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 on site is being recirculated for tunneling related activities.

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	2024-10-01	Yes *	Full set of lab sample results, photo and documentation are provided in Appendix B.

Table 5: Downstream Monitoring Information

	Date of Lab Sample	Real Time Monitored	Results
Squamish River Downstream	2023-10-01	Yes *	Full set of lab sample results, photo and documentation are provided in Appendix B.

***** Sondes set up to log temperature, specific conductivity, salinity (in PSU), pH, ORP, DO (mg/L), and turbidity (NTU) at 10-minute intervals.

Receiving Environment Monitoring Details

- Visual sheen checks conducted for days of discharge.
- All receiving environment lab results are in Appendix B.
- Any recorded exceedances in the laboratory and field samples collected from the receiving environment (upstream and downstream) are indicative of the existing background water quality in the Squamish River, and are not related to the EGP Project activities.

Summary-Woodfibre

Site Activities

- In collaboration with the QP, it was determined the flow in East Creak had increased enough for the sonde to be moved to the original permitted location close to the discharge point on October 2nd. On October 11th, in collaboration with the QP, the sonde was moved again to a more representative location approximately 65m from the discharge point.
- On October 3rd, 2024, the Permittee entered the 3.1 Maintenance of Works and Emergency Procedures clause as outlined in the Permit for emergency discharge from the Woodfibre water treatment. Notification was sent to BCER on October 3rd as required in the permit. For this reporting period, the water treatment plant was under the 3.1 Emergency Procedure.
    - The lab and sonde data from the Water Treatment Plant in Appendix C has elevated levels for turbidity due to the emergency discharge. This information will be included in a Separate 3.1 Exceedance Report to the BCER as per the Permit. Preliminary assessment from the QP (Triton) indicates that there are no negative environmental impacts to East Creek; however, at this time, additional analysis of the data is required to provide the assessment of potential environmental impact further downstream.

Point of Discharge from Water Treatment System Monitoring

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

Table 3: Discharges from Water Treatment System

Location	Date of Discharge	Real Time Monitored and Daily Monitoring	Discharge Volume
Woodfibre	2024-09-30	Yes-Appendix C	187 m^3
Woodfibre	2024-10-01	Yes-Appendix C	76 m^3
Woodfibre	2024-10-02	Yes-Appendix C	68 m^3
Woodfibre	2024-10-03	Yes-Appendix C	271 m^3
Woodfibre	2024-10-04	Yes-Appendix C	247 m^3
Woodfibre	2024-10-05	Yes-Appendix C	263 m^3
Woodfibre	2024-10-06	Yes-Appendix C	491 m^3

*Max discharge is 1500m^3/day

Exceedances

As mentioned above, starting October 3rd, 2024, the Permittee entered the 3.1 Maintenance of Works and Emergency Procedures clause as outlined in the Permit for emergency discharge from the Woodfibre water treatment plant.

Receiving Environment Monitoring

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

Table 4: Upstream Monitoring Information

Location	Date of Lab Sample	Real Time Monitored	Results
Woodfibre Upstream	2024-10-03	Yes *	Full set of lab sample results, photo and documentation are provided in Appendix D.

Table 5: Downstream Monitoring Information

	Date of Lab Sample	Real Time Monitored	Results
Woodfibre Downstream	2024-10-03	Yes *	In collaboration with the QP, it was determined the flow in East Creak had increased enough for the sonde to be moved to the original permitted location close to the discharge point on October 2nd. On October 11th, in collaboration with the QP, the sonde was moved again to a more representative location approximately 65m from the discharge point.

***** Sondes set up to log temperature, specific conductivity, salinity (in PSU), pH, ORP, DO (mg/L), and turbidity (NTU) at 10-minute intervals.

Receiving Environment Monitoring Details

- Visual sheen checks are conducted during discharges.
- Recorded exceedances in the laboratory and field samples collected from the receiving environment (upstream and downstream) may be indicative of the existing background water quality in the East Creek and are not related to the EGP Project activities.

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

BCR Site Batch Sample Analysis

No Discharges

BCR Site Batch Sample Lab Documentation

No Discharges

BCR Site WTP Discharge Field Notes and Logs
No Discharges

Appendix B: BCR Site Receiving Environment Documentation

BCR Site Receiving Environment Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:			Farshad Shafiei Ph.D., R.P.Bio.	SQU US1 (Upstream)	SQU DS1 (Downstream)	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24C5978-001	VA24C5978-002					
	Date Sampled					01-Oct-2024	01-Oct-2024					
	Time Sampled					10:31	11:52					
Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Water	Water					
						N/A	N/A		Guideline notes			
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	6.39	6.57	The pH at both the upstream and downstream location was below the short-term BCWQG for MAL and FAL. Discharge from BCR has not begun yet, so the lower pH can not attributable to BCR construction activities and is likely a 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 [4]	-	Max +/- from BKG 1°C [4]	-	8.9	9.1		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	-	-	-	-	58	61					
Turbidity (field)	NTU	Varies with background, see note Guideline = 41.6	Varies with background, see note Guideline = 111.7 5-week discrete sampling average = 114.5 (DS)	Varies with background, see note Guideline = 41.6	Varies with background, see note Guideline = 111.7 5-week discrete sampling average = 114.5 (DS)	33.6	39.9		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	-	-	Sondes were offline as VuLink was being installed.	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	-	-	-	-	20.1	19.6					
Total Dissolved Solids	mg/L	-	-	-	-	38	35					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 52.4	Varies with background, see note Guideline = 110.2 5-week discrete sampling average = 94.06 (DS)	Varies with background, see note Guideline = 52.4	Varies with background, see note Guideline = 110.2 5-week discrete sampling average = 94.06 (DS)	27.4	31.4		Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 25 = DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters.	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.	Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 25 = DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: US value + 10 = DS guideline Change from background of 10% when background is >	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	0.62	0.69			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	15.8	15.6	The upstreamand downstream locations have high sensitivity to acid inputs (i.e. low buffering capacity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs. Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	< 0.0015	< 0.0015					
Total Sulfide (un-ionized as H_2S)	mg/L	-	0.002	-	-	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. Guideline = 25.7	Varies with pH and temperature. See note. Guideline = 1.86	Varies with pH, temperature and salinity. See note. Guideline = 131	Varies with pH, temperature and salinity. See note. Guideline = 20	0.144	0.092		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	600	150	+/- 10% from BKG	+/- 10% from BKG	2.87	2.98				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 Guideline = 0.689	-	1.5	-	0.024	0.021		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	32.8	3	-	3.7	0.0316	0.0308					
Nitrite (as N)	mg/L	Varies with chloride. See note. Guideline = 0.06	Varies with chloride. See note. Guideline = 0.02	-	-	< 0.0010	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.228	0.176					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.052	0.080			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. Guideline = 128	-	-	5.34	4.95			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	-	Varies with pH, DOC, hardness Guideline = 0.029 5-week field average = 4.04 (US), 3.71 (DS)	-	-	*1.23*	*1.16*	**Total Al exceeds the long-term BCWQG for FAL at both upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the background total Al concentration at the upstream location exceeds the BCWQG too. Discharge from BCR has not begun yet, so the high concentration is not attributable to BCR construction activities and is likely a 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	0.25	0.074	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00029	0.00028					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.0191	0.0193			Working guideline status		
Beryllium (Be)-Total	mg/L	-	0.00013	-	0.100	< 0.000100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.00005	< 0.00005					
Boron (B)-Total	mg/L	-	1.2	-	1.2	< 0.010	< 0.010					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000082	0.0000104					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	6.49	6.22					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000056	0.000058					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	-	0.0025	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	0.0003	0.00037					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002 5-week field average = 0.005 (US), 0.005 (DS)	*< 0.00250*	*< 0.00250*	**Total Cu exceeds the long-term BCWQG for MAL at both upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun and US1 has higher concentration than DS1. Therefore, the high total Cu concentration may be characteristic of the Squamish River and the local geology.				
Iron (Fe)-Total	mg/L	1	-	-	-	0.692	0.758					
Lead (Pb)-Total	mg/L	-	-	0.14	0.002	0.000163	0.00016					
Lithium (Li)-Total	mg/L	-	-	-	-	0.0016	0.0017					
Magnesium (Mg)-Total	mg/L	-	-	-	-	0.95	0.98					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.715	Varies with hardness Guideline = 0.768	-	-	0.0253	0.0286		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	-	Varies with methyl mercury Guideline = N/A	-	-	< 0.0000050	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1/[MeHg/totalHg]. When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	46	7.6	-	-	0.000534	0.000504					
Nickel (Ni)-Total	mg/L	-	-	-	0.0083	< 0.00050	0.00056					Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	0.061	0.064			Guideline only applies to lakes with salmonid species being the dominant fish species. Guideline is for reference only and does not apply to site.		
Potassium (K)-Total	mg/L	-	-	-	-	1.02	1.03					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00174	0.00198					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	< 0.000050	< 0.000050			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guideliens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	6.34	6					
Silver (Ag)-Total	mg/L	Varies with hardness, see note Guideline = 0.0001	Varies with hardness, see note Guideline = 0.0015	0.003	0.0015	< 0.000010	0.000014		Varies with hardness Guideline ranges: Hardness ≤ 100: 0.0001 Hardness > 100: 0.003	Varies with hardness Guideline ranges: Hardness ≤ 100: 0.00005 Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	3.07	3.08					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0479	0.0468					
Sulfur (S)-Total	mg/L	-	-	-	-	1.48	1.33					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003	-	-	< 0.000010	< 0.000010			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to tnhe EGP site.		
Thorium (Th)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.0293	0.036					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.000046	0.000047			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005 5-week field average = 0.00609 (US), 0.00606 (DS)	*0.00265*	*0.00262*	**Total vanadium exceeds long-term BCWQG for MAL.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun and US1 has higher concentration than DS1. Therefore, the high total Cu concentration may be characteristic of the Squamish River and the local geology.				Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	Guideline = 0.010 5-week field average = 0.00772 (US), 0.00882 (DS)	0.005	0.008					
Zirconium (Zr)-Total	mg/L	-	-	-	-	0.0003	0.00028					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0439	0.0685					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00016	0.00014					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0079	0.00827					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	< 0.010	< 0.010					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note Guideline = 0.000113	Varies with hardness, see note Guideline = 0.000063	-	-	0.0000062	0.0000054		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 guedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	-	Categorical, see note	-	-	5.97	5.54	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	-	-	-	-	0.000019	0.000024					
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 = 0.0002	Guideline varies with other parameters, see note Guideline = 0.0002 5-week field average = 0.0004 (US), 0.0004 (DS)	-	-	**0.00060**	**0.00057**	**Dissolved Cu exceeds the short-term and long-term BCWQG for FAL at both the upstream and downstream locations.** However, this should not be deemed a reportable exceedance because the discharge from BCR has not begun full-time. So, the high concentration is 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	-	-	-	0.086	0.076					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline = 0.00107 5-week field average = 0.00005 (US), 0.00005 (DS)	-	-	< 0.000050	< 0.000050			Guideline varies with DOC and hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation (EXP((0.514*LN(DOC))+(0.214*(LN(Hardness)))+0.4354))/2/1000 where DOC range is 0.5-31.5 mg/L and hardness range is 4.7-511 mg/L.		
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.0013	0.0014					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.771	0.724					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.0136	0.014					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000534	0.000532					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0089	Guideline varies with other parameters, see note Guideline = 0.0006 5-week field average = 0.0005 (US), 0.0005 (DS)	-	-	< 0.00050	< 0.00050		Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.837	0.827					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00124	0.00117					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.87	4.48					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	2.88	2.74					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0408	0.0407					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.65	1.57					
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	-	-	-	-	0.00106	0.00213					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000025	0.000024					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.00131	0.0011					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.009	Varies with pH, DOC, hardness Guideline = 0.0028 5-week field average = 0.0034 (US), 0.0017 (DS)	-	-	*0.002*	0.0038	**Dissolved Zn exceeds the long-term BCWQG for FAL at the upstream location.** However, this should not be deemed a reportable exceedance because this is the background site and the discharge from BCR has not yet begun. So, the high concentration is not attributable to BCR construction activities and may be characteristic of the Squamish River and the local geology.	Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life										
Color Key:	Exceeds both FAL and MAL Guidelines	Exceeds FAL Short term Guideline	*Exceeds FAL Long term Guideline*	Exceeds MAL Short term Guideline	*Exceeds MAL Long term Guideline*							
Color Key:		Exceeds Short and Long-Term Guideline		Exceeds MAL Short and Long-term Guidelines								

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

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

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

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

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

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

Parameters Used to Calculate Guidelines

Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Values: SQU US1 (Upstream)	Values: SQU DS1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.82	7.62
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				8.9	9.1
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				33.60	39.90
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				20.1	19.6
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				0.62	0.69
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				15.8	15.6
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				2.87	2.98

BCR Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C5978**			
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver	
Contact	:	Account Manager		
Address	:	Address		
Telephone	: ----	Telephone		
Project	: 11964	Date Samples Received	: 01-Oct-2024 14:00	
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 02-Oct-2024	
C-O-C number	: ----	Issue Date	: 09-Oct-2024 22:58	
Sampler	: ----			
Site	: Water Analysis			
Quote number	: VA23-TRIT100-012			
No. of samples received	: 3			
No. of samples analysed	: 3			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Lab Analyst	Inorganics, Calgary, Alberta
		Metals, Burnaby, British Columbia
	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
	Department Manager - Metals	Inorganics, Burnaby, British Columbia
	Lab Analyst	Metals, Burnaby, British Columbia
	Lab Assistant	Inorganics, Burnaby, British Columbia
	Senior Analyst	Metals, Waterloo, Ontario
	Senior Analyst	Inorganics, Waterloo, Ontario
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

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

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

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

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

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

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

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

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

Qualifiers

Qualifier	Description
DLB	Detection Limit Raised. Analyte detected at comparable level in Method Blank.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	----	----
					Client sampling date / time	01-Oct-2024 10:31	01-Oct-2024 11:52	01-Oct-2024 10:31	----	----
						VA24C5978-001	VA24C5978-002	VA24C5978-003	----	----
						Result	Result	Result	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		58.000	61.000	58.000	----	----
pH, field	----	EF001/VA	0.10	pH units		6.39	6.57	6.39	----	----
Temperature, field	----	EF001/VA	0.10	°C		8.90	9.10	8.90	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		18.1	16.8	17.8	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		20.1	19.6	20.4	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		38	35	40	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		27.4	31.4	31.6	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		15.8	15.6	15.8	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.144	0.0916	0.145	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		2.87	2.98	2.86	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.024	0.021	0.023	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0316	0.0308	0.0317	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		0.228	0.176	0.222	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0524	0.0803	0.0529	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		5.34	4.95	5.32	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/CG	0.50	mg/L		0.62	0.69	0.86	----	----

