	26	N/A
July 30	WoodFibre	50	N/A
July 31	WoodFibre	0	N/A
August 1	WoodFibre	0	N/A
August 2	WoodFibre	0	N/A
August 3	WoodFibre	0	N/A
August 4	WoodFibre	0	N/A
Total		76	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)
7/29/2024	0:00:00	7.2	0	0	1,188	21.2	284
7/29/2024	22:45:00	7.2	0.33308	0	1,192	18.6	272
7/29/2024	23:00:00	7.2	0.27631	0	1,196	18.7	271
7/29/2024	23:15:00	7.2	0.3028	0	1,201	18.6	271
7/29/2024	23:30:00	7.3	0.31037	0	1,205	18.7	272
7/29/2024	23:45:00	7.2	0.32173	0	1,209	18.6	283
7/30/2024	0:00:00	6.9	0.34444	0	1,214	18.7	302
7/30/2024	0:15:00	6.9	0.34444	0	1,219	18.6	295
7/30/2024	0:30:00	6.9	0.34444	0	1,224	18.6	283
7/30/2024	0:45:00	7	0.34444	0	1,229	18.6	278
7/30/2024	1:00:00	7	0.34822	0	1,234	18.6	273
7/30/2024	1:15:00	7.1	0.34444	0	1,240	18.5	272
7/30/2024	1:30:00	7.2	1.43452	0	1,242	18.5	272
7/30/2024	4:15:00	7.2	1.162	0	1,243	18.5	272
7/30/2024	4:30:00	7.2	0.2271	0	1,247	18.5	272
7/30/2024	4:45:00	7.2	0.25738	0	1,251	18.5	272
7/30/2024	10:15:00	6.9	0.3028	0	1,255	18.8	274
7/30/2024	10:30:00	7	0.29902	0	1,260	18.9	274
7/30/2024	10:45:00	7	0	0	1,264	19	271

Table 3. Discharge Event Summary

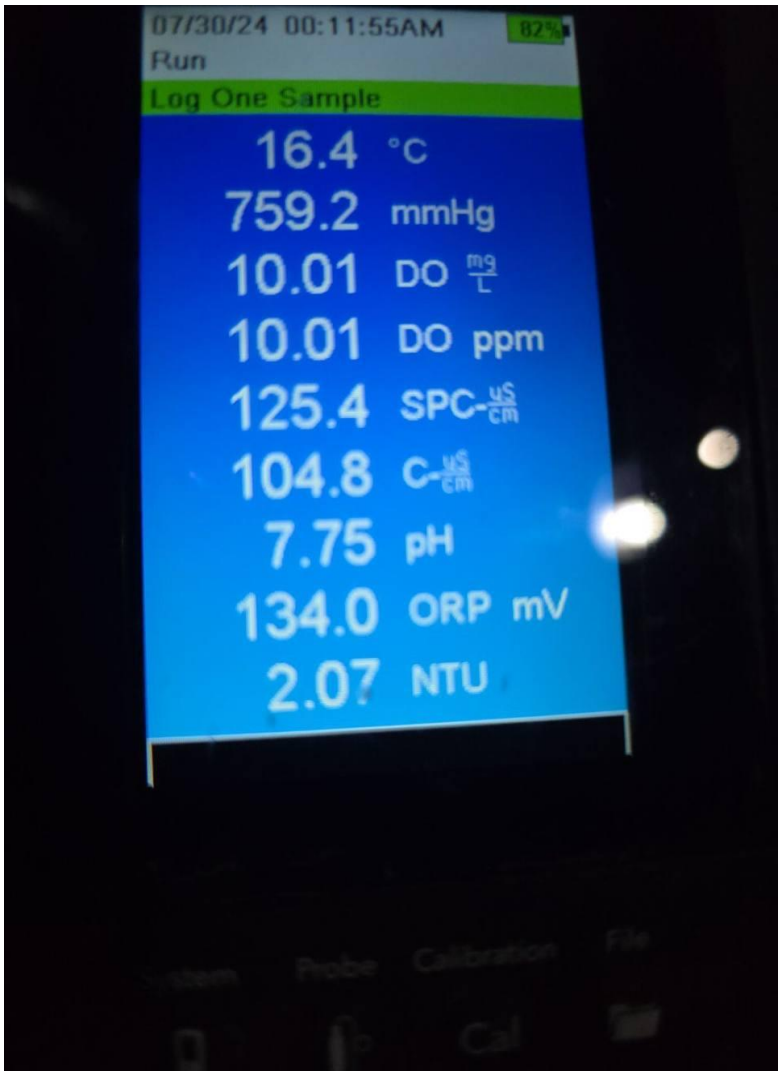
Date	Visible Sheen	DO (mg/L)	ORP (mV)	Salinity (ppm)
07/29/2024	No	10.00	132.7	10.00
07/30/2024	No	10.01	134.0	10.01
07/30/2024	No	9.78	98.3	9.78

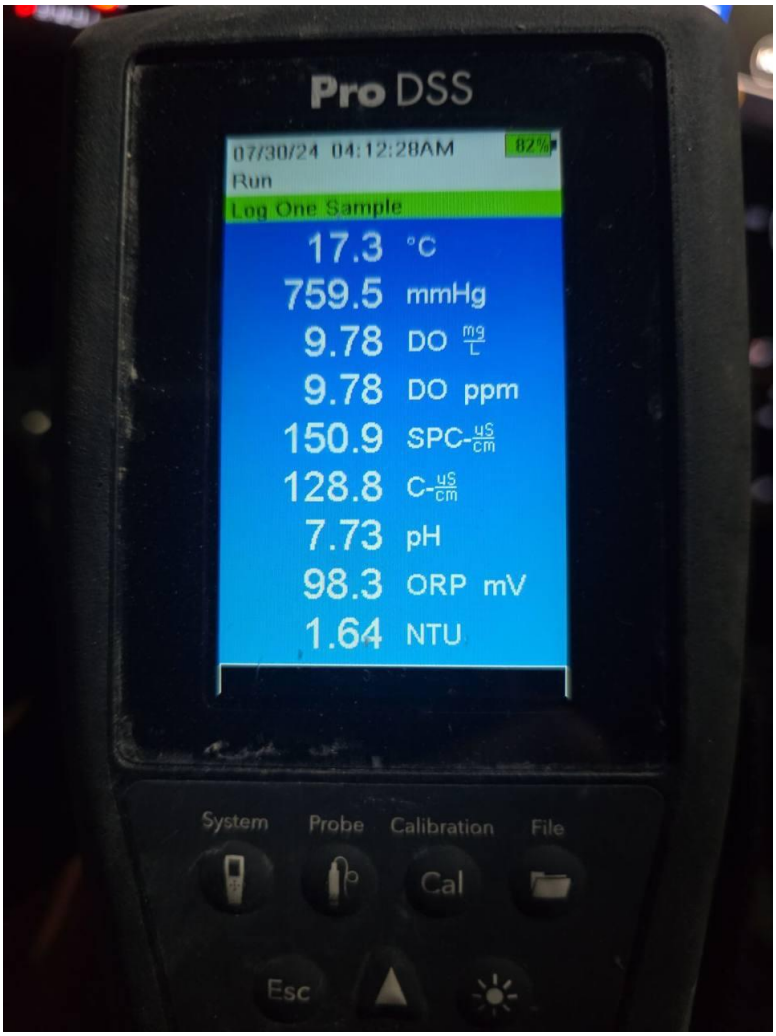
3. Water Treatment Plant Calibration Log

Table 4. Calibration Log

Date	Unit	pH	Conductivity/Temp.	Salinity	NTU	Completed By
7/30/2024	YSI	✓	✓	✓	✓	SD
8/02/2024	WTP	✓	✓	N/A	✓	JP

Appendix B: PHOTO PLATES




Pro DSS
07/30/24 04:12:28AM
82%
Run
Log One Sample
17.3 °C
759.5 mmHg
9.78 DO mg/L
9.78 DO ppm
150.9 SPC-uS/cm
128.8 C-uS/cm
7.73 pH
98.3 ORP mV
1.64 NTU
System
Probe
Calibration
File
Cal
Esc


Run
Log One Sample
16.2 °C
759.1 mmHg
10.00 DO
10.00 DO ppm
119.4 SPC-
99.3 C-
7.78 pH
132.7 ORP mV
2.10 NTU

Appendix B: WTP Data Log

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/29/2024	0:00:00	7.2	0	0	1187.665	Closed	Open	21.2	284
7/29/2024	0:15:00	7.2	0	0	1187.665	Open	Closed	21.3	284
7/29/2024	0:30:00	7.2	0	0	1187.665	Open	Closed	21.4	284
7/29/2024	0:45:00	7.1	0	5.3	1187.665	Open	Closed	20.9	287
7/29/2024	1:00:00	7.1	0	2.7	1187.665	Open	Closed	20.9	292
7/29/2024	1:15:00	7	0	2.9	1187.665	Open	Closed	21	295
7/29/2024	1:30:00	7	0	1.8	1187.665	Open	Closed	21	296
7/29/2024	1:45:00	7	0	2.6	1187.665	Open	Closed	20.9	297
7/29/2024	2:00:00	7	0	2.6	1187.665	Open	Closed	20.9	298
7/29/2024	2:15:00	7	0	1.1	1187.665	Open	Closed	20.9	299
7/29/2024	2:30:00	7	0	0	1187.665	Open	Closed	20.9	299
7/29/2024	2:45:00	7	0	0	1187.665	Open	Closed	20.9	300
7/29/2024	3:00:00	7	0	0	1187.665	Open	Closed	20.8	298
7/29/2024	3:15:00	7	0	0	1187.665	Open	Closed	20.8	298
7/29/2024	3:30:00	7	0	0	1187.665	Open	Closed	20.7	300
7/29/2024	3:45:00	7.3	2.040115	0	1187.665	Open	Closed	19.5	278
7/29/2024	4:00:00	7.4	0	0	1187.665	Open	Closed	19.2	273
7/29/2024	4:15:00	7.4	0	0	1187.665	Open	Closed	19.3	273
7/29/2024	4:30:00	7.3	0	0	1187.665	Open	Closed	19.4	273
7/29/2024	4:45:00	7.3	0	0	1187.665	Open	Closed	19.3	273
7/29/2024	5:00:00	7.3	0	0	1187.665	Open	Closed	19.4	275
7/29/2024	5:15:00	7.3	0	0	1187.665	Open	Closed	19.4	276
7/29/2024	5:30:00	7.3	0	0	1187.665	Open	Closed	19.5	276
7/29/2024	5:45:00	7.2	0	0	1187.665	Open	Closed	19.6	276
7/29/2024	6:00:00	7.2	0	0	1187.665	Open	Closed	19.7	276
7/29/2024	6:15:00	7.2	0	0	1187.665	Open	Closed	19.8	276
7/29/2024	6:30:00	7.2	0	0	1187.665	Open	Closed	19.9	276
7/29/2024	6:45:00	7.2	0	0	1187.665	Open	Closed	20	276
7/29/2024	7:00:00	7.5	2.25586	39.1	1187.665	Open	Closed	18.8	272

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/29/2024	7:15:00	7.6	2.206655	42	1187.665	Open	Closed	18.6	272
7/29/2024	7:30:00	7.6	2.229365	37.9	1187.665	Open	Closed	18.6	272
7/29/2024	7:45:00	7.7	1.92278	19.5	1187.665	Open	Closed	18.7	272
7/29/2024	8:00:00	7.7	1.873575	27.6	1187.665	Open	Closed	18.7	271
7/29/2024	8:15:00	7.8	1.87736	11.5	1187.665	Open	Closed	18.7	271
7/29/2024	8:30:00	7.8	1.305825	12.9	1187.665	Open	Closed	18.8	271
7/29/2024	8:45:00	7.8	1.464795	5.8	1187.665	Open	Closed	18.8	270
7/29/2024	9:00:00	7.8	1.49886	11.7	1187.665	Open	Closed	18.8	271
7/29/2024	9:15:00	7.9	1.510215	4.8	1187.665	Open	Closed	18.9	271
7/29/2024	9:30:00	7.9	1.49886	9.5	1187.665	Open	Closed	18.9	271
7/29/2024	9:45:00	7.9	1.510215	2.8	1187.665	Open	Closed	18.9	271
7/29/2024	10:00:00	7.9	1.52157	6.1	1187.665	Open	Closed	18.9	271
7/29/2024	10:15:00	7.9	0	0.5	1187.665	Open	Closed	19	271
7/29/2024	10:30:00	7.9	0	0	1187.665	Open	Closed	19.2	269
7/29/2024	10:45:00	7.8	0	0	1187.665	Open	Closed	19.4	271
7/29/2024	11:00:00	7.8	0	0	1187.665	Open	Closed	19.5	272
7/29/2024	11:15:00	7.7	0	0	1187.665	Open	Closed	19.6	272
7/29/2024	11:30:00	7.7	0	0.6	1187.665	Open	Closed	19.7	271
7/29/2024	11:45:00	7.7	0	0.4	1187.665	Open	Closed	19.8	271
7/29/2024	12:00:00	7.7	0	0.7	1187.665	Open	Closed	19.9	272
7/29/2024	12:15:00	7.7	0	0.1	1187.665	Open	Closed	20	271
7/29/2024	12:30:00	7.7	0	0.2	1187.665	Open	Closed	20.1	273
7/29/2024	12:45:00	7.7	0	0	1187.665	Open	Closed	20.1	273
7/29/2024	13:00:00	7.6	0	0	1187.665	Open	Closed	20.2	273
7/29/2024	13:15:00	7.6	0	0	1187.665	Open	Closed	20.3	273
7/29/2024	13:30:00	7.6	0	163.3	1187.665	Open	Closed	19	272
7/29/2024	13:45:00	7.7	0	3.2	1187.665	Open	Closed	19	273
7/29/2024	14:00:00	7.7	0	0	1187.665	Open	Closed	19.1	272
7/29/2024	14:15:00	7.8	1.139285	0	1187.665	Open	Closed	19.1	271
7/29/2024	14:30:00	7.8	0	0	1187.665	Open	Closed	19	271
7/29/2024	14:45:00	7.8	0	0	1187.665	Open	Closed	19	272
7/29/2024	15:00:00	7.8	0	5.9	1187.665	Open	Closed	19	272
7/29/2024	15:15:00	7.8	0	0.8	1187.665	Open	Closed	19.1	272

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/29/2024	15:30:00	7.8	0	1.2	1187.665	Open	Closed	19.2	271
7/29/2024	15:45:00	7.7	0	1.5	1187.665	Open	Closed	19.3	271
7/29/2024	16:00:00	7.7	0	1.2	1187.665	Open	Closed	19.4	272
7/29/2024	16:15:00	7.7	0	1.4	1187.665	Open	Closed	19.5	272
7/29/2024	16:30:00	7.7	0	1	1187.665	Open	Closed	19.6	272
7/29/2024	16:45:00	7.6	0	1.4	1187.665	Open	Closed	19.7	272
7/29/2024	17:00:00	7.6	0	1.1	1187.665	Open	Closed	19.8	272
7/29/2024	17:15:00	7.6	0	1	1187.665	Open	Closed	19.9	272
7/29/2024	17:30:00	7.6	0	0.8	1187.665	Open	Closed	20	272
7/29/2024	17:45:00	7.6	0	0.6	1187.665	Open	Closed	20	272
7/29/2024	18:00:00	7.6	0	0.4	1187.665	Open	Closed	20.1	274
7/29/2024	18:15:00	7.6	0	0.5	1187.665	Open	Closed	20.2	274
7/29/2024	18:30:00	7.6	0	0.5	1187.665	Open	Closed	20.2	274
7/29/2024	18:45:00	7.6	0	0.5	1187.665	Open	Closed	20.3	273
7/29/2024	19:00:00	7.6	0	0.7	1187.665	Open	Closed	20.3	274
7/29/2024	19:15:00	7.6	0	0	1187.665	Open	Closed	20.4	274
7/29/2024	19:30:00	7.6	0	0.2	1187.665	Open	Closed	20.4	273
7/29/2024	19:45:00	7.5	0	0	1187.665	Open	Closed	20.4	274
7/29/2024	20:00:00	7.5	0	0.1	1187.665	Open	Closed	20.5	272
7/29/2024	20:15:00	7.5	0	0	1187.665	Open	Closed	20.5	273
7/29/2024	20:30:00	7.5	0	0	1187.665	Open	Closed	20.4	272
7/29/2024	20:45:00	7.5	0	0	1187.665	Open	Closed	20.4	272
7/29/2024	21:00:00	7.5	0	0	1187.665	Open	Closed	20.3	272
7/29/2024	21:15:00	7.6	1.449655	9.5	1187.665	Open	Closed	19.2	273
7/29/2024	21:30:00	7.2	1.442085	0	1187.665	Open	Closed	18.8	273
7/29/2024	21:45:00	7.2	1.479935	0	1187.665	Open	Closed	18.7	273
7/29/2024	22:00:00	7.1	1.449655	0	1187.665	Open	Closed	18.7	277
7/29/2024	22:15:00	7.3	1.48372	0	1187.665	Open	Closed	18.7	272
7/29/2024	22:30:00	7.1	1.45344	0	1187.665	Open	Closed	18.6	277
7/29/2024	22:45:00	7.2	0.33308	0	1192.025	Closed	Open	18.6	272
7/29/2024	23:00:00	7.2	0.276305	0	1196.219	Closed	Open	18.7	271
7/29/2024	23:15:00	7.2	0.3028	0	1200.523	Closed	Open	18.6	271
7/29/2024	23:30:00	7.3	0.31037	0	1204.66	Closed	Open	18.7	272

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/29/2024	23:45:00	7.2	0.321725	0	1209.429	Closed	Open	18.6	283
7/30/2024	0:00:00	6.9	0.344435	0	1213.887	Closed	Open	18.7	302
7/30/2024	0:15:00	6.9	0.344435	0	1219.338	Closed	Open	18.6	295
7/30/2024	0:30:00	6.9	0.344435	0	1224.069	Closed	Open	18.6	283
7/30/2024	0:45:00	7	0.344435	0	1229.474	Closed	Open	18.6	278
7/30/2024	1:00:00	7	0.34822	0	1234.179	Closed	Open	18.6	273
7/30/2024	1:15:00	7.1	0.344435	0	1239.629	Closed	Open	18.5	272
7/30/2024	1:30:00	7.2	1.434515	0	1242.404	Closed	Open	18.5	272
7/30/2024	1:45:00	6.9	1.44587	0	1242.404	Open	Closed	18.3	276
7/30/2024	2:00:00	7.2	1.43073	0	1242.404	Open	Closed	18.2	273
7/30/2024	2:15:00	6.8	1.44587	0	1242.404	Open	Closed	18.3	280
7/30/2024	2:30:00	7.1	1.434515	0	1242.404	Open	Closed	18.3	275
7/30/2024	2:45:00	7.3	1.419375	0	1242.404	Open	Closed	18.3	274
7/30/2024	3:00:00	7	1.43073	0	1242.404	Open	Closed	18.4	278
7/30/2024	3:15:00	7.2	1.419375	0	1242.404	Open	Closed	18.4	273
7/30/2024	3:30:00	7.3	1.442085	0	1242.404	Open	Closed	18.5	273
7/30/2024	3:45:00	7	1.442085	0	1242.404	Open	Closed	18.5	276
7/30/2024	4:00:00	7.2	0	0	1242.404	Open	Closed	18.7	276
7/30/2024	4:15:00	7.2	1.161995	0	1242.994	Closed	Open	18.5	272
7/30/2024	4:30:00	7.2	0.2271	0	1247.438	Closed	Open	18.5	272
7/30/2024	4:45:00	7.2	0.25738	0	1251.438	Closed	Open	18.5	272
7/30/2024	5:00:00	7.2	0	0	1251.594	Open	Closed	18.7	272
7/30/2024	5:15:00	7.2	0	0	1251.594	Open	Closed	18.9	273
7/30/2024	5:30:00	7.2	0	0	1251.594	Open	Closed	19	274
7/30/2024	5:45:00	7.2	0	0	1251.594	Open	Closed	19.2	272
7/30/2024	6:00:00	7.2	0	0	1251.594	Open	Closed	19.3	272
7/30/2024	6:15:00	7.2	0	0	1251.594	Open	Closed	19.5	272
7/30/2024	6:30:00	7.2	0	0	1251.594	Open	Closed	19.6	272
7/30/2024	6:45:00	7.2	0	0	1251.594	Open	Closed	19.7	274
7/30/2024	7:00:00	7.2	0	0	1251.594	Open	Closed	19.8	273
7/30/2024	7:15:00	7.3	2.040115	2.8	1251.594	Open	Closed	19.1	273
7/30/2024	7:30:00	7.2	1.88493	0	1251.594	Open	Closed	18.5	277

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/30/2024	7:45:00	7	1.873575	0	1251.594	Open	Closed	18.2	278
7/30/2024	8:00:00	7.3	1.866005	0	1251.594	Open	Closed	18.3	273
7/30/2024	8:15:00	7.1	1.86222	0	1251.594	Open	Closed	18.4	275
7/30/2024	8:30:00	7	1.843295	0	1251.594	Open	Closed	18.4	277
7/30/2024	8:45:00	7.2	1.843295	0	1251.594	Open	Closed	18.5	276
7/30/2024	9:00:00	7.1	1.83194	0	1251.594	Open	Closed	18.5	277
7/30/2024	9:15:00	7.2	0.34822	0	1251.594	Open	Closed	18.6	276
7/30/2024	9:30:00	6.7	0.81756	0	1251.594	Open	Closed	18.7	287
7/30/2024	9:45:00	6.8	0.609385	0	1251.594	Open	Closed	18.8	287
7/30/2024	10:00:00	6.9	0.3028	0	1251.594	Open	Closed	18.8	280
7/30/2024	10:15:00	6.9	0.3028	0	1255.329	Closed	Open	18.8	274
7/30/2024	10:30:00	7	0.299015	0	1260.064	Closed	Open	18.9	274
7/30/2024	10:45:00	7	0	0	1263.581	Closed	Open	19	271
7/30/2024	11:00:00	7	0	0	1263.581	Open	Closed	19.3	272
7/30/2024	11:15:00	7	0	0	1263.581	Open	Closed	19.5	272
7/30/2024	11:30:00	7	0	0	1263.581	Open	Closed	19.7	272
7/30/2024	11:45:00	7	0	0	1263.581	Open	Closed	19.9	272
7/30/2024	12:00:00	7	0	0	1263.581	Open	Closed	20.1	272
7/30/2024	12:15:00	7	0	0	1263.581	Open	Closed	20.2	272
7/30/2024	12:30:00	7	0	0	1263.581	Open	Closed	20.4	271
7/30/2024	12:45:00	7	0	0	1263.581	Open	Closed	20.5	272
7/30/2024	13:00:00	7	0	0	1263.581	Open	Closed	20.7	272
7/30/2024	13:15:00	7	0	0	1263.581	Open	Closed	20.8	274
7/30/2024	13:30:00	7	0	0	1263.581	Open	Closed	20.9	274
7/30/2024	13:45:00	7	0	0	1263.581	Open	Closed	21	274
7/30/2024	14:00:00	7	0	0	1263.581	Open	Closed	21.1	276
7/30/2024	14:15:00	7	0	0	1263.581	Open	Closed	21.2	276
7/30/2024	14:30:00	7	0	0	1263.581	Open	Closed	21.3	276
7/30/2024	14:45:00	7	0	0	1263.581	Open	Closed	21.4	276
7/30/2024	15:00:00	7	0	0	1263.581	Open	Closed	21.4	276
7/30/2024	15:15:00	7	0	0	1263.581	Open	Closed	21.5	276
7/30/2024	15:30:00	7	0	0	1263.581	Open	Closed	21.6	276
7/30/2024	15:45:00	7	0	0	1263.581	Open	Closed	21.7	276