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Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	----	----
					Client sampling date / time	01-Oct-2024 10:31	01-Oct-2024 11:52	01-Oct-2024 10:31	----	----
						VA24C5978-001	VA24C5978-002	VA24C5978-003	----	----
						Result	Result	Result	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	<0.0016	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		1.23	1.16	1.16	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00029	0.00028	0.00028	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0191	0.0193	0.0187	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	0.010	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000082	0.0000104	0.0000077	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		6.49	6.22	6.57	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000056	0.000058	0.000054	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00030	0.00037	0.00030	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		<0.00250 DLB	<0.00250 DLB	<0.00250 DLB	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.692	0.758	0.648	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000163	0.000160	0.000140	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0016	0.0017	0.0016	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.952	0.983	0.958	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	----	----
					Client sampling date / time	01-Oct-2024 10:31	01-Oct-2024 11:52	01-Oct-2024 10:31	----	----
						VA24C5978-001	VA24C5978-002	VA24C5978-003	----	----
						Result	Result	Result	----	----
Total Metals										
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0253	0.0286	0.0242	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000534	0.000504	0.000548	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	0.00056	<0.00050	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.061	0.064	0.068	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.02	1.03	1.04	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00174	0.00198	0.00176	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		6.34	6.00	6.06	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	0.000014	<0.000010	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		3.07	3.08	3.16	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0479	0.0468	0.0474	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.48	1.33	1.42	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.0293	0.0358	0.0270	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000046	0.000047	0.000041	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00265	0.00262	0.00252	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	----	----
					Client sampling date / time	01-Oct-2024 10:31	01-Oct-2024 11:52	01-Oct-2024 10:31	----	----
						VA24C5978-001	VA24C5978-002	VA24C5978-003	----	----
						Result	Result	Result	----	----
Total Metals										
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0050	0.0080	0.0041	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		0.00030	0.00028	0.00031	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0439	0.0685	0.0354	----	----
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		0.00016	0.00014	0.00016	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00790	0.00827	0.00755	----	----
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		<0.010	<0.010	<0.010	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.0000062	0.0000054	0.0000067	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		5.97	5.54	5.89	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000019	0.000024	0.000018	----	----
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		0.00060	0.00057	0.00050	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.086	0.076	0.084	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0013	0.0014	0.0013	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.771	0.724	0.748	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.0136	0.0140	0.0130	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	SQU US 1	SQU DS 1	Duplicate	----	----
Client sample ID					SQU US 1	SQU DS 1	Duplicate	----	----
Client sampling date / time					01-Oct-2024 10:31	01-Oct-2024 11:52	01-Oct-2024 10:31	----	----
					VA24C5978-001	VA24C5978-002	VA24C5978-003	----	----
					Result	Result	Result	----	----
Dissolved Metals									
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	0.000534	0.000532	0.000515	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<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	0.837	0.827	0.793	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00124	0.00117	0.00124	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	4.87	4.48	4.99	----	----
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	2.88	2.74	2.81	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0408	0.0407	0.0400	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	1.65	1.57	1.82	----	----
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	<0.000010	<0.000010	<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	0.00106	0.00213	0.00088	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000025	0.000024	0.000025	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00131	0.00110	0.00127	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0020	0.0038	0.0020	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	Duplicate	----	----
					Client sampling date / time	01-Oct-2024 10:31	01-Oct-2024 11:52	01-Oct-2024 10:31	----	----
						VA24C5978-001	VA24C5978-002	VA24C5978-003	----	----
						Result	Result	Result	----	----
Dissolved Metals										
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Laboratory	Field	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Laboratory	Field	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----

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

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

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C5978**	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	: 01-Oct-2024 14:00
PO	: 11964 - Task 20 - Phase 3C-4C	Issue Date	: 09-Oct-2024 22:58
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals	QC-1686051-001	----	Copper, total	7440-50-8	E420	0.00086 MB-LOR mg/L	0.0005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
MB-LOR	*Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.*

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Duplicate	E298	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	08-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SQU DS 1	E298	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	08-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SQU US 1	E298	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	08-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
Duplicate	E235.Br-L	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SQU DS 1	E235.Br-L	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SQU US 1	E235.Br-L	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Duplicate	E235.Cl	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Duplicate	E235.F	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU US 1	E235.F	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Duplicate	E235.NO3-L	01-Oct-2024	03-Oct-2024	3 days	2 days	✓	03-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	01-Oct-2024	03-Oct-2024	3 days	2 days	✓	03-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	01-Oct-2024	03-Oct-2024	3 days	2 days	✓	03-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Duplicate	E235.NO2-L	01-Oct-2024	03-Oct-2024	3 days	2 days	✓	03-Oct-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 SQU DS 1	E235.NO2-L	01-Oct-2024	03-Oct-2024	3 days	2 days	✓	03-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO2-L	01-Oct-2024	03-Oct-2024	3 days	2 days	✓	03-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Duplicate	E235.SO4	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	01-Oct-2024	03-Oct-2024	28 days	2 days	✓	03-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) Duplicate	E366	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SQU DS 1	E372-U	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	04-Oct-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
Duplicate	E372-U	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	04-Oct-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	01-Oct-2024	04-Oct-2024	28 days	3 days	✓	04-Oct-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Duplicate	E509	01-Oct-2024	09-Oct-2024	28 days	8 days	✓	09-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	01-Oct-2024	09-Oct-2024	28 days	8 days	✓	09-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	01-Oct-2024	09-Oct-2024	28 days	8 days	✓	09-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	01-Oct-2024	02-Oct-2024	180 days	1 days	✓	03-Oct-2024	180 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Duplicate	E421	01-Oct-2024	07-Oct-2024	180 days	6 days	✓	08-Oct-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	01-Oct-2024	07-Oct-2024	180 days	6 days	✓	08-Oct-2024	180 days	7 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - dissolved (lab preserved)										
Duplicate	EF001	01-Oct-2024	----	----	----		04-Oct-2024	----	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
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - dissolved (lab preserved) SQU DS 1	EF001	01-Oct-2024	----	----	----		04-Oct-2024	----	3 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - dissolved (lab preserved) SQU US 1	EF001	01-Oct-2024	----	----	----		04-Oct-2024	----	3 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) Duplicate	E358-L	01-Oct-2024	07-Oct-2024	28 days	6 days	✓	07-Oct-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) SQU US 1	E358-L	01-Oct-2024	07-Oct-2024	28 days	6 days	✓	07-Oct-2024	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) SQU DS 1	E358-L	01-Oct-2024	04-Oct-2024	3 days	3 days	✓	04-Oct-2024	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Duplicate	E290	01-Oct-2024	03-Oct-2024	14 days	2 days	✓	03-Oct-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU DS 1	E290	01-Oct-2024	03-Oct-2024	14 days	2 days	✓	03-Oct-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SQU US 1	E290	01-Oct-2024	03-Oct-2024	14 days	2 days	✓	03-Oct-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SQU DS 1	E162	01-Oct-2024	----	----	----		07-Oct-2024	7 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE										
Duplicate	E162	01-Oct-2024	----	----	----		07-Oct-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU US 1	E162	01-Oct-2024	----	----	----		07-Oct-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	01-Oct-2024	----	----	----		07-Oct-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Duplicate	E160	01-Oct-2024	----	----	----		07-Oct-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	01-Oct-2024	----	----	----		07-Oct-2024	7 days	7 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Duplicate	E532	01-Oct-2024	----	----	----		04-Oct-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	01-Oct-2024	----	----	----		04-Oct-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	01-Oct-2024	----	----	----		04-Oct-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Duplicate	E508	01-Oct-2024	09-Oct-2024	28 days	8 days	✓	09-Oct-2024	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU DS 1	E508	01-Oct-2024	09-Oct-2024	28 days	8 days	✓	09-Oct-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	01-Oct-2024	09-Oct-2024	28 days	8 days	✓	09-Oct-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Duplicate	E420	01-Oct-2024	08-Oct-2024	180 days	7 days	✓	08-Oct-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	01-Oct-2024	08-Oct-2024	180 days	7 days	✓	08-Oct-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU US 1	E420	01-Oct-2024	08-Oct-2024	180 days	7 days	✓	08-Oct-2024	180 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Duplicate	E395	01-Oct-2024	----	----	----		02-Oct-2024	7 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU DS 1	E395	01-Oct-2024	----	----	----		02-Oct-2024	7 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU US 1	E395	01-Oct-2024	----	----	----		02-Oct-2024	7 days	1 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1687353	1	6	16.6	5.0	✓
Ammonia by Fluorescence	E298	1689886	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1687344	1	3	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	1687343	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1700497	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1685040	2	40	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689887	1	1	100.0	5.0	✓
Fluoride in Water by IC	E235.F	1687342	1	3	33.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1687345	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1687346	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1687347	1	3	33.3	5.0	✓
TDS by Gravimetry	E162	1695689	2	40	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1691048	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	1699533	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1686051	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1689884	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689885	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1685029	1	3	33.3	5.0	✓
TSS by Gravimetry	E160	1695686	2	40	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1687353	1	6	16.6	5.0	✓
Ammonia by Fluorescence	E298	1689886	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1687344	1	3	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	1687343	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1700497	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1685040	2	40	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689887	1	1	100.0	5.0	✓
Fluoride in Water by IC	E235.F	1687342	1	3	33.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1687345	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1687346	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1687347	1	3	33.3	5.0	✓
TDS by Gravimetry	E162	1695689	2	40	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1691048	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	1699533	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1686051	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1689884	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	1689885	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1685029	1	3	33.3	5.0	✓
TSS by Gravimetry	E160	1695686	2	40	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1687353	1	6	16.6	5.0	✓
Ammonia by Fluorescence	E298	1689886	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1687344	1	3	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	1687343	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1700497	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1685040	2	40	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689887	1	1	100.0	5.0	✓
Fluoride in Water by IC	E235.F	1687342	1	3	33.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1687345	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1687346	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1687347	1	3	33.3	5.0	✓
TDS by Gravimetry	E162	1695689	2	40	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1691048	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	1699533	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1686051	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1689884	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689885	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1685029	1	3	33.3	5.0	✓
TSS by Gravimetry	E160	1695686	2	40	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1689886	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1687344	1	3	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	1687343	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1700497	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1685040	2	40	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689887	0	1	0.0	5.0	×
Fluoride in Water by IC	E235.F	1687342	1	3	33.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1687345	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1687346	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1687347	1	3	33.3	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1691048	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	1699533	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1686051	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1689884	1	9	11.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689885	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1685029	1	3	33.3	5.0	✓

Methodology References and Summaries

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

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

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

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

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

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

QUALITY CONTROL REPORT

Work Order	: **VA24C5978**	Page	: 1 of 21
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 01-Oct-2024 14:00
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 02-Oct-2024
C-O-C number	: ----	Issue Date	: 09-Oct-2024 22:58
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Lab Analyst	Calgary Inorganics, Calgary, Alberta
		Vancouver Metals, Burnaby, British Columbia
	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
	Lab Analyst	Vancouver Metals, 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
	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: 1687353)											
VA24C6044-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1695686)											
FJ2402988-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	4.4	4.2	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1695687)											
VA24C5978-003	Duplicate	Solids, total suspended [TSS]	----	E160	3.0	mg/L	31.6	31.4	0.635%	20%	----
Physical Tests (QC Lot: 1695689)											
FJ2402988-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	533	499	6.58%	20%	----
Physical Tests (QC Lot: 1695690)											
VA24C5978-003	Duplicate	Solids, total dissolved [TDS]	----	E162	13	mg/L	40	42	1	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1687342)											
VA24C5978-001	SQU US 1	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.024	0.023	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1687343)											
VA24C5978-001	SQU US 1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	2.87	2.86	0.009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1687344)											
VA24C5978-001	SQU US 1	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1687345)											
VA24C5978-001	SQU US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0316	0.0317	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1687346)											
VA24C5978-001	SQU 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: 1687347)											
VA24C5978-001	SQU US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.34	5.34	0.0145%	20%	----
Anions and Nutrients (QC Lot: 1689884)											
VA24C5978-003	Duplicate	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.222	0.219	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689885)											
VA24C6312-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0033	0.0033	0.00005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689886)											
VA24C5978-001	SQU US 1	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.144	0.139	3.23%	20%	----
Organic / Inorganic Carbon (QC Lot: 1689887)											
VA24C5978-002	SQU DS 1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.69	0.64	0.04	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1695120)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1695120) - continued											
VA24C5944-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	8.10	8.22	1.40%	20%	----
Total Sulfides (QC Lot: 1685029)											
VA24C5978-001	SQU US 1	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1686051)											
KS2403979-001	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	0.00020	0.00019	0.000006	Diff <2x LOR	----
		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	21.7	21.4	1.31%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00200	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	0.0781	0.0807	3.28%	20%	----
		Iron, total	7439-89-6	E420	0.030	mg/L	0.225	0.228	0.003	Diff <2x LOR	----
		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	0.0012	0.0012	0.00002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	3.96	4.12	3.87%	20%	----
		Manganese, total	7439-96-5	E420	0.00200	mg/L	0.0576	0.0600	4.17%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000594	0.000598	0.692%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00077	0.00080	0.00003	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	0.100	mg/L	1.29	1.33	3.24%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00096	0.00098	0.00002	Diff <2x LOR	----
		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	4.56	4.57	0.304%	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	<2.00	<2.00	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.120	0.114	4.82%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	1.10	1.15	0.05	Diff <2x LOR	----
		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: 1686051) - continued											
KS2403979-001	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	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000100	mg/L	0.000212	0.000219	0.000007	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	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1699533)											
VA24C5947-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1685040)											
VA24C5962-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0013	<0.0010	0.0003	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	0.00017	0.00016	0.000003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0698	0.0722	3.42%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000100	0.0000084	0.0000016	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.7	58.3	1.14%	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	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0116	0.0118	1.65%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	22.4	22.6	0.829%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00035	0.00035	0.0000001	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00132	0.00131	0.916%	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	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1685040) - continued											
VA24C5962-001	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00037	0.00037	0.000002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00971	0.00931	4.17%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.72	1.72	0.132%	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	2.00	mg/L	2.80	2.93	0.130	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.225	0.218	3.16%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	29.5	29.1	1.50%	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	0.00125	0.00130	3.85%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1686125)											
KS2404025-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0021	0.0018	0.0003	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	0.00010	0.0000003	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00118	0.00118	0.113%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0861	0.0838	2.73%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000132	0.000130	2.01%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	47.0	45.5	3.26%	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	0.00046	0.00044	0.00001	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0020	0.0020	0.00003	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: 1686125) - continued											
KS2404025-001	Anonymous	Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	10.2	10.5	3.28%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0500	0.0500	0.0566%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00174	0.00174	0.410%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00685	0.00688	0.427%	20%	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.12	1.15	2.18%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00074	0.00078	0.00004	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00101	0.000924	8.93%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.54	4.60	1.33%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4.68	4.65	0.708%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.230	0.223	2.96%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	6.96	6.89	1.09%	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	0.00161	0.00165	2.77%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0133	0.0140	5.15%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1700497)											
VA24C5944-014	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1700654)											
VA24C5813-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1691048)											
HA2402390-003	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1687353)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1695686)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1695687)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1695689)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1695690)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1687342)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1687343)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1687344)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1687345)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1687346)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1687347)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1689884)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1689885)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1689886)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1689887)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1695120)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1685029)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Sulfides (QCLot: 1685029) - continued						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1686051)						
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	# 0.00086	MB-LOR
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: 1686051) - 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: 1699533)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1685040)						
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: 1685040) - 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: 1686125)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1686125) - continued						
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	----
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: 1700497)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1700654)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1691048)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----

Qualifiers

Qualifier	Description
MB-LOR	*Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.*