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/30/2024	16:00:00	7	0	0	1263.581	Open	Closed	21.8	276
7/30/2024	16:15:00	7	0	0	1263.581	Open	Closed	21.9	274
7/30/2024	16:30:00	7	0	0	1263.581	Open	Closed	22	276
7/30/2024	16:45:00	7	0	0	1263.581	Open	Closed	22.1	276
7/30/2024	17:00:00	7	0	0	1263.581	Open	Closed	22.1	276
7/30/2024	17:15:00	7	0	0	1263.581	Open	Closed	22.2	276
7/30/2024	17:30:00	7	0	0	1263.581	Open	Closed	22.3	276
7/30/2024	17:45:00	7	0	0	1263.581	Open	Closed	22.4	276
7/30/2024	18:00:00	7	0	0	1263.581	Open	Closed	22.5	276
7/30/2024	18:15:00	7	0	0	1263.581	Open	Closed	22.5	276
7/30/2024	18:30:00	7	0	0	1263.581	Open	Closed	22.6	276
7/30/2024	18:45:00	6.9	0	0	1263.581	Open	Closed	22.6	276
7/30/2024	19:00:00	6.9	0	0	1263.581	Open	Closed	22.7	276
7/30/2024	19:15:00	6.9	0	0	1263.581	Open	Closed	22.7	276
7/30/2024	19:30:00	6.9	0	0	1263.581	Open	Closed	22.8	276
7/30/2024	19:45:00	6.9	0	0	1263.581	Open	Closed	22.8	278
7/30/2024	20:00:00	6.9	0	0	1263.581	Open	Closed	22.8	278
7/30/2024	20:15:00	6.9	0	0	1263.581	Open	Closed	22.8	278
7/30/2024	20:30:00	6.9	0	0	1263.581	Open	Closed	22.7	277
7/30/2024	20:45:00	6.9	0	0	1263.581	Open	Closed	22.6	277
7/30/2024	21:00:00	6.9	0	0	1263.581	Open	Closed	22.5	277
7/30/2024	21:15:00	6.9	0	0	1263.581	Open	Closed	22.5	276
7/30/2024	21:30:00	7	1.39288	0	1263.581	Open	Closed	19.9	281
7/30/2024	21:45:00	7.1	1.820585	0	1263.581	Open	Closed	19.7	277
7/30/2024	22:00:00	7.2	1.366385	0	1263.581	Open	Closed	19.5	276
7/30/2024	22:15:00	7.2	1.80166	0	1263.581	Open	Closed	19.5	276
7/30/2024	22:30:00	7.3	1.3626	0	1263.581	Open	Closed	19.4	276
7/30/2024	22:45:00	7.3	1.813015	0	1263.581	Open	Closed	19.3	276
7/30/2024	23:00:00	7.4	1.37017	0	1263.581	Open	Closed	19.2	272
7/30/2024	23:15:00	7.4	1.84708	0	1263.581	Open	Closed	19.2	272
7/30/2024	23:30:00	7.4	1.37017	0	1263.581	Open	Closed	19.1	274
7/30/2024	23:45:00	7.4	1.790305	0	1263.581	Open	Closed	19.1	273
7/31/2024	0:00:00	7.4	0	0	1263.581	Open	Closed	19.2	274

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/31/2024	0:15:00	7.4	1.77138	0	1263.581	Open	Closed	19.2	274
7/31/2024	0:30:00	7.4	1.328535	0	1263.581	Open	Closed	19.1	274
7/31/2024	0:45:00	7.5	1.744885	0	1263.581	Open	Closed	19.2	274
7/31/2024	1:00:00	7.5	0	0	1263.581	Open	Closed	19.2	271
7/31/2024	1:15:00	7.5	0	0	1263.581	Open	Closed	19.5	274
7/31/2024	1:30:00	7.4	0	0	1263.581	Open	Closed	19.7	274
7/31/2024	1:45:00	7.4	0	0	1263.581	Open	Closed	19.9	276
7/31/2024	2:00:00	7.4	0	0	1263.581	Open	Closed	20	276
7/31/2024	2:15:00	7.4	0	0	1263.581	Open	Closed	20.2	276
7/31/2024	2:30:00	7.4	0	0	1263.581	Open	Closed	20.3	274
7/31/2024	2:45:00	7.4	1.75624	0	1263.581	Open	Closed	19.2	272
7/31/2024	3:00:00	7.4	0	0	1263.581	Open	Closed	19.3	272
7/31/2024	3:15:00	7.4	0	0	1263.581	Open	Closed	19.5	272
7/31/2024	3:30:00	7.3	0	0	1263.581	Open	Closed	19.6	272
7/31/2024	3:45:00	7.3	0	0	1263.581	Open	Closed	19.7	272
7/31/2024	4:00:00	7.3	0	0	1263.581	Open	Closed	19.8	272
7/31/2024	4:15:00	7.3	0	0	1263.581	Open	Closed	19.9	274
7/31/2024	4:30:00	7.3	1.320965	0	1263.581	Open	Closed	19.1	273
7/31/2024	4:45:00	7.3	0	0	1263.581	Open	Closed	19.2	272
7/31/2024	5:00:00	7.3	0	0	1263.581	Open	Closed	19.3	272
7/31/2024	5:15:00	7.3	0	0	1263.581	Open	Closed	19.4	273
7/31/2024	5:30:00	7.3	0	0	1263.581	Open	Closed	19.6	273
7/31/2024	5:45:00	7.3	0	0	1263.581	Open	Closed	19.7	274
7/31/2024	6:00:00	7.3	0	0	1263.581	Open	Closed	19.8	276
7/31/2024	6:15:00	7.3	0	0	1263.581	Open	Closed	19.9	275
7/31/2024	6:30:00	7.2	0	0	1263.581	Open	Closed	20	275
7/31/2024	6:45:00	7.2	0	0	1263.581	Open	Closed	20.1	273
7/31/2024	7:00:00	7.3	1.30961	0	1263.581	Open	Closed	19.2	272
7/31/2024	7:15:00	7.4	1.714605	0	1263.581	Open	Closed	18.8	272
7/31/2024	7:30:00	7.4	1.305825	0	1263.581	Open	Closed	18.7	271
7/31/2024	7:45:00	7.4	1.71082	0	1263.581	Open	Closed	18.8	272
7/31/2024	8:00:00	7.5	1.2869	0	1263.581	Open	Closed	18.9	272
7/31/2024	8:15:00	7.5	0	0	1263.581	Open	Closed	19	271

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/31/2024	8:30:00	7.4	0	0	1263.581	Open	Closed	19.2	272
7/31/2024	8:45:00	7.4	0	0	1263.581	Open	Closed	19.4	272
7/31/2024	9:00:00	7.4	0	0	1263.581	Open	Closed	19.6	271
7/31/2024	9:15:00	7.3	0	0	1263.581	Open	Closed	19.8	271
7/31/2024	9:30:00	7.3	0	0	1263.581	Open	Closed	19.9	271
7/31/2024	9:45:00	7.3	0	0	1263.581	Open	Closed	20.1	271
7/31/2024	10:00:00	7.3	0	0	1263.581	Open	Closed	20.2	269
7/31/2024	10:15:00	7.3	0	0	1263.581	Open	Closed	20.4	269
7/31/2024	10:30:00	7.3	0	0	1263.581	Open	Closed	20.5	269
7/31/2024	10:45:00	7.3	0	0	1263.581	Open	Closed	20.7	269
7/31/2024	11:00:00	7.3	0	0	1263.581	Open	Closed	20.8	271
7/31/2024	11:15:00	7.3	0	0	1263.581	Open	Closed	21	271
7/31/2024	11:30:00	7.3	0	0	1263.581	Open	Closed	21.2	271
7/31/2024	11:45:00	7.2	0	0	1263.581	Open	Closed	21.4	269
7/31/2024	12:00:00	7.2	0	0	1263.581	Open	Closed	21.5	269
7/31/2024	12:15:00	7.2	0	0	1263.581	Open	Closed	21.7	269
7/31/2024	12:30:00	7.2	0	0	1263.581	Open	Closed	21.9	269
7/31/2024	12:45:00	7.2	0	0	1263.581	Open	Closed	22.1	269
7/31/2024	13:00:00	7.2	0	0	1263.581	Open	Closed	22.3	269
7/31/2024	13:15:00	7.2	0	0	1263.581	Open	Closed	22.6	269
7/31/2024	13:30:00	7.6	0	0	1263.581	Open	Closed	20.7	266
7/31/2024	13:45:00	7.6	1.336105	1.4	1263.581	Open	Closed	20.8	268
7/31/2024	14:00:00	7.6	0	0	1263.581	Open	Closed	20.9	268
7/31/2024	14:15:00	7.6	0	1.9	1263.581	Open	Closed	21	268
7/31/2024	14:30:00	7.5	0	0.6	1263.581	Open	Closed	21.5	269
7/31/2024	14:45:00	7.6	0	0	1263.581	Open	Closed	21.2	268
7/31/2024	15:00:00	7.5	0	0	1263.581	Open	Closed	21.7	268
7/31/2024	15:15:00	7.6	0	0.2	1263.581	Open	Closed	21.5	269
7/31/2024	15:30:00	7.6	0	0	1263.581	Open	Closed	21.6	270
7/31/2024	15:45:00	7.5	0	0	1263.581	Open	Closed	22.1	269
7/31/2024	16:00:00	7.5	0	0	1263.581	Open	Closed	22.6	270
7/31/2024	16:15:00	7.5	0	5.7	1263.581	Open	Closed	23	269
7/31/2024	16:30:00	7.4	0	18.8	1263.581	Open	Closed	23.4	270

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
7/31/2024	16:45:00	7.4	0	45.2	1263.581	Open	Closed	23.8	270
7/31/2024	17:00:00	7.4	0	79.8	1263.581	Open	Closed	24.1	270
7/31/2024	17:15:00	7.4	0	125.1	1263.581	Open	Closed	24.3	270
7/31/2024	17:30:00	7.4	0	179.3	1263.581	Open	Closed	24.6	270
7/31/2024	17:45:00	7.4	0	0	1263.581	Open	Closed	24.8	270
7/31/2024	18:00:00	7.3	0	0	1263.581	Open	Closed	25	271
7/31/2024	18:15:00	7.3	0	0	1263.581	Open	Closed	25.2	271
7/31/2024	18:30:00	7.3	0	0	1263.581	Open	Closed	25.3	271
7/31/2024	18:45:00	7.3	0	0	1263.581	Open	Closed	25.5	272
7/31/2024	19:00:00	7.3	0	0	1263.581	Open	Closed	25.6	272
7/31/2024	19:15:00	7.3	0	0	1263.581	Open	Closed	25.7	272
7/31/2024	19:30:00	7.3	0	0	1263.581	Open	Closed	25.7	272
7/31/2024	19:45:00	7.3	0	0	1263.581	Open	Closed	25.8	272
7/31/2024	20:00:00	7.3	0	0	1263.581	Open	Closed	25.8	272
7/31/2024	20:15:00	7.2	0	0	1263.581	Open	Closed	25.8	273
7/31/2024	20:30:00	7.2	0	0	1263.581	Open	Closed	25.6	271
7/31/2024	20:45:00	7.2	0	0	1263.581	Open	Closed	25.5	271
7/31/2024	21:00:00	7.2	0	0	1263.581	Open	Closed	25.3	272
7/31/2024	21:15:00	7.2	0	0	1263.581	Open	Closed	25.2	272
7/31/2024	21:30:00	7.2	0	0	1263.581	Open	Closed	25	272
7/31/2024	21:45:00	7.2	0	0	1263.581	Open	Closed	24.8	274
7/31/2024	22:00:00	7.2	0	0	1263.581	Open	Closed	24.6	274
7/31/2024	22:15:00	7.2	0	0	1263.581	Open	Closed	24.4	273
7/31/2024	22:30:00	7.2	0	1.9	1263.581	Open	Closed	24.2	276
7/31/2024	22:45:00	7.2	0	5.3	1263.581	Open	Closed	24	276
7/31/2024	23:00:00	7.1	0	0	1263.581	Open	Closed	21.8	289
7/31/2024	23:15:00	7.1	0	0	1263.581	Open	Closed	21.9	294
7/31/2024	23:30:00	7.2	1.018165	0	1263.581	Open	Closed	21.5	282
7/31/2024	23:45:00	7.3	1.60484	0	1263.581	Open	Closed	21	272
8/1/2024	0:00:00	7.4	1.192275	0	1263.581	Open	Closed	20.4	268
8/1/2024	0:15:00	7.4	1.601055	0	1263.581	Open	Closed	20.6	269
8/1/2024	0:30:00	7.4	1.16578	0	1263.581	Open	Closed	20.5	269
8/1/2024	0:45:00	7.4	1.56699	0	1263.581	Open	Closed	20.5	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	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/1/2024	1:00:00	7.5	0	0	1263.581	Open	Closed	20.6	271
8/1/2024	1:15:00	7.4	0	0	1263.581	Open	Closed	20.7	269
8/1/2024	1:30:00	7.4	0	0	1263.581	Open	Closed	20.8	269
8/1/2024	1:45:00	7.3	0	0	1263.581	Open	Closed	20.8	270
8/1/2024	2:00:00	7.3	0	0	1263.581	Open	Closed	20.8	270
8/1/2024	2:15:00	7.3	0	0	1263.581	Open	Closed	20.8	271
8/1/2024	2:30:00	7.3	0	0	1263.581	Open	Closed	20.8	270
8/1/2024	2:45:00	7.4	1.57456	0	1263.581	Open	Closed	20.3	270
8/1/2024	3:00:00	7.4	0.96896	0	1263.581	Open	Closed	20.3	271
8/1/2024	3:15:00	7.5	0	0	1263.581	Open	Closed	20.2	271
8/1/2024	3:30:00	7.4	0	0	1263.581	Open	Closed	20.3	270
8/1/2024	3:45:00	7.4	0	0	1263.581	Open	Closed	20.3	270
8/1/2024	4:00:00	7.3	0	0	1263.581	Open	Closed	20.3	270
8/1/2024	4:15:00	7.3	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	4:30:00	7.3	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	4:45:00	7.3	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	5:00:00	7.3	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	5:15:00	7.3	0	0	1263.581	Open	Closed	20.2	272
8/1/2024	5:30:00	7.3	0	0	1263.581	Open	Closed	20.2	272
8/1/2024	5:45:00	7.3	0	0	1263.581	Open	Closed	20.2	272
8/1/2024	6:00:00	7.3	0	0	1263.581	Open	Closed	20.2	272
8/1/2024	6:15:00	7.3	0	0	1263.581	Open	Closed	20.2	272
8/1/2024	6:30:00	7.3	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	6:45:00	7.3	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	7:00:00	7.2	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	7:15:00	7.2	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	7:30:00	7.2	0	0	1263.581	Open	Closed	20.3	272
8/1/2024	7:45:00	7.2	0	0	1263.581	Open	Closed	20.3	273
8/1/2024	8:00:00	7.2	0	0	1263.581	Open	Closed	20.3	273
8/1/2024	8:15:00	7.2	0	0	1263.581	Open	Closed	20.3	273
8/1/2024	8:30:00	7.2	0	0	1263.581	Open	Closed	20.3	273
8/1/2024	8:45:00	7.2	0	0	1263.581	Open	Closed	20.3	274
8/1/2024	9:00:00	7.2	0	0	1263.581	Open	Closed	20.3	272

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/1/2024	9:15:00	7.2	0	0	1263.581	Open	Closed	20.4	272
8/1/2024	9:30:00	7.2	0	0	1263.581	Open	Closed	20.5	272
8/1/2024	9:45:00	7.2	0	0	1263.581	Open	Closed	20.5	272
8/1/2024	10:00:00	7.2	0	0	1263.581	Open	Closed	20.6	271
8/1/2024	10:15:00	7.2	0	0	1263.581	Open	Closed	20.8	271
8/1/2024	10:30:00	7.2	0	0	1263.581	Open	Closed	20.9	272
8/1/2024	10:45:00	7.2	0	0	1263.581	Open	Closed	21.1	272
8/1/2024	11:00:00	7.2	0	0	1263.581	Open	Closed	21.3	272
8/1/2024	11:15:00	7.2	0	0	1263.581	Open	Closed	21.5	271
8/1/2024	11:30:00	7.2	0	0	1263.581	Open	Closed	21.7	272
8/1/2024	11:45:00	7.2	0	0	1263.581	Open	Closed	22	271
8/1/2024	12:00:00	7.2	0	0	1263.581	Open	Closed	22.3	271
8/1/2024	12:15:00	7.2	0	0	1263.581	Open	Closed	22.5	271
8/1/2024	12:30:00	7.2	0	0	1263.581	Open	Closed	22.8	273
8/1/2024	12:45:00	7.2	0	0	1263.581	Open	Closed	23.1	271
8/1/2024	13:00:00	7.2	0	0	1263.581	Open	Closed	23.4	273
8/1/2024	13:15:00	7.2	0	0	1263.581	Open	Closed	23.7	271
8/1/2024	13:30:00	7.2	0	0	1263.581	Open	Closed	24	273
8/1/2024	13:45:00	7.2	0	0	1263.581	Open	Closed	24.3	273
8/1/2024	14:00:00	7.4	1.707035	92.3	1263.581	Open	Closed	23	270
8/1/2024	14:15:00	7.2	0.518545	0	1263.581	Open	Closed	21.5	277
8/1/2024	14:30:00	7.2	0	0	1263.581	Open	Closed	21.9	274
8/1/2024	14:45:00	7.3	0	0	1263.581	Open	Closed	21.9	272
8/1/2024	15:00:00	7.2	0	0	1263.581	Open	Closed	22.5	270
8/1/2024	15:15:00	7.2	0	0	1263.581	Open	Closed	23.1	268
8/1/2024	15:30:00	7.3	0	0	1263.581	Open	Closed	21.9	271
8/1/2024	15:45:00	7.2	0	0	1263.581	Open	Closed	22.5	269
8/1/2024	16:00:00	7.2	0	0	1263.581	Open	Closed	23.1	268
8/1/2024	16:15:00	7.2	0	0	1263.581	Open	Closed	23.6	268
8/1/2024	16:30:00	7.2	0	0	1263.581	Open	Closed	24.1	268
8/1/2024	16:45:00	7.2	0	0	1263.581	Open	Closed	24.6	270
8/1/2024	17:00:00	7.2	0	0	1263.581	Open	Closed	25	271
8/1/2024	17:15:00	7.2	0	0	1263.581	Open	Closed	25.3	270

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/1/2024	17:30:00	7.2	0	0	1263.581	Open	Closed	25.6	271
8/1/2024	17:45:00	7.2	0	0	1263.581	Open	Closed	25.9	271
8/1/2024	18:00:00	7.2	0	0	1263.581	Open	Closed	26.2	271
8/1/2024	18:15:00	7.2	0	0	1263.581	Open	Closed	26.4	271
8/1/2024	18:30:00	7.1	0	0	1263.581	Open	Closed	26.6	271
8/1/2024	18:45:00	7.1	0	0	1263.581	Open	Closed	26.7	271
8/1/2024	19:00:00	7.1	0	0	1263.581	Open	Closed	26.8	271
8/1/2024	19:15:00	7.1	0	0	1263.581	Open	Closed	27	273
8/1/2024	19:30:00	7.1	0	0	1263.581	Open	Closed	27	273
8/1/2024	19:45:00	7.1	0	0	1263.581	Open	Closed	27.1	273
8/1/2024	20:00:00	7.1	0	0	1263.581	Open	Closed	27.2	271
8/1/2024	20:15:00	7.1	0	0	1263.581	Open	Closed	27.1	270
8/1/2024	20:30:00	7.1	0	0	1263.581	Open	Closed	27	271
8/1/2024	20:45:00	7.1	0	0	1263.581	Open	Closed	26.9	273
8/1/2024	21:00:00	7.1	0	0	1263.581	Open	Closed	26.8	273
8/1/2024	21:15:00	7.1	0	0	1263.581	Open	Closed	26.7	275
8/1/2024	21:30:00	7.1	0	0	1263.581	Open	Closed	26.6	274
8/1/2024	21:45:00	7.1	0	0	1263.581	Open	Closed	26.5	276
8/1/2024	22:00:00	7.1	0	0	1263.581	Open	Closed	26.4	276
8/1/2024	22:15:00	7.1	0	0	1263.581	Open	Closed	26.2	274
8/1/2024	22:30:00	7.1	0	0	1263.581	Open	Closed	26	276
8/1/2024	22:45:00	7.1	0	0	1263.581	Open	Closed	25.7	276
8/1/2024	23:00:00	7.1	0	0	1263.581	Open	Closed	25.5	277
8/1/2024	23:15:00	7.1	0	0	1263.581	Open	Closed	25.3	277
8/1/2024	23:30:00	7.1	0	0	1263.581	Open	Closed	25.1	277
8/1/2024	23:45:00	7.1	0	0	1263.581	Open	Closed	24.8	277
8/2/2024	0:00:00	7	0	0	1263.581	Open	Closed	24.7	278
8/2/2024	0:15:00	7.2	1.27176	0	1263.581	Open	Closed	22.1	274
8/2/2024	0:30:00	7.4	1.61241	0	1263.581	Open	Closed	21.4	269
8/2/2024	0:45:00	7.3	0	0	1263.581	Open	Closed	21.5	269
8/2/2024	1:00:00	7.3	0	0	1263.581	Open	Closed	21.6	268
8/2/2024	1:15:00	7.3	0	0	1263.581	Open	Closed	21.6	271
8/2/2024	1:30:00	7.3	0	0	1263.581	Open	Closed	21.6	268

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/2/2024	1:45:00	7.3	0	0	1263.581	Open	Closed	21.6	268
8/2/2024	2:00:00	7.3	0	0	1263.581	Open	Closed	21.6	269
8/2/2024	2:15:00	7.3	0	0	1263.581	Open	Closed	21.7	269
8/2/2024	2:30:00	7.3	0	0	1263.581	Open	Closed	21.6	268
8/2/2024	2:45:00	7.3	0	0	1263.581	Open	Closed	21.6	269
8/2/2024	3:00:00	7.3	0	0	1263.581	Open	Closed	21.6	269
8/2/2024	3:15:00	7.3	0	0	1263.581	Open	Closed	21.7	271
8/2/2024	3:30:00	7.3	0	0	1263.581	Open	Closed	21.7	271
8/2/2024	3:45:00	7.2	0	0	1263.581	Open	Closed	21.7	271
8/2/2024	4:00:00	7.2	0	0	1263.581	Open	Closed	21.7	271
8/2/2024	4:15:00	7.2	0	0	1263.581	Open	Closed	21.7	271
8/2/2024	4:30:00	7.2	0	0	1263.581	Open	Closed	21.7	271
8/2/2024	4:45:00	7.2	0	0	1263.581	Open	Closed	21.6	270
8/2/2024	5:00:00	7.2	0	0	1263.581	Open	Closed	21.5	270
8/2/2024	5:15:00	7.2	0	0	1263.581	Open	Closed	21.4	270
8/2/2024	5:30:00	7.2	0	0	1263.581	Open	Closed	21.3	272
8/2/2024	5:45:00	7.2	0	0	1263.581	Open	Closed	21.3	272
8/2/2024	6:00:00	7.2	0	0	1263.581	Open	Closed	21.3	274
8/2/2024	6:15:00	7.1	0	0	1263.581	Open	Closed	21.3	274
8/2/2024	6:30:00	7.2	1.623765	0	1263.581	Open	Closed	21	277
8/2/2024	6:45:00	7.6	1.714605	22.3	1263.581	Open	Closed	20.4	272
8/2/2024	7:00:00	7.6	1.68811	7.4	1263.581	Open	Closed	20.1	269
8/2/2024	7:15:00	7.7	1.20363	15	1263.581	Open	Closed	20	268
8/2/2024	7:30:00	7.7	1.67297	5.2	1263.581	Open	Closed	20	267
8/2/2024	7:45:00	7.7	0	2.2	1263.581	Open	Closed	20.1	267
8/2/2024	8:00:00	7.6	0	2	1263.581	Open	Closed	20.2	269
8/2/2024	8:15:00	7.6	0	1.6	1263.581	Open	Closed	20.3	269
8/2/2024	8:30:00	7.5	0	1.5	1263.581	Open	Closed	20.3	269
8/2/2024	8:45:00	7.6	1.714605	198.2	1263.581	Open	Closed	20.7	271
8/2/2024	9:00:00	7.5	1.47615	410.8	1263.581	Open	Closed	20.2	269
8/2/2024	9:15:00	7.5	0.897045	210.8	1263.581	Open	Closed	20.3	269
8/2/2024	9:30:00	7.7	0.93868	46	1263.581	Open	Closed	20.3	269
8/2/2024	9:45:00	7.7	1.7411	130.9	1263.581	Open	Closed	20.3	271

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/2/2024	10:00:00	7.5	0	96.4	1263.581	Open	Closed	20.5	271
8/2/2024	10:15:00	7.5	0	90.9	1263.581	Open	Closed	20.7	271
8/2/2024	10:30:00	7.6	2.070395	61.9	1263.581	Open	Closed	20.5	271
8/2/2024	10:45:00	7.6	2.002265	91.6	1263.581	Open	Closed	20.6	271
8/2/2024	11:00:00	7.6	2.055255	40.2	1263.581	Open	Closed	20.7	269
8/2/2024	11:15:00	7.7	2.055255	49.9	1263.581	Open	Closed	20.8	269
8/2/2024	11:30:00	7.7	0	25.1	1263.581	Open	Closed	20.9	269
8/2/2024	11:45:00	7.4	1.52157	0	1263.581	Open	Closed	21.1	271
8/2/2024	12:00:00	7.5	0	0	1263.581	Open	Closed	21.2	269
8/2/2024	12:15:00	7.4	1.08251	0	1263.581	Open	Closed	21.7	269
8/2/2024	12:30:00	7.4	0	0	1263.581	Open	Closed	21.5	269
8/2/2024	12:45:00	7.4	1.101435	0	1263.581	Open	Closed	21.4	269
8/2/2024	13:00:00	7.4	0	0	1263.581	Open	Closed	21.8	268
8/2/2024	13:15:00	7.5	0	0	1263.581	Open	Closed	21.7	270
8/2/2024	13:30:00	7.4	0	0	1263.581	Open	Closed	22.2	268
8/2/2024	13:45:00	7.4	0	0	1263.581	Open	Closed	22	268
8/2/2024	14:00:00	7.4	0	0	1263.581	Open	Closed	22.5	268
8/2/2024	14:15:00	7.3	0	0	1263.581	Open	Closed	23	268
8/2/2024	14:30:00	7.3	0	0	1263.581	Open	Closed	23.3	268
8/2/2024	14:45:00	7.3	0	0	1263.581	Open	Closed	23.7	268
8/2/2024	15:00:00	7.3	0	0	1263.581	Open	Closed	24.1	270
8/2/2024	15:15:00	7.4	1.15064	0	1263.581	Open	Closed	22.4	270
8/2/2024	15:30:00	7.3	0	0	1263.581	Open	Closed	22.8	271
8/2/2024	15:45:00	7.3	0	0	1263.581	Open	Closed	23.2	271
8/2/2024	16:00:00	7.3	0	0	1263.581	Open	Closed	23.6	272
8/2/2024	16:15:00	7.3	0	0	1263.581	Open	Closed	24	271
8/2/2024	16:30:00	7.3	0	0	1263.581	Open	Closed	24.3	272
8/2/2024	16:45:00	7.3	0	0	1263.581	Open	Closed	24.6	272
8/2/2024	17:00:00	7.2	0	0	1263.581	Open	Closed	24.8	272
8/2/2024	17:15:00	7.2	0	0	1263.581	Open	Closed	25.1	272
8/2/2024	17:30:00	7.2	0	0	1263.581	Open	Closed	25.3	272
8/2/2024	17:45:00	7.2	0	0	1263.581	Open	Closed	25.5	272
8/2/2024	18:00:00	7.2	0	0	1263.581	Open	Closed	25.7	272

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/2/2024	18:15:00	7.2	0	0	1263.581	Open	Closed	25.8	272
8/2/2024	18:30:00	7.2	0	0	1263.581	Open	Closed	25.9	272
8/2/2024	18:45:00	7.2	0	0	1263.581	Open	Closed	26	272
8/2/2024	19:00:00	7.2	0	0	1263.581	Open	Closed	26.1	273
8/2/2024	19:15:00	7.2	0	0	1263.581	Open	Closed	26.2	273
8/2/2024	19:30:00	7.2	0	0	1263.581	Open	Closed	26.3	272
8/2/2024	19:45:00	7.2	0	0	1263.581	Open	Closed	26.3	273
8/2/2024	20:00:00	7.2	0	0	1263.581	Open	Closed	26.4	274
8/2/2024	20:15:00	7.2	0	0	1263.581	Open	Closed	26.3	273
8/2/2024	20:30:00	7.2	0	0	1263.581	Open	Closed	26.2	273
8/2/2024	20:45:00	7.3	1.42316	0	1263.581	Open	Closed	23	274
8/2/2024	21:00:00	7.4	1.42316	0	1263.581	Open	Closed	22.5	269
8/2/2024	21:15:00	7.4	1.42316	0	1263.581	Open	Closed	22.1	267
8/2/2024	21:30:00	7.5	1.419375	0	1263.581	Open	Closed	22	267
8/2/2024	21:45:00	7.5	1.40802	0	1263.581	Open	Closed	21.8	267
8/2/2024	22:00:00	7.5	0	0	1263.581	Open	Closed	22	268
8/2/2024	22:15:00	7.4	0	0	1263.581	Open	Closed	22.2	268
8/2/2024	22:30:00	7.4	0	0	1263.581	Open	Closed	22.3	267
8/2/2024	22:45:00	7.3	0	0	1263.581	Open	Closed	22.5	269
8/2/2024	23:00:00	7.4	0	0	1263.581	Open	Closed	21.8	269
8/2/2024	23:15:00	7.4	0	0	1263.581	Open	Closed	22	269
8/2/2024	23:30:00	7.4	0	0	1263.581	Open	Closed	21.9	269
8/2/2024	23:45:00	7.3	0	0	1263.581	Open	Closed	22	269
8/3/2024	0:00:00	7.3	0	0	1263.581	Open	Closed	22	269
8/3/2024	0:15:00	7.3	0	0	1263.581	Open	Closed	22.1	269
8/3/2024	0:30:00	7.3	0	0	1263.581	Open	Closed	22.1	271
8/3/2024	0:45:00	7.4	0	0	1263.581	Open	Closed	21.5	269
8/3/2024	1:00:00	7.3	0	0	1263.581	Open	Closed	21.6	269
8/3/2024	1:15:00	7.3	0	0	1263.581	Open	Closed	21.7	269
8/3/2024	1:30:00	7.3	0	0	1263.581	Open	Closed	21.7	272
8/3/2024	1:45:00	7.3	0	0	1263.581	Open	Closed	21.7	272
8/3/2024	2:00:00	7.3	0	0	1263.581	Open	Closed	21.7	271
8/3/2024	2:15:00	7.3	0	0	1263.581	Open	Closed	21.7	271

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/3/2024	2:30:00	7.3	0.314155	0	1263.581	Open	Closed	21.7	270
8/3/2024	2:45:00	7.3	0	0	1263.581	Open	Closed	21.5	270
8/3/2024	3:00:00	7.3	0	0	1263.581	Open	Closed	21.5	272
8/3/2024	3:15:00	7.3	0	0	1263.581	Open	Closed	21.4	274
8/3/2024	3:30:00	7.3	0	0	1263.581	Open	Closed	21.4	277
8/3/2024	3:45:00	7.3	0	0	1263.581	Open	Closed	21.3	276
8/3/2024	4:00:00	7.3	0	0	1263.581	Open	Closed	21.3	276
8/3/2024	4:15:00	7.3	0	0	1263.581	Open	Closed	21.3	277
8/3/2024	4:30:00	7.3	0	0	1263.581	Open	Closed	21.2	277
8/3/2024	4:45:00	7.3	0	0	1263.581	Open	Closed	21.2	277
8/3/2024	5:00:00	7.2	0	0	1263.581	Open	Closed	21.1	277
8/3/2024	5:15:00	7.2	0	0	1263.581	Open	Closed	21.2	280
8/3/2024	5:30:00	7.2	0	0	1263.581	Open	Closed	21.1	280
8/3/2024	5:45:00	7.1	0	0	1263.581	Open	Closed	21	281
8/3/2024	6:00:00	7.1	0	0	1263.581	Open	Closed	21	281
8/3/2024	6:15:00	7.1	0	0	1263.581	Open	Closed	21	281
8/3/2024	6:30:00	7.1	0	0	1263.581	Open	Closed	21	281
8/3/2024	6:45:00	7.1	0	0	1263.581	Open	Closed	21	282
8/3/2024	7:00:00	7.2	0.86298	12.3	1263.581	Open	Closed	19.5	279
8/3/2024	7:15:00	7.2	0.87055	12.1	1263.581	Open	Closed	19.4	277
8/3/2024	7:30:00	7.3	0.9084	0.7	1263.581	Open	Closed	20.2	276
8/3/2024	7:45:00	7.3	0.91597	0.7	1263.581	Open	Closed	19.7	276
8/3/2024	8:00:00	7.3	0.919755	0	1263.581	Open	Closed	19.7	276
8/3/2024	8:15:00	7.3	0	0	1263.581	Open	Closed	19.8	276
8/3/2024	8:30:00	7.3	0	0	1263.581	Open	Closed	19.9	276
8/3/2024	8:45:00	7.2	0	0	1263.581	Open	Closed	20.1	274
8/3/2024	9:00:00	7.2	0	0	1263.581	Open	Closed	20.2	274
8/3/2024	9:15:00	7.2	0	0	1263.581	Open	Closed	20.3	274
8/3/2024	9:30:00	7.2	0	0	1263.581	Open	Closed	20.4	274
8/3/2024	9:45:00	7.2	0	0	1263.581	Open	Closed	20.6	274
8/3/2024	10:00:00	7.2	0	0	1263.581	Open	Closed	20.7	274
8/3/2024	10:15:00	7.2	0	0	1263.581	Open	Closed	20.8	276
8/3/2024	10:30:00	7.2	0	0	1263.581	Open	Closed	21	276

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/3/2024	10:45:00	7.2	0	0	1263.581	Open	Closed	21.2	276
8/3/2024	11:00:00	7.2	0	0	1263.581	Open	Closed	21.3	276
8/3/2024	11:15:00	7.2	0	0	1263.581	Open	Closed	21.5	276
8/3/2024	11:30:00	7.2	0	0	1263.581	Open	Closed	21.7	276
8/3/2024	11:45:00	7.2	0.34822	0	1263.581	Open	Closed	22	276
8/3/2024	12:00:00	7.3	0	0	1263.581	Open	Closed	21.5	274
8/3/2024	12:15:00	7.3	0	0	1263.581	Open	Closed	21.8	274
8/3/2024	12:30:00	7.4	0	0	1263.581	Open	Closed	21.5	271
8/3/2024	12:45:00	7.3	0	0	1263.581	Open	Closed	21.8	271
8/3/2024	13:00:00	7.3	0	0	1263.581	Open	Closed	22.2	273
8/3/2024	13:15:00	7.3	0	0	1263.581	Open	Closed	22.5	273
8/3/2024	13:30:00	7.3	0	0	1263.581	Open	Closed	22.9	273
8/3/2024	13:45:00	7.3	0.556395	0	1263.581	Open	Closed	22	271
8/3/2024	14:00:00	7.3	0	0	1263.581	Open	Closed	22.2	272
8/3/2024	14:15:00	7.4	1.131715	0	1263.581	Open	Closed	22.1	270
8/3/2024	14:30:00	7.4	0	0	1263.581	Open	Closed	22.5	270
8/3/2024	14:45:00	7.3	0	0	1263.581	Open	Closed	22.9	270
8/3/2024	15:00:00	7.3	0	0	1263.581	Open	Closed	23.3	270
8/3/2024	15:15:00	7.3	0	0	1263.581	Open	Closed	23.6	272
8/3/2024	15:30:00	7.3	0	0	1263.581	Open	Closed	24	271
8/3/2024	15:45:00	7.3	0	0	1263.581	Open	Closed	24.3	270
8/3/2024	16:00:00	7.3	0	0	1263.581	Open	Closed	24.7	270
8/3/2024	16:15:00	7.3	0	0	1263.581	Open	Closed	25	270
8/3/2024	16:30:00	7.2	0	0	1263.581	Open	Closed	25.3	272
8/3/2024	16:45:00	7.2	0	0	1263.581	Open	Closed	25.5	272
8/3/2024	17:00:00	7.2	0	0	1263.581	Open	Closed	25.8	272
8/3/2024	17:15:00	7.2	0	0	1263.581	Open	Closed	26	272
8/3/2024	17:30:00	7.2	0	0	1263.581	Open	Closed	26.2	272
8/3/2024	17:45:00	7.2	0	0	1263.581	Open	Closed	26.3	272
8/3/2024	18:00:00	7.2	0	0	1263.581	Open	Closed	26.5	273
8/3/2024	18:15:00	7.2	0	0	1263.581	Open	Closed	26.6	274
8/3/2024	18:30:00	7.2	0	0	1263.581	Open	Closed	26.7	274
8/3/2024	18:45:00	7.2	0	0	1263.581	Open	Closed	26.8	274

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**July 29th to August 4th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **August 13th**

Date	Time	Discharge pH	Discharge Flow Rate (m3/min)	Discharge NTU	Flow Total (m3)	Recirc Valve Status	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
8/3/2024	19:00:00	7.2	0	0	1263.581	Open	Closed	26.9	273
8/3/2024	19:15:00	7.2	0	0	1263.581	Open	Closed	27	273
8/3/2024	19:30:00	7.2	0	0	1263.581	Open	Closed	27	273
8/3/2024	19:45:00	7.2	0	0	1263.581	Open	Closed	27	273
8/3/2024	20:00:00	7.2	0	0	1263.581	Open	Closed	27	274
8/3/2024	20:15:00	7.2	0	0	1263.581	Open	Closed	26.9	273
8/3/2024	20:30:00	7.1	0	0	1263.581	Open	Closed	26.8	273
8/3/2024	20:45:00	7.1	0	0	1263.581	Open	Closed	26.7	276
8/3/2024	21:00:00	7.1	0	0	1263.581	Open	Closed	26.7	275
8/3/2024	21:15:00	7.1	0	0	1263.581	Open	Closed	26.5	276
8/3/2024	21:30:00	7.2	0	0	1263.581	Open	Closed	23.6	278
8/3/2024	21:45:00	7.2	0	0	1263.581	Open	Closed	23.7	283
8/3/2024	22:00:00	7.2	0	0	1263.581	Open	Closed	23.7	284
8/3/2024	22:15:00	7.3	1.237695	0	1263.581	Open	Closed	22.8	277
8/3/2024	22:30:00	7.4	0	0	1263.581	Open	Closed	22.6	274
8/3/2024	22:45:00	7.3	0	0	1263.581	Open	Closed	22.7	274
8/3/2024	23:00:00	7.3	0	0	1263.581	Open	Closed	22.7	274
8/3/2024	23:15:00	7.2	0	0	1263.581	Open	Closed	22.8	274
8/3/2024	23:30:00	7.4	1.585915	0	1263.581	Open	Closed	21.9	271
8/3/2024	23:45:00	7.4	0	0	1263.581	Open	Closed	21.8	271
8/4/2024	0:00:00	7.3	0	0	1263.581	Open	Closed	21.9	271
8/4/2024	0:15:00	7.3	0	0	1263.581	Open	Closed	22	271
8/4/2024	0:30:00	7.3	0	0	1263.581	Open	Closed	22.1	271
8/4/2024	0:45:00	7.3	0	0	1263.581	Open	Closed	22.1	271
8/4/2024	1:00:00	7.3	0	0	1263.581	Open	Closed	22.2	273
8/4/2024	1:15:00	7.3	0	0	1263.581	Open	Closed	22.2	272
8/4/2024	1:30:00	7.4	1.275545	0	1263.581	Open	Closed	21.4	272
8/4/2024	1:45:00	7.3	0	0	1263.581	Open	Closed	21.5	271
8/4/2024	2:00:00	7.3	0	0	1263.581	Open	Closed	21.5	271
8/4/2024	2:15:00	7.3	0	0	1263.581	Open	Closed	21.6	270
8/4/2024	2:30:00	7.2	0	0	1263.581	Open	Closed	21.5	270
8/4/2024	2:45:00	7.2	0	0	1263.581	Open	Closed	21.5	271
8/4/2024	3:00:00	7.2	0	0	1263.581	Open	Closed	21.5	271

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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8/4/2024	3:15:00	7.2	0	0	1263.581	Open	Closed	21.5	270
8/4/2024	3:30:00	7.2	0	0	1263.581	Open	Closed	21.5	270
8/4/2024	3:45:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	4:00:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	4:15:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	4:30:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	4:45:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	5:00:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	5:15:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	5:30:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	5:45:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	6:00:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	6:15:00	7.2	0	0	1263.581	Open	Closed	21.4	272
8/4/2024	6:30:00	7.2	0	0	1263.581	Open	Closed	21.3	272
8/4/2024	6:45:00	7.2	0	0	1263.581	Open	Closed	21.2	273
8/4/2024	7:00:00	7.2	0	0	1263.581	Open	Closed	21.1	273
8/4/2024	7:15:00	7.2	0	0	1263.581	Open	Closed	21.1	273
8/4/2024	7:30:00	7.2	0	0	1263.581	Open	Closed	21	273
8/4/2024	7:45:00	7.2	1.161995	0	1263.581	Open	Closed	21.1	277
8/4/2024	8:00:00	7.3	0	0	1263.581	Open	Closed	20.7	272
8/4/2024	8:15:00	7.3	0	0	1263.581	Open	Closed	20.7	272
8/4/2024	8:30:00	7.3	1.04466	0	1263.581	Open	Closed	20.6	272
8/4/2024	8:45:00	7.3	0	0	1263.581	Open	Closed	20.5	271
8/4/2024	9:00:00	7.3	0.64345	0	1263.581	Open	Closed	20.5	271
8/4/2024	9:15:00	7.3	0	0	1263.581	Open	Closed	20.5	271
8/4/2024	9:30:00	7.3	0	0	1263.581	Open	Closed	20.6	271
8/4/2024	9:45:00	7.4	0	0	1263.581	Open	Closed	20.6	271
8/4/2024	10:00:00	7.3	0	0	1263.581	Open	Closed	20.7	269
8/4/2024	10:15:00	7.3	0	0	1263.581	Open	Closed	20.9	271
8/4/2024	10:30:00	7.3	0	0	1263.581	Open	Closed	21	271
8/4/2024	10:45:00	7.3	0	0	1263.581	Open	Closed	20.8	271
8/4/2024	11:00:00	7.3	0	0	1263.581	Open	Closed	21	271
8/4/2024	11:15:00	7.3	0	0	1263.581	Open	Closed	21.2	271

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8/4/2024	11:30:00	7.3	0	0	1263.581	Open	Closed	21.4	269
8/4/2024	11:45:00	7.3	0	0	1263.581	Open	Closed	21.7	269
8/4/2024	12:00:00	7.3	0	0	1263.581	Open	Closed	22	269
8/4/2024	12:15:00	7.3	1.3626	0	1263.581	Open	Closed	21.4	269
8/4/2024	12:30:00	7.3	0	0	1263.581	Open	Closed	21.6	268
8/4/2024	12:45:00	7.3	0	0	1263.581	Open	Closed	22	268
8/4/2024	13:00:00	7.3	0	0	1263.581	Open	Closed	22.3	268
8/4/2024	13:15:00	7.3	0	0	1263.581	Open	Closed	22.6	269
8/4/2024	13:30:00	7.3	0.61317	0	1263.581	Open	Closed	21.8	269
8/4/2024	13:45:00	7.4	0	0	1263.581	Open	Closed	22	269
8/4/2024	14:00:00	7.3	0.480695	0	1263.581	Open	Closed	22.4	270
8/4/2024	14:15:00	7.4	0	0	1263.581	Open	Closed	22	268
8/4/2024	14:30:00	7.4	0	0	1263.581	Open	Closed	22.4	268
8/4/2024	14:45:00	7.3	0	0	1263.581	Open	Closed	22.9	268
8/4/2024	15:00:00	7.3	0	0	1263.581	Open	Closed	23.3	268
8/4/2024	15:15:00	7.3	0	0	1263.581	Open	Closed	23.7	268
8/4/2024	15:30:00	7.3	0	0	1263.581	Open	Closed	24.1	269
8/4/2024	15:45:00	7.3	0	0	1263.581	Open	Closed	24.5	268
8/4/2024	16:00:00	7.3	0	0	1263.581	Open	Closed	24.8	269
8/4/2024	16:15:00	7.2	0	0	1263.581	Open	Closed	25.1	268
8/4/2024	16:30:00	7.2	0	0	1263.581	Open	Closed	25.4	269
8/4/2024	16:45:00	7.2	0	0	1263.581	Open	Closed	25.6	269
8/4/2024	17:00:00	7.2	0	0	1263.581	Open	Closed	25.9	269
8/4/2024	17:15:00	7.2	0	0	1263.581	Open	Closed	26.1	269
8/4/2024	17:30:00	7.2	0	0	1263.581	Open	Closed	26.3	271
8/4/2024	17:45:00	7.2	0	0	1263.581	Open	Closed	26.4	271
8/4/2024	18:00:00	7.2	0	0	1263.581	Open	Closed	26.6	271
8/4/2024	18:15:00	7.2	0	0	1263.581	Open	Closed	26.7	271
8/4/2024	18:30:00	7.2	0	0	1263.581	Open	Closed	26.8	271
8/4/2024	18:45:00	7.2	0	0	1263.581	Open	Closed	26.9	271
8/4/2024	19:00:00	7.2	0	0	1263.581	Open	Closed	27	271
8/4/2024	19:15:00	7.2	0	0	1263.581	Open	Closed	27	271
8/4/2024	19:30:00	7.2	0	0	1263.581	Open	Closed	27.1	269

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8/4/2024	19:45:00	7.2	0	0	1263.581	Open	Closed	27.1	269
8/4/2024	20:00:00	7.2	0	0	1263.581	Open	Closed	27.1	269
8/4/2024	20:15:00	7.2	0	0	1263.581	Open	Closed	27	268
8/4/2024	20:30:00	7.2	0	0	1263.581	Open	Closed	26.9	271
8/4/2024	20:45:00	7.2	0	0	1263.581	Open	Closed	26.7	271
8/4/2024	21:00:00	7.2	0	0	1263.581	Open	Closed	26.5	271
8/4/2024	21:15:00	7.2	0	0	1263.581	Open	Closed	26.3	271
8/4/2024	21:30:00	7.2	0	0	1263.581	Open	Closed	26.2	273
8/4/2024	21:45:00	7.1	0	0	1263.581	Open	Closed	26	274
8/4/2024	22:00:00	7.1	0	0	1263.581	Open	Closed	25.9	273
8/4/2024	22:15:00	7.1	0	0	1263.581	Open	Closed	25.7	273
8/4/2024	22:30:00	7.1	0	0	1263.581	Open	Closed	25.5	273
8/4/2024	22:45:00	7.1	0	0	1263.581	Open	Closed	25.3	273
8/4/2024	23:00:00	7.1	0	0	1263.581	Open	Closed	25.1	274
8/4/2024	23:15:00	7.1	0	0	1263.581	Open	Closed	25	274
8/4/2024	23:30:00	7.1	0	0	1263.581	Open	Closed	24.8	274
8/4/2024	23:45:00	7.1	0	0	1263.581	Open	Closed	24.7	276