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: 1687353)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1695686)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1695687)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	99.3	85.0	115	----
Physical Tests (QCLot: 1695689)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1695690)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.2	85.0	115	----
Anions and Nutrients (QCLot: 1687342)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 1687343)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1687344)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1687345)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1687346)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1687347)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1689884)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	99.7	75.0	125	----
Anions and Nutrients (QCLot: 1689885)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	92.9	80.0	120	----
Anions and Nutrients (QCLot: 1689886)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.6	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1689887)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.9	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1695120)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Organic / Inorganic Carbon (QCLot: 1695120) - continued									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	100	80.0	120	----
Total Sulfides (QCLot: 1685029)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	96.4	80.0	120	----
Total Metals (QCLot: 1686051)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	100	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	93.3	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	98.5	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.8	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.4	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	97.6	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.2	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.9	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.2	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.8	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	97.7	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	93.6	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	98.2	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	91.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	97.7	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	97.9	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	83.6	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	94.9	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Total Metals (QCLot: 1686051) - continued									
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	97.2	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.5	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.0	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.3	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.3	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.2	80.0	120	----
Total Metals (QCLot: 1699533)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 1685040)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.6	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.9	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	98.4	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	98.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.5	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	95.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.8	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	94.0	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.4	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	95.0	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	105	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	97.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.1	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	93.5	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	96.0	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	94.8	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1685040) - continued									
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	93.3	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	99.6	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	95.7	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	99.9	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.6	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.4	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	96.0	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.0	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.5	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	90.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Dissolved Metals (QCLot: 1686125)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	106	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	107	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	103	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.7	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	99.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.7	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.7	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	97.6	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	107	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1686125) - continued									
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	93.9	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	105	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	94.4	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	111	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	97.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	90.6	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	101	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	97.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	98.3	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	97.6	80.0	120	----
Speciated Metals (QCLot: 1691048)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	96.8	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1687342)										
VA24C5978-002	SQU DS 1	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1687343)										
VA24C5978-002	SQU DS 1	Chloride	16887-00-6	E235.Cl	106 mg/L	100 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1687344)										
VA24C5978-002	SQU DS 1	Bromide	24959-67-9	E235.Br-L	0.533 mg/L	0.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 1687345)										
VA24C5978-002	SQU DS 1	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: 1687346)										
VA24C5978-002	SQU DS 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.525 mg/L	0.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1687347)										
VA24C5978-002	SQU DS 1	Sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1689884)										
VA24C6312-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.373 mg/L	0.4 mg/L	93.3	70.0	130	----
Anions and Nutrients (QCLot: 1689885)										
VA24C6312-003	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0467 mg/L	0.05 mg/L	93.3	70.0	130	----
Anions and Nutrients (QCLot: 1689886)										
VA24C5978-002	SQU DS 1	Ammonia, total (as N)	7664-41-7	E298	0.0938 mg/L	0.1 mg/L	93.8	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1695120)										
VA24C5944-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1685029)										
VA24C5978-002	SQU DS 1	Sulfide, total (as S)	18496-25-8	E395	0.210 mg/L	0.2 mg/L	105	75.0	125	----
Total Metals (QCLot: 1686051)										
KS2404025-001	Anonymous	Aluminum, total	7429-90-5	E420	0.192 mg/L	0.2 mg/L	96.1	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00936 mg/L	0.01 mg/L	93.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.096 mg/L	0.1 mg/L	96.0	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00384 mg/L	0.004 mg/L	96.1	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00936 mg/L	0.01 mg/L	93.6	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1686051) - continued										
KS2404025-001	Anonymous	Cobalt, total	7440-48-4	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	----
		Iron, total	7439-89-6	E420	1.91 mg/L	2 mg/L	95.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0929 mg/L	0.1 mg/L	92.9	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	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.67 mg/L	10 mg/L	96.7	70.0	130	----
		Potassium, total	7440-09-7	E420	3.84 mg/L	4 mg/L	96.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
		Silicon, total	7440-21-3	E420	9.29 mg/L	10 mg/L	92.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.00373 mg/L	0.004 mg/L	93.2	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.7 mg/L	20 mg/L	98.4	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0363 mg/L	0.04 mg/L	90.7	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00366 mg/L	0.004 mg/L	91.5	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Tin, total	7440-31-5	E420	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0182 mg/L	0.02 mg/L	91.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00373 mg/L	0.004 mg/L	93.3	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	0.365 mg/L	0.4 mg/L	91.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
Total Metals (QCLot: 1699533)										
VA24C5947-004	Anonymous	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1685040)										
VA24C5963-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	97.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0171 mg/L	0.02 mg/L	85.3	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0354 mg/L	0.04 mg/L	88.5	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00817 mg/L	0.01 mg/L	81.7	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.084 mg/L	0.1 mg/L	83.9	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00371 mg/L	0.004 mg/L	92.7	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00869 mg/L	0.01 mg/L	86.9	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1685040) - continued										
VA24C5963-001	Anonymous	Copper, dissolved	7440-50-8	E421	0.0178 mg/L	0.02 mg/L	89.1	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.86 mg/L	2 mg/L	92.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0180 mg/L	0.02 mg/L	90.1	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0890 mg/L	0.1 mg/L	89.0	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0180 mg/L	0.02 mg/L	90.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0357 mg/L	0.04 mg/L	89.3	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.92 mg/L	10 mg/L	99.2	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.72 mg/L	4 mg/L	93.0	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.41 mg/L	10 mg/L	94.1	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00350 mg/L	0.004 mg/L	87.5	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0365 mg/L	0.04 mg/L	91.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00340 mg/L	0.004 mg/L	85.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0172 mg/L	0.02 mg/L	85.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0171 mg/L	0.02 mg/L	85.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00328 mg/L	0.004 mg/L	81.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0961 mg/L	0.1 mg/L	96.1	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.354 mg/L	0.4 mg/L	88.5	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0353 mg/L	0.04 mg/L	88.2	70.0	130	----
Dissolved Metals (QCLot: 1686125)										
KS2404025-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.206 mg/L	0.2 mg/L	103	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0182 mg/L	0.02 mg/L	90.9	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00928 mg/L	0.01 mg/L	92.8	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.095 mg/L	0.1 mg/L	94.9	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00923 mg/L	0.01 mg/L	92.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0200 mg/L	0.02 mg/L	100.0	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----
		Iron, dissolved	7439-89-6	E421	2.06 mg/L	2 mg/L	103	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.101 mg/L	0.1 mg/L	101	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: 1686125) - continued										
KS2404025-002	Anonymous	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	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.54 mg/L	10 mg/L	95.4	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.21 mg/L	4 mg/L	105	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0201 mg/L	0.02 mg/L	100	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	9.73 mg/L	10 mg/L	97.3	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	2.05 mg/L	2 mg/L	103	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	20.1 mg/L	20 mg/L	100	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00375 mg/L	0.004 mg/L	93.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00352 mg/L	0.004 mg/L	N/A	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
Dissolved Metals (QCLot: 1700497)										
VA24C5978-001	SQU US 1	Mercury, dissolved	7439-97-6	E509	0.0000963 mg/L	0 mg/L	96.3	70.0	130	----
Dissolved Metals (QCLot: 1700654)										
VA24C5815-001	Anonymous	Mercury, dissolved	7439-97-6	E509	----	----		70.0	130	----
Speciated Metals (QCLot: 1691048)										
HA2402390-003	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0403 mg/L	0.04 mg/L	101	70.0	130	----

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page 1 of

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

Report Format / Distribution

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

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

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

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

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: 01-Oct-24 [illegible]

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

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

Project Information

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

ALS Lab Work Order # (lab use only):

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
						F					P	P			F/P							
	SQU US 1	01-Oct-24	10:31	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH 6.39 cond: 58 temp: 8.9																					
	SQU DS 1 (Not Filtered)	↓	11:52	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.57 cond: 61 temp: 9.1																					
	Duplicate		10:31	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.39 Cond: 58 temp: 8.9																					
	Note: None of the SQU DS 1 Samples																					
	were filtered - Due to high turbidity																					

Environmental Division Vancouver
Work Order Reference
VA24C5978

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 / Specify Criteria to add on rep (electronic CO

Triton Project # 11964

SAMPLE CONDITION AS RECEIVED (lab use only)

[illegible] ☐ SIF Observations Yes ☐ No ☐

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

ling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
					8.2		

SHIPMENT RELEASE (client use)

	Date:	Time:
	1-Oct-2024	14:00

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
	01/1/24	1400

CATIONS 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

2024-10-1-Chycoski-40451

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	10/01/2024	**Location:**	BC Rail Site
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.725318 -123.165161
Temperature(c):	Low 8 High 12	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 11:52:00 **Flow Volume (visual):** low

Notes:

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Cleaned sonde.

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

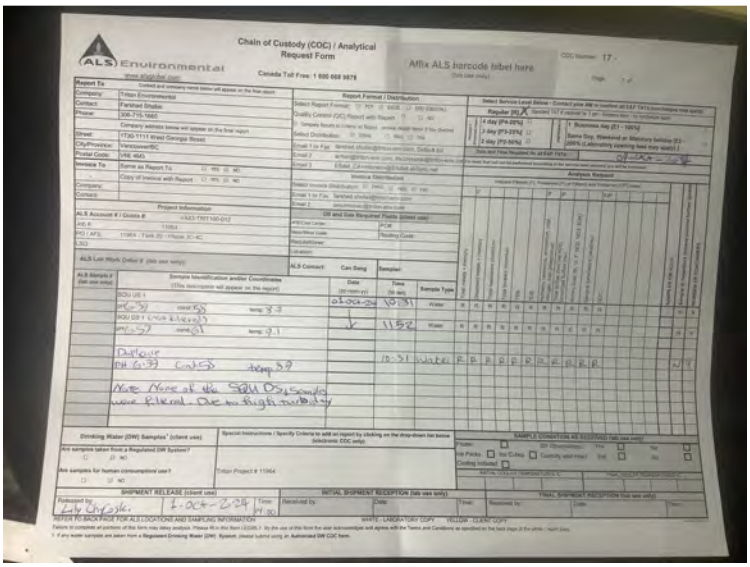

Photo: 4

Location: SQU DS 1

Description: Lab COC

2024-10-1-Chycoski-40451

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-1-Chycoski-4C240

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	10/01/2024	**Location:**	BC Rail Site
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 8 High 12	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 10:30:00 **Flow Volume (visual):** low

Notes:

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Cleaned logger and installed vulink receiver unit.