Appendix D: Woodfibre Site Receiving Environment Documentation

Woodfibre Site Receiving Environment Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:	COLLEGE OF APPLIED BIOLOGISTS Farshad Shafiei RPBio 3781 CAB		Farshad Shafiei Ph.D., R.P.Bio.	WLNG 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					VA24B8803-001	VA24B8803-002					
	Date Sampled					30-Jul-2024	30-Jul-2024					
	Time Sampled					11:01	10:36					
Analyte	Units	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Water	Water		Guideline notes			
						N/A	N/A					
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.4	7.58		If natural pH < 6.5, no statisticaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	-	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	Max +/- from BKG 1°C, hourly rate of change <0.5°C [4]	-	16.3	16.8		Guideline is species-dependent. Short-term daily temperature guideline is 19°C for streams with unknown fish distribution. Refer to footnote 4 for background temperature range for East Creek. Refer to BC Water Quality Guidelines for more information Hourly rate of change not to exceed 1°C. Calculation: US value +/- 1 = guideline range		Guideline for marine waters are based on natural ambient conditions. Max and min. 1°C change from natural condition. Natural temperature cycle characteristic of the site should not be altered in amplitude or frequency by human activities. Max rate of any human-induced temperature change not to exceed 0.5°C hourly. treams with unknown fish distribution. Refer to footnote 4 for background temperature range for East Creek. Calculation: US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	93	148					
Turbidity (field)	NTU	Varies with background, see	Varies with background, see note	Varies with background, see note	Varies with background, see note	2.56	1.67		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	8.82	-		Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.
General Parameters												
Hardness (as $CaCO_3$) (total)	mg/L	-	-	-	-	8.6	11.5					
Total Dissolved Solids	mg/L	-	-	-	-	18	25					
Total Suspended Solids	mg/L	Varies with background, see note	Varies with background, see note	Varies with background, see note	Varies with background, see note	< 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	-	-	-	-	2.75	2.1			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	Categorical	-	-	-	9.5	12.1	The upstream location has high sensitivity to acid inputs (i.e. low buffering capacity), while the downstream has moderate 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.	Varies with pH and temperature. See note.	Varies with pH, temperature and salinity. See note.	Varies with pH, temperature and salinity. See note.	< 0.0050	< 0.0050		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	150	600	> 110% of background	< 90% of background	0.94	0.98				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
Fluoride	mg/L	-	Varies with hardness	1.5	-	0.022	0.029		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	3	32.8	-	3.7	0.0354	0.0275					
Nitrite (as N)	mg/L	Varies with chloride. See note.	Varies with chloride. See note.	-	-	< 0.0010	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.116	0.096					
Total Phosphorous	mg/L	0.005 to 0.015	-	-	-	0.0067	0.0049			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.	-	-	-	2.53	3.11			Guidelines for hardness ranges below: Hardness 0 - 30: 128; Hardness 31 - 75: 218; Hardness 76 - 180: 309; Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	Varies with pH, DOC, hardness	-	-	-	0.116	***0.0753***	**Total Al exceeds the long-term BCWG for FAL at the downstream location.** However, this should not be deemed a reportable exceedance because the background total Al concentration at upstream location is egreater than the downstream location. This result and previous sampling works suggest that the high total Al concentration is attributed to other factors rather than to WLNG discharge activities.		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.074	0.25	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	0.005	-	-	0.0125	0.00018	0.00016					Interim guideline status
Barium (Ba)-Total	mg/L	1	-	-	-	0.0046	0.00652			Working guideline status		
Beryllium (Be)-Total	mg/L	0.00013	-	-	0.100	< 0.00010	< 0.00010			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	0.0000067	< 0.0000050					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	2.87	3.93					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000012	0.000011					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Total	mg/L	0.0089	-	-	0.056	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	0.001	-	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.004	0.11	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00089	< 0.00057					
Iron (Fe)-Total	mg/L	-	1	-	-	0.068	0.054					
Lead (Pb)-Total	mg/L	Varies with hardness. See Note.	Varies with hardness. See Note.	0.14	0.002	< 0.000050	< 0.000050		Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline is 0.003 where hardness ≤8mg/L. Guideline uses equation EXP[1.273*on(hardness)-1.460] where hardness is 8-360 mg/L. Lowest value for guideline is 0.003 mg/L.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. Guideline equation EXP[1.273*on(hardness)-4.704] applies to samples with hardness 8-360 mg/L.		
Lithium (Li)-Total	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.347	0.405					
Manganese (Mn)-Total	mg/L	Varies with hardness	Varies with hardness	-	-	0.0024	0.002		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	Varies with methyl mercury	-	-	-	< 0.000005	< 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	7.6	46	-	-	0.00054	0.00147					
Nickel (Ni)-Total	mg/L	Varies with hardness	-	-	0.0083	< 0.00050	< 0.00050			Working guideline status. Guideline varies with hardness. Refer to BC Water Quality Guidelines for more information. Hardness 0 ≤ 60: 0.025; Hardness > 60 ≤ 180: Guideline = (EXP((0.76 * (LN(hardness)) + 1.06))/1000); Hardness ≥ 180: 0.15		Working guideline status
Phosphorus (P)-Total	mg/L	0.005 to 0.015	-	-	-	< 0.050	< 0.050			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	0.394	0.355					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.001	0.00083					
Selenium (Se)-Total	mg/L	0.002	-	-	0.002	< 0.000050	< 0.000050			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guideliens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelines and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	4.86	5.46					
Silver (Ag)-Total	mg/L	Varies with hardness, see note	Varies with hardness, see note	0.003	0.0015	< 0.000010	< 0.000010		Varies with hardness. Guideline ranges: Hardness ≤ 100: 0.0001; Hardness > 100: 0.003	Varies with hardness. Guideline ranges: Hardness ≤ 100: 0.00005; Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	1.86	1.99					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.016	0.0182					
Sulfur (S)-Total	mg/L	-	-	-	-	0.66	0.85					
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	-	-	-	-	0.00118	0.00113					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0085	-	-	-	0.000082	0.000136			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	-	-	-	-	0.0512	0.0439					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00015	0.00014					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0046	0.00668					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	< 0.010	< 0.010					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note	Varies with hardness, see note	-	-	0.0000085	< 0.000010		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	Categorical, see note	-	-	-	2.72	4.14	The upstream and downstream locations have high sensitivity to acid inputs (i.e. low buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note	Guideline varies with other parameters, see note	-	-	***0.00063***	***0.00049***	**Dissolved Cu exceeds the long-term BCWG for FAL at both the upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the background dissolved Cu concentration at upstream location is greater than that of the downstream. This suggests that the high dissolved Cu concentration is attributed to other factors rather than to WLNG discharge activities.	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness. Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity. Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness. Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity. Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Iron (Fe)-Dissolved	mg/L	-	0.35	-	-	0.038	0.032					
Lead (Pb)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.327	0.393					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00155	0.00131					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000491	0.00145					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.41	0.379					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00088	0.00073					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.52	5.13					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.93	2.04					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0144	0.0186					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	0.77	1.02					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	<0.00020	<0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	<0.000010	<0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	<0.00010	<0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	<0.00010	<0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	<0.00010	<0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000066	0.000133					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	<0.00050	<0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with pH, DOC, hardness	Varies with DOC and hardness	-	-	0.0011	0.0018		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life; British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life										
Color Key:		*Exceeds BCAWWQG Long term Guideline*	Exceeds BCAWWQG Short term Guideline	Exceeds BCAWWQG MAL Short term Guideline	*Exceeds BCAWWQG MAL Long term Guideline*							
Color Key:			Exceeds BCAWWQG Short and Long-Term Guideline	Exceeds BCAWWQG MAL Short and Long-term Guidelines	Exceeds both BCAWWQG FAL and MAL Guidelines							

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

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

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

[4] Background temperature ranges: Dec-Feb: 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	BCAWWQG-FAL-LT [1,2]	BCAWWQG-FAL-ST [1,2]	BCAWWQG-MAL-ST [1]	BCAWWQG-MAL-LT [1,2]	Values: WLNG US1 (Upstream)	Values: WLNG DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.4	7.58
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				16.3	16.8
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				2.56	1.67
Hardness (as CaCO3) (total)	mg/L	Laboratory tested total hardness taken at each respective sample site on the day of sampling used in guideline calculations				8.6	11.5
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				2.75	2.1
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				9.5	12.1
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				0.94	0.98

Woodfibre Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24B8803**	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	: 30-Jul-2024 17:20
PO	: 11964-Task 20- Phase 3C-4C	Date Analysis Commenced	: 31-Jul-2024
C-O-C number	: ----	Issue Date	: 07-Aug-2024 16:23
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Lab Assistant	Metals, Burnaby, British Columbia
	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
	Lab Analyst	Metals, Burnaby, British Columbia
	Department Manager - Inorganics	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

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

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

<: less than.

>: greater than.

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

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

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

Qualifiers

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

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	30-Jul-2024 11:01	30-Jul-2024 10:36	----	----	----
						VA24B8803-001	VA24B8803-002	--------	--------	--------
						Result	Result	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		93.000	148.00	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.40	7.58	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		16.3	16.8	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		8.14	12.0	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		8.60	11.5	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		18	25	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		9.5	12.1	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		0.94	0.98	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.022	0.029	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0354	0.0275	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.116	0.096	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0067	0.0049	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		2.53	3.11	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		2.75	2.10	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.116	0.0753	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	30-Jul-2024 11:01	30-Jul-2024 10:36	----	----	----
						VA24B8803-001	VA24B8803-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00018	0.00016	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00460	0.00652	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000067	<0.0000050	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		2.87	3.93	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000012	0.000011	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00089	0.00057	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.068	0.054	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.347	0.405	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00240	0.00200	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000540	0.00147	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.394	0.355	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00100	0.00083	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		4.86	5.46	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		1.86	1.99	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0160	0.0182	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		0.66	0.85	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	30-Jul-2024 11:01	30-Jul-2024 10:36	----	----	----
						VA24B8803-001	VA24B8803-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00118	0.00113	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000082	0.000136	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	<0.0030	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0512	0.0439	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00015	0.00014	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00460	0.00668	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.0000085	<0.0000100 DLM	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		2.72	4.14	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00063	0.00049	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.038	0.032	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.327	0.393	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00155	0.00131	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000491	0.00145	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		0.410	0.379	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	30-Jul-2024 11:01	30-Jul-2024 10:36	----	----	----
						VA24B8803-001	VA24B8803-002	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00088	0.00073	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		4.52	5.13	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		1.93	2.04	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0144	0.0186	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		0.77	1.02	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000066	0.000133	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0011	0.0018	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----

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

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

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24B8803**	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	: 30-Jul-2024 17:20
PO	: 11964-Task 20- Phase 3C-4C	Issue Date	: 07-Aug-2024 16:23
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG DS 1	E298	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	03-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG US 1	E298	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	04-Aug-2024	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.Br-L	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG US 1	E235.Br-L	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG DS 1	E235.Cl	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG US 1	E235.Cl	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG DS 1	E235.F	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-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 WLNG US 1	E235.F	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.NO3-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	31-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG US 1	E235.NO3-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	31-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.NO2-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	31-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WLNG US 1	E235.NO2-L	30-Jul-2024	31-Jul-2024	3 days	1 days	✓	31-Jul-2024	3 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WLNG DS 1	E235.SO4	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WLNG US 1	E235.SO4	30-Jul-2024	31-Jul-2024	28 days	1 days	✓	31-Jul-2024	28 days	1 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG DS 1	E366	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	03-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) WLNG US 1	E366	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	03-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)										
WLNG DS 1	E372-U	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	07-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG US 1	E372-U	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG DS 1	E509	30-Jul-2024	04-Aug-2024	28 days	5 days	✓	04-Aug-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG US 1	E509	30-Jul-2024	04-Aug-2024	28 days	5 days	✓	04-Aug-2024	28 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG DS 1	E421	30-Jul-2024	31-Jul-2024	180 days	1 days	✓	03-Aug-2024	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG US 1	E421	30-Jul-2024	31-Jul-2024	180 days	1 days	✓	03-Aug-2024	180 days	4 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG DS 1	EF001	30-Jul-2024	----	----	----		31-Jul-2024	----	1 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG US 1	EF001	30-Jul-2024	----	----	----		31-Jul-2024	----	1 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG DS 1	E358-L	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG US 1	E358-L	30-Jul-2024	02-Aug-2024	28 days	3 days	✓	02-Aug-2024	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG DS 1	E290	30-Jul-2024	31-Jul-2024	14 days	1 days	✓	31-Jul-2024	14 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG US 1	E290	30-Jul-2024	31-Jul-2024	14 days	1 days	✓	31-Jul-2024	14 days	1 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	30-Jul-2024	----	----	----		02-Aug-2024	7 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG DS 1	E532	30-Jul-2024	----	----	----		01-Aug-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG US 1	E532	30-Jul-2024	----	----	----		01-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) WLNG DS 1	E508	30-Jul-2024	04-Aug-2024	28 days	5 days	✓	04-Aug-2024	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG US 1	E508	30-Jul-2024	04-Aug-2024	28 days	5 days	✓	04-Aug-2024	28 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG DS 1	E420	30-Jul-2024	02-Aug-2024	180 days	3 days	✓	04-Aug-2024	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG US 1	E420	30-Jul-2024	02-Aug-2024	180 days	3 days	✓	04-Aug-2024	180 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG DS 1	E395	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG US 1	E395	30-Jul-2024	----	----	----		06-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	1573094	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	1576815	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1573091	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1573088	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1579810	2	38	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1576812	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	1573089	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1573085	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1573086	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1573087	1	5	20.0	5.0	✓
TDS by Gravimetry	E162	1577953	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1579983	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1576816	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1576814	1	10	10.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580582	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1577948	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1573094	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	1576815	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1573091	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1573088	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1579810	2	38	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1576812	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	1573089	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1573085	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1573086	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1573087	1	5	20.0	5.0	✓
TDS by Gravimetry	E162	1577953	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1579983	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1576816	1	9	11.1	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	1576814	1	10	10.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580582	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1577948	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1573094	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	1576815	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1573091	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1573088	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1579810	2	38	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1576812	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	1573089	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1573085	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1573086	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1573087	1	5	20.0	5.0	✓
TDS by Gravimetry	E162	1577953	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1579983	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1576816	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1576814	1	10	10.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1580582	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1577948	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1576815	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1573091	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1573088	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1579810	2	38	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1573358	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1576812	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	1573089	1	5	20.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1573085	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1573086	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1573087	1	5	20.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1575229	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1579983	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1573344	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1576816	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1576814	1	10	10.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1580582	1	18	5.5	5.0	✓

Methodology References and Summaries

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

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - 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 H_2S concentration based on the total sulfide concentration in the sample. The H_2S 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	: **VA24B8803**	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	: 30-Jul-2024 17:20
PO	: 11964-Task 20- Phase 3C-4C	Date Analysis Commenced	: 31-Jul-2024
C-O-C number	: ----	Issue Date	: 07-Aug-2024 16:24
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
	Department Manager - Inorganics	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

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: 1573094)											
VA24B8715-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	27.8	27.9	0.363%	20%	----
Physical Tests (QC Lot: 1577948)											
FJ2402193-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1577953)											
FJ2402193-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	876	897	2.37%	20%	----
Anions and Nutrients (QC Lot: 1573085)											
VA24B8803-001	WLNG US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0354	0.0356	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1573086)											
VA24B8803-001	WLNG US 1	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: 1573087)											
VA24B8803-001	WLNG US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.53	2.53	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1573088)											
VA24B8803-001	WLNG US 1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	0.94	0.94	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1573089)											
VA24B8803-001	WLNG US 1	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.022	0.022	0.00003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1573091)											
VA24B8803-001	WLNG US 1	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1576814)											
FJ2402179-006	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0101	0.0102	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1576815)											
FJ2402179-006	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.102	0.104	2.54%	20%	----
Anions and Nutrients (QC Lot: 1576816)											
FJ2402179-006	Anonymous	Nitrogen, total	7727-37-9	E366	0.150	mg/L	0.413	0.413	0.0004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1576812)											
FJ2402179-006	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.46	2.31	0.15	Diff <2x LOR	----
Total Sulfides (QC Lot: 1580582)											
CG2410649-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1573344)											
KS2402949-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00050	mg/L	<0.00050	<0.00050	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: 1573344) - continued											
KS2402949-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00148	0.00147	0.590%	20%	----
		Barium, total	7440-39-3	E420	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.100	mg/L	23.5	23.5	0.122%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000010	0.000011	0.0000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	0.00170	0.00172	0.00002	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.030	mg/L	0.518	0.513	0.972%	20%	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	20.9	20.9	0.0263%	20%	----
		Manganese, total	7439-96-5	E420	0.00200	mg/L	0.0365	0.0366	0.305%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00941	0.00948	0.676%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00084	0.00086	0.00002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	0.050	0.0002	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	2.90	2.88	0.628%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00358	0.00351	1.90%	20%	----
		Selenium, total	7782-49-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	8.73	8.74	0.0438%	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	2.00	mg/L	21.4	20.8	2.90%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0402	0.0402	0.0529%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	5.62	5.70	1.37%	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	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00024	0.00024	0.000003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000100	mg/L	0.000334	0.000338	0.000004	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: 1573344) - continued											
KS2402949-001	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	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	0.00033	0.00013	Diff <2x LOR	----
Total Metals (QC Lot: 1579983)											
VA24B8488-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1573358)											
VA24B8799-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.406	0.416	2.22%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0102	0.00985	4.06%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	0.000083	0.000080	0.000003	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	0.000297	0.000298	0.187%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	11.7	11.9	1.56%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000044	0.000046	0.000002	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	0.00231	0.00234	1.45%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00467	0.00485	3.76%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.052	0.052	0.0003	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000161	0.000158	0.000003	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0019	0.0019	0.00001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	0.734	0.750	2.17%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.216	0.225	4.32%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00087	0.00091	0.00004	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.107	0.107	0.0002	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.824	0.813	1.32%	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	0.252	0.220	0.032	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0698	0.0718	2.83%	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: 1573358) - continued											
VA24B8799-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	12.2	11.4	6.66%	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	0.000091	0.000090	0.000002	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	0.0304	0.0305	0.299%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1579810)											
FJ2402196-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1579811)											
VA24B8803-002	WLNG DS 1	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1575229)											
HA2401786-001	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: 1573094)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1577948)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1577953)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1573085)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1573086)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1573087)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1573088)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1573089)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1573091)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1576814)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1576815)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1576816)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Organic / Inorganic Carbon (QCLot: 1576812)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1580582)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1573344)						
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: 1573344) - 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: 1579983)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1573358)						
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: 1573358) - 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: 1579810)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1579811)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1575229)						
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: 1573094)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	100	85.0	115	----
Physical Tests (QCLot: 1577948)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1577953)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	99.2	85.0	115	----
Anions and Nutrients (QCLot: 1573085)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1573086)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1573087)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1573088)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1573089)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1573091)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 1576814)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	94.3	80.0	120	----
Anions and Nutrients (QCLot: 1576815)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	96.2	85.0	115	----
Anions and Nutrients (QCLot: 1576816)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	107	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1576812)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Total Sulfides (QCLot: 1580582)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	107	80.0	120	----
Total Metals (QCLot: 1573344)									

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: 1573344) - continued									
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	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	96.1	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	92.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.0	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	93.6	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	92.2	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	93.9	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.6	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	103	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.2	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	112	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.0	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	119	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	89.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.5	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	95.5	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	95.2	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	93.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.6	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: 1573344) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	93.9	80.0	120	----
Total Metals (QCLot: 1579983)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.0	80.0	120	----
Dissolved Metals (QCLot: 1573358)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.3	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	93.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	93.3	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	95.1	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	99.2	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.9	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	97.5	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	106	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: 1573358) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.2	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.5	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.5	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	99.7	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.2	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.2	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.6	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	99.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	101	80.0	120	----
Speciated Metals (QCLot: 1575229)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	100	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: 1573085)										
VA24B8803-002	WLNG DS 1	Nitrate (as N)	14797-55-8	E235.NO3-L	2.55 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1573086)										
VA24B8803-002	WLNG DS 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.506 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1573087)										
VA24B8803-002	WLNG DS 1	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1573088)										
VA24B8803-002	WLNG DS 1	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1573089)										
VA24B8803-002	WLNG DS 1	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1573091)										
VA24B8803-002	WLNG DS 1	Bromide	24959-67-9	E235.Br-L	0.534 mg/L	0.5 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 1576814)										
FJ2402179-009	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0468 mg/L	0.05 mg/L	93.7	70.0	130	----
Anions and Nutrients (QCLot: 1576815)										
FJ2402179-009	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1576816)										
FJ2402179-009	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1576812)										
FJ2402179-009	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.03 mg/L	5 mg/L	101	70.0	130	----
Total Sulfides (QCLot: 1580582)										
CG2410688-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.235 mg/L	0.2 mg/L	118	75.0	125	----
Total Metals (QCLot: 1573344)										
VA24B8690-001	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0365 mg/L	0.04 mg/L	91.4	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00876 mg/L	0.01 mg/L	87.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.081 mg/L	0.1 mg/L	80.7	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00938 mg/L	0.01 mg/L	93.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1573344) - continued										
VA24B8690-001	Anonymous	Cobalt, total	7440-48-4	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Copper, total	7440-50-8	E420	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Iron, total	7439-89-6	E420	1.88 mg/L	2 mg/L	94.0	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0820 mg/L	0.1 mg/L	82.0	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0182 mg/L	0.02 mg/L	91.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.8 mg/L	10 mg/L	108	70.0	130	----
		Potassium, total	7440-09-7	E420	3.83 mg/L	4 mg/L	95.8	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Silicon, total	7440-21-3	E420	9.83 mg/L	10 mg/L	98.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.00374 mg/L	0.004 mg/L	93.5	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	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00337 mg/L	0.004 mg/L	84.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Tin, total	7440-31-5	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0391 mg/L	0.04 mg/L	97.9	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0182 mg/L	0.02 mg/L	91.3	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E420	0.377 mg/L	0.4 mg/L	94.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
Total Metals (QCLot: 1579983)										
VA24B8567-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000940 mg/L	0 mg/L	94.0	70.0	130	----
Dissolved Metals (QCLot: 1573358)										
VA24B8799-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	ND mg/L	----	ND	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00944 mg/L	0.01 mg/L	94.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.093 mg/L	0.1 mg/L	93.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00412 mg/L	0.004 mg/L	103	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0103 mg/L	0.01 mg/L	103	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1573358) - continued										
VA24B8799-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.97 mg/L	2 mg/L	98.5	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	0.943 mg/L	1 mg/L	94.3	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.52 mg/L	10 mg/L	95.2	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.99 mg/L	4 mg/L	99.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.66 mg/L	10 mg/L	96.6	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00407 mg/L	0.004 mg/L	102	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	18.4 mg/L	20 mg/L	92.1	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0424 mg/L	0.04 mg/L	106	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0374 mg/L	0.04 mg/L	93.5	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0962 mg/L	0.1 mg/L	96.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.406 mg/L	0.4 mg/L	102	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1579810)										
FJ2402196-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000958 mg/L	0 mg/L	95.8	70.0	130	----
Dissolved Metals (QCLot: 1579811)										
VA24B8912-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000934 mg/L	0 mg/L	93.4	70.0	130	----
Speciated Metals (QCLot: 1575229)										
HA2401786-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0406 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	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Triton Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] X Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:		Quality Control (QC) Report with Report ☑ YES ☐ NO	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)] ☐
Phone:		☑ Compare Results to Criteria on Report - provide details below if box checked	
	the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:		Email 1 or Fax	Date and Time Required for all E&P TATs: 07 dd-AUG-24 hh:mm
City/Province:		Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☐ YES ☑ NO	Select Invoice Distribution: ☑ EMAIL ☑ MAIL ☑ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ YES ☑ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA23-TRIT100-012	AFE/Cost Center:	PO#
Job #:	11964	Major/Minor Code:	Routing Code:
PO / AFE:	11964 - Task 20 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

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	30-Jul-24	11:01	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.40 cond: 93 µS/cm temp: 16.3°C																					
	WLNG DS 1	30-Jul-24	10:36	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.58 cond: 148 µS/cm temp: 16.8°C																					
	~~Duplicate~~			~~Water~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~							~~N~~	~~9~~
	~~Field Blank~~			~~Water~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~							~~N~~	~~6~~
	~~Trip Blank~~			~~Water~~	~~R~~		~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~								~~N~~	~~6~~

Environmental Division
Vancouver
Work Order Reference
VA24B8803

Telephone : +1 604 253 4188

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

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

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

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				9			

SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
30 July 24	17:19					Jul 30	5:20 pm

ONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — SEPT 20 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

2024-7-30-Chycoski-21E75

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	07/30/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.6683 -123.247958
Temperature(c):	Low 17 High 21	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 10:36:00 **Flow Volume (visual):** low

Notes: Conductivity: 148 micro Siemens per cm

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Photos

Photo: 1

Location: EAS DS 1

Description: US view

Photo: 2

Location: EAS DS 1

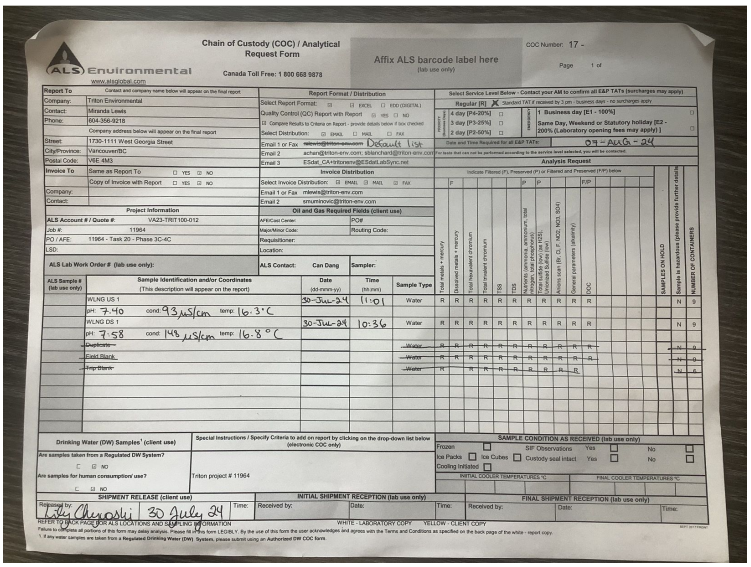
Description: Across view

Photos

Photo: 3

Location: EAS DS 1

Description: DS view



Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Affix ALS barcode label here

Photo: 4

Location: EAS DS 1

Description: Lab COC

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-7-30-Chycoski-5EF11

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	07/30/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 17 High 21	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 11:01:00 **Flow Volume (visual):** low

Notes: Conductivity: 93 micro Siemens per cm

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Photos

Photo: 1

Location: EAS US 1

Description: US view

Photo: 2

Location: EAS US 1

Description: Across view

2024-7-30-Chycoski-5EF11

Photos

Photo: 3

Location: EAS US 1

Description: DS view

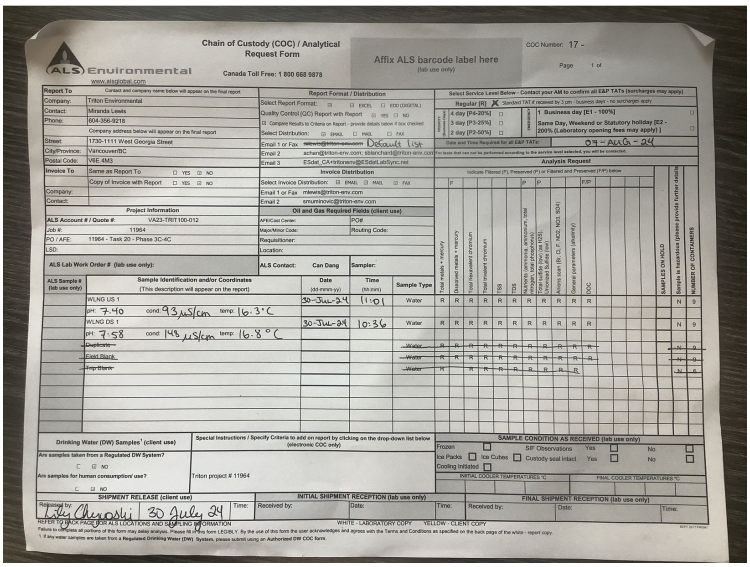


Photo: 4

Location: EAS US 1

Description: Lab COC

Sign Off

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

WLNG Upstream Raw Sonde Data 2024-07-29 to 2024-08-04

Received	Temperature C	Specific Conductivity µS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU
8/4/2024 23:50	17.22	22.25	0.01	7.09	373.03	8.3	0.61
8/4/2024 23:40	17.25	22.23	0.01	7.07	374.19	8.27	0.58
8/4/2024 23:30	17.27	22.2	0.01	7.1	372.45	8.27	0.6
8/4/2024 23:20	17.3	22.31	0.01	7.08	373.31	8.28	0.59
8/4/2024 23:10	17.32	22.25	0.01	7.08	373.53	8.24	0.58
8/4/2024 23:00	17.35	22.35	0.01	7.08	373.58	8.26	0.61
8/4/2024 22:50	17.37	22.42	0.01	7.08	373.58	8.23	0.6
8/4/2024 22:40	17.39	22.37	0.01	7.08	372.94	8.25	0.6
8/4/2024 22:30	17.41	22.29	0.01	7.12	370.73	8.23	0.59
8/4/2024 22:20	17.44	22.4	0.01	7.08	373.03	8.23	0.61
8/4/2024 22:10	17.46	22.29	0.01	7.12	370.83	8.22	0.59
8/4/2024 22:00	17.49	22.54	0.01	7.08	372.81	8.22	0.6
8/4/2024 21:50	17.52	22.45	0.01	7.09	372.1	8.21	0.61
8/4/2024 21:40	17.54	22.38	0.01	7.08	372.55	8.21	0.59
8/4/2024 21:30	17.57	22.45	0.01	7.11	371.54	8.19	0.59
8/4/2024 21:20	17.59	22.5	0.01	7.09	372.77	8.18	0.61
8/4/2024 21:10	17.61	22.5	0.01	7.12	371.03	8.18	0.6
8/4/2024 21:00	17.64	22.38	0.01	7.08	372.24	8.18	0.62
8/4/2024 20:50	17.67	22.41	0.01	7.09	371.88	8.16	0.61
8/4/2024 20:40	17.7	22.39	0.01	7.08	373.04	8.21	0.59
8/4/2024 20:30	17.72	22.23	0.01	7.13	372.19	8.19	0.63
8/4/2024 20:20	17.75	22.39	0.01	7.09	372.85	8.19	0.62
8/4/2024 20:10	17.76	22.36	0.01	7.16	369.57	8.19	0.61
8/4/2024 20:00	17.78	22.24	0.01	7.16	371.5	8.19	0.61
8/4/2024 19:50	17.81	22.43	0.01	7.15	370.81	8.19	0.64
8/4/2024 19:40	17.84	22.27	0.01	7.1	372.07	8.2	0.62
8/4/2024 19:30	17.86	22.29	0.01	7.19	370.87	8.19	0.61
8/4/2024 19:20	17.89	22.12	0.01	7.15	372.64	8.18	0.63
8/4/2024 19:10	17.91	22.23	0.01	7.13	370.47	8.17	0.63
8/4/2024 19:00	17.93	22.11	0.01	7.13	369.95	8.18	0.64
8/4/2024 18:50	17.96	21.83	0.01	7.24	367	8.21	0.61
8/4/2024 18:40	17.98	22	0.01	7.12	369.95	8.22	0.64
8/4/2024 18:30	18	21.81	0.01	7.14	369.2	8.2	0.63
8/4/2024 18:20	18.01	22.03	0.01	7.13	368.54	8.23	0.64
8/4/2024 18:10	18.03	21.77	0.01	7.22	364.39	8.22	0.64
8/4/2024 18:00	18.05	21.86	0.01	7.16	368.21	8.23	0.62
8/4/2024 17:50	18.07	21.85	0.01	7.21	365.65	8.24	0.63
8/4/2024 17:40	18.08	21.75	0.01	7.16	368.1	8.25	0.65
8/4/2024 17:30	18.1	21.73	0.01	7.19	366.98	8.27	0.62
8/4/2024 17:20	18.12	21.71	0.01	7.19	366.36	8.3	0.62
8/4/2024 17:10	18.13	21.89	0.01	7.21	365.4	8.3	0.63
8/4/2024 17:00	18.14	21.65	0.01	7.2	366.54	8.34	0.66
8/4/2024 16:50	18.13	21.32	0.01	7.22	365.67	8.31	0.65

WLNG Upstream Raw Sonde Data 2024-07-29 to 2024-08-04

8/4/2024 16:40	18.13	21.66	0.01	7.2	366.83	8.34	0.63
8/4/2024 16:30	18.12	21.44	0.01	7.23	365.11	8.35	0.66
8/4/2024 16:20	18.12	21.69	0.01	7.2	365.71	8.38	0.65
8/4/2024 16:10	18.11	21.69	0.01	7.28	362.97	8.37	0.62
8/4/2024 16:00	18.1	21.58	0.01	7.2	364.75	8.42	0.64
8/4/2024 15:50	18.07	21.54	0.01	7.26	363.02	8.41	0.64
8/4/2024 15:40	18.07	21.54	0.01	7.22	364.65	8.41	0.64
8/4/2024 15:30	18.02	21.58	0.01	7.27	362.24	8.42	0.63
8/4/2024 15:20	18.01	21.67	0.01	7.25	362.77	8.43	0.61
8/4/2024 15:10	18.04	21.54	0.01	7.31	360.01	8.45	0.63
8/4/2024 15:00	18.01	21.55	0.01	7.24	362.67	8.46	0.62
8/4/2024 14:50	17.97	21.48	0.01	7.26	362.11	8.49	0.65
8/4/2024 14:40	17.92	21.64	0.01	7.23	362.71	8.5	0.63
8/4/2024 14:30	17.87	21.53	0.01	7.33	360.12	8.51	0.63
8/4/2024 14:20	17.84	21.64	0.01	7.25	362.81	8.52	0.63
8/4/2024 14:10	17.79	21.58	0.01	7.35	359.84	8.55	0.64
8/4/2024 14:00	17.79	21.54	0.01	7.28	362.47	8.55	0.63
8/4/2024 13:50	17.76	21.64	0.01	7.31	362.08	8.58	0.63
8/4/2024 13:40	17.76	21.53	0.01	7.25	361.84	8.58	0.63
8/4/2024 13:30	17.72	21.55	0.01	7.39	357.5	8.61	0.62
8/4/2024 13:20	17.73	21.62	0.01	7.27	362.19	8.61	0.61
8/4/2024 13:10	17.65	21.68	0.01	7.35	362.21	8.64	0.6
8/4/2024 13:00	17.66	21.69	0.01	7.28	361.38	8.64	0.61
8/4/2024 12:50	17.62	21.51	0.01	7.4	357.27	8.67	0.61
8/4/2024 12:40	17.62	21.73	0.01	7.27	360.45	8.66	0.62
8/4/2024 12:30	17.61	21.58	0.01	7.4	357.39	8.67	0.63
8/4/2024 12:20	17.6	21.88	0.01	7.28	359.92	8.69	0.62
8/4/2024 12:10	17.57	21.75	0.01	7.4	356.5	8.71	0.61
8/4/2024 12:00	17.52	21.83	0.01	7.3	358.49	8.73	0.63
8/4/2024 11:50	17.45	21.75	0.01	7.4	355.67	8.73	0.62
8/4/2024 11:40	17.39	21.76	0.01	7.3	356.81	8.74	0.6
8/4/2024 11:30	17.3	21.68	0.01	7.29	359.28	8.74	0.59
8/4/2024 11:20	17.18	21.73	0.01	7.27	358.31	8.72	0.59
8/4/2024 11:10	17.1	21.82	0.01	7.3	358.38	8.74	0.56
8/4/2024 11:00	16.99	21.83	0.01	7.25	358.56	8.77	0.56
8/4/2024 10:50	16.88	21.74	0.01	7.34	355.72	8.74	0.57
8/4/2024 10:40	16.73	21.78	0.01	7.23	359.2	8.72	0.54
8/4/2024 10:30	16.65	21.65	0.01	7.3	360.47	8.72	0.54
8/4/2024 10:20	16.59	21.88	0.01	7.22	360.13	8.71	0.56
8/4/2024 10:10	16.54	21.8	0.01	7.3	358.99	8.7	0.53
8/4/2024 10:00	16.51	21.86	0.01	7.21	359.21	8.69	0.56
8/4/2024 9:50	16.49	21.79	0.01	7.27	359.43	8.7	0.55
8/4/2024 9:40	16.46	21.86	0.01	7.18	361.06	8.68	0.54
8/4/2024 9:30	16.44	21.75	0.01	7.29	359.26	8.68	0.53
8/4/2024 9:20	16.42	21.88	0.01	7.17	361.04	8.68	0.55
8/4/2024 9:10	16.4	21.8	0.01	7.27	359.85	8.69	0.55
8/4/2024 9:00	16.37	21.83	0.01	7.15	359.72	8.65	0.54

WLNG Upstream Raw Sonde Data 2024-07-29 to 2024-08-04

8/4/2024 8:50	16.35	21.67	0.01	7.23	360.47	8.66	0.54
8/4/2024 8:40	16.34	21.79	0.01	7.15	359.21	8.64	0.52
8/4/2024 8:30	16.33	21.74	0.01	7.26	357.31	8.65	0.58
8/4/2024 8:20	16.32	21.75	0.01	7.17	360.41	8.63	0.54
8/4/2024 8:10	16.32	21.85	0.01	7.23	358.36	8.63	0.53
8/4/2024 8:00	16.32	21.8	0.01	7.16	359.76	8.63	0.54
8/4/2024 7:50	16.32	21.74	0.01	7.26	357	8.63	0.55
8/4/2024 7:40	16.31	21.77	0.01	7.12	360.2	8.62	0.54
8/4/2024 7:30	16.31	21.81	0.01	7.2	360.53	8.58	0.53
8/4/2024 7:20	16.31	21.81	0.01	7.12	359.85	8.58	0.55
8/4/2024 7:10	16.32	21.8	0.01	7.19	358.55	8.59	0.54
8/4/2024 7:00	16.33	21.86	0.01	7.14	358.68	8.58	0.53
8/4/2024 6:50	16.33	21.72	0.01	7.18	356.99	8.58	0.53
8/4/2024 6:40	16.35	21.89	0.01	7.11	357.32	8.56	0.54
8/4/2024 6:40	16.35	21.89	0.01	7.11	357.32	8.56	0.54
8/4/2024 6:30	16.36	21.89	0.01	7.16	356.03	8.56	0.55
8/4/2024 6:20	16.38	21.92	0.01	7.12	357.59	8.52	0.53
8/4/2024 6:10	16.39	21.92	0.01	7.18	358.8	8.54	0.53
8/4/2024 6:00	16.41	21.99	0.01	7.12	357.63	8.52	0.55
8/4/2024 5:50	16.43	21.96	0.01	7.14	359.66	8.52	0.54
8/4/2024 5:40	16.45	21.97	0.01	7.1	360.17	8.52	0.54
8/4/2024 5:30	16.46	21.94	0.01	7.15	359.66	8.51	0.56
8/4/2024 5:20	16.48	21.96	0.01	7.1	359.11	8.5	0.55
8/4/2024 5:10	16.5	21.93	0.01	7.16	358.77	8.51	0.54
8/4/2024 5:00	16.52	21.98	0.01	7.11	359.26	8.5	0.56
8/4/2024 4:50	16.53	21.99	0.01	7.17	359.02	8.5	0.6
8/4/2024 4:40	16.55	22.02	0.01	7.09	356.47	8.5	0.56
8/4/2024 4:30	16.56	22.05	0.01	7.2	352.97	8.49	0.54
8/4/2024 4:20	16.58	22.04	0.01	7.13	352.53	8.48	0.57
8/4/2024 4:10	16.59	21.64	0.01	7.13	350.24	8.5	0.55
8/4/2024 4:00	16.61	22.02	0.01	7.08	348.67	8.48	0.55
8/4/2024 3:50	16.63	21.92	0.01	7.14	348.81	8.48	0.54
8/4/2024 3:40	16.66	22.11	0.01	7.08	347.23	8.47	0.58
8/4/2024 3:30	16.68	22	0.01	7.16	347.59	8.46	0.56
8/4/2024 3:20	16.7	22.08	0.01	7.08	345.81	8.45	0.57
8/4/2024 3:10	16.71	22.05	0.01	7.13	344.96	8.47	0.55
8/4/2024 3:00	16.73	22.06	0.01	7.08	344.79	8.45	0.57
8/4/2024 2:50	16.75	22.1	0.01	7.11	347.32	8.46	0.57
8/4/2024 2:40	16.77	22.14	0.01	7.1	342.07	8.46	0.56
8/4/2024 2:30	16.78	22.08	0.01	7.15	342.66	8.47	0.57
8/4/2024 2:20	16.8	22.09	0.01	7.08	344.43	8.45	0.59
8/4/2024 2:10	16.82	22.09	0.01	7.12	347.66	8.44	0.58
8/4/2024 2:00	16.84	22.17	0.01	7.09	344.71	8.43	0.56
8/4/2024 1:50	16.86	22.09	0.01	7.17	342.71	8.44	0.6
8/4/2024 1:40	16.88	22.2	0.01	7.08	344.14	8.43	0.6
8/4/2024 1:30	16.9	22.11	0.01	7.14	343.84	8.42	0.63
8/4/2024 1:20	16.92	22.16	0.01	7.07	345.22	8.4	0.56

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8/4/2024 1:10	16.94	22.1	0.01	7.13	344.93	8.41	0.57
8/4/2024 1:00	16.96	22.21	0.01	7.08	343.3	8.4	0.58
8/4/2024 0:50	16.98	22.16	0.01	7.15	341.85	8.4	0.58
8/4/2024 0:40	17	22.17	0.01	7.08	343.08	8.4	0.6
8/4/2024 0:30	17.02	22.03	0.01	7.05	346.41	8.4	0.58
8/4/2024 0:20	17.05	22.18	0.01	7.08	342.29	8.41	0.59
8/4/2024 0:10	17.07	22.16	0.01	7.11	344.19	8.4	0.57
8/4/2024 0:00	17.09	22.22	0.01	7.08	341.75	8.38	0.57
8/3/2024 23:50	17.11	22.15	0.01	7.15	342.64	8.38	0.6
8/3/2024 23:40	17.13	22.27	0.01	7.09	342.04	8.37	0.59
8/3/2024 23:30	17.15	21.89	0.01	7.13	343.6	8.36	0.57
8/3/2024 23:20	17.17	22.3	0.01	7.07	342.1	8.35	0.6
8/3/2024 23:10	17.2	22.13	0.01	7.19	338.77	8.36	0.58
8/3/2024 23:00	17.22	22.21	0.01	7.08	341.58	8.36	0.59
8/3/2024 22:50	17.24	22.14	0.01	7.14	340.99	8.35	0.65
8/3/2024 22:40	17.27	22.24	0.01	7.08	341.54	8.34	0.59
8/3/2024 22:30	17.29	22.27	0.01	7.08	343.31	8.32	1.13
8/3/2024 22:20	17.32	22.32	0.01	7.09	341.45	8.33	0.61
8/3/2024 22:10	17.34	22.16	0.01	7.11	342.24	8.33	0.6
8/3/2024 22:00	17.36	22.2	0.01	7.09	341.94	8.31	0.6
8/3/2024 21:50	17.38	22.13	0.01	7.11	342.75	8.31	0.6
8/3/2024 21:40	17.41	22.21	0.01	7.07	344.13	8.31	0.6
8/3/2024 21:30	17.43	22.23	0.01	7.12	344.54	8.31	0.6
8/3/2024 21:20	17.46	22.18	0.01	7.08	344.81	8.3	0.61
8/3/2024 21:10	17.49	22.18	0.01	7.13	345.43	8.3	0.6
8/3/2024 21:00	17.51	22.15	0.01	7.08	345.98	8.28	0.59
8/3/2024 20:50	17.54	22.15	0.01	7.13	346.98	8.31	0.81
8/3/2024 20:40	17.57	22.16	0.01	7.09	344.82	8.28	0.62
8/3/2024 20:30	17.59	22	0.01	7.09	347.26	8.29	0.63
8/3/2024 20:20	17.62	22.02	0.01	7.09	345.61	8.28	0.62
8/3/2024 20:10	17.64	21.92	0.01	7.13	346.85	8.29	0.64
8/3/2024 20:00	17.67	22	0.01	7.08	346.19	8.27	0.62
8/3/2024 19:50	17.69	21.78	0.01	7.08	348.68	8.28	0.61
8/3/2024 19:40	17.71	21.9	0.01	7.1	345.55	8.27	0.62
8/3/2024 19:30	17.73	21.72	0.01	7.11	347.41	8.28	0.62
8/3/2024 19:20	17.76	21.89	0.01	7.1	345.4	8.26	0.63
8/3/2024 19:10	17.78	21.82	0.01	7.1	347.57	8.27	0.63
8/3/2024 19:00	17.81	21.85	0.01	7.1	346.34	8.28	0.62
8/3/2024 18:50	17.83	21.74	0.01	7.13	347.77	8.27	0.66
8/3/2024 18:40	17.86	21.87	0.01	7.1	345.25	8.28	0.65
8/3/2024 18:30	17.87	21.53	0.01	7.11	347.42	8.27	0.63
8/3/2024 18:20	17.89	21.76	0.01	7.13	344.43	8.28	0.64
8/3/2024 18:10	17.91	21.59	0.01	7.15	345.93	8.29	0.63
8/3/2024 18:00	17.92	21.68	0.01	7.14	342.84	8.29	0.63
8/3/2024 17:50	17.94	21.58	0.01	7.21	341.69	8.3	0.63
8/3/2024 17:40	17.95	21.56	0.01	7.18	343.08	8.29	0.62
8/3/2024 17:30	17.96	21.44	0.01	7.17	346.31	8.31	0.62

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8/3/2024 17:20	17.96	21.54	0.01	7.17	343.94	8.32	0.64
8/3/2024 17:10	17.95	21.36	0.01	7.17	346.79	8.34	0.63
8/3/2024 17:00	17.95	21.54	0.01	7.17	344.41	8.34	0.64
8/3/2024 16:50	17.95	21.39	0.01	7.2	345.61	8.35	0.65
8/3/2024 16:40	17.95	21.49	0.01	7.18	344.64	8.33	0.65
8/3/2024 16:30	17.95	21.41	0.01	7.21	346.51	8.38	0.62
8/3/2024 16:20	17.95	21.48	0.01	7.2	343.29	8.37	0.63
8/3/2024 16:10	17.95	21.4	0.01	7.2	346.32	8.39	0.66
8/3/2024 16:00	17.95	21.47	0.01	7.19	342.83	8.4	0.62
8/3/2024 15:50	17.95	21.26	0.01	7.2	344.22	8.43	0.62
8/3/2024 15:40	17.94	21.41	0.01	7.22	340.71	8.44	0.64
8/3/2024 15:30	17.92	21.22	0.01	7.21	343.24	8.45	0.63
8/3/2024 15:20	17.91	21.37	0.01	7.21	340.24	8.44	0.63
8/3/2024 15:10	17.89	21.4	0.01	7.21	342.53	8.46	0.62
8/3/2024 15:00	17.87	21.34	0.01	7.22	340	8.48	0.62
8/3/2024 14:50	17.87	21.31	0.01	7.25	341.7	8.49	1.56
8/3/2024 14:40	17.85	21.39	0.01	7.23	339.26	8.49	0.62
8/3/2024 14:30	17.82	21.29	0.01	7.28	339.56	8.52	0.62
8/3/2024 14:20	17.77	21.43	0.01	7.23	338.63	8.53	0.62
8/3/2024 14:10	17.72	21.37	0.01	7.23	341.49	8.53	0.62
8/3/2024 14:00	17.66	21.35	0.01	7.23	341.14	8.54	0.62
8/3/2024 13:50	17.64	21.27	0.01	7.26	342.37	8.56	0.6
8/3/2024 13:40	17.65	21.44	0.01	7.24	339.85	8.58	0.65
8/3/2024 13:30	17.64	21.37	0.01	7.24	340.87	8.62	0.62
8/3/2024 13:20	17.61	21.39	0.01	7.25	340.02	8.61	0.6
8/3/2024 13:10	17.59	21.39	0.01	7.23	343.02	8.62	0.6
8/3/2024 13:00	17.58	21.55	0.01	7.24	339.7	8.63	0.62
8/3/2024 12:50	17.57	21.56	0.01	7.23	342.41	8.64	0.63
8/3/2024 12:40	17.59	21.57	0.01	7.23	341.23	8.63	0.92
8/3/2024 12:30	17.61	21.61	0.01	7.22	344.88	8.64	0.76
8/3/2024 12:20	17.6	21.6	0.01	7.26	340.05	8.69	0.65
8/3/2024 12:10	17.63	21.57	0.01	7.32	338.76	8.71	0.61
8/3/2024 12:00	17.62	21.53	0.01	7.27	340.07	8.72	0.82
8/3/2024 11:50	17.55	21.45	0.01	7.31	340.09	8.73	0.61
8/3/2024 11:40	17.48	21.56	0.01	7.27	341.28	8.75	0.59
8/3/2024 11:30	17.36	21.56	0.01	7.33	341.54	8.75	0.57
8/3/2024 11:20	17.23	21.34	0.01	7.28	347.15	8.75	0.59
8/3/2024 11:10	17.14	21.78	0.01	7.23	348.81	8.75	0.58
8/3/2024 11:00	17.04	21.7	0.01	7.26	350.78	8.77	0.58
8/3/2024 10:50	16.91	21.73	0.01	7.23	349.62	8.77	0.57
8/3/2024 10:40	16.74	21.73	0.01	7.24	351.78	8.77	0.57
8/3/2024 10:30	16.64	21.81	0.01	7.18	351.63	8.73	0.55
8/3/2024 10:20	16.56	21.78	0.01	7.19	354.6	8.72	0.54
8/3/2024 10:10	16.51	21.86	0.01	7.18	352.69	8.7	0.54
8/3/2024 10:00	16.48	21.68	0.01	7.18	355.62	8.7	0.55
8/3/2024 9:50	16.46	21.86	0.01	7.15	354.85	8.71	0.54
8/3/2024 9:40	16.43	21.77	0.01	7.16	357.8	8.7	0.54