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

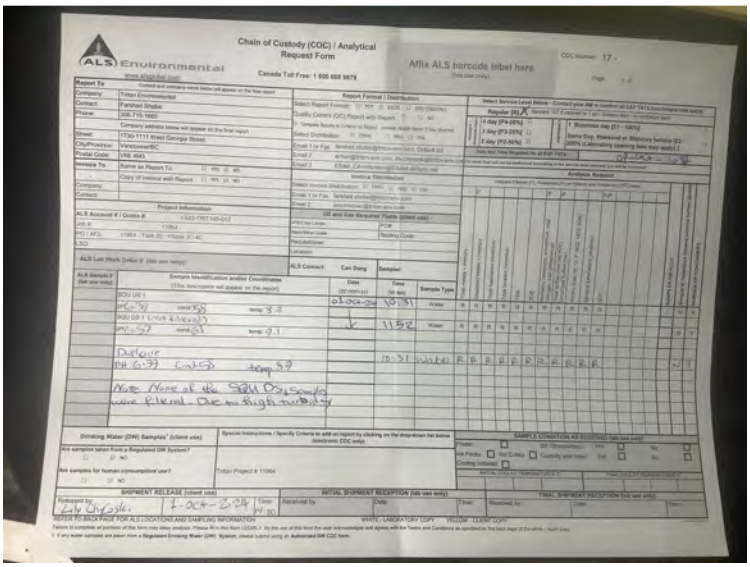

Photo: 4

Location: SQU US 1

Description: Lab COC

Sign Off

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

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

Woodfibre Site Sample Analysis

TRITON Environmental Consultants	Sample ID	Reviewed and signed off by:	College of Applied Biologists Farshad Shafiei RPBio 3781 CAB		Farshad Shafiei Ph.D., R.P.Bio.	WLNG EOP	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24C6556-001					
	Date Sampled					03-Oct-2024					
	Time Sampled					11:30					
Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Water					
						N/A		Guideline notes			
In Situ Parameters											
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.23		If natural pH < 6.5, no statisticaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	Multiple guidelines dependent on water use and species, see notes: Short-term daily temperature = 15°C, or Max +/- 1°C from optimum temperature range for most sensitive salmonid species present, or Short-term daily temperature is 19°C, or Max +/- from BKG 1°C	-	Max +/- from BKG 1°C	-	13.5		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	-	-	-	-	154.5	Water treatment process has been increasing the Conductivity levels based on the levels seen at US1 site. Although there is no guidlines for conductivity and this is not causing harm, but the treatment facility should be informed and asked to keep the levels like that of observed at US1.				
Turbidity (field)	NTU	Varies with background, see note US1 (background) guideline = 8.5	Varies with background, see note US1 (background) guideline = 3.65 5-week discrete sampling average = 13.2 (EOP)	Varies with background, see note US1 (background) guideline = 8.5	Varies with background, see note US1 (background) guideline = 3.65 5-week discrete sampling average = 13.2 (EOP)	**33.4**	**Turbidity for WLNG EOP exceeds the short-term guidelines for BCWQ for FAL and MAL. Preliminary analysis of the real-time data from water treatment plant, EAS DS and EAS US locations shows turbidity started to exceed the respective BCWQG on October 3, 2024, at 10:30 am and persisted for more than 24 hours. The cause of turbidity was from discharged untreated effluent from tunneling work.**	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	5.21		Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 9 mg/L, all other life stages 5 mg/L. Refer to BC Water Quality Guidelines for more information.	Buried embryo/alevin minimum 11 mg/L, all other life stages 8 mg/L. Refer to BC Water Quality Guidelines for more information.
General Parameters											
Hardness (as $CaCO_3$) (total)	mg/L	-	-	-	-	61.9					
Total Dissolved Solids	mg/L	-	-	-	-	96					
Total Suspended Solids	mg/L	Varies with background, see note US1 (background) guideline = 28	Varies with background, see note US1 (background) guideline = 8.00 5-week discrete sampling average = 8.76 (EOP)	Varies with background, see note US1 (background) guideline = 28	Varies with background, see note US1 (background) guideline = 8.00 5-week discrete sampling average = 8.76 (EOP)	21.9		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	-	-	-	-	0.8			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	-	-	67.1	Water treatment process has been increasing the total Alkalinity levels based on the levels seen at US1 site. Although this is not causing harm, but the treatment facility should be informed and asked to keep the levels like that of observed at US1. The WLNG EOP sample has low sensitivity to acid inputs (i.e. high buffering capacity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs. Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	< 0.0015					
Total Sulfide (un-ionized as H_2S)	mg/L	-	0.002	-	-	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016					
Anions and Nutrients											
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. US1 (background) guideline = 15.3	Varies with pH and temperature. See note. US1 (background) guideline = 1.78	Varies with pH and temperature. See note. US1 (background) guideline = 35	Varies with pH, temperature and salinity. See note. US1 (background) guideline = 8.7	0.0084		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050					
Chloride	mg/L	600	150	+/- 10% from BKG	+/- 10% from BKG	2.06				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that
Fluoride	mg/L	Varies with hardness US1 (background) guideline = 0.428	-	1.5	-	0.27		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	32.8	3	-	3.7	0.0203					
Nitrite (as N)	mg/L	Varies with chloride. Table 27B, see note. US1 (background) guideline = 0.06	Varies with chloride. Table 27B, see note. US1 (background) guideline = 0.02	-	-	0.0019		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	-	-	-	-	0.175					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0117			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. US1 (background) guideline = 218	-	-	7.38			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals											
Aluminum (Al)-Total	mg/L	-	Varies with pH, DOC, hardness US1 (background) guideline = 0.143 5-week discrete sampling averages = **0.275** (EOP), 0.087 (US), 0.082 (DS)	-	-	***0.676***	**Total aluminum exceeds long-term BCWG for FAL.**		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.25	0.074	-	-	0.00098					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00154					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.0196			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	0.02					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.0000188					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	22.8					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000118					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	-	0.0025	-	0.0015	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	0.00018					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00138					
Iron (Fe)-Total	mg/L	1	-	-	-	0.525					
Lead (Pb)-Total	mg/L			0.14	0.002	0.000346					
Lithium (Li)-Total	mg/L	-	-	-	-	0.0081					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.2					
Manganese (Mn)-Total	mg/L	Varies with hardness US1 (background) guideline = 0.82	Varies with hardness US1 (background) guideline = 0.77 5-week discrete sampling averages = 0.022 (EOP), 0.0060 (US), 0.014 (DS)	-	-	0.0312		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	-	Varies with methyl mercury US1 (background) guideline = N/A	-	-	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1/[MeHg/totalHg]. When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	46	7.6	-	-	0.0208					
Nickel (Ni)-Total	mg/L	-	Varies with hardness US1 (background) guideline = 0.025 5-week discrete sampling averages = 0.00061 (EOP), 0.00099 (US), 0.00072 (DS)	-	0.008	0.00053			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	-	-	-	-	3.03					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00678					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	0.000063			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guideliens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	7.52					
Silver (Ag)-Total	mg/L	Varies with hardness, see note US1 (background) guideline = 0.0001	Varies with hardness, see note US1 (background) guideline = 0.00005	0.003	0.0015	< 0.000010		Varies with hardness Guideline ranges: Hardness ≤ 100: 0.0001 Hardness > 100: 0.003	Varies with hardness Guideline ranges: Hardness ≤ 100: 0.00005 Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	4.89					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0525					
Sulfur (S)-Total	mg/L	-	-	-	-	2.38					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week discrete sampling averages = 0.000026 (EOP)	-	-	0.00002			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	-	-	-	-	0.00019					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.0299					
Tungsten (W)-Total	mg/L	-	-	-	-	0.00039					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.00634			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005	0.00104					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	0.0061					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020					
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0193					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	0.0008					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00139					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0108					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.018					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note US1 (background) guideline = 0.000058	Varies with hardness, see note US1 (background) guideline = 0.000096 5-week discrete sampling averages = 0.000016 (EOP), 0.0000094 (US), 0.000014 (DS)	-	-	< 0.0000100		Guideline is hardness dependent. Guideline is applicable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	-	Categorical, see note	-	-	21.1	Water treatment process has been increasing the Ca levels based on the levels seen at US1 site. Although this is not causing harm, but the treatment facility should be informed and asked to keep the levels like that of observed at US1. The WLNG EOP sample has low sensitivity to acid inputs (i.e. high buffering capacity).		Guideline 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	-	-	-	-	0.000029					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note US1 (background) guideline = 0.0020	Guideline varies with other parameters, see note US1 (background) guideline = 0.0008 5-week discrete sampling averages = 0.0003 (EOP), 0.0010 (US), 0.0006 (DS)	-	-	0.00032		Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Iron (Fe)-Dissolved	mg/L	0.35	-	-	-	< 0.010					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline: 0.0032 5-week discrete sampling averages = 0.00005 (EOP), 0.00005 (US), 0.00005 (DS)	-	-	< 0.000050			Guideline varies with DOC and hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation (EXP((0.514*LN(DOC))+(0.214*(LN(Hardness)))+0.4354))/2/1000 where DOC range is 0.5-31.5 mg/L and hardness range is 4.7-511 mg/L.		
Lithium (Li)-Dissolved	mg/L	-	-	-	-	0.0069					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.04					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.0202					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.019					
Nickel (Ni)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	3					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00574					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	0.000072					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	6.12					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	4.72					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0468					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	2.46					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.000016					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	0.00047					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	0.00032					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.00587					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness US1 (background) guideline = 0.008	Varies with pH, DOC, hardness US1 (background) guideline = 0.0075 5-week discrete sampling average = 0.0071 (EOP), 0.0015 (US), 0.0027 (DS)	-	-	0.0027		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Volatile Organic Compounds											
Chlorobenzene	µg/L	-	-	-	-	< 0.50					
Chloromethane	µg/L	-	-	-	-	< 5.0					
Dichlorobenzene, 1,2-	µg/L	-	0.7	-	42	< 0.50			Working guideline status		Working guideline status
Dichlorobenzene, 1,3-	µg/L	-	150	-	-	< 0.50			Working guideline status		
Dichlorobenzene, 1,4-	µg/L	-	26	-	-	< 0.50			Working guideline status		
Dichloropropane, 1,2-	µg/L	-	-	-	-	< 0.50					
Dichloropropylene, cis+trans-1,3-	µg/L	-	-	-	-	< 0.75					
Dichloropropylene, cis-1,3-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethane, 1,1,2,2-	µg/L	-	-	-	-	<0.20					
Trichloroethane, 1,1,2-	µg/L	-	-	-	-	< 0.50					
Trichlorofluoromethane	µg/L	-	-	-	-	< 0.50					
Carbon tetrachloride	µg/L	-	-	-	-	< 0.50					
Chloroethane	µg/L	-	-	-	-	< 0.50					
Dichloroethane, 1,1-	µg/L	-	-	-	-	< 0.50					
Dichloroethane, 1,2-	µg/L	-	100	-	-	< 0.50			Working guideline status		
Dichloroethylene, 1,1-	µg/L	-	-	-	-	< 0.50					
Dichloroethylene, cis-1,2-	µg/L	-	-	-	-	< 0.50					
Dichloroethylene, trans-1,2-	µg/L	-	-	-	-	< 0.50					
Dichloromethane	µg/L	-	98.1	-	-	< 1.0			Working guideline status		
Dichloropropylene, trans-1,3-	µg/L	-		-	-	< 0.50					
Tetrachloroethylene	µg/L	-	110	-	-	< 0.50			Working guideline status		
Trichloroethane, 1,1,1-	µg/L	-	-	-	-	< 0.50					
Trichloroethylene	µg/L	-	21	-	-	< 0.50			Working guideline status		
Vinyl chloride	µg/L	-	-	-	-	< 0.40					
Benzene	µg/L	-	40	-	110	< 0.50			Interim guideline status		Interim guideline status
Ethylbenzene	µg/L	-	200	-	250	< 0.50			Interim guideline status		Interim guideline status
Methyl-tert-butyl ether [MTBE]	µg/L	3400	-	440	-	< 0.50					
Styrene	µg/L	-	72	-	-	< 0.50			Working guideline status		
Toluene	µg/L	-	0.5	-	-	< 0.40					
Xylene, m+p-	µg/L	-	-	-	-	< 0.40					
Xylene, o-	µg/L	-	-	-	-	< 0.30					
Xylenes, total	µg/L	-	30	-	-	< 0.50					
Bromodichloromethane	µg/L	-	-	-	-	< 0.50					
Bromoform	µg/L	-	-	-	-	< 0.50					
Chloroform	µg/L	-	1.8	-	-	< 0.50			Working guideline status		
Dibromochloromethane	µg/L	-	-	-	-	< 0.50					
Hydrocarbons											
EPH (C10-C19)	µg/L	-	-	-	-	< 250					
EPH (C19-C32)	µg/L	-	-	-	-	< 250					
VHw (C6-C10)	µg/L	-	-	-	-	< 100					
VPHw	µg/L	-	-	-	-	< 100					
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	µg/L	-	6	-	6	< 0.010					
Acenaphthylene	µg/L	-	-	-	-	< 0.010					
Acridine	µg/L	-	-	-	-	< 0.010					
Anthracene	µg/L	0.1	4	-	-	< 0.010					
Benz(a)anthracene	µg/L	0.1	0.1	-	-	< 0.010					
Benzo(a)pyrene	µg/L	-	0.01	-	0.01	< 0.0050					
Benzo(b+j)fluoranthene	µg/L	-	-	-	-	< 0.010					
Benzo(b+j+k)fluoranthene	µg/L	-	-	-	-	< 0.015					
Benzo(g,h,i)perylene	µg/L	-	-	-	-	< 0.010					
Benzo(k)fluoranthene	µg/L	-	-	-	-	< 0.010					
Chrysene	µg/L	-	-	-	0.1	< 0.010					
Dibenz(a,h)anthracene	µg/L	-	-	-	-	< 0.0050					
Fluoranthene	µg/L	0.2	4	-	-	< 0.010		Guideline is for phototoxic effects			
Fluorene	µg/L	-	12	-	-	0.012					
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	< 0.010					
Methylnaphthalene, 1-	µg/L	-	-	-	1	0.056					Guideline is for total methylated napthalene and is presented here for reference.
Methylnaphthalene, 2-	µg/L	-	-	-	1	0.042					Guideline is for total methylated napthalene and is presented here for reference.
Naphthalene	µg/L	-	1	-	1	< 0.050					
Phenanthrene	µg/L	-	0.3	-	-	< 0.020					
Pyrene	µg/L	0.02	-	-	-	< 0.010					
Quinoline	µg/L	-	3.4	-	-	< 0.050		Working guideline status			
Glycols											
Ethylene glycol	mg/L	-	192	-	-	< 5.0					
Propylene glycol, 1,2-	mg/L	-	500	-	-	< 5.0					
Applied Guideline:		**British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life**									
Color Key:	**Exceeds both FAL and MAL Guidelines**	**Exceeds FAL Short term Guideline**	***Exceeds FAL Long term Guideline***	**Exceeds MAL Short term Guideline**	***Exceeds MAL Long term Guideline***						
Color Key:		**Exceeds FAL Short and Long-Term Guideline**		**Exceeds MAL Short and Long-term Guidelines**							

[1]BC MOECCS. 2023. BC Water Qualtiy Guidelines for the Protection of Aquatic Life, Wildlife & Agriculture. Accessed from:
wqg_summary_aquaticlife_wildlife_agri.pdf (gov.bc.ca)
[2]BC MOECCS. 2021. BC Working Water Qualtiy Guidelines for the Protection of Aquatic Life, Widlife & Agriculture. Accessed from:
bc_env_working_water_quality_guidelines.pdf (gov.bc.ca)
[3]Note that long-term guidelines apply to averaged data to account for chronic impacts to aquatic life. Ideally, five samples collected at evenly spaced intervals over 30 days is considered to be the minimum number needed to calculate the long-term average of any parameter, though this may vary by parameter and site conditions. Long-term guidelines applied here are for reference only and may not indicate chronic impacts to aquatic life if exceedances occur in the short term.
[4]Background temperature ranges: Dec-Feb: 0.3-8.0C; Mar-Apr: 3.0-10.2C; May-June: 6.8-15.1C; Jul-present: 12.9-18.2C
Reference: AquaTROLL In-Situ Data Logger - Background water quality readings collected from Dec.-present.
For guidelines dependent on other parameters, when hardness, pH or DOC are below the range stated in the guideline, the lowest value in the range is used to calculate the guideline.

Parameters Used to Calculate Guidelines

Analyte	Units	Measurement method	Values	
			WLNG EOP	WLNG US 24-Sep-2024
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations	7.23	7.34
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations	13.5	15.8
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations	33.40	0.53
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	61.9	10.5
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations	0.8	1.63
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations	67.1	10.6
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations	2.06	0.77
Total Suspended Solids	mg/L	Laboratory tested total suspended solids tested at the lab used in guideline calculations	21.9	< 3.0

Woodfibre Site Sample Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C6556**		
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Account Manager	:
Address	:	Address	:
Telephone	:	Telephone	:
Project	: 11964	Date Samples Received	: 05-Oct-2024 11:30
PO	: 11964-Task 30-Phase 3C-4C	Date Analysis Commenced	: 05-Oct-2024
C-O-C number	: ----	Issue Date	: 08-Oct-2024 21:11
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
		Metals, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Organics, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Administration, Burnaby, British Columbia
		Organics, Burnaby, British Columbia
		Inorganics, Edmonton, Alberta

General Comments

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

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

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

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

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

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

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

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

Qualifiers

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

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time: 03-Oct-2024 11:30	----	----	----	----
					VA24C6556-001	----	----	----	----
					Result	----	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	154.50	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.23	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	13.5	----	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	57.0	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	61.9	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	96	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	21.9	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	67.1	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0084	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	2.06	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.270	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0203	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0019	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.175	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0117	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	7.38	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	0.80	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP October 3, 2023 11:30AM	----	----	----	----
				Client sampling date / time	03-Oct-2024 11:30	----	----	----	----
					VA24C6556-001	----	----	----	----
					Result	----	----	----	----
Total Sulfides									
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L	<0.0015	----	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L	<0.0015	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L	<0.0016	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.676	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00098	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00154	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0196	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.020	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000188 DLM	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	22.8	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000118	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00018	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00138	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.525	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000346	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0081	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	1.20	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time	03-Oct-2024 11:30	----	----	----	----
						VA24C6556-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0312	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.0208	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00053	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		3.03	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00678	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000063	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		7.52	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		4.89	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0525	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		2.38	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000020	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		0.00019	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.0299	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00039	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.00634	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00104	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time				
					03-Oct-2024 11:30	----	----	----	----
					VA24C6556-001	----	----	----	----
					Result	----	----	----	----
Total Metals									
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0061	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	----	----	----	----
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0193	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	0.00080	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00139	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0108	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	0.018	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000100 DLM	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	21.1	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000029	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00032	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	<0.010	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0069	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	1.04	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.0202	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time				
					03-Oct-2024 11:30	----	----	----	----
					VA24C6556-001	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.0190	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L	3.00	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00574	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000072	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	6.12	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	4.72	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0468	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	2.46	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	0.000016	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	0.00047	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	0.00032	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.00587	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0027	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time				
					03-Oct-2024 11:30	----	----	----	----
					VA24C6556-001	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Field	----	----	----	----
Speciated Metals									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/VA	0.00050	mg/L	<0.00050	----	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/VA	0.00050	mg/L	<0.00050	----	----	----	----
Aggregate Organics									
Phenols, total (4AAP)	----	E562/EO	0.0010	mg/L	<0.0010	----	----	----	----
Volatile Organic Compounds									
Chlorobenzene	108-90-7	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Chloromethane	74-87-3	E611C/VA	5.0	µg/L	<5.0	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L	<0.75	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L	<0.20	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L	<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L	<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time	03-Oct-2024 11:30	----	----	----	----
						VA24C6556-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time	03-Oct-2024 11:30	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6556-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds [Fuels]										
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	250	µg/L		<250	----	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L		<250	----	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L		<100	----	----	----	----
HEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
LEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
VPHw	----	EC580A/VA	100	µg/L		<100	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		83.8	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		114	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		95.1	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		101	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP October 3, 2023 11:30AM	----	----	----	----
					Client sampling date / time	03-Oct-2024 11:30	----	----	----	----
						VA24C6556-001	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		0.012	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		0.056	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		0.042	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP October 3, 2023 11:30AM	----	----	----	----
				Client sampling date / time	03-Oct-2024 11:30	----	----	----	----
					VA24C6556-001	----	----	----	----
					Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates									
Chrysene-d12	1719-03-5	E641A/VA	0.1	%	104	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%	101	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%	108	----	----	----	----
Glycols									
Diethylene glycol	111-46-6	E680E/VA	5.0	mg/L	<5.0	----	----	----	----
Ethylene glycol	107-21-1	E680E/VA	5.0	mg/L	<5.0	----	----	----	----
Propylene glycol, 1,2-	57-55-6	E680E/VA	5.0	mg/L	<5.0	----	----	----	----
Triethylene glycol	112-27-6	E680E/VA	5.0	mg/L	<5.0	----	----	----	----
Glycols, total (EG+DEG+PG)	----	E680E/VA	10	mg/L	<10	----	----	----	----
Glycols Surrogates									
Propanediol, 1,3-	504-63-2	E680E/VA	1.0	%	102	----	----	----	----