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8/3/2024 9:30	16.42	21.9	0.01	7.13	356.43	8.67	0.7
8/3/2024 9:20	16.4	21.84	0.01	7.16	358.57	8.7	0.53
8/3/2024 9:10	16.37	21.92	0.01	7.1	358.31	8.69	0.52
8/3/2024 9:00	16.34	21.84	0.01	7.17	359.7	8.67	0.57
8/3/2024 8:50	16.33	21.9	0.01	7.1	356.5	8.67	0.54
8/3/2024 8:40	16.31	21.79	0.01	7.11	358.4	8.66	0.53
8/3/2024 8:30	16.3	21.89	0.01	7.09	356.42	8.67	0.55
8/3/2024 8:20	16.3	21.78	0.01	7.12	357.07	8.63	0.54
8/3/2024 8:10	16.29	21.86	0.01	7.09	357.25	8.64	0.56
8/3/2024 8:00	16.29	21.82	0.01	7.13	357.01	8.65	0.54
8/3/2024 7:50	16.29	21.87	0.01	7.09	356.81	8.62	0.55
8/3/2024 7:40	16.29	21.65	0.01	7.11	358.07	8.61	0.52
8/3/2024 7:30	16.3	21.77	0.01	7.09	358.27	8.63	0.53
8/3/2024 7:20	16.31	21.8	0.01	7.11	360.2	8.62	0.54
8/3/2024 7:10	16.31	21.91	0.01	7.09	358.69	8.62	0.56
8/3/2024 7:00	16.32	21.88	0.01	7.09	361.51	8.6	0.55
8/3/2024 6:50	16.33	21.95	0.01	7.09	357.46	8.62	0.56
8/3/2024 6:40	16.34	21.83	0.01	7.13	357.9	8.6	0.55
8/3/2024 6:30	16.36	21.87	0.01	7.08	358.68	8.6	0.54
8/3/2024 6:20	16.37	21.84	0.01	7.17	356.98	8.58	0.55
8/3/2024 6:10	16.39	21.94	0.01	7.09	356.5	8.58	0.54
8/3/2024 6:00	16.4	21.63	0.01	7.09	357.94	8.56	0.54
8/3/2024 5:50	16.41	21.86	0.01	7.09	357.29	8.58	0.54
8/3/2024 5:40	16.43	21.91	0.01	7.16	355.63	8.56	0.54
8/3/2024 5:30	16.44	21.96	0.01	7.09	355.96	8.55	0.54
8/3/2024 5:20	16.45	21.96	0.01	7.12	355.44	8.57	0.55
8/3/2024 5:10	16.47	21.95	0.01	7.09	354.33	8.56	0.54
8/3/2024 5:00	16.48	21.9	0.01	7.11	355.12	8.55	0.55
8/3/2024 4:50	16.51	21.94	0.01	7.08	354.85	8.56	0.56
8/3/2024 4:40	16.52	21.94	0.01	7.09	356.64	8.55	0.56
8/3/2024 4:30	16.54	21.96	0.01	7.1	354.25	8.54	0.54
8/3/2024 4:20	16.56	21.84	0.01	7.1	355.9	8.54	0.54
8/3/2024 4:10	16.58	21.92	0.01	7.08	356.03	8.53	0.57
8/3/2024 4:00	16.59	21.97	0.01	7.12	356.63	8.52	0.56
8/3/2024 3:50	16.61	22	0.01	7.09	356.66	8.52	0.54
8/3/2024 3:40	16.62	21.97	0.01	7.1	358.42	8.53	0.58
8/3/2024 3:30	16.63	22.07	0.01	7.09	356.15	8.53	0.56
8/3/2024 3:20	16.65	21.94	0.01	7.12	357.65	8.53	0.55
8/3/2024 3:10	16.66	22.1	0.01	7.08	355.89	8.5	0.55
8/3/2024 3:00	16.68	21.99	0.01	7.11	355.75	8.51	0.55
8/3/2024 2:50	16.7	22.11	0.01	7.09	352.56	8.51	0.55
8/3/2024 2:40	16.71	22.07	0.01	7.11	353.07	8.48	0.55
8/3/2024 2:30	16.73	22.07	0.01	7.08	352.86	8.51	0.65
8/3/2024 2:20	16.75	22	0.01	7.06	355.9	8.51	0.56
8/3/2024 2:10	16.77	22.12	0.01	7.08	354.14	8.5	0.56
8/3/2024 2:00	16.79	22.13	0.01	7.09	356.73	8.49	0.57
8/3/2024 1:50	16.82	22.2	0.01	7.08	353.02	8.49	0.56

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8/3/2024 1:40	16.84	22.09	0.01	7.09	354.22	8.47	0.56
8/3/2024 1:30	16.85	22.13	0.01	7.08	353.98	8.47	0.57
8/3/2024 1:20	16.87	22.19	0.01	7.09	357.28	8.48	0.57
8/3/2024 1:10	16.89	22.22	0.01	7.09	353.18	8.47	0.57
8/3/2024 1:00	16.91	22.1	0.01	7.12	355.76	8.46	0.57
8/3/2024 0:50	16.92	22.25	0.01	7.08	355.11	8.46	0.59
8/3/2024 0:40	16.94	21.9	0.01	7.1	356.74	8.46	0.56
8/3/2024 0:30	16.96	22.23	0.01	7.08	355.9	8.45	0.57
8/3/2024 0:20	16.98	22.28	0.01	7.09	357.74	8.44	0.56
8/3/2024 0:10	16.99	22.31	0.01	7.08	354.83	8.45	0.66
8/3/2024 0:00	17.01	22.26	0.01	7.08	357.17	8.44	0.6
8/2/2024 23:50	17.03	22.26	0.01	7.08	356.48	8.43	0.58
8/2/2024 23:40	17.05	22.32	0.01	7.11	359.07	8.42	0.58
8/2/2024 23:30	17.07	22.34	0.01	7.08	358.22	8.42	0.59
8/2/2024 23:20	17.09	21.99	0.01	7.09	360.41	8.42	0.58
8/2/2024 23:10	17.11	22.35	0.01	7.08	360.74	8.42	0.62
8/2/2024 23:00	17.13	22.4	0.01	7.17	361.56	8.41	0.59
8/2/2024 22:50	17.15	22.45	0.01	7.12	365.07	8.39	0.59
8/2/2024 22:40	17.16	22.46	0.01	7.17	366.15	8.4	0.59
8/2/2024 22:30	17.17	22.51	0.01	7.11	363.87	8.41	0.58
8/2/2024 22:20	17.18	22.39	0.01	7.16	364.2	8.39	0.59
8/2/2024 22:10	17.2	22.45	0.01	7.16	365.28	8.4	0.58
8/2/2024 22:00	17.21	22.62	0.01	7.19	366.58	8.39	0.62
8/2/2024 21:50	17.22	22.6	0.01	7.11	365.96	8.39	0.56
8/2/2024 21:40	17.23	22.54	0.01	7.2	363.54	8.39	0.6
8/2/2024 21:30	17.24	22.63	0.01	7.09	365.89	8.37	0.6
8/2/2024 21:20	17.26	22.52	0.01	7.19	364.87	8.37	0.6
8/2/2024 21:10	17.27	22.47	0.01	7.1	366.66	8.38	0.59
8/2/2024 21:00	17.28	22.47	0.01	7.22	364.85	8.38	0.58
8/2/2024 20:50	17.3	22.5	0.01	7.11	367.91	8.37	0.59
8/2/2024 20:40	17.31	22.38	0.01	7.23	365.41	8.37	0.59
8/2/2024 20:30	17.32	22.41	0.01	7.12	367.1	8.37	0.63
8/2/2024 20:20	17.33	22.23	0.01	7.24	365.77	8.38	0.6
8/2/2024 20:10	17.34	22.27	0.01	7.12	367.1	8.39	0.58
8/2/2024 20:00	17.35	22.1	0.01	7.24	367.13	8.4	0.58
8/2/2024 19:50	17.36	22.19	0.01	7.18	367.51	8.39	0.61
8/2/2024 19:40	17.36	22.08	0.01	7.29	364.29	8.39	0.58
8/2/2024 19:30	17.38	22.23	0.01	7.19	367.77	8.39	0.61
8/2/2024 19:20	17.38	22.23	0.01	7.3	366.09	8.4	0.59
8/2/2024 19:10	17.4	22.21	0.01	7.17	367.91	8.41	0.61
8/2/2024 19:00	17.41	21.68	0.01	7.21	367.67	8.39	0.62
8/2/2024 18:50	17.43	22.13	0.01	7.24	366.76	8.41	0.61
8/2/2024 18:40	17.44	21.94	0.01	7.3	365.65	8.4	0.59
8/2/2024 18:30	17.46	22.11	0.01	7.27	366.42	8.4	0.62
8/2/2024 18:20	17.47	22	0.01	7.28	366.95	8.42	0.61
8/2/2024 18:10	17.48	22.07	0.01	7.28	365.56	8.43	0.6
8/2/2024 18:00	17.49	21.93	0.01	7.28	365.11	8.44	0.6

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8/2/2024 17:50	17.49	21.94	0.01	7.28	364.07	8.44	0.61
8/2/2024 17:40	17.5	21.71	0.01	7.3	360.45	8.46	0.61
8/2/2024 17:30	17.51	21.85	0.01	7.29	362.65	8.47	0.62
8/2/2024 17:20	17.5	21.79	0.01	7.35	358.7	8.47	0.6
8/2/2024 17:10	17.49	21.71	0.01	7.26	362.39	8.5	0.59
8/2/2024 17:00	17.48	21.61	0.01	7.3	362.48	8.51	0.61
8/2/2024 16:50	17.47	21.84	0.01	7.29	361.65	8.51	0.6
8/2/2024 16:40	17.46	21.69	0.01	7.29	361.86	8.53	0.61
8/2/2024 16:30	17.48	21.69	0.01	7.31	360.8	8.52	0.61
8/2/2024 16:20	17.49	21.58	0.01	7.33	359.52	8.55	0.6
8/2/2024 16:10	17.51	21.62	0.01	7.35	358.51	8.56	0.58
8/2/2024 16:00	17.5	21.38	0.01	7.38	357.05	8.61	0.6
8/2/2024 15:50	17.44	21.44	0.01	7.36	358.01	8.6	0.63
8/2/2024 15:40	17.44	21.43	0.01	7.36	358.63	8.62	0.62
8/2/2024 15:30	17.42	21.43	0.01	7.36	356.83	8.61	0.63
8/2/2024 15:20	17.39	21.32	0.01	7.41	356.01	8.61	0.6
8/2/2024 15:10	17.37	21.37	0.01	7.33	358.44	8.6	0.61
8/2/2024 15:00	17.38	21.36	0.01	7.33	360.05	8.6	0.59
8/2/2024 14:50	17.37	21.44	0.01	7.34	358.76	8.65	0.6
8/2/2024 14:40	17.33	21.3	0.01	7.36	357.55	8.63	0.61
8/2/2024 14:30	17.33	21.41	0.01	7.34	359.8	8.64	0.61
8/2/2024 14:20	17.35	21.38	0.01	7.39	358.52	8.64	0.61
8/2/2024 14:10	17.36	21.4	0.01	7.38	357.29	8.68	0.6
8/2/2024 14:00	17.32	21.28	0.01	7.39	357.61	8.68	0.59
8/2/2024 13:50	17.29	21.38	0.01	7.38	358.33	8.68	0.59
8/2/2024 13:40	17.28	21.29	0.01	7.42	355.83	8.71	0.58
8/2/2024 13:30	17.26	21.29	0.01	7.36	357.01	8.74	0.58
8/2/2024 13:20	17.19	21.06	0.01	7.39	356.77	8.73	0.57
8/2/2024 13:10	17.23	21.36	0.01	7.39	357.27	8.76	0.6
8/2/2024 13:00	17.19	21.37	0.01	7.45	355.44	8.78	0.6
8/2/2024 12:50	17.14	21.36	0.01	7.4	357.29	8.79	0.61
8/2/2024 12:40	17.11	21.26	0.01	7.42	357.81	8.81	0.59
8/2/2024 12:30	17.05	21.42	0.01	7.39	357.68	8.8	0.59
8/2/2024 12:20	17.08	21.44	0.01	7.4	359.19	8.82	0.58
8/2/2024 12:10	17.01	21.48	0.01	7.4	358.22	8.84	0.58
8/2/2024 12:00	16.94	21.37	0.01	7.39	359.9	8.84	0.56
8/2/2024 11:50	16.98	21.47	0.01	7.36	358.56	8.84	0.56
8/2/2024 11:40	16.88	21.51	0.01	7.42	359.94	8.86	0.56
8/2/2024 11:30	16.79	21.57	0.01	7.38	361.57	8.86	0.55
8/2/2024 11:20	16.71	21.53	0.01	7.41	360.74	8.84	0.56
8/2/2024 11:10	16.55	21.54	0.01	7.32	364.67	8.85	0.53
8/2/2024 11:00	16.48	21.59	0.01	7.37	363.07	8.81	0.55
8/2/2024 10:50		16.47	0.01	7.23	366.35	8.83	0.55
8/2/2024 10:40	16.42	21.6	0.01	7.3	366.22	8.84	0.55
8/2/2024 10:30	16.35	21.46	0.01	7.34	368.12	8.83	0.53
8/2/2024 10:20	16.32	21.65	0.01	7.28	368.43	8.85	0.54
8/2/2024 10:10	16.26	21.48	0.01	7.33	366.82	8.84	0.53

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8/2/2024 10:00	16.22	21.63	0.01	7.3	368.48	8.83	0.53
8/2/2024 9:50	16.19	21.55	0.01	7.27	369.92	8.83	0.51
8/2/2024 9:40	16.15	21.5	0.01	7.28	369.7	8.8	0.52
8/2/2024 9:30	16.12	21.53	0.01	7.27	367.43	8.81	0.52
8/2/2024 9:20	16.1	21.56	0.01	7.29	369.23	8.82	0.54
8/2/2024 9:10	16.07	21.45	0.01	7.3	366.93	8.8	0.52
8/2/2024 9:00	16.05	21.57	0.01	7.27	368.98	8.78	0.53
8/2/2024 8:50	16.02	21.31	0.01	7.2	370.26	8.76	0.55
8/2/2024 8:40	16.01	21.6	0.01	7.26	370.81	8.76	0.54
8/2/2024 8:30	16	21.53	0.01	7.28	369.83	8.75	0.58
8/2/2024 8:20	15.99	21.62	0.01	7.27	371.26	8.74	0.53
8/2/2024 8:10	15.99	21.51	0.01	7.22	371.4	8.75	0.53
8/2/2024 8:00	15.99	21.64	0.01	7.23	371.31	8.73	0.53
8/2/2024 7:50	15.99	21.57	0.01	7.24	371.01	8.73	0.51
8/2/2024 7:40	15.99	21.64	0.01	7.25	371.13	8.7	0.53
8/2/2024 7:30	15.99	21.55	0.01	7.27	370.43	8.7	0.51
8/2/2024 7:20	15.99	21.7	0.01	7.23	371.75	8.68	0.52
8/2/2024 7:10	16	21.67	0.01	7.25	370.96	8.67	0.51
8/2/2024 7:00	16.02	21.66	0.01	7.2	371.78	8.68	0.53
8/2/2024 6:50	16.03	21.65	0.01	7.24	371.62	8.66	0.56
8/2/2024 6:40	16.05	21.72	0.01	7.21	371.57	8.66	0.52
8/2/2024 6:30	16.08	21.48	0.01	7.21	373.91	8.63	0.53
8/2/2024 6:20	16.1	21.81	0.01	7.21	372.11	8.62	0.53
8/2/2024 6:10	16.11	21.79	0.01	7.25	371.09	8.61	0.52
8/2/2024 6:00	16.13	21.82	0.01	7.23	371.36	8.61	0.52
8/2/2024 5:50	16.15	21.64	0.01	7.19	368.93	8.6	0.54
8/2/2024 5:40	16.17	21.9	0.01	7.18	371.78	8.61	0.54
8/2/2024 5:30	16.2	21.75	0.01	7.22	370.33	8.59	0.52
8/2/2024 5:20	16.22	21.91	0.01	7.2	372.74	8.58	0.55
8/2/2024 5:10	16.25	21.72	0.01	7.23	370.52	8.58	0.54
8/2/2024 5:00	16.27	21.85	0.01	7.22	373.07	8.59	0.55
8/2/2024 4:50	16.28	21.82	0.01	7.18	372.19	8.59	0.52
8/2/2024 4:40	16.3	21.86	0.01	7.18	371.02	8.58	0.53
8/2/2024 4:30	16.32	21.76	0.01	7.21	368.82	8.58	0.54
8/2/2024 4:20	16.34	21.84	0.01	7.19	370.08	8.55	0.53
8/2/2024 4:10	16.36	21.78	0.01	7.19	369.18	8.56	0.53
8/2/2024 4:00	16.38	21.93	0.01	7.19	367.58	8.56	0.53
8/2/2024 3:50	16.4	21.78	0.01	7.14	365.87	8.57	0.55
8/2/2024 3:40	16.43	21.9	0.01	7.17	365.14	8.55	0.56
8/2/2024 3:30	16.45	21.76	0.01	7.18	364.09	8.55	0.55
8/2/2024 3:20	16.47	21.94	0.01	7.2	364.98	8.55	0.54
8/2/2024 3:10	16.49	21.77	0.01	7.16	362.54	8.56	0.64
8/2/2024 3:00	16.52	21.95	0.01	7.18	364.29	8.55	0.56
8/2/2024 2:50	16.54	21.84	0.01	7.13	363.17	8.55	0.55
8/2/2024 2:40	16.56	21.92	0.01	7.16	361.35	8.53	0.56
8/2/2024 2:30	16.58	21.86	0.01	7.21	356.44	8.52	0.57
8/2/2024 2:20	16.6	21.92	0.01	7.17	358.78	8.53	0.56

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8/2/2024 2:10	16.62	21.81	0.01	7.17	357.19	8.53	0.55
8/2/2024 2:00	16.64	21.92	0.01	7.18	357.65	8.52	0.56
8/2/2024 1:50	16.66	21.83	0.01	7.1	359.26	8.5	0.58
8/2/2024 1:40	16.69	21.96	0.01	7.16	359.56	8.51	0.56
8/2/2024 1:30	16.71	21.89	0.01	7.17	356.96	8.49	0.55
8/2/2024 1:20	16.74	21.98	0.01	7.16	361.36	8.5	0.57
8/2/2024 1:10	16.77	21.92	0.01	7.15	362.79	8.47	0.63
8/2/2024 1:00	16.8	21.96	0.01	7.18	363.42	8.45	0.56
8/2/2024 0:50	16.83	21.87	0.01	7.2	362.12	8.46	0.56
8/2/2024 0:40	16.85	21.99	0.01	7.2	361.63	8.44	0.55
8/2/2024 0:30	16.87	21.79	0.01	7.18	354.72	8.45	0.6
8/2/2024 0:20	16.9	21.96	0.01	7.18	358.74	8.45	0.57
8/2/2024 0:10	16.92	21.87	0.01	7.22	357.78	8.44	0.58
8/2/2024 0:00	16.95	21.87	0.01	7.19	358.44	8.44	0.58
8/1/2024 23:50	16.97	21.92	0.01	7.2	356.57	8.45	0.6
8/1/2024 23:40	17	21.97	0.01	7.19	358.56	8.42	0.59
8/1/2024 23:30	17.02	21.92	0.01	7.17	360.43	8.44	0.58
8/1/2024 23:20	17.05	21.96	0.01	7.15	359.51	8.41	0.61
8/1/2024 23:10	17.08	21.8	0.01	7.19	359.93	8.41	0.58
8/1/2024 23:00	17.12	21.91	0.01	7.17	359.99	8.39	0.59
8/1/2024 22:50	17.14	21.97	0.01	7.17	359.13	8.41	0.61
8/1/2024 22:40	17.17	22	0.01	7.18	358.18	8.38	0.6
8/1/2024 22:30	17.2	21.82	0.01	7.19	358.47	8.38	0.6
8/1/2024 22:20	17.23	21.96	0.01	7.17	356.72	8.38	0.61
8/1/2024 22:10	17.26	21.86	0.01	7.19	358.15	8.38	0.58
8/1/2024 22:00	17.29	21.98	0.01	7.14	356.82	8.36	0.59
8/1/2024 21:50	17.32	21.84	0.01	7.23	356.88	8.35	0.59
8/1/2024 21:40	17.35	21.97	0.01	7.16	356.23	8.36	0.6
8/1/2024 21:30	17.38	21.96	0.01	7.18	359.22	8.34	0.58
8/1/2024 21:20	17.41	22	0.01	7.15	356.73	8.33	0.6
8/1/2024 21:10	17.43	21.91	0.01	7.2	357.42	8.34	0.6
8/1/2024 21:00	17.47	22.03	0.01	7.18	355.95	8.33	0.58
8/1/2024 20:50	17.49	21.99	0.01	7.16	358.79	8.31	0.6
8/1/2024 20:40	17.51	22.07	0.01	7.16	356.89	8.33	0.6
8/1/2024 20:30	17.53	21.87	0.01	7.22	357.27	8.32	0.62
8/1/2024 20:20	17.55	21.94	0.01	7.18	356.58	8.33	0.64
8/1/2024 20:10	17.56	22	0.01	7.24	356.49	8.34	0.62
8/1/2024 20:00	17.57	21.98	0.01	7.16	357.2	8.32	0.62
8/1/2024 19:50	17.59	21.93	0.01	7.22	357.7	8.33	0.62
8/1/2024 19:40	17.6	21.86	0.01	7.14	356.66	8.33	0.62
8/1/2024 19:30	17.62	21.82	0.01	7.19	359.29	8.35	0.6
8/1/2024 19:20	17.64	21.82	0.01	7.12	357.93	8.34	0.65
8/1/2024 19:10	17.65	21.79	0.01	7.23	358.94	8.36	0.63
8/1/2024 19:00	17.66	21.71	0.01	7.14	357.9	8.37	0.62
8/1/2024 18:50	17.67	21.52	0.01	7.25	358.43	8.38	0.62
8/1/2024 18:40	17.67	21.72	0.01	7.18	358.06	8.39	0.63
8/1/2024 18:30	17.67	21.6	0.01	7.23	358.58	8.39	0.64

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8/1/2024 18:20	17.69	21.68	0.01	7.23	357.47	8.37	0.62
8/1/2024 18:10	17.7	21.58	0.01	7.23	357.61	8.37	0.61
8/1/2024 18:00	17.71	21.59	0.01	7.19	355.87	8.39	0.61
8/1/2024 17:50	17.71	21.28	0.01	7.24	357.7	8.38	0.62
8/1/2024 17:40	17.72	21.52	0.01	7.18	355.38	8.39	0.65
8/1/2024 17:30	17.72	21.35	0.01	7.27	353.94	8.38	0.63
8/1/2024 17:20	17.72	21.43	0.01	7.18	354.24	8.4	0.63
8/1/2024 17:10	17.7	21.24	0.01	7.28	353.89	8.4	0.63
8/1/2024 17:00	17.69	21.3	0.01	7.18	352.68	8.42	0.61
8/1/2024 16:50	17.66	21.15	0.01	7.33	351.47	8.44	0.63
8/1/2024 16:40	17.64	21.2	0.01	7.22	352.81	8.45	0.62
8/1/2024 16:30	17.62	20.81	0.01	7.3	353.34	8.45	0.61
8/1/2024 16:20	17.61	21.05	0.01	7.22	351.47	8.45	0.64
8/1/2024 16:10	17.6	20.7	0.01	7.3	353.44	8.46	0.62
8/1/2024 16:00	17.59	21.04	0.01	7.25	351.27	8.49	0.61
8/1/2024 15:50	17.58	20.8	0.01	7.37	350.5	8.51	0.6
8/1/2024 15:40	17.57	21.04	0.01	7.25	352.92	8.52	0.64
8/1/2024 15:30	17.54	20.71	0.01	7.33	355.38	8.52	0.61
8/1/2024 15:20	17.51	21.01	0.01	7.3	353.92	8.53	0.59
8/1/2024 15:10	17.5	20.98	0.01	7.34	354.89	8.55	0.6
8/1/2024 15:00	17.49	21.02	0.01	7.27	354.03	8.55	0.61
8/1/2024 14:50	17.47	20.88	0.01	7.39	353.21	8.59	0.62
8/1/2024 14:40	17.43	20.99	0.01	7.35	354.7	8.58	0.59
8/1/2024 14:30	17.35	20.52	0.01	7.37	356.79	8.61	0.59
8/1/2024 14:20	17.29	20.91	0.01	7.29	356.06	8.6	0.6
8/1/2024 14:10	17.26	20.95	0.01	7.38	356.37	8.63	0.58
8/1/2024 14:00	17.2	20.92	0.01	7.3	357.6	8.64	0.61
8/1/2024 13:50	17.17	20.95	0.01	7.43	356.98	8.67	0.59
8/1/2024 13:40	17.13	20.92	0.01	7.28	357.05	8.69	0.58
8/1/2024 13:30	17.13	20.9	0.01	7.36	358.82	8.7	0.57
8/1/2024 13:20	17.09	21.05	0.01	7.33	359.66	8.71	0.59
8/1/2024 13:10	17.05	20.99	0.01	7.37	358.94	8.71	0.57
8/1/2024 13:00	17.04	21.05	0.01	7.26	359.28	8.72	0.57
8/1/2024 13:00	17.04	21.05	0.01	7.26	359.28	8.72	0.57
8/1/2024 12:50	17.04	21.06	0.01	7.36	359.38	8.72	0.57
8/1/2024 12:40	17.06	21.08	0.01	7.28	359.01	8.77	0.58
8/1/2024 12:30	17.05	21.03	0.01	7.38	357.61	8.76	0.57
8/1/2024 12:20	17.07	21.05	0.01	7.25	357.55	8.79	0.59
8/1/2024 12:10	17.08	20.91	0.01	7.37	358.96	8.8	0.57
8/1/2024 12:00	17.06	21.12	0.01	7.29	356.92	8.83	0.57
8/1/2024 11:50	16.97	20.89	0.01	7.39	358.2	8.84	0.6
8/1/2024 11:40	16.87	21.22	0.01	7.31	358.76	8.84	0.58
8/1/2024 11:30	16.77	21.07	0.01	7.36	356.7	8.83	0.57
8/1/2024 11:20	16.65	21.02	0.01	7.23	359.15	8.84	0.56
8/1/2024 11:10	16.56	20.87	0.01	7.36	359.97	8.83	0.56
8/1/2024 11:00	16.45	21.13	0.01	7.24	359.17	8.86	0.55
8/1/2024 10:50	16.3	21.01	0.01	7.31	359.45	8.86	0.53

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8/1/2024 10:40	16.16	21.1	0.01	7.19	361.64	8.84	0.52
8/1/2024 10:30	16.05	20.94	0.01	7.32	360.41	8.82	0.5
8/1/2024 10:20	15.99	21.08	0.01	7.18	362.63	8.81	0.51
8/1/2024 10:10	15.93	21.18	0.01	7.3	360.63	8.79	0.52
8/1/2024 10:00	15.91	21.1	0.01	7.16	362.26	8.82	0.53
8/1/2024 9:50	15.88	21.1	0.01	7.28	361.13	8.81	0.5
8/1/2024 9:40	15.85	21.15	0.01	7.18	362.28	8.82	0.51
8/1/2024 9:30	15.83	21.11	0.01	7.25	361.24	8.81	0.52
8/1/2024 9:20	15.81	21.05	0.01	7.14	361.64	8.8	0.53
8/1/2024 9:10	15.78	20.84	0.01	7.29	359.15	8.8	0.5
8/1/2024 9:00	15.76	21.02	0.01	7.14	363.85	8.79	0.51
8/1/2024 8:50	15.73	21.09	0.01	7.27	362.57	8.8	0.48
8/1/2024 8:40	15.72	21.25	0.01	7.17	363.86	8.79	0.49
8/1/2024 8:30	15.71	20.98	0.01	7.27	362.42	8.77	0.5
8/1/2024 8:20	15.7	21.22	0.01	7.16	364.13	8.8	0.51
8/1/2024 8:10	15.69	21.1	0.01	7.22	363.26	8.76	0.51
8/1/2024 8:00	15.69	21.19	0.01	7.17	363.34	8.79	0.5
8/1/2024 7:50	15.69	21.19	0.01	7.3	359.68	8.77	0.52
8/1/2024 7:40	15.7	21.22	0.01	7.16	362.02	8.77	0.5
8/1/2024 7:30	15.7	21.04	0.01	7.29	358.21	8.76	0.5
8/1/2024 7:20	15.71	21.27	0.01	7.14	359.94	8.76	0.5
8/1/2024 7:10	15.72	21.04	0.01	7.27	359.05	8.77	0.51
8/1/2024 7:00	15.73	21.29	0.01	7.14	359.21	8.75	0.51
8/1/2024 6:50	15.73	21.07	0.01	7.33	352.27	8.76	0.52
8/1/2024 6:40	15.74	21.24	0.01	7.11	355.61	8.76	0.5
8/1/2024 6:30	15.75	21.08	0.01	7.25	354.04	8.74	0.54
8/1/2024 6:20	15.77	21.26	0.01	7.09	356.21	8.74	0.52
8/1/2024 6:10	15.78	21.13	0.01	7.2	357.68	8.72	0.5
8/1/2024 6:00	15.8	21.32	0.01	7.11	357.1	8.7	0.51
8/1/2024 5:50	15.82	21.14	0.01	7.2	356.11	8.71	0.58
8/1/2024 5:40	15.84	21.31	0.01	7.11	356.94	8.71	0.5
8/1/2024 5:30	15.86	21.31	0.01	7.18	357.17	8.71	0.53
8/1/2024 5:20	15.88	21.32	0.01	7.12	356.9	8.69	0.53
8/1/2024 5:10	15.9	21.2	0.01	7.22	355.95	8.7	0.52
8/1/2024 5:00	15.92	21.42	0.01	7.11	355.79	8.68	0.53
8/1/2024 4:50	15.93	21.24	0.01	7.15	357.6	8.68	0.53
8/1/2024 4:40	15.96	21.45	0.01	7.14	355.09	8.69	0.53
8/1/2024 4:30	15.97	21.25	0.01	7.16	356.83	8.69	0.53
8/1/2024 4:20	15.99	21.45	0.01	7.1	353.27	8.68	0.53
8/1/2024 4:10	16.01	21.26	0.01	7.18	353.89	8.67	0.53
8/1/2024 4:00	16.03	21.41	0.01	7.1	353.24	8.67	0.53
8/1/2024 3:50	16.04	21.21	0.01	7.17	353.58	8.68	0.54
8/1/2024 3:40	16.06	21.53	0.01	7.1	352.54	8.64	0.54
8/1/2024 3:30	16.08	21.46	0.01	7.14	355.08	8.65	0.52
8/1/2024 3:20	16.1	21.46	0.01	7.11	353.24	8.65	0.53
8/1/2024 3:10	16.13	21.48	0.01	7.19	355.45	8.63	0.51
8/1/2024 3:00	16.15	21.5	0.01	7.12	355.82	8.63	0.52

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8/1/2024 2:50	16.17	21.49	0.01	7.26	352.74	8.61	0.56
8/1/2024 2:40	16.2	21.61	0.01	7.17	352.69	8.63	0.54
8/1/2024 2:30	16.21	21.51	0.01	7.12	352.03	8.62	0.52
8/1/2024 2:20	16.23	21.51	0.01	7.11	350.37	8.62	0.52
8/1/2024 2:20	16.23	21.51	0.01	7.11	350.37	8.62	0.52
8/1/2024 2:10	16.25	21.52	0.01	7.15	351.14	8.61	0.55
8/1/2024 2:00	16.28	21.55	0.01	7.1	349.33	8.59	0.53
8/1/2024 1:50	16.3	21.4	0.01	7.15	348.37	8.6	0.5
8/1/2024 1:40	16.32	21.61	0.01	7.1	348.66	8.59	0.54
8/1/2024 1:30	16.34	21.52	0.01	7.1	351.11	8.59	0.57
8/1/2024 1:20	16.36	21.55	0.01	7.19	344.9	8.6	0.53
8/1/2024 1:10	16.39	21.67	0.01	7.1	349.29	8.58	0.54
8/1/2024 1:00	16.41	21.46	0.01	7.13	349.06	8.6	0.59
8/1/2024 0:50	16.44	21.67	0.01	7.11	348.75	8.57	0.55
8/1/2024 0:40	16.46	21.6	0.01	7.12	348.34	8.57	0.55
8/1/2024 0:30	16.49	21.62	0.01	7.1	347.72	8.56	0.57
8/1/2024 0:20	16.51	21.57	0.01	7.15	345.08	8.57	0.56
8/1/2024 0:10	16.53	21.69	0.01	7.08	347.93	8.57	0.56
8/1/2024 0:00	16.56	21.55	0.01	7.08	349.53	8.55	0.57
7/31/2024 23:50	16.58	21.71	0.01	7.11	346.48	8.55	0.55
7/31/2024 23:40	16.6	21.67	0.01	7.1	347.3	8.53	0.58
7/31/2024 23:30	16.63	21.74	0.01	7.1	344.96	8.54	0.56
7/31/2024 23:20	16.65	21.61	0.01	7.09	345.87	8.52	0.56
7/31/2024 23:10	16.67	21.75	0.01	7.09	344.81	8.53	0.56
7/31/2024 23:00	16.7	21.68	0.01	7.15	342.53	8.52	0.58
7/31/2024 22:50	16.72	21.75	0.01	7.1	345.91	8.52	0.59
7/31/2024 22:40	16.75	21.69	0.01	7.12	345.88	8.51	0.57
7/31/2024 22:30	16.77	21.72	0.01	7.09	344.24	8.51	0.57
7/31/2024 22:20	16.8	21.66	0.01	7.1	345.2	8.51	0.57
7/31/2024 22:10	16.82	21.79	0.01	7.09	344.6	8.51	0.57
7/31/2024 22:00	16.84	21.68	0.01	7.07	347.69	8.48	0.56
7/31/2024 21:50	16.87	21.77	0.01	7.1	343.33	8.48	0.57
7/31/2024 21:40	16.89	21.71	0.01	7.11	344.54	8.47	0.57
7/31/2024 21:30	16.91	21.85	0.01	7.09	344.21	8.48	0.58
7/31/2024 21:20	16.94	21.74	0.01	7.08	345.46	8.47	0.58
7/31/2024 21:10	16.96	21.85	0.01	7.08	345.03	8.47	0.6
7/31/2024 21:00	16.99	21.6	0.01	7.1	345.69	8.48	0.57
7/31/2024 20:50	17.02	21.66	0.01	7.11	343.33	8.46	0.57
7/31/2024 20:40	17.05	21.45	0.01	7.1	344.46	8.46	0.59
7/31/2024 20:30	17.07	21.65	0.01	7.09	343.5	8.45	0.58
7/31/2024 20:20	17.1	21.46	0.01	7.13	342.87	8.43	0.61
7/31/2024 20:10	17.13	21.56	0.01	7.09	343.73	8.46	0.59
7/31/2024 20:00	17.16	21.33	0.01	7.08	345.67	8.46	0.58
7/31/2024 19:50	17.19	21.37	0.01	7.09	343.31	8.44	0.6
7/31/2024 19:40	17.21	21.39	0.01	7.09	344.31	8.45	0.59
7/31/2024 19:30	17.24	21.38	0.01	7.1	342.26	8.44	0.59
7/31/2024 19:20	17.26	21.21	0.01	7.09	344.19	8.47	0.61

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7/31/2024 19:10	17.29	21.28	0.01	7.11	341.1	8.44	0.64
7/31/2024 19:00	17.31	21.11	0.01	7.14	341.34	8.44	0.6
7/31/2024 18:50	17.34	21.2	0.01	7.14	340.86	8.42	0.67
7/31/2024 18:40	17.38	20.97	0.01	7.19	339.77	8.45	0.58
7/31/2024 18:30	17.41	21.08	0.01	7.17	339.98	8.46	0.6
7/31/2024 18:20	17.43	20.94	0.01	7.21	340.66	8.48	0.61
7/31/2024 18:10	17.44	21.01	0.01	7.19	341.89	8.49	0.62
7/31/2024 18:00	17.44	20.62	0.01	7.2	343.19	8.5	0.61
7/31/2024 17:50	17.43	20.97	0.01	7.2	341.13	8.5	0.58
7/31/2024 17:40	17.43	20.84	0.01	7.2	343.03	8.49	0.61
7/31/2024 17:30	17.45	20.94	0.01	7.2	340.05	8.48	0.62
7/31/2024 17:20	17.45	20.83	0.01	7.23	340.1	8.49	0.59
7/31/2024 17:10	17.47	20.94	0.01	7.19	341.66	8.49	0.63
7/31/2024 17:00	17.48	20.59	0.01	7.24	340.81	8.48	0.61
7/31/2024 16:50	17.47	20.92	0.01	7.21	341.84	8.5	0.61
7/31/2024 16:40	17.46	20.84	0.01	7.23	342.04	8.51	0.6
7/31/2024 16:30	17.44	20.82	0.01	7.2	342.78	8.49	0.6
7/31/2024 16:20	17.42	20.72	0.01	7.22	344.72	8.53	0.61
7/31/2024 16:10	17.43	20.77	0.01	7.23	343.04	8.55	0.63
7/31/2024 16:00	17.41	20.69	0.01	7.24	342.8	8.57	0.59
7/31/2024 15:50	17.4	20.72	0.01	7.23	343.51	8.56	0.6
7/31/2024 15:40	17.41	20.67	0.01	7.23	346.11	8.58	0.61
7/31/2024 15:30	17.43	20.7	0.01	7.25	344.01	8.56	0.61
7/31/2024 15:20	17.44	20.66	0.01	7.29	344.38	8.58	0.58
7/31/2024 15:10	17.41	20.67	0.01	7.24	344.63	8.59	0.63
7/31/2024 15:00	17.38	20.58	0.01	7.33	343.03	8.6	0.58
7/31/2024 14:50	17.36	20.6	0.01	7.24	344.89	8.6	0.6
7/31/2024 14:40	17.34	20.61	0.01	7.3	345.56	8.61	0.59
7/31/2024 14:30	17.3	20.59	0.01	7.25	345.86	8.64	0.59
7/31/2024 14:20	17.25	20.55	0.01	7.31	347.43	8.64	0.6
7/31/2024 14:10	17.21	20.57	0.01	7.24	347.13	8.65	0.64
7/31/2024 14:00	17.16	20.29	0.01	7.31	347.72	8.66	0.59
7/31/2024 13:50	17.12	20.52	0.01	7.26	347.51	8.69	0.6
7/31/2024 13:40	17.09	20.55	0.01	7.35	348.67	8.7	0.56
7/31/2024 13:30	17.07	20.52	0.01	7.25	348.36	8.73	0.6
7/31/2024 13:20	17.01	20.53	0.01	7.4	347.53	8.72	0.57
7/31/2024 13:10	17	20.52	0.01	7.26	348.21	8.75	0.61
7/31/2024 13:00	16.98	20.54	0.01	7.38	346.61	8.75	0.59
7/31/2024 12:50	16.97	20.52	0.01	7.25	346.55	8.76	0.98
7/31/2024 12:40	16.95	20.19	0.01	7.36	346.07	8.78	0.58
7/31/2024 12:30	16.89	20.47	0.01	7.27	346.81	8.82	0.59
7/31/2024 12:20	16.81	20.47	0.01	7.33	347.24	8.83	0.55
7/31/2024 12:10	16.78	20.52	0.01	7.24	346.08	8.85	0.57
7/31/2024 12:00	16.76	20.43	0.01	7.38	346.64	8.82	0.54
7/31/2024 11:50	16.69	20.49	0.01	7.24	347.01	8.83	0.57
7/31/2024 11:40	16.67	20.19	0.01	7.38	344.35	8.86	0.54
7/31/2024 11:30	16.59	20.46	0.01	7.24	346.61	8.86	0.57

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7/31/2024 11:20	16.58	20.52	0.01	7.28	347.73	8.87	0.55
7/31/2024 11:10	16.49	20.51	0.01	7.26	347.23	8.87	0.51
7/31/2024 11:00	16.43	20.53	0.01	7.37	347.22	8.9	0.58
7/31/2024 10:50	16.24	20.61	0.01	7.23	347.66	8.91	0.54
7/31/2024 10:40	16.16	20.58	0.01	7.31	346.87	8.89	0.54
7/31/2024 10:30	16.12	20.74	0.01	7.23	347.68	8.89	0.53
7/31/2024 10:20	16.06	20.6	0.01	7.33	348.88	8.92	0.56
7/31/2024 10:10	16.01	20.91	0.01	7.22	348.13	8.92	0.55
7/31/2024 10:00	15.96	20.85	0.01	7.32	349.02	8.92	0.52
7/31/2024 9:50	15.91	20.98	0.01	7.21	349.51	8.91	0.52
7/31/2024 9:40	15.88	20.88	0.01	7.32	350.81	8.92	0.54
7/31/2024 9:30	15.83	21.11	0.01	7.24	349.91	8.9	0.51
7/31/2024 9:20	15.8	21.06	0.01	7.31	351.33	8.92	0.51
7/31/2024 9:10	15.77	21.22	0.01	7.18	351.33	8.89	0.49
7/31/2024 9:00	15.75	20.96	0.01	7.28	350.9	8.88	0.51
7/31/2024 8:50	15.72	21.24	0.01	7.15	351.45	8.88	0.5
7/31/2024 8:40	15.68	21.19	0.01	7.25	352.9	8.89	0.49
7/31/2024 8:30	15.66	21.32	0.01	7.19	354.04	8.89	0.51
7/31/2024 8:20	15.65	21.23	0.01	7.22	354.26	8.88	0.49
7/31/2024 8:10	15.63	21.21	0.01	7.19	353.21	8.84	0.49
7/31/2024 8:00	15.62	21.21	0.01	7.21	354.48	8.84	0.51
7/31/2024 7:50	15.61	21.27	0.01	7.15	355.13	8.81	0.52
7/31/2024 7:40	15.61	21.25	0.01	7.17	356.71	8.82	0.54
7/31/2024 7:30	15.6	21.29	0.01	7.16	354.9	8.82	0.52
7/31/2024 7:20	15.6	21.05	0.01	7.22	353.07	8.82	0.51
7/31/2024 7:10	15.6	21.35	0.01	7.17	354.55	8.79	0.5
7/31/2024 7:00	15.6	21.12	0.01	7.12	358.73	8.79	0.51
7/31/2024 6:50	15.6	21.36	0.01	7.15	356.19	8.79	0.51
7/31/2024 6:40	15.6	21.3	0.01	7.16	359.37	8.77	0.5
7/31/2024 6:30	15.61	21.4	0.01	7.15	357.71	8.78	0.51
7/31/2024 6:20	15.61	21.37	0.01	7.18	356.16	8.76	0.49
7/31/2024 6:10	15.61	21.42	0.01	7.15	356.71	8.73	0.5
7/31/2024 6:00	15.61	21.2	0.01	7.12	359.23	8.74	0.51
7/31/2024 5:50	15.62	21.42	0.01	7.15	356.9	8.75	0.5
7/31/2024 5:40	15.62	21.35	0.01	7.15	357.55	8.76	0.54
7/31/2024 5:30	15.62	21.43	0.01	7.13	356.6	8.75	0.52
7/31/2024 5:20	15.63	21.42	0.01	7.2	356.82	8.74	0.5
7/31/2024 5:10	15.64	21.47	0.01	7.09	357.43	8.75	0.51
7/31/2024 5:00	15.64	21.47	0.01	7.18	356.94	8.75	0.5
7/31/2024 4:50	15.65	21.56	0.01	7.13	355.06	8.76	0.52
7/31/2024 4:40	15.66	21.49	0.01	7.18	355.73	8.75	1.14
7/31/2024 4:30	15.66	21.6	0.01	7.12	356.65	8.73	0.49
7/31/2024 4:20	15.66	21.37	0.01	7.19	357.6	8.74	0.5
7/31/2024 4:10	15.67	21.52	0.01	7.11	356.5	8.74	0.5
7/31/2024 4:00	15.67	21.32	0.01	7.17	356.67	8.74	0.51
7/31/2024 3:50	15.67	21.55	0.01	7.1	358.22	8.75	0.53
7/31/2024 3:40	15.67	21.43	0.01	7.21	357.14	8.74	0.51

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7/31/2024 3:30	15.68	21.54	0.01	7.06	358.85	8.74	0.56
7/31/2024 3:20	15.68	21.32	0.01	7.17	358.33	8.74	0.51
7/31/2024 3:10	15.69	21.53	0.01	7.06	357.71	8.75	0.5
7/31/2024 3:00	15.69	21.45	0.01	7.14	358.78	8.74	0.5
7/31/2024 2:50	15.7	21.44	0.01	7.07	356.2	8.73	0.52
7/31/2024 2:40	15.7	21.19	0.01	7.16	357.42	8.73	0.5
7/31/2024 2:30	15.71	21.51	0.01	7.1	355.73	8.74	0.51
7/31/2024 2:20	15.72	21.42	0.01	7.15	358.49	8.72	0.51
7/31/2024 2:10	15.72	21.44	0.01	7.1	356.47	8.74	0.52
7/31/2024 2:00	15.72	21.48	0.01	7.18	358.18	8.73	0.5
7/31/2024 1:50	15.72	21.67	0.01	7.12	357.55	8.74	0.51
7/31/2024 1:40	15.72	21.62	0.01	7.16	359.26	8.72	0.52
7/31/2024 1:30	15.73	21.6	0.01	7.12	357.73	8.72	0.52
7/31/2024 1:20	15.73	21.34	0.01	7.17	358.42	8.72	0.5
7/31/2024 1:10	15.74	21.56	0.01	7.1	357.91	8.72	0.51
7/31/2024 1:00	15.74	21.45	0.01	7.11	357.94	8.74	0.49
7/31/2024 0:50	15.75	21.72	0.01	7.1	358.63	8.72	0.51
7/31/2024 0:40	15.76	21.32	0.01	7.14	361	8.72	0.5
7/31/2024 0:30	15.76	21.6	0.01	7.12	358.85	8.7	0.51
7/31/2024 0:20	15.77	21.59	0.01	7.09	359.56	8.72	0.52
7/31/2024 0:10	15.78	21.66	0.01	7.11	359.11	8.72	0.53
7/31/2024 0:00	15.79	21.45	0.01	7.1	359.71	8.71	0.5
7/30/2024 23:50	15.8	21.61	0.01	7.17	357.49	8.71	0.51
7/30/2024 23:40	15.8	21.38	0.01	7.13	358.99	8.7	0.52
7/30/2024 23:30	15.81	21.6	0.01	7.15	357.22	8.73	0.53
7/30/2024 23:20	15.81	21.42	0.01	7.14	357.13	8.71	0.52
7/30/2024 23:10	15.82	21.62	0.01	7.12	357.42	8.72	0.5
7/30/2024 23:00	15.82	21.47	0.01	7.13	357.38	8.71	0.5
7/30/2024 22:50	15.83	21.69	0.01	7.15	359.28	8.69	0.52
7/30/2024 22:40	15.84	21.5	0.01	7.16	358.44	8.72	0.54
7/30/2024 22:30	15.85	21.56	0.01	7.15	358.61	8.7	0.53
7/30/2024 22:20	15.85	21.5	0.01	7.16	357.24	8.72	0.51
7/30/2024 22:10	15.87	21.63	0.01	7.19	358.79	8.69	0.52
7/30/2024 22:00	15.87	21.4	0.01	7.14	360.29	8.71	0.53
7/30/2024 21:50	15.88	21.55	0.01	7.17	357.82	8.69	0.52
7/30/2024 21:40	15.89	21.5	0.01	7.12	358.01	8.7	0.54
7/30/2024 21:30	15.9	21.51	0.01	7.15	355.66	8.69	0.52
7/30/2024 21:20	15.91	21.36	0.01	7.11	356.18	8.7	0.53
7/30/2024 21:10	15.92	21.64	0.01	7.18	355.47	8.68	0.51
7/30/2024 21:00	15.93	21.42	0.01	7.13	356.26	8.7	0.53
7/30/2024 20:50	15.94	21.59	0.01	7.12	355.88	8.71	0.52
7/30/2024 20:40	15.95	21.46	0.01	7.13	355.03	8.67	0.54
7/30/2024 20:30	15.96	21.55	0.01	7.14	354.7	8.69	0.54
7/30/2024 20:20	15.97	21.46	0.01	7.1	356.06	8.69	0.51
7/30/2024 20:10	15.98	21.47	0.01	7.13	353.41	8.7	0.51
7/30/2024 20:00	15.99	21.43	0.01	7.09	356.2	8.68	0.53
7/30/2024 19:50	16	21.43	0.01	7.13	352.73	8.7	0.58