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

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

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C6556**	Page	: 1 of 15
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone		Telephone	
Project	: 11964	Date Samples Received	: 05-Oct-2024 11:30
PO	: 11964-Task 30-Phase 3C-4C	Issue Date	: 08-Oct-2024 21:10
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- 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.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Dissolved Metals	QC-MRG3-1694348 002	----	Thorium, dissolved	7440-29-1	E421	79.3 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water** Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (lab preserved) WLNG EOP October 3, 2023 11:30AM	E562	03-Oct-2024	08-Oct-2024	28 days	5 days	✓	08-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG EOP October 3, 2023 11:30AM	E298	03-Oct-2024	05-Oct-2024	28 days	2 days	✓	07-Oct-2024	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP October 3, 2023 11:30AM	E235.Br-L	03-Oct-2024	06-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP October 3, 2023 11:30AM	E235.Cl	03-Oct-2024	06-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG EOP October 3, 2023 11:30AM	E235.F	03-Oct-2024	06-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WLNG EOP October 3, 2023 11:30AM	E235.NO3-L	03-Oct-2024	06-Oct-2024	3 days	3 days	✓	06-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WLNG EOP October 3, 2023 11:30AM	E235.NO2-L	03-Oct-2024	06-Oct-2024	3 days	3 days	✓	06-Oct-2024	3 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG EOP October 3, 2023 11:30AM	E235.SO4	03-Oct-2024	06-Oct-2024	28 days	3 days	✓	06-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG EOP October 3, 2023 11:30AM	E366	03-Oct-2024	05-Oct-2024	28 days	2 days	✓	08-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG EOP October 3, 2023 11:30AM	E372-U	03-Oct-2024	05-Oct-2024	28 days	2 days	✓	07-Oct-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG EOP October 3, 2023 11:30AM	E509	03-Oct-2024	07-Oct-2024	28 days	4 days	✓	07-Oct-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG EOP October 3, 2023 11:30AM	E421	03-Oct-2024	07-Oct-2024	180 days	4 days	✓	08-Oct-2024	180 days	5 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG EOP October 3, 2023 11:30AM	EF001	03-Oct-2024	----	----	----		08-Oct-2024	----	5 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
WLNG EOP October 3, 2023 11:30AM	E680E	03-Oct-2024	08-Oct-2024	7 days	5 days	✓	08-Oct-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP October 3, 2023 11:30AM	E601A	03-Oct-2024	05-Oct-2024	14 days	2 days	✓	07-Oct-2024	40 days	2 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WLNG EOP October 3, 2023 11:30AM	E581.VH+F1	03-Oct-2024	06-Oct-2024	14 days	3 days	✓	06-Oct-2024	14 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 EOP October 3, 2023 11:30AM	E358-L	03-Oct-2024	05-Oct-2024	28 days	2 days	✓	07-Oct-2024	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG EOP October 3, 2023 11:30AM	E290	03-Oct-2024	06-Oct-2024	14 days	3 days	✓	07-Oct-2024	14 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WLNG EOP October 3, 2023 11:30AM	E162	03-Oct-2024	----	----	----		07-Oct-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE WLNG EOP October 3, 2023 11:30AM	E160	03-Oct-2024	----	----	----		07-Oct-2024	7 days	4 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) WLNG EOP October 3, 2023 11:30AM	E641A	03-Oct-2024	05-Oct-2024	14 days	2 days	✓	07-Oct-2024	40 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
Amber glass total (sulfuric acid) WLNG EOP October 3, 2023 11:30AM	E532	03-Oct-2024	----	----	----		07-Oct-2024	0 hrs	95 hrs	× UCP
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WLNG EOP October 3, 2023 11:30AM	E508	03-Oct-2024	07-Oct-2024	28 days	4 days	✓	07-Oct-2024	28 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WLNG EOP October 3, 2023 11:30AM	E420	03-Oct-2024	07-Oct-2024	180 days	4 days	✓	07-Oct-2024	180 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) WLNG EOP October 3, 2023 11:30AM	E395	03-Oct-2024	----	----	----		06-Oct-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
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP October 3, 2023 11:30AM	E611C	03-Oct-2024	06-Oct-2024	14 days	3 days	✓	06-Oct-2024	14 days	3 days	✓

Legend & Qualifier Definitions

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1693426	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1692995	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1693430	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1693429	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1695267	1	5	20.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1694348	2	20	10.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1692996	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1693428	1	19	5.2	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1696696	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1693431	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1693432	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1696907	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1693433	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1694867	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694656	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1694552	1	8	12.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1694521	1	5	20.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1692993	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1692994	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1694847	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1693336	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1693337	1	2	50.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1693426	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1692995	1	19	5.2	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1693030	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1693430	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1693429	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1695267	1	5	20.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1694348	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1692996	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1693428	1	19	5.2	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1696696	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1693431	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1693432	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
PAHs in Water by Hexane LVI GC-MS	E641A	1693031	1	7	14.2	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1696907	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1693433	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1694867	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694656	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1694552	1	8	12.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1694521	1	5	20.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1692993	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1692994	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1694847	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1693336	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1693337	1	2	50.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1693426	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1692995	1	19	5.2	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1693030	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1693430	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1693429	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1695267	1	5	20.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1694348	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1692996	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1693428	1	19	5.2	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1696696	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1693431	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1693432	1	20	5.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1693031	1	7	14.2	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1696907	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1693433	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1694867	1	14	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694656	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1694552	1	8	12.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1694521	1	5	20.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1692993	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1692994	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1694847	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1693336	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1693337	1	2	50.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1692995	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1693430	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1693429	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1695267	1	5	20.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1694348	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1692996	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1693428	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1693431	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1693432	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1696907	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1693433	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694656	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1694552	1	8	12.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1694521	1	5	20.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1692993	1	4	25.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1692994	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1693336	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1693337	1	2	50.0	5.0	✓

Methodology References and Summaries

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

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

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Vancouver	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Edmonton	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide ($K_3Fe(CN)_6$) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Vancouver	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Total Xylenes is the sum of m,p-Xylene & o-Xylene. Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, & Total Xylenes. Total BTEX+Styrene is the sum of Total BTEX & Styrene. Total Trihalomethanes [THMs] is the sum of Bromodichloromethane, Bromoform, Chloroform, & Dibromochloromethane.
PAHs in Water by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Glycols (4 analytes) by GC-FID	E680E ALS Environmental - Vancouver	Water	EPA 8015D (mod)	Derivatized glycols are analyzed by GC-FID.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as $CaCO_3$), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in $CaCO_3$ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Un-ionized Total Hydrogen Sulfide (calculated)	EC395 ALS Environmental - Vancouver	Water	APHA 4500 -S H	Un-ionized sulfide is calculated using results from total sulfide analysis, pH, temperature, and ionic strength of the sample. Calculation of un-ionized sulfide using total sulfide concentrations may be biased high due to particulate forms of sulfide measured during total sulfide testing.
Total Trivalent Chromium (Cr III) by Calculation	EC535 ALS Environmental - Vancouver	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results.The Limit of Reporting for Chromium (III) varies as a function of the test results.
VPH: VH-BTEX-Styrene	EC580A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH C6-C10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Water	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

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

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

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C6556**	Page	: 1 of 23
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone	: ----	Telephone	
Project	: 11964	Date Samples Received	: 05-Oct-2024 11:30
PO	: 11964-Task 30-Phase 3C-4C	Date Analysis Commenced	: 05-Oct-2024
C-O-C number	: ----	Issue Date	: 08-Oct-2024 21:10
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Organics, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Vancouver Administration, Burnaby, British Columbia
		Vancouver Organics, Burnaby, British Columbia
		Edmonton Inorganics, Edmonton, Alberta

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: 1693426)											
FJ2403021-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	81.7	82.1	0.488%	20%	----
Physical Tests (QC Lot: 1694847)											
VA24C6295-004	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	32.7	30.3	7.62%	20%	----
Physical Tests (QC Lot: 1694867)											
VA24C6295-004	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	128	125	1.85%	20%	----
Anions and Nutrients (QC Lot: 1692993)											
KS2403946-001	Anonymous	Nitrogen, total	7727-37-9	E366	1.50	mg/L	10.8	10.6	0.228	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1692994)											
KS2403946-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0763	0.0764	0.144%	20%	----
Anions and Nutrients (QC Lot: 1692995)											
KS2403946-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.115	0.116	0.289%	20%	----
Anions and Nutrients (QC Lot: 1693428)											
FJ2403021-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.060	0.060	0.00007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1693429)											
FJ2403021-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1693430)											
FJ2403021-001	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: 1693431)											
FJ2403021-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0373	0.0375	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1693432)											
FJ2403021-001	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: 1693433)											
FJ2403021-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	26.1	26.0	0.469%	20%	----
Organic / Inorganic Carbon (QC Lot: 1692996)											
VA24C5696-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	7.23	7.32	1.31%	20%	----
Total Sulfides (QC Lot: 1693270)											
TY2410899-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0038	mg/L	0.0094	0.0089	0.0005	Diff <2x LOR	----
Total Metals (QC Lot: 1694521)											
VA24C6477-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<3.0 µg/L	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.10 µg/L	<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: 1694521) - continued											
VA24C6477-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.32 µg/L	0.00029	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	14.8 µg/L	0.0153	3.00%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	36 µg/L	0.036	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0298 µg/L	0.0000280	0.0000018	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	33700 µg/L	32.7	2.92%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.56 µg/L	0.00057	0.00001	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.14 µg/L	0.00014	0.000009	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	768 µg/L	0.784	2.10%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	1.6 µg/L	0.0015	0.00005	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	11900 µg/L	12.0	0.874%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	9.02 µg/L	0.00928	2.78%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.129 µg/L	0.000140	0.000011	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	3.61 µg/L	0.00367	0.00006	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<50 µg/L	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1430 µg/L	1.47	2.32%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.21 µg/L	0.00021	0.000007	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.222 µg/L	0.000235	0.000012	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	12400 µg/L	12.4	0.650%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	8450 µg/L	8.64	2.31%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	150 µg/L	0.150	0.0163%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	7690 µg/L	7.96	3.45%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.30 µg/L	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.016 µg/L	0.000016	0.00000003	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: 1694521) - continued											
VA24C6477-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.65 µg/L	0.00068	0.00002	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<3.0 µg/L	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1694552)											
KS2404118-005	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1694348)											
YL2401647-003	Anonymous	Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.102	0.101	0.801%	20%	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0356	0.0349	1.86%	20%	----
YL2401647-003	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0173	0.0172	0.400%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00017	0.00017	0.000003	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00017	0.00018	0.000008	Diff <2x LOR	----
		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	0.207	0.215	3.54%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000150	mg/L	<0.0000150	<0.0000150	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	61.4	62.2	1.34%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000022	0.000021	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	0.00022	0.00022	0.000002	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00323	0.00323	0.163%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.090	0.091	0.0006	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000077	0.000079	0.000002	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0032	0.0033	0.00008	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	24.9	24.0	3.30%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00485	0.00477	1.57%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0226	0.0228	0.865%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00794	0.00784	1.30%	20%	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	9.69	9.54	1.56%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.0103	0.00985	4.43%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000098	0.000106	0.000008	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.35	1.33	1.58%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	0.000026	0.000023	0.000003	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	24.8	24.5	1.31%	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: 1694348) - continued											
YL2401647-003	Anonymous	Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.385	0.386	0.459%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	53.2	54.2	1.93%	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	0.000012	0.000012	0.00000003	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	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.00376	0.00372	1.05%	20%	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00568	0.00562	1.05%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1695267)											
VA24C5987-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1694656)											
VA24C6225-004	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: 1696907)											
CG2414433-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1693337)											
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Benzene	71-43-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611C	5.0	µg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1693337) - continued											
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611C	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611C	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 1693336)											
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Glycols (QC Lot: 1696696)											
VA24C6454-001	Anonymous	Diethylene glycol	111-46-6	E680E	5.0	mg/L	<5000 µg/L	<5.0	0	Diff <2x LOR	----
		Ethylene glycol	107-21-1	E680E	5.0	mg/L	<5000 µg/L	<5.0	0	Diff <2x LOR	----
		Propylene glycol, 1,2-	57-55-6	E680E	5.0	mg/L	<5000 µg/L	<5.0	0	Diff <2x LOR	----
		Triethylene glycol	112-27-6	E680E	5.0	mg/L	<5000 µg/L	<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: 1693426)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1694847)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1694867)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1692993)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1692994)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1692995)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1693428)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1693429)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1693430)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1693431)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1693432)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1693433)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Organic / Inorganic Carbon (QCLot: 1692996)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1693270)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1694521)						
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: 1694521) - 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: 1694552)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1694348)						
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: 1694348) - 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: 1695267)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1694656)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Aggregate Organics (QCLot: 1696907)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1693337)						
Benzene	71-43-2	E611C	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611C	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	<0.50	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611C	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611C	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611C	5	µg/L	<5.0	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611C	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1693337) - continued						
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	<0.20	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611C	0.4	µg/L	<0.40	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	<0.40	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1693030)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1693336)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1693031)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1693031) - continued						
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----
Glycols (QCLot: 1696696)						
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: 1693426)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1694847)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1694867)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 1692993)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	96.9	75.0	125	----
Anions and Nutrients (QCLot: 1692994)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	92.2	80.0	120	----
Anions and Nutrients (QCLot: 1692995)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.6	85.0	115	----
Anions and Nutrients (QCLot: 1693428)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1693429)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1693430)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1693431)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1693432)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1693433)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1692996)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 1693270)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	99.4	80.0	120	----
Total Metals (QCLot: 1694521)									

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: 1694521) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	97.8	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	96.3	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	94.6	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.7	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.1	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	100	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.0	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.5	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.2	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	99.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.6	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.8	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	93.7	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	95.8	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.1	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	89.6	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.4	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	91.3	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.7	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	92.5	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	95.6	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1694521) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.1	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	94.7	80.0	120	----
Total Metals (QCLot: 1694552)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.5	80.0	120	----
Dissolved Metals (QCLot: 1694348)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.8	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	91.5	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	89.0	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	95.8	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	85.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.3	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	92.5	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	94.2	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	97.4	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.0	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	97.1	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.3	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	93.3	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.7	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.8	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	91.3	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.7	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.9	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	95.0	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	85.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	98.5	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	93.4	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	97.6	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Dissolved Metals (QCLot: 1694348) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	90.4	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.7	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	# 79.3	80.0	120	MES
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	90.6	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	94.7	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.3	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	85.8	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	93.2	80.0	120	----
Speciated Metals (QCLot: 1694656)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Aggregate Organics (QCLot: 1696907)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	102	85.0	115	----
Volatile Organic Compounds (QCLot: 1693337)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	90.0	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	87.9	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	90.9	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	98.1	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	96.8	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	73.9	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	90.2	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	74.4	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	89.4	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	94.2	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	97.0	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	87.1	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	88.4	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	85.7	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	87.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	87.5	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: 1693337) - continued									
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	87.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	89.6	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	92.2	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	104	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	90.1	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	91.7	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	99.7	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	81.6	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	90.9	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	89.6	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	91.4	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	92.8	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	80.8	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	97.1	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	90.2	70.0	130	----
Hydrocarbons (QCLot: 1693030)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	121	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	124	70.0	130	----
Hydrocarbons (QCLot: 1693336)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	92.9	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1693031)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	127	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	126	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	111	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	127	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	121	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: 1693031) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	112	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	116	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	122	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	125	60.0	130	----
Glycols (QCLot: 1696696)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	98.6	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	98.0	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	98.7	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	97.3	70.0	130	----

Qualifiers

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

Matrix Spike (MS) 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: 1692993)										
KS2403949-001	Anonymous	Nitrogen, total	7727-37-9	E366	40.6 mg/L	40 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 1692994)										
VA24C5716-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0476 mg/L	0.05 mg/L	95.1	70.0	130	----
Anions and Nutrients (QCLot: 1692995)										
VA24C5696-001	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: 1693428)										
FJ2403021-002	Anonymous	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1693429)										
FJ2403021-002	Anonymous	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1693430)										
FJ2403021-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.510 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1693431)										
FJ2403021-002	Anonymous	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: 1693432)										
FJ2403021-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.505 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1693433)										
FJ2403021-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	101 mg/L	100 mg/L	101	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1692996)										
VA24C5696-007	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	----	----		70.0	130	----
Total Sulfides (QCLot: 1693270)										
TY2410995-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.219 mg/L	0.2 mg/L	109	75.0	125	----
Total Metals (QCLot: 1694521)										
VA24C6477-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0395 mg/L	0.04 mg/L	98.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00895 mg/L	0.01 mg/L	89.5	70.0	130	----
		Boron, total	7440-42-8	E420	0.099 mg/L	0.1 mg/L	99.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00381 mg/L	0.004 mg/L	95.3	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1694521) - continued										
VA24C6477-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Copper, total	7440-50-8	E420	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	----
		Iron, total	7439-89-6	E420	1.87 mg/L	2 mg/L	93.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0176 mg/L	0.02 mg/L	87.9	70.0	130	----
		Lithium, total	7439-93-2	E420	0.1000 mg/L	0.1 mg/L	100.0	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	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, total	7440-09-7	E420	3.61 mg/L	4 mg/L	90.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, total	7440-21-3	E420	9.58 mg/L	10 mg/L	95.8	70.0	130	----
		Silver, total	7440-22-4	E420	0.00394 mg/L	0.004 mg/L	98.4	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	0.0383 mg/L	0.04 mg/L	95.6	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00352 mg/L	0.004 mg/L	88.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		Tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0416 mg/L	0.04 mg/L	104	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0183 mg/L	0.02 mg/L	91.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00380 mg/L	0.004 mg/L	95.1	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	0.375 mg/L	0.4 mg/L	93.7	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
Total Metals (QCLot: 1694552)										
VA24C5589-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000714 mg/L	0 mg/L	71.4	70.0	130	----
Dissolved Metals (QCLot: 1694348)										
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Aluminum, dissolved	7429-90-5	E421	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0174 mg/L	0.02 mg/L	87.2	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00906 mg/L	0.01 mg/L	90.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.085 mg/L	0.1 mg/L	84.7	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00376 mg/L	0.004 mg/L	94.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00955 mg/L	0.01 mg/L	95.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1694348) - continued										
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Copper, dissolved	7440-50-8	E421	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	96.2	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0887 mg/L	0.1 mg/L	88.7	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.53 mg/L	10 mg/L	95.3	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.86 mg/L	4 mg/L	96.4	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.64 mg/L	10 mg/L	96.4	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00363 mg/L	0.004 mg/L	90.8	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	19.7 mg/L	20 mg/L	98.4	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0360 mg/L	0.04 mg/L	89.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00360 mg/L	0.004 mg/L	90.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0177 mg/L	0.02 mg/L	88.5	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	----	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0984 mg/L	0.1 mg/L	98.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.383 mg/L	0.4 mg/L	95.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
Dissolved Metals (QCLot: 1695267)										
VA24C5987-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000792 mg/L	0 mg/L	79.2	70.0	130	----
Speciated Metals (QCLot: 1694656)										
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.252 mg/L	0.25 mg/L	101	70.0	130	----
Aggregate Organics (QCLot: 1696907)										
CG2414433-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0201 mg/L	0.02 mg/L	100	75.0	125	----
Volatile Organic Compounds (QCLot: 1693337)										
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Benzene	71-43-2	E611C	90.6 µg/L	100 µg/L	90.6	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	90.2 µg/L	100 µg/L	90.2	60.0	140	----
		Bromoform	75-25-2	E611C	92.9 µg/L	100 µg/L	92.9	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	97.3 µg/L	100 µg/L	97.3	60.0	140	----
		Chlorobenzene	108-90-7	E611C	95.8 µg/L	100 µg/L	95.8	60.0	140	----
		Chloroethane	75-00-3	E611C	69.8 µg/L	100 µg/L	69.8	50.0	150	----
		Chloroform	67-66-3	E611C	91.4 µg/L	100 µg/L	91.4	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: 1693337) - continued										
VA24C6556-001	WLNG EOP October 3, 2023 11:30AM	Chloromethane	74-87-3	E611C	65.9 µg/L	100 µg/L	65.9	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	90.0 µg/L	100 µg/L	90.0	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	94.9 µg/L	100 µg/L	94.9	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	97.1 µg/L	100 µg/L	97.1	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	82.3 µg/L	100 µg/L	82.3	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	87.9 µg/L	100 µg/L	87.9	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	85.9 µg/L	100 µg/L	85.9	60.0	140	----
		Dichloromethane	75-09-2	E611C	88.3 µg/L	100 µg/L	88.3	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	91.4 µg/L	100 µg/L	91.4	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	105 µg/L	100 µg/L	105	60.0	140	----
		Ethylbenzene	100-41-4	E611C	88.4 µg/L	100 µg/L	88.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Styrene	100-42-5	E611C	90.7 µg/L	100 µg/L	90.7	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	83.0 µg/L	100 µg/L	83.0	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	88.6 µg/L	100 µg/L	88.6	60.0	140	----
		Toluene	108-88-3	E611C	88.2 µg/L	100 µg/L	88.2	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	89.5 µg/L	100 µg/L	89.5	60.0	140	----
		Trichloroethylene	79-01-6	E611C	91.6 µg/L	100 µg/L	91.6	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	79.7 µg/L	100 µg/L	79.7	50.0	150	----
		Vinyl chloride	75-01-4	E611C	72.4 µg/L	100 µg/L	72.4	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	190 µg/L	200 µg/L	95.0	60.0	140	----
		Xylene, o-	95-47-6	E611C	89.1 µg/L	100 µg/L	89.1	60.0	140	----
Hydrocarbons (QCLot: 1693336)										
VA24C6557-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	5790 µg/L	6310 µg/L	91.7	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

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

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

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

Email 2

Email 3

Select Invoice Distribution:

Email 1 or Fax

Email 2

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: 10-10-24 hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	VA23-TRIT100-012
Job #:	11964
PO / AFE:	11964 - Task 30 - Phase 3C-4C
LSD:	

Oil and Gas Required Fields (client use)

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

ALS Lab Work Order # (ALS use only):

ALS Contact:

Sampler:

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Total metals + mercury (F)	Dissolved metals + mercury (F)	Total hexavalent chromium (P)	Total trivalent chromium (P)	TSS, TDS, T-Alkalinity, Anions scan (Br, Cl, F, NO2, NO3, SO4) (P)	Total sulfide (low) (as H2S), Unionized Sulfide (low) (P)	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus, phenols) (P)	VOC/VPH (P)	EPH, PAH, LEPH/HEPH (F/P)	DOC	Glycols	General parameters (alkalinity)			SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	WLNG EOP October 3, 2024 11:30AM	03-10-24	11:30	Water	15	R	R	R	R	R	R	R	R	R	R	R	R					
	pH: cond: temp:																					

Environmental Division Vancouver

Work Order Reference

VA24C6556

Telephone : +1 604 253 4188

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

Are samples taken from a Regulated DW System?

☐ YES ☑ NO

Are samples for human consumption/ use?

☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Dissolved Nutrients bottle not filtered, and perservatives rinsed out of Nutrient bottle.

ESDAT EDD to ESdat_CA+tritonenv@ESdatLabSync.net

SAMPLE RECEIPT D

Cooling Method: ☐ NONE ☐ ICE ☒ ICE PACK

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			
							1.4

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	Oct. 5, 2024	11:35

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
NA	10/6	11:30 am

REFER TO ... ONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

Woodfibre Site WTP Discharge Field Notes and Logs

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

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Appendices:

1. Executive Summary and Field Notes:

The discharged water consistently remained within regulatory guidelines. Turbidity levels were elevated at certain times; however, DS sondes' data indicated the NTUs did not increase by more than 8 units from background until Oct 3rd. From Oct 3rd the emergency discharging began and DS NTU was measured by YSI and the YSI Log has been provided to FEI. Other key parameters including temperature, pH, salinity, conductivity, and oxidation-reduction potential (ORP) were monitored throughout the discharge process and remained within guidelines' parameters. All relevant parameters were measured using YSI instruments and WTP probes. The total discharge volume up to September 30th was 9,508m³.

Daily Volume Summary:

Table 1: Discharge Volumes Daily Summary

Date	Location	Volume (m3)	Comments
September 30	WoodFibre (WF)	187	None
October 1	WF	75.5	None
October 2	WF	68.3	None
October 3	WF	271	None
October 4	WF	246.6	None
October 5	WF	263	None
October 6	WF	491	None
	Total	1603.3	None

2. Discharge Parameter Summary:

Table 2: Discharge Parameter Summary

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	0:30:00	7.2	0.272	26.3	9,508	14.5	262
9/30/2024	0:45:00	7.2	0.268	18.1	9,512	15.1	258
9/30/2024	1:00:00	7.2	0.276	21.8	9,516	15.6	258
9/30/2024	1:15:00	7.2	0.268	11.8	9,520	16.1	258
9/30/2024	1:30:00	7.2	0.268	9.6	9,524	16.6	257
9/30/2024	1:45:00	7.2	0.272	8.3	9,528	17	257
9/30/2024	2:00:00	7.2	0.268	7.7	9,533	17.3	257
9/30/2024	2:15:00	7.2	0.272	8.2	9,537	17.6	257
9/30/2024	2:30:00	7.2	0.272	11.1	9,541	17.9	257
9/30/2024	2:45:00	7.2	0.284	13.1	9,545	18.1	257
9/30/2024	4:45:00	7.3	0.329	22.3	9,548	14.7	258
9/30/2024	6:30:00	7.1	0.000	37	9,555	14.8	262
9/30/2024	9:15:00	7.2	0.185	12.6	9,555	16.1	261
9/30/2024	9:30:00	7.3	0.189	5.9	9,558	16.3	263
9/30/2024	9:45:00	7.3	0.295	12	9,562	16.8	263
9/30/2024	10:00:00	7.3	0.287	13.5	9,566	17	263
9/30/2024	16:45:00	7.3	0.295	13.2	9,571	18.2	268
9/30/2024	17:00:00	7.3	0.291	13.6	9,576	18.3	268
9/30/2024	17:15:00	7.3	0.291	7.7	9,580	18.5	268
9/30/2024	17:30:00	7.3	0.287	6.4	9,584	18.5	268

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	17:45:00	7.3	0.287	6.9	9,588	18.5	268
9/30/2024	18:00:00	7.2	0.291	5.7	9,592	18.6	268
9/30/2024	18:15:00	7.2	0.287	4.2	9,596	18.6	268
9/30/2024	18:30:00	7.2	0.287	7.9	9,600	18.6	269
9/30/2024	18:45:00	7.2	0.291	4.9	9,604	18.7	270
9/30/2024	19:00:00	7.2	0.287	8.6	9,608	18.7	270
9/30/2024	19:15:00	7.2	0.284	7	9,612	18.7	267
9/30/2024	19:30:00	7.2	0.284	5	9,616	18.8	270
9/30/2024	19:45:00	7.2	0.284	5.4	9,620	18.8	270
9/30/2024	20:00:00	7.1	0.287	6.5	9,625	18.8	269
9/30/2024	20:15:00	7.1	0.284	5.1	9,629	18.8	269
9/30/2024	20:30:00	7.1	0.442	9.2	9,633	18.8	267
9/30/2024	20:45:00	7.3	0.401	9	9,639	18.9	264
9/30/2024	21:00:00	7.3	0.393	7.2	9,645	18.9	265
9/30/2024	21:15:00	7.3	0.393	8.2	9,651	18.9	267
9/30/2024	21:30:00	7.2	0.253	7.6	9,656	18.8	264
9/30/2024	21:45:00	7.2	0.253	8.9	9,660	18.8	263
9/30/2024	22:00:00	7.2	0.302	9.2	9,664	18.8	267
9/30/2024	22:15:00	7.2	0.310	8.7	9,669	18.7	266
9/30/2024	22:30:00	7.2	0.284	8.6	9,673	18.7	266
9/30/2024	22:45:00	7.2	0.276	7.6	9,677	18.6	267
9/30/2024	23:00:00	7.2	0.272	8	9,681	18.6	264
9/30/2024	23:15:00	7.2	0.276	7.4	9,686	18.6	268
9/30/2024	23:30:00	7.1	0.276	7.5	9,690	18.5	264

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	23:45:00	7.1	0.272	7.1	9,694	18.5	265
10/1/2024	0:00:00	7.1	0.284	6.8	9,698	18.5	268
10/1/2024	0:15:00	7.1	0.272	7	9,702	18.7	266
10/1/2024	0:30:00	7.1	0.276	6.9	9,706	18.9	266
10/1/2024	0:45:00	7.1	0.291	6.4	9,710	19	267
10/1/2024	1:00:00	7.1	0.261	6	9,714	19.2	266
10/1/2024	1:15:00	7.1	0.268	6.5	9,718	19.3	266
10/1/2024	1:30:00	7.2	0.265	6.5	9,722	19.5	266
10/1/2024	1:45:00	7.2	0.000	5.8	9,723	19.7	266
10/1/2024	2:00:00	7.2	0.129	5.9	9,725	19.8	267
10/1/2024	2:15:00	7.2	0.129	6.3	9,727	19.9	267
10/1/2024	2:30:00	7.2	0.132	6	9,729	19.9	267
10/1/2024	2:45:00	7.2	0.129	5.9	9,731	20	267
10/1/2024	3:00:00	7.2	0.151	5.5	9,733	20.1	267
10/1/2024	3:15:00	7.2	0.170	4.5	9,736	20.1	267
10/1/2024	3:30:00	7.2	0.163	5.1	9,738	20.2	267
10/1/2024	3:45:00	7.2	0.170	5.4	9,741	20.3	267
10/1/2024	4:00:00	7.2	0.166	5.6	9,744	20.3	267
10/1/2024	4:15:00	7.2	0.163	5	9,746	20.3	267
10/1/2024	4:30:00	7.2	0.166	4.8	9,749	20.4	267
10/1/2024	4:45:00	7.2	0.166	4.7	9,752	20.4	267
10/1/2024	5:00:00	7.2	0.163	4.9	9,755	20.4	267
10/1/2024	5:15:00	7.2	0.170	4.2	9,757	20.4	267
10/1/2024	5:30:00	7.2	0.170	4	9,760	20.4	267

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	5:45:00	7.2	0.170	3.8	9,763	20.4	267
10/1/2024	6:00:00	7.2	0.170	3.8	9,766	20.4	269
10/1/2024	6:15:00	7.2	0.166	3.8	9,768	20.4	269
10/2/2024	2:15:00	7.6	0.302	31.2	9,769	14.7	267
10/2/2024	3:15:00	7.9	0.340	28.7	9,774	14.7	265
10/2/2024	3:30:00	7.6	0.348	25.7	9,779	15.1	265
10/2/2024	3:45:00	7.5	0.333	31.5	9,784	15.4	266
10/2/2024	4:00:00	7.5	0.344	32.1	9,789	15.6	265
10/2/2024	4:15:00	7.5	0.336	25.4	9,794	15.6	265
10/2/2024	4:30:00	7.5	0.336	22.7	9,799	15.8	267
10/2/2024	4:45:00	7.5	0.340	23.6	9,804	15.9	267
10/2/2024	5:00:00	7.5	0.333	22.5	9,809	15.9	267
10/2/2024	5:15:00	7.5	0.325	20.8	9,814	16	267
10/2/2024	5:30:00	7.5	0.333	21.9	9,819	16	266
10/2/2024	5:45:00	7.6	0.329	21.6	9,824	16	265
10/2/2024	6:00:00	7.6	0.340	21.8	9,829	16.1	263
10/2/2024	6:15:00	7.6	0.344	18	9,834	15.9	265
10/3/2024	0:30:00	7.9	0.299	17.1	9,841	14.4	272
10/3/2024	1:45:00	7.9	0.136	15	9,847	14.2	271
10/3/2024	2:00:00	7.9	0.136	14.4	9,849	14.2	272
10/3/2024	2:15:00	7.9	0.140	13.5	9,851	14.2	272
10/3/2024	2:30:00	7.9	0.132	13.4	9,853	14.2	272
10/3/2024	2:45:00	7.9	0.136	11.7	9,854	14.1	272
10/3/2024	3:00:00	7.9	0.136	10.4	9,856	14.1	272