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7/30/2024 19:40	16.01	21.39	0.01	7.16	350.21	8.71	0.54
7/30/2024 19:30	16.03	21.46	0.01	7.14	351.85	8.7	0.53
7/30/2024 19:20	16.03	21.21	0.01	7.15	350.57	8.74	0.54
7/30/2024 19:10	16.04	21.39	0.01	7.13	351.78	8.74	0.53
7/30/2024 19:00	16.05	21.3	0.01	7.12	353.19	8.73	0.53
7/30/2024 18:50	16.06	21.27	0.01	7.17	350.48	8.73	0.53
7/30/2024 18:40	16.06	21.25	0.01	7.13	352.21	8.75	0.57
7/30/2024 18:30	16.07	21.29	0.01	7.18	349.75	8.75	0.53
7/30/2024 18:20	16.07	21.09	0.01	7.17	349.59	8.74	0.56
7/30/2024 18:10	16.08	21.27	0.01	7.19	349.57	8.74	0.52
7/30/2024 18:00	16.09	21.04	0.01	7.22	347.13	8.75	0.55
7/30/2024 17:50	16.1	21.12	0.01	7.18	348.61	8.77	0.55
7/30/2024 17:40	16.11	21.07	0.01	7.18	349.02	8.77	0.55
7/30/2024 17:30	16.12	21.04	0.01	7.19	347.05	8.77	0.56
7/30/2024 17:20	16.12	21.01	0.01	7.17	348.58	8.77	0.54
7/30/2024 17:10	16.13	21.01	0.01	7.22	347.04	8.8	0.52
7/30/2024 17:00	16.13	20.82	0.01	7.2	346.88	8.79	0.54
7/30/2024 16:50	16.12	20.96	0.01	7.23	345.76	8.82	0.58
7/30/2024 16:40	16.12	20.94	0.01	7.23	345.08	8.81	0.57
7/30/2024 16:30	16.12	20.92	0.01	7.26	343.93	8.81	0.53
7/30/2024 16:20	16.12	20.9	0.01	7.24	343.54	8.84	0.53
7/30/2024 16:10	16.12	20.94	0.01	7.26	343.42	8.84	0.51
7/30/2024 16:00	16.09	20.78	0.01	7.23	344.24	8.85	0.54
7/30/2024 15:50	16.07	20.94	0.01	7.22	344.37	8.84	0.54
7/30/2024 15:40	16.06	20.78	0.01	7.2	345.78	8.85	0.54
7/30/2024 15:30	16.06	20.89	0.01	7.24	343.04	8.84	0.53
7/30/2024 15:20	16.04	20.75	0.01	7.22	343.4	8.85	0.54
7/30/2024 15:10	16.02	21	0.01	7.2	344.86	8.86	0.54
7/30/2024 15:00	16.01	20.68	0.01	7.23	344.26	8.85	0.53
7/30/2024 14:50	16	20.94	0.01	7.2	346.33	8.86	0.56
7/30/2024 14:40	15.99	20.73	0.01	7.24	347.21	8.88	0.57
7/30/2024 14:30	15.99	20.94	0.01	7.2	351.95	8.86	0.67
7/30/2024 14:20	15.98	20.75	0.01	7.24	351.46	8.88	0.5
7/30/2024 14:10	15.96	20.9	0.01	7.23	350.05	8.89	0.62
7/30/2024 14:00	15.95	20.81	0.01	7.24	350.68	8.9	0.53
7/30/2024 13:50	15.92	20.83	0.01	7.23	348.97	8.92	0.63
7/30/2024 13:40	15.9	20.81	0.01	7.27	347.13	8.89	0.52
7/30/2024 13:30	15.89	20.91	0.01	7.25	349.15	8.9	0.54
7/30/2024 13:20	15.87	20.73	0.01	7.29	346.21	8.92	0.53
7/30/2024 13:10	15.85	20.83	0.01	7.25	346.57	8.91	0.52
7/30/2024 13:00	15.81	20.75	0.01	7.28	344.44	8.94	0.54
7/30/2024 12:50	15.78	20.89	0.01	7.24	345.91	8.92	0.51
7/30/2024 12:40	15.76	20.9	0.01	7.25	346.11	8.95	0.53
7/30/2024 12:30	15.72	20.96	0.01	7.24	346.09	8.95	0.53
7/30/2024 12:20	15.7	20.97	0.01	7.26	344.68	8.95	0.51
7/30/2024 12:10	15.67	21.06	0.01	7.25	343.72	8.96	0.64
7/30/2024 12:00	15.63	20.89	0.01	7.22	344.98	8.95	0.52

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7/30/2024 11:50	15.59	21.21	0.01	7.22	344.1	8.97	0.5
7/30/2024 11:40	15.53	21.01	0.01	7.22	344.09	8.91	0.52
7/30/2024 11:30	15.52	21.37	0.01	7.2	345.11	8.87	0.51
7/30/2024 11:20	15.51	21.16	0.01	7.21	345.77	8.9	0.57
7/30/2024 11:10	15.51	21.34	0.01	7.2	345.17	8.92	0.5
7/30/2024 11:00	15.49	21.4	0.01	7.21	345.32	8.92	0.54
7/30/2024 10:50	15.48	21.46	0.01	7.21	343.99	8.93	0.51
7/30/2024 10:40	15.47	21.35	0.01	7.21	344.4	8.93	0.52
7/30/2024 10:30	15.44	21.6	0.01	7.17	344.31	8.92	0.53
7/30/2024 10:20	15.42	21.54	0.01	7.17	346.65	8.91	0.51
7/30/2024 10:10	15.41	21.82	0.01	7.17	346.01	8.91	0.51
7/30/2024 10:00	15.4	21.75	0.01	7.21	345.69	8.91	0.52
7/30/2024 9:50	15.39	22	0.01	7.2	347.46	8.95	0.54
7/30/2024 9:40	15.38	21.9	0.01	7.16	349.33	8.94	0.52
7/30/2024 9:30	15.35	22.18	0.01	7.16	348.52	8.93	0.5
7/30/2024 9:20	15.33	22.2	0.01	7.18	349.37	8.9	0.52
7/30/2024 9:10	15.32	22.42	0.01	7.16	350.56	8.91	0.5
7/30/2024 9:00	15.31	22.35	0.01	7.2	348.38	8.9	0.51
7/30/2024 8:50	15.3	22.5	0.01	7.14	351.45	8.88	0.51
7/30/2024 8:40	15.29	22.22	0.01	7.13	353.47	8.9	0.52
7/30/2024 8:30	15.29	22.85	0.01	7.12	353.29	8.9	0.48
7/30/2024 8:20	15.28	22.65	0.01	7.12	354.46	8.9	0.51
7/30/2024 8:10	15.27	23.15	0.01	7.12	353.29	8.87	0.53
7/30/2024 8:00	15.26	23.09	0.01	7.1	354.98	8.88	0.5
7/30/2024 7:50	15.26	23.56	0.01	7.11	353.98	8.88	0.5
7/30/2024 7:40	15.26	23.44	0.01	7.12	354.29	8.88	0.5
7/30/2024 7:30	15.26	23.67	0.01	7.11	353.85	8.86	0.5
7/30/2024 7:20	15.25	23.58	0.01	7.07	356.62	8.85	0.53
7/30/2024 7:10	15.25	23.99	0.01	7.06	355.49	8.85	0.5
7/30/2024 7:00	15.25	23.87	0.01	7.08	354.56	8.87	0.51
7/30/2024 7:00	15.25	23.87	0.01	7.08	354.56	8.87	0.51
7/30/2024 6:50	15.25	24.38	0.01	7.02	357.16	8.86	0.51
7/30/2024 6:40	15.26	24.34	0.01	7.06	356.67	8.84	0.54
7/30/2024 6:30	15.26	24.63	0.01	7.06	355.63	8.83	0.54
7/30/2024 6:20	15.26	24.61	0.01	7.06	356.22	8.84	0.51
7/30/2024 6:10	15.26	25.07	0.01	7.05	355.76	8.83	0.5
7/30/2024 6:00	15.26	25.15	0.01	7.06	357.37	8.84	0.55
7/30/2024 5:50	15.27	25.69	0.01	7.05	356.88	8.84	0.53
7/30/2024 5:40	15.27	25.82	0.01	7.07	357.58	8.83	0.57
7/30/2024 5:30	15.27	26.25	0.01	7.05	357.51	8.82	0.5
7/30/2024 5:20	15.28	26.57	0.01	7.1	357.42	8.84	0.49
7/30/2024 5:10	15.28	27.01	0.01	7.08	357.08	8.83	0.52
7/30/2024 5:00	15.28	27.26	0.01	7.07	360.29	8.84	0.53
7/30/2024 4:50	15.29	27.81	0.01	7.1	360.23	8.84	0.52
7/30/2024 4:40	15.29	28.32	0.01	7.09	361.96	8.83	0.54
7/30/2024 4:30	15.3	29.07	0.01	7.09	361.34	8.8	0.52
7/30/2024 4:20	15.3	29.19	0.01	7.11	362.7	8.82	0.53

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7/30/2024 4:10	15.3	30.35	0.01	7.15	362.4	8.81	0.66
7/30/2024 4:00	15.31	30.72	0.01	7.14	362.28	8.81	0.53
7/30/2024 3:50	15.31	31.61	0.02	7.15	361.12	8.82	0.6
7/30/2024 3:40	15.32	32.36	0.02	7.14	360.85	8.81	0.56
7/30/2024 3:30	15.32	33.49	0.02	7.12	361.34	8.81	0.65
7/30/2024 3:20	15.32	34.34	0.02	7.12	362.24	8.81	0.53
7/30/2024 3:10	15.33	35.25	0.02	7.12	360.98	8.8	1.84
7/30/2024 3:00	15.33	35.95	0.02	7.15	359.49	8.82	0.56
7/30/2024 2:50	15.34	36.75	0.02	7.18	360.85	8.82	1.51
7/30/2024 2:40	15.34	36.49	0.02	7.15	359.71	8.82	0.52
7/30/2024 2:30	15.34	36.38	0.02	7.16	359.65	8.8	0.55
7/30/2024 2:20	15.34	35.81	0.02	7.14	359.66	8.8	0.55
7/30/2024 2:10	15.35	36.1	0.02	7.16	358.99	8.8	0.66
7/30/2024 2:00	15.35	36.13	0.02	7.14	359.15	8.82	0.56
7/30/2024 1:50	15.36	37.05	0.02	7.19	356.06	8.8	0.55
7/30/2024 1:40	15.36	37.66	0.02	7.13	355.9	8.81	0.55
7/30/2024 1:30	15.37	39.54	0.02	7.14	354.58	8.81	0.57
7/30/2024 1:20	15.37	40.25	0.02	7.09	355.38	8.8	0.59
7/30/2024 1:10	15.38	42.54	0.02	7.16	351.53	8.79	0.67
7/30/2024 1:00	15.39	43.51	0.02	7.14	352.94	8.79	0.59
7/30/2024 0:50	15.4	46.03	0.02	7.19	350.17	8.78	0.59
7/30/2024 0:40	15.4	48.31	0.02	7.14	350.08	8.78	0.57
7/30/2024 0:30	15.41	51.64	0.03	7.2	346.69	8.8	0.55
7/30/2024 0:20	15.42	54	0.03	7.19	345.44	8.77	0.56
7/30/2024 0:10	15.43	58.35	0.03	7.24	342.98	8.75	0.57
7/30/2024 0:00	15.44	61.21	0.03	7.2	343.75	8.78	0.59
7/29/2024 23:50	15.45	65.48	0.03	7.28	340.48	8.77	0.6
7/29/2024 23:40	15.46	68.48	0.04	7.25	339.51	8.76	0.59
7/29/2024 23:30	15.47	71.91	0.04	7.24	338.77	8.77	0.63
7/29/2024 23:20	15.47	74.44	0.04	7.23	337.44	8.77	0.67
7/29/2024 23:10	15.47	76.33	0.04	7.23	335.81	8.78	0.67
7/29/2024 23:00	15.48	78.14	0.04	7.2	336.9	8.78	0.7
7/29/2024 22:50	15.48	82.47	0.04	7.25	335.28	8.78	0.68
7/29/2024 22:40	15.46	82.82	0.04	7.27	337.04	8.79	0.69
7/29/2024 22:30	15.44	70.67	0.04	7.21	340.93	8.79	0.84
7/29/2024 22:20	15.42	44	0.02	7.16	346.15	8.8	0.68
7/29/2024 22:10	15.43	37.13	0.02	7.16	346.79	8.81	0.82
7/29/2024 22:00	15.43	38.15	0.02	7.15	347.6	8.79	0.68
7/29/2024 21:50	15.44	40.01	0.02	7.21	344.52	8.78	0.94
7/29/2024 21:40	15.44	40.64	0.02	7.16	344.73	8.78	1.7
7/29/2024 21:30	15.45	43.03	0.02	7.19	344.74	8.75	0.67
7/29/2024 21:20	15.45	44.78	0.02	7.2	343.17	8.76	0.59
7/29/2024 21:10	15.47	47.79	0.02	7.19	341.37	8.74	0.6
7/29/2024 21:00	15.47	49.62	0.03	7.16	339.78	8.76	0.64
7/29/2024 20:50	15.49	53.5	0.03	7.23	336.25	8.75	0.61
7/29/2024 20:40	15.5	56.67	0.03	7.2	334.23	8.74	0.58
7/29/2024 20:30	15.51	61.97	0.03	7.21	328.84	8.72	0.6

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7/29/2024 20:20	15.52	64.21	0.03	7.21	328.14	8.75	0.6
7/29/2024 20:10	15.54	69.26	0.04	7.23	322.48	8.74	0.63
7/29/2024 20:00	15.55	71.29	0.04	7.23	320.88	8.74	0.61
7/29/2024 19:50	15.57	76.49	0.04	7.24	318.28	8.75	0.69
7/29/2024 19:40	15.58	80.3	0.04	7.27	317.58	8.73	0.7
7/29/2024 19:30	15.6	88.16	0.05	7.29	316.22	8.73	0.69
7/29/2024 19:20	15.61	92.46	0.05	7.29	316.68	8.75	0.71
7/29/2024 19:10	15.62	105.44	0.06	7.34	315.39	8.73	0.75
7/29/2024 19:00	15.63	118.42	0.06	7.34	317.42	8.75	1.01
7/29/2024 18:50	15.62	130.76	0.07	7.37	318.45	8.77	0.96
7/29/2024 18:40	15.57	127.86	0.07	7.31	326.61	8.75	1.08
7/29/2024 18:30	15.53	93.31	0.05	7.24	334.36	8.79	1.14
7/29/2024 18:20	15.51	38.13	0.02	7.17	342.81	8.8	0.8
7/29/2024 18:10	15.51	27.94	0.01	7.17	341.21	8.79	0.99
7/29/2024 18:00	15.51	27.12	0.01	7.19	337.13	8.77	0.91
7/29/2024 17:50	15.51	27.21	0.01	7.18	332.39	8.79	1.1
7/29/2024 17:40	15.5	27.51	0.01	7.21	330.95	8.81	0.63
7/29/2024 17:30	15.51	28.21	0.01	7.19	329.97	8.81	0.71
7/29/2024 17:20	15.51	28.57	0.01	7.2	327.98	8.8	0.58
7/29/2024 17:10	15.52	29.07	0.01	7.2	327.27	8.8	0.7
7/29/2024 17:00	15.52	29.36	0.01	7.18	327.03	8.82	0.61
7/29/2024 16:50	15.51	30.19	0.01	7.22	324.58	8.82	0.7
7/29/2024 16:40	15.51	30.48	0.01	7.18	325.79	8.79	0.64
7/29/2024 16:30	15.52	31.2	0.02	7.21	322.81	8.83	0.61
7/29/2024 16:20	15.52	31.84	0.02	7.19	324.87	8.82	0.56
7/29/2024 16:10	15.52	32.62	0.02	7.22	322.04	8.82	0.59
7/29/2024 16:00	15.52	33.26	0.02	7.24	322.54	8.81	0.58
7/29/2024 15:50	15.53	33.83	0.02	7.23	323.55	8.8	0.58
7/29/2024 15:40	15.53	32.9	0.02	7.24	324.96	8.82	0.58
7/29/2024 15:30	15.54	31.68	0.02	7.22	326.11	8.83	0.73
7/29/2024 15:20	15.54	28.92	0.01	7.2	330.15	8.82	0.61
7/29/2024 15:10	15.54	26.68	0.01	7.23	328.52	8.84	0.6
7/29/2024 15:00	15.54	25.54	0.01	7.22	329.59	8.84	0.61
7/29/2024 14:50	15.54	25.82	0.01	7.22	330.64	8.82	0.68
7/29/2024 14:40	15.54	25.78	0.01	7.24	330.44	8.81	0.62
7/29/2024 14:30	15.54	26.15	0.01	7.23	331.16	8.84	2.35
7/29/2024 14:20	15.54	26.09	0.01	7.25	331.47	8.84	0.66
7/29/2024 14:10	15.54	26.99	0.01	7.26	330.94	8.82	0.69
7/29/2024 14:00	15.54	27.08	0.01	7.25	330.21	8.85	0.64
7/29/2024 13:50	15.53	27.93	0.01	7.27	327.81	8.82	0.87
7/29/2024 13:40	15.53	28.22	0.01	7.24	327.11	8.81	0.69
7/29/2024 13:30	15.53	29.17	0.01	7.25	326.21	8.81	0.98
7/29/2024 13:20	15.53	29.14	0.01	7.22	327.03	8.8	1.08
7/29/2024 13:10	15.53	30.41	0.01	7.23	326.56	8.79	0.8
7/29/2024 13:00	15.53	30.72	0.01	7.27	324.47	8.79	0.7
7/29/2024 12:50	15.54	32.23	0.02	7.26	327.85	8.81	0.69
7/29/2024 12:40	15.54	33.23	0.02	7.25	330.67	8.83	1.47

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7/29/2024 12:30	15.54	35.25	0.02	7.28	329.66	8.78	0.73
7/29/2024 12:20	15.54	36.48	0.02	7.25	328.3	8.75	0.7
7/29/2024 12:10	15.53	37.71	0.02	7.24	329.32	8.75	0.77
7/29/2024 12:00	15.52	39.76	0.02	7.26	326.85	8.75	0.98
7/29/2024 11:50	15.52	41.38	0.02	7.25	326.34	8.75	1.12
7/29/2024 11:40	15.52	43.66	0.02	7.25	325.27	8.73	1.45
7/29/2024 11:30	15.52	45.71	0.02	7.26	322.98	8.78	1.35
7/29/2024 11:20	15.52	48.06	0.02	7.27	322.06	8.76	1.94
7/29/2024 11:10	15.52	50.3	0.03	7.27	320.97	8.77	1.91
7/29/2024 11:00	15.51	53.51	0.03	7.25	321.19	8.73	1.57
7/29/2024 10:50	15.51	55.92	0.03	7.27	319.13	8.77	2.07
7/29/2024 10:40	15.51	58.12	0.03	7.28	318.32	8.72	1.25
7/29/2024 10:30	15.51	62.03	0.03	7.28	317.28	8.7	1.48
7/29/2024 10:20	15.52	65.66	0.03	7.3	315.33	8.68	1.31
7/29/2024 10:10	15.53	69.77	0.04	7.29	313.82	8.69	1.58
7/29/2024 10:00	15.54	76.17	0.04	7.3	312.14	8.7	1.08
7/29/2024 9:50	15.56	82.33	0.04	7.31	311.18	8.69	1.12
7/29/2024 9:40	15.57	91.08	0.05	7.34	308.67	8.65	1.59
7/29/2024 9:30	15.57	98.49	0.05	7.33	309.35	8.67	3.08
7/29/2024 9:20	15.58	107.08	0.06	7.34	309.56	8.64	2.19
7/29/2024 9:10	15.58	115.18	0.06	7.34	311.83	8.66	2.01
7/29/2024 9:00	15.57	121.49	0.06	7.33	313.69	8.67	2.23
7/29/2024 8:50	15.54	120.15	0.06	7.27	318.01	8.69	2.51
7/29/2024 8:40	15.5	94.65	0.05	7.17	325.01	8.71	3.74
7/29/2024 8:30	15.47	54.96	0.03	7.08	330.55	8.75	4.45
7/29/2024 8:20	15.47	27.97	0.01	7.13	331.58	8.75	6.4
7/29/2024 8:10	15.47	27.14	0.01	7.12	331.09	8.73	7.4
7/29/2024 8:00	15.47	26.65	0.01	7.17	324.87	8.74	4.89
7/29/2024 7:50	15.47	27.03	0.01	7.11	324.7	8.73	4
7/29/2024 7:40	15.47	26.5	0.01	7.19	319.98	8.75	3.41
7/29/2024 7:30	15.47	26.96	0.01	7.17	320.62	8.73	1.67
7/29/2024 7:20	15.47	26.83	0.01	7.16	322.65	8.71	1.63
7/29/2024 7:10	15.48	26.82	0.01	7.16	322.9	8.71	1.22
7/29/2024 7:00	15.49	26.52	0.01	7.12	326.21	8.71	1.34
7/29/2024 6:50	15.5	26.66	0.01	7.16	324.22	8.69	1.21
7/29/2024 6:40	15.5	26.58	0.01	7.13	329.14	8.7	1.92
7/29/2024 6:30	15.51	26.75	0.01	7.12	329.91	8.66	1.44
7/29/2024 6:20	15.51	26.73	0.01	7.12	331.16	8.66	1.42
7/29/2024 6:10	15.52	26.91	0.01	7.11	334.33	8.65	1.45
7/29/2024 6:00	15.52	26.94	0.01	7.11	334.14	8.63	4.06
7/29/2024 5:50	15.53	27.02	0.01	7.11	334.21	8.63	1.23
7/29/2024 5:40	15.54	26.36	0.01	7.11	334.29	8.64	1.45
7/29/2024 5:30	15.55	27.02	0.01	7.11	333.55	8.61	1.92
7/29/2024 5:20	15.56	26.15	0.01	7.09	335.13	8.61	2.34
7/29/2024 5:10	15.57	26.62	0.01	7.11	334.7	8.6	2.18
7/29/2024 5:00	15.58	26.23	0.01	7.09	336.4	8.59	2.83
7/29/2024 4:50	15.59	26.08	0.01	7.11	335.72	8.6	3.81

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7/29/2024 4:40	15.6	25.64	0.01	7.09	338.55	8.59	2.4
7/29/2024 4:30	15.61	25.36	0.01	7.1	338.89	8.57	3.43
7/29/2024 4:20	15.61	24.94	0.01	7.07	342.04	8.58	2.91
7/29/2024 4:10	15.63	25	0.01	7.11	340.66	8.56	3.33
7/29/2024 4:00	15.63	24.54	0.01	7.17	337.86	8.58	3.89
7/29/2024 3:50	15.64	24.46	0.01	7.11	339.6	8.57	2.97
7/29/2024 3:40	15.65	23.7	0.01	7.1	340.9	8.56	2.68
7/29/2024 3:30	15.66	23.53	0.01	7.11	339.39	8.58	2.73
7/29/2024 3:20	15.67	22.78	0.01	7.14	338.19	8.6	2.53
7/29/2024 3:10	15.69	22.71	0.01	7.12	337.84	8.59	2.42
7/29/2024 3:00	15.69	22.22	0.01	7.13	335.07	8.62	0.97
7/29/2024 2:50	15.7	21.99	0.01	7.15	331.51	8.64	0.79
7/29/2024 2:40	15.71	21.58	0.01	7.13	333.49	8.64	0.55
7/29/2024 2:30	15.73	21.75	0.01	7.15	332.2	8.64	0.58
7/29/2024 2:20	15.74	21.72	0.01	7.12	333.68	8.62	0.57
7/29/2024 2:10	15.75	21.72	0.01	7.15	331.39	8.64	0.56
7/29/2024 2:00	15.76	21.54	0.01	7.13	333.32	8.64	0.53
7/29/2024 1:50	15.77	21.61	0.01	7.14	332.05	8.64	0.5
7/29/2024 1:40	15.78	21.57	0.01	7.14	332.67	8.64	0.49
7/29/2024 1:30	15.79	21.65	0.01	7.14	331.69	8.64	0.52
7/29/2024 1:20	15.8	21.63	0.01	7.12	333	8.64	0.51
7/29/2024 1:10	15.81	21.73	0.01	7.14	330.26	8.62	0.55
7/29/2024 1:00	15.83	21.7	0.01	7.11	332.2	8.6	0.53
7/29/2024 0:50	15.84	21.81	0.01	7.14	329.28	8.59	0.55
7/29/2024 0:40	15.85	21.54	0.01	7.13	331.89	8.61	0.61
7/29/2024 0:30	15.87	21.64	0.01	7.17	327.1	8.63	0.53
7/29/2024 0:20	15.88	21.33	0.01	7.14	330.52	8.63	0.51
7/29/2024 0:10	15.9	21.52	0.01	7.16	327.1	8.63	0.52
7/29/2024 0:10	15.9	21.52	0.01	7.16	327.1	8.63	0.52
7/29/2024 0:00	15.91	21.31	0.01	7.13	331.14	8.62	0.52