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	3:15:00	7.9	0.132	9.3	9,858	14.1	273
10/3/2024	3:30:00	7.9	0.204	10	9,860	14.1	273
10/3/2024	3:45:00	7.9	0.208	10.2	9,864	14	273
10/3/2024	4:00:00	8	0.212	9.8	9,867	14	273
10/3/2024	4:15:00	8	0.208	8.4	9,870	13.9	273
10/3/2024	4:30:00	8	0.208	8.9	9,874	13.9	273
10/3/2024	4:45:00	8	0.284	9.9	9,877	13.8	272
10/3/2024	5:00:00	7.9	0.197	11.1	9,881	13.8	276
10/3/2024	5:15:00	7.9	0.189	11.7	9,884	13.7	276
10/3/2024	5:30:00	8	0.193	13	9,887	13.7	276
10/3/2024	5:45:00	8	0.178	14.8	9,890	13.7	276
10/3/2024	6:00:00	8	0.174	16.1	9,892	13.6	276
10/3/2024	10:30:00	8	0.265	22.6	9,895	13.5	273
10/3/2024	10:45:00	8	0.318	24.1	9,900	13.6	273
10/3/2024	11:00:00	8	0.318	21.9	9,904	13.7	273
10/3/2024	11:15:00	8	0.344	27.1	9,909	13.8	273
10/3/2024	11:30:00	8	0.325	34.4	9,914	13.8	273
10/3/2024	11:45:00	8	0.325	41.3	9,919	13.9	271
10/3/2024	12:00:00	8	0.321	42.9	9,924	14	273
10/3/2024	12:15:00	8	0.284	39.7	9,928	14	272
10/3/2024	12:30:00	8	0.291	38.5	9,932	14.1	271
10/3/2024	12:45:00	8	0.284	37.1	9,937	14.1	273
10/3/2024	13:00:00	8	0.287	33.2	9,941	14.1	273
10/3/2024	13:15:00	8	0.291	32.4	9,945	14.1	272

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	13:30:00	8	0.287	30.3	9,949	14.2	272
10/3/2024	13:45:00	8	0.291	29.2	9,953	14.3	272
10/3/2024	14:00:00	8	0.299	28.4	9,957	14.3	272
10/3/2024	14:15:00	8	0.287	27.7	9,962	14.3	272
10/3/2024	14:30:00	8	0.291	26.6	9,966	14.4	270
10/3/2024	14:45:00	8	0.321	28.6	9,970	14.4	270
10/3/2024	15:00:00	8	0.321	26.7	9,975	14.4	270
10/3/2024	15:15:00	8	0.318	24.6	9,980	14.3	270
10/3/2024	15:30:00	8	0.318	21.9	9,985	14.3	270
10/3/2024	15:45:00	8	0.321	21	9,989	14.3	268
10/3/2024	16:00:00	6.9	0.363	23.1	9,994	14.3	275
10/3/2024	16:15:00	7	0.321	22.9	9,999	14.3	278
10/3/2024	16:30:00	7.3	0.333	20.3	10,004	14.3	273
10/3/2024	16:45:00	6.9	0.333	20.2	10,009	14.3	278
10/3/2024	17:00:00	7.3	0.325	28.3	10,014	14.3	272
10/3/2024	17:15:00	6.8	0.325	20.2	10,018	14.2	273
10/3/2024	17:30:00	7.1	0.325	23.6	10,023	14.3	273
10/3/2024	18:15:00	7.1	0.268	35.2	10,026	14.2	273
10/3/2024	18:30:00	7.1	0.272	32.7	10,030	14.2	271
10/3/2024	18:45:00	6.8	0.268	37.9	10,034	14.2	273
10/3/2024	19:00:00	7.3	0.265	39.3	10,039	14.2	269
10/3/2024	19:15:00	6.8	0.268	44.9	10,043	14.1	269
10/3/2024	19:30:00	7	0.265	47.6	10,047	14.1	273
10/3/2024	19:45:00	7.4	0.265	49.7	10,051	14	266

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	20:00:00	6.8	0.265	53.3	10,055	14	273
10/3/2024	20:15:00	7.1	0.261	56	10,059	13.9	271
10/3/2024	20:30:00	7.1	0.268	55.8	10,063	14	268
10/3/2024	20:45:00	6.9	0.268	57.4	10,067	13.9	273
10/3/2024	21:00:00	7.3	0.261	53.3	10,068	13.9	269
10/3/2024	21:15:00	6.9	0.261	56.5	10,073	13.8	271
10/3/2024	21:45:00	7.3	0.280	58.9	10,075	13.8	268
10/3/2024	22:00:00	6.8	0.234	57.2	10,079	13.7	269
10/3/2024	22:15:00	7.1	0.238	54.8	10,082	13.7	269
10/3/2024	22:30:00	7.3	0.284	63.4	10,086	13.7	266
10/3/2024	22:45:00	6.9	0.284	64.7	10,090	13.6	269
10/3/2024	23:00:00	7.2	0.302	55.4	10,094	13.6	268
10/3/2024	23:15:00	6.9	0.318	51.7	10,099	13.6	268
10/3/2024	23:30:00	7.1	0.318	45.2	10,104	13.6	269
10/3/2024	23:45:00	7.2	0.310	38.5	10,109	13.6	266
10/4/2024	0:00:00	6.9	0.310	36.5	10,113	13.6	269
10/4/2024	0:15:00	7.3	0.329	36.6	10,118	13.6	268
10/4/2024	0:30:00	6.8	0.333	38.5	10,123	13.5	268
10/4/2024	0:45:00	7.2	0.321	36.3	10,128	13.6	268
10/4/2024	1:00:00	7	0.352	35.5	10,133	13.5	266
10/4/2024	1:15:00	7	0.348	33.5	10,138	13.6	268
10/4/2024	1:30:00	7.3	0.344	31.8	10,144	13.5	266
10/4/2024	1:45:00	6.9	0.348	30.5	10,149	13.5	267
10/4/2024	2:00:00	7.4	0.344	27.2	10,154	13.5	266

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	2:15:00	6.8	0.344	26.7	10,160	13.5	266
10/4/2024	3:45:00	7.1	0.352	56.6	10,164	13.5	268
10/4/2024	4:00:00	7.1	0.344	69.2	10,169	13.5	265
10/4/2024	4:15:00	7	0.352	72.1	10,174	13.6	269
10/4/2024	4:30:00	7.4	0.344	71.6	10,180	13.6	265
10/4/2024	4:45:00	6.8	0.280	72.4	10,185	13.5	267
10/4/2024	5:00:00	7.2	0.280	69.4	10,189	13.5	267
10/4/2024	5:15:00	7	0.284	64.2	10,193	13.5	265
10/4/2024	5:30:00	6.9	0.299	60.3	10,197	13.5	268
10/4/2024	5:45:00	7.3	0.359	63.3	10,202	13.6	265
10/4/2024	6:00:00	6.8	0.363	61.5	10,208	13.7	265
10/4/2024	6:15:00	7.2	0.374	58.4	10,213	13.7	265
10/4/2024	6:30:00	7.1	0.374	57	10,218	13.7	265
10/4/2024	6:45:00	7	0.359	52.5	10,224	13.6	265
10/4/2024	7:00:00	7.3	0.359	46	10,229	13.6	265
10/4/2024	7:15:00	6.8	0.367	41.2	10,235	13.6	265
10/4/2024	7:30:00	7.2	0.370	40.8	10,240	13.6	267
10/4/2024	7:45:00	7.1	0.370	41.5	10,246	13.6	265
10/4/2024	8:00:00	7	0.355	37.9	10,251	13.6	267
10/4/2024	8:15:00	7.4	0.363	31.4	10,256	13.6	266
10/4/2024	8:30:00	6.8	0.348	30.2	10,262	13.6	265
10/4/2024	8:45:00	7.2	0.340	25.7	10,267	13.6	265
10/4/2024	9:00:00	7.1	0.340	22.1	10,273	13.6	262
10/4/2024	9:15:00	7	0.340	21.3	10,278	13.6	265

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	9:30:00	7.3	0.344	19	10,283	13.6	263
10/4/2024	9:45:00	6.8	0.344	20.5	10,289	13.5	265
10/4/2024	10:00:00	7.1	0.325	18.1	10,294	13.5	265
10/4/2024	10:15:00	7.2	0.340	18.9	10,298	13.5	263
10/4/2024	10:30:00	6.9	0.329	17.4	10,303	13.5	265
10/4/2024	10:45:00	7.3	0.318	43.1	10,308	13.5	263
10/4/2024	11:00:00	7.6	0.302	20.9	10,313	13.6	260
10/4/2024	11:15:00	7.3	0.314	20.6	10,318	13.6	260
10/4/2024	11:30:00	6.8	0.314	19.7	10,322	13.6	265
10/4/2024	11:45:00	7.2	0.299	20.3	10,327	13.6	263
10/4/2024	12:00:00	7.2	0.295	21.6	10,332	13.6	262
10/4/2024	12:15:00	6.9	0.302	24.3	10,337	13.6	265
10/4/2024	12:30:00	7.2	0.299	23.4	10,341	13.7	263
10/4/2024	12:45:00	7.1	0.299	29.6	10,346	13.7	262
10/4/2024	13:00:00	6.9	0.310	32.2	10,351	13.7	265
10/4/2024	13:15:00	7.2	0.310	31.5	10,356	13.7	265
10/4/2024	13:30:00	7.2	0.045	23.2	10,359	13.9	262
10/5/2024	1:00:00	7.3	0.215	95.3	10,360	17.9	269
10/5/2024	1:15:00	6.8	0.336	108.1	10,364	18.2	268
10/5/2024	1:30:00	7	0.333	134.4	10,369	15.2	268
10/5/2024	1:45:00	7.2	0.325	109.3	10,374	15.7	267
10/5/2024	2:00:00	7	0.329	102	10,379	16.2	268
10/5/2024	2:15:00	6.9	0.336	124	10,383	14.8	264
10/5/2024	2:30:00	7.2	0.333	126.3	10,388	14.5	264

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	2:45:00	7	0.336	104	10,393	15.1	264
10/5/2024	3:00:00	6.9	0.333	97	10,398	15.6	262
10/5/2024	3:15:00	7.2	0.336	93.9	10,402	16.1	262
10/5/2024	3:30:00	7.1	0.321	104.3	10,407	16.5	263
10/5/2024	3:45:00	6.9	0.325	93.3	10,412	16.9	262
10/5/2024	4:30:00	6.8	0.310	80.3	10,417	17.9	266
10/5/2024	4:45:00	7.1	0.314	79.4	10,422	18.2	266
10/5/2024	12:30:00	7.3	0.344	179.7	10,429	14.6	266
10/5/2024	12:45:00	6.9	0.348	177.9	10,431	14.7	264
10/5/2024	13:30:00	7	0.352	146.7	10,440	14.9	263
10/5/2024	13:45:00	7.2	0.374	135	10,442	14.8	262
10/5/2024	14:00:00	7.1	0.333	138	10,444	14.7	262
10/5/2024	14:30:00	7.3	0.412	136	10,452	14.8	266
10/5/2024	14:45:00	7	0.404	127.6	10,454	14.9	261
10/5/2024	15:00:00	7.1	0.397	111.9	10,456	14.9	265
10/5/2024	15:30:00	6.8	0.367	113.5	10,464	15	264
10/5/2024	15:45:00	7.1	0.435	118.1	10,467	15.4	267
10/5/2024	16:30:00	7	0.389	106.4	10,478	15.2	263
10/5/2024	16:45:00	7.3	0.389	94.9	10,480	15.2	264
10/5/2024	17:30:00	7.3	0.404	93.8	10,492	15.2	264
10/5/2024	18:15:00	7.1	0.401	85.1	10,493	15.2	264
10/5/2024	18:30:00	6.9	0.370	74.4	10,496	15.2	267
10/5/2024	19:00:00	6.9	0.363	71.8	10,504	15.2	266
10/5/2024	19:15:00	7	0.348	64.4	10,509	15.2	267

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	19:30:00	7.3	0.412	67.5	10,515	15.2	267
10/5/2024	19:45:00	6.9	0.412	58.4	10,522	15.4	264
10/5/2024	20:00:00	7	0.401	43.1	10,528	15.5	268
10/5/2024	20:15:00	7.3	0.446	46.9	10,534	15.5	268
10/5/2024	20:30:00	6.9	0.427	44	10,541	15.3	264
10/5/2024	20:45:00	7.1	0.450	43.1	10,547	15.4	269
10/5/2024	21:00:00	7.2	0.435	46.1	10,554	15.2	266
10/5/2024	21:15:00	6.9	0.435	45.3	10,561	15.3	267
10/5/2024	21:30:00	7.3	0.427	47.6	10,567	15.4	271
10/5/2024	21:45:00	7	0.427	46.4	10,574	15.2	264
10/5/2024	22:00:00	7	0.423	48.2	10,580	15.2	269
10/5/2024	22:15:00	7.3	0.423	54.5	10,586	15.2	267
10/5/2024	22:30:00	6.9	0.427	50.6	10,592	15.1	263
10/5/2024	22:45:00	7.2	0.423	47.4	10,599	15.2	268
10/5/2024	23:00:00	7.1	0.423	49.8	10,605	15.1	266
10/5/2024	23:15:00	7	0.412	46.7	10,611	15.1	266
10/5/2024	23:30:00	7.3	0.423	44.9	10,617	15.1	269
10/5/2024	23:45:00	6.9	0.412	45.6	10,623	15.2	264
10/6/2024	0:00:00	7.1	0.412	49.3	10,629	15.1	264
10/6/2024	0:15:00	7.3	0.412	51.7	10,635	15	267
10/6/2024	0:30:00	6.9	0.412	47.8	10,641	15.1	267
10/6/2024	0:45:00	7.3	0.397	44.4	10,648	14.9	266
10/6/2024	1:00:00	7	0.416	49.9	10,654	15	267
10/6/2024	1:15:00	7	0.408	47.7	10,660	15.1	269

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	1:30:00	7.4	0.404	51.7	10,666	15.2	268
10/6/2024	1:45:00	6.9	0.404	58.1	10,672	15.2	266
10/6/2024	2:00:00	7.2	0.401	65.1	10,678	15.2	268
10/6/2024	2:15:00	7.1	0.404	72.2	10,684	15.2	266
10/6/2024	3:00:00	6.9	0.397	92.1	10,693	15.2	268
10/6/2024	3:15:00	7.2	0.404	90.9	10,695	15.1	271
10/6/2024	4:00:00	7.3	0.404	104.5	10,705	15.2	271
10/6/2024	4:45:00	7.2	0.389	105.2	10,715	15.4	271
10/6/2024	5:00:00	7	0.389	111.9	10,718	15.3	271
10/6/2024	5:45:00	6.9	0.401	111.5	10,727	14.8	270
10/6/2024	6:30:00	6.9	0.386	105.4	10,735	14.5	269
10/6/2024	7:15:00	6.9	0.393	103.4	10,745	14.6	270
10/6/2024	7:30:00	7.2	0.469	182	10,749	14.6	271
10/6/2024	7:45:00	6.9	0.469	140.8	10,751	14.2	266
10/6/2024	8:15:00	7.2	0.480	88.8	10,760	14.1	267
10/6/2024	8:30:00	7.1	0.446	149.4	10,763	14.1	268
10/6/2024	9:15:00	7.1	0.435	104.5	10,776	14	266
10/6/2024	9:30:00	7.1	0.427	98.6	10,778	14	268
10/6/2024	10:15:00	7.1	0.427	96	10,789	14.1	264
10/6/2024	10:30:00	7.1	0.359	90.8	10,794	14.2	267
10/6/2024	10:45:00	7.2	0.363	83.9	10,800	14.2	264
10/6/2024	11:00:00	7	0.363	89.6	10,805	14.2	266
10/6/2024	11:15:00	7.3	0.348	82.6	10,811	14.3	265
10/6/2024	11:30:00	7	0.355	89.6	10,816	14.4	268

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	11:45:00	7.3	0.363	88.5	10,822	14.4	264
10/6/2024	12:00:00	6.9	0.427	83.4	10,827	14.5	267
10/6/2024	12:15:00	7.3	0.427	72.4	10,834	14.6	263
10/6/2024	12:30:00	6.9	0.431	70.1	10,840	14.7	264
10/6/2024	12:45:00	7.3	0.423	70	10,846	14.8	264
10/6/2024	13:00:00	6.9	0.435	66.6	10,852	14.8	262
10/6/2024	13:15:00	7.3	0.423	65.2	10,859	14.9	262
10/6/2024	13:30:00	6.9	0.427	60	10,865	14.9	261
10/6/2024	13:45:00	7.3	0.423	51.7	10,871	14.9	262
10/6/2024	14:00:00	6.9	0.412	51.9	10,878	14.9	261
10/6/2024	14:15:00	7.3	0.420	43.1	10,884	15	262
10/6/2024	14:30:00	6.9	0.427	46.7	10,890	15	259
10/6/2024	14:45:00	7.3	0.423	41.9	10,896	15	261
10/6/2024	15:00:00	6.9	0.420	35.3	10,903	15	260
10/6/2024	15:15:00	7.3	0.420	34.4	10,909	15	259
10/6/2024	15:30:00	6.9	0.420	34.3	10,915	15	259
10/6/2024	15:45:00	7.3	0.435	26.9	10,921	15	260
10/6/2024	16:00:00	6.9	0.423	28	10,928	15	258
10/6/2024	16:15:00	7.2	0.431	27.6	10,934	15.1	261
10/6/2024	16:30:00	6.9	0.438	31.7	10,941	15.1	258
10/6/2024	16:45:00	7.2	0.404	35.8	10,947	14.9	258
10/6/2024	17:00:00	6.9	0.401	46.2	10,954	14.8	257
10/6/2024	17:15:00	7.2	0.397	44.4	10,960	14.8	258
10/6/2024	17:30:00	6.9	0.404	45.7	10,966	14.7	257

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	17:45:00	7.2	0.397	47.2	10,972	14.7	253
10/6/2024	18:00:00	6.9	0.401	48.4	10,978	14.6	253
10/6/2024	18:15:00	7.2	0.397	55.3	10,984	14.5	255
10/6/2024	18:30:00	7	0.393	48.6	10,990	14.5	255
10/6/2024	18:45:00	7.2	0.386	46.2	10,996	14.4	255
10/6/2024	19:00:00	7	0.397	46.1	11,002	14.4	253
10/6/2024	19:15:00	7.1	0.389	50.4	11,009	14.3	256
10/6/2024	19:30:00	7	0.382	53.4	11,015	14.2	253
10/6/2024	19:45:00	7.1	0.386	52.2	11,021	14.2	255
10/6/2024	20:00:00	7	0.389	54.8	11,027	14.1	253
10/6/2024	20:15:00	7.1	0.397	49.6	11,033	14.1	257
10/6/2024	20:30:00	7.1	0.393	47.8	11,039	14	255
10/6/2024	20:45:00	7.1	0.386	45.6	11,045	13.9	256
10/6/2024	21:00:00	7.1	0.386	51.1	11,051	13.9	255
10/6/2024	21:15:00	7.1	0.386	44	11,057	13.8	258
10/6/2024	21:30:00	7.2	0.386	45.4	11,063	13.8	255
10/6/2024	21:45:00	7	0.408	42.3	11,069	13.7	258
10/6/2024	22:00:00	7.2	0.393	42	11,075	13.7	114
10/6/2024	22:15:00	7	0.382	40.1	11,081	13.7	258
10/6/2024	22:30:00	7.3	0.386	38.7	11,086	13.6	114
10/6/2024	22:45:00	7	0.393	33.9	11,092	13.6	256
10/6/2024	23:00:00	7.3	0.389	35.9	11,098	13.5	113
10/6/2024	23:15:00	6.9	0.374	31.2	11,104	13.5	259
10/6/2024	23:30:00	7.3	0.386	34	11,109	13.5	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	23:45:00	6.9	0.370	33.7	11,115	13.4	259

Table 3. In-Situ Parameters

Date	Time	Temperature (°C)	DO (mg/L)	Conductivity (uS/cm)	Salinity (ppt)	ORP (mV)	Visible Sheen
9/30/2024	04:32:43 PM	15.0	10.43	218.7	0.10	117.8	No
10/01/2024	04:42:40 PM	14.8	10.63	161.4	0.08	116.1	No
10/02/2024	10:07:49 AM	14.4	10.43	150.3	0.07	107.0	No
10/03/2024	10:09:37 AM	14.4	10.43	150.3	0.07	91.9	No

Note: From October 4th to October 6th, all in-situ parameters were measured every minute during discharge using a YSI device. The YSI log will be included as an attachment to this report.

3. Calibration Log:

Table 4. Calibration Log

Date	Unit	pH	Conductivity/Temp.	Salinity	NTU
10/2/2024	YSI	✓	✓	✓	✓
9/16/2024	WTP	✓	✓	N/A	✓

APPENDIX A: WTP LOG

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	0:00:00	7.2	0.321	56.3	9,506	Closed	14.4	260
9/30/2024	0:15:00	7	0.363	42.1	9,506	Closed	14.3	263
9/30/2024	0:30:00	7.2	0.272	26.3	9,508	Open	14.5	262
9/30/2024	0:45:00	7.2	0.268	18.1	9,512	Open	15.1	258
9/30/2024	1:00:00	7.2	0.276	21.8	9,516	Open	15.6	258
9/30/2024	1:15:00	7.2	0.268	11.8	9,520	Open	16.1	258
9/30/2024	1:30:00	7.2	0.268	9.6	9,524	Open	16.6	257
9/30/2024	1:45:00	7.2	0.272	8.3	9,528	Open	17	257
9/30/2024	2:00:00	7.2	0.268	7.7	9,533	Open	17.3	257
9/30/2024	2:15:00	7.2	0.272	8.2	9,537	Open	17.6	257
9/30/2024	2:30:00	7.2	0.272	11.1	9,541	Open	17.9	257
9/30/2024	2:45:00	7.2	0.284	13.1	9,545	Open	18.1	257
9/30/2024	3:00:00	7.4	0.374	121.3	9,547	Closed	13.8	258

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	3:15:00	7.3	0.318	71.6	9,547	Closed	13.8	260
9/30/2024	3:30:00	7.1	0.333	45.3	9,547	Closed	13.8	263
9/30/2024	3:45:00	7	0.378	38.1	9,547	Closed	13.7	263
9/30/2024	4:00:00	7.1	0.363	49	9,547	Closed	14.2	263
9/30/2024	4:15:00	7.4	0.333	46.6	9,547	Closed	13.5	257
9/30/2024	4:30:00	7.3	0.336	27.1	9,547	Closed	14.2	258
9/30/2024	4:45:00	7.3	0.329	22.3	9,548	Open	14.7	258
9/30/2024	5:00:00	7.3	0.333	60.8	9,552	Closed	14.5	260
9/30/2024	5:15:00	7	0.329	65.3	9,552	Closed	13.5	265
9/30/2024	5:30:00	7.2	0.321	61	9,552	Closed	13.5	262
9/30/2024	5:45:00	7.3	0.000	55.2	9,552	Closed	13.5	263
9/30/2024	6:00:00	7.2	0.000	52.6	9,552	Closed	13.5	262
9/30/2024	6:15:00	7.2	0.507	37.6	9,552	Closed	14.5	260
9/30/2024	6:30:00	7.1	0.000	37	9,555	Open	14.8	262
9/30/2024	6:45:00	7.3	0.843	77.9	9,555	Closed	13.2	262

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	7:00:00	7.2	0.798	56.6	9,555	Closed	13.3	262
9/30/2024	7:15:00	7.2	0.771	63.7	9,555	Closed	13.2	262
9/30/2024	7:30:00	7.2	0.144	52.4	9,555	Closed	13.3	264
9/30/2024	7:45:00	7.3	0.200	36.4	9,555	Closed	14	263
9/30/2024	8:00:00	7.3	0.197	17.3	9,555	Closed	14.3	261
9/30/2024	8:15:00	7.1	0.189	16.2	9,555	Closed	14.8	262
9/30/2024	8:30:00	7	0.181	16.2	9,555	Closed	15.2	259
9/30/2024	8:45:00	7	0.189	14.6	9,555	Closed	15.5	260
9/30/2024	9:00:00	7.1	0.185	20.4	9,555	Closed	15.8	262
9/30/2024	9:15:00	7.2	0.185	12.6	9,555	Open	16.1	261
9/30/2024	9:30:00	7.3	0.189	5.9	9,558	Open	16.3	263
9/30/2024	9:45:00	7.3	0.295	12	9,562	Open	16.8	263
9/30/2024	10:00:00	7.3	0.287	13.5	9,566	Open	17	263
9/30/2024	10:15:00	7.3	0.280	23.9	9,569	Closed	17.4	259
9/30/2024	10:30:00	7	0.197	67.8	9,569	Closed	13.8	265

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	10:45:00	7.1	0.110	60.1	9,569	Closed	13.7	263
9/30/2024	11:00:00	7.2	0.276	52.9	9,569	Closed	13.8	262
9/30/2024	11:15:00	7.3	0.253	55.3	9,569	Closed	13.7	261
9/30/2024	11:30:00	7.1	0.159	57.3	9,569	Closed	13.7	265
9/30/2024	11:45:00	7	0.155	43.7	9,569	Closed	14.4	265
9/30/2024	12:00:00	7.1	0.000	34.5	9,569	Closed	14.5	264
9/30/2024	12:15:00	7.1	0.000	31.1	9,569	Closed	15.2	262
9/30/2024	12:30:00	7.1	0.000	21.9	9,569	Closed	15.8	262
9/30/2024	12:45:00	7.1	0.000	48.8	9,569	Closed	15.3	259
9/30/2024	13:00:00	7.2	0.117	56.5	9,569	Closed	14.3	259
9/30/2024	13:15:00	7.2	0.000	50.6	9,569	Closed	14.2	261
9/30/2024	13:30:00	7.3	0.000	53.5	9,569	Closed	14.3	260
9/30/2024	13:45:00	7.2	0.000	39.2	9,569	Closed	14.5	263
9/30/2024	14:00:00	7	0.170	53.8	9,569	Closed	14.8	264
9/30/2024	14:15:00	6.9	0.242	38	9,569	Closed	15.3	265

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	14:30:00	6.9	0.249	27.7	9,569	Closed	15.9	264
9/30/2024	14:45:00	6.9	0.242	22.5	9,569	Closed	16.5	262
9/30/2024	15:00:00	6.9	0.242	25.2	9,569	Closed	16.8	265
9/30/2024	15:15:00	6.9	0.246	26.1	9,569	Closed	17	263
9/30/2024	15:30:00	6.9	0.246	31.3	9,569	Closed	17.5	267
9/30/2024	15:45:00	7.1	0.249	28.5	9,569	Closed	17.6	267
9/30/2024	16:00:00	7.3	0.249	20	9,569	Closed	17.8	267
9/30/2024	16:15:00	7.3	0.253	16.8	9,569	Closed	17.9	267
9/30/2024	16:30:00	7.3	0.287	15.5	9,569	Closed	18.1	266
9/30/2024	16:45:00	7.3	0.295	13.2	9,571	Open	18.2	268
9/30/2024	17:00:00	7.3	0.291	13.6	9,576	Open	18.3	268
9/30/2024	17:15:00	7.3	0.291	7.7	9,580	Open	18.5	268
9/30/2024	17:30:00	7.3	0.287	6.4	9,584	Open	18.5	268
9/30/2024	17:45:00	7.3	0.287	6.9	9,588	Open	18.5	268
9/30/2024	18:00:00	7.2	0.291	5.7	9,592	Open	18.6	268

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	18:15:00	7.2	0.287	4.2	9,596	Open	18.6	268
9/30/2024	18:30:00	7.2	0.287	7.9	9,600	Open	18.6	269
9/30/2024	18:45:00	7.2	0.291	4.9	9,604	Open	18.7	270
9/30/2024	19:00:00	7.2	0.287	8.6	9,608	Open	18.7	270
9/30/2024	19:15:00	7.2	0.284	7	9,612	Open	18.7	267
9/30/2024	19:30:00	7.2	0.284	5	9,616	Open	18.8	270
9/30/2024	19:45:00	7.2	0.284	5.4	9,620	Open	18.8	270
9/30/2024	20:00:00	7.1	0.287	6.5	9,625	Open	18.8	269
9/30/2024	20:15:00	7.1	0.284	5.1	9,629	Open	18.8	269
9/30/2024	20:30:00	7.1	0.442	9.2	9,633	Open	18.8	267
9/30/2024	20:45:00	7.3	0.401	9	9,639	Open	18.9	264
9/30/2024	21:00:00	7.3	0.393	7.2	9,645	Open	18.9	265
9/30/2024	21:15:00	7.3	0.393	8.2	9,651	Open	18.9	267
9/30/2024	21:30:00	7.2	0.253	7.6	9,656	Open	18.8	264
9/30/2024	21:45:00	7.2	0.253	8.9	9,660	Open	18.8	263

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
9/30/2024	22:00:00	7.2	0.302	9.2	9,664	Open	18.8	267
9/30/2024	22:15:00	7.2	0.310	8.7	9,669	Open	18.7	266
9/30/2024	22:30:00	7.2	0.284	8.6	9,673	Open	18.7	266
9/30/2024	22:45:00	7.2	0.276	7.6	9,677	Open	18.6	267
9/30/2024	23:00:00	7.2	0.272	8	9,681	Open	18.6	264
9/30/2024	23:15:00	7.2	0.276	7.4	9,686	Open	18.6	268
9/30/2024	23:30:00	7.1	0.276	7.5	9,690	Open	18.5	264
9/30/2024	23:45:00	7.1	0.272	7.1	9,694	Open	18.5	265
10/1/2024	0:00:00	7.1	0.284	6.8	9,698	Open	18.5	268
10/1/2024	0:15:00	7.1	0.272	7	9,702	Open	18.7	266
10/1/2024	0:30:00	7.1	0.276	6.9	9,706	Open	18.9	266
10/1/2024	0:45:00	7.1	0.291	6.4	9,710	Open	19	267
10/1/2024	1:00:00	7.1	0.261	6	9,714	Open	19.2	266
10/1/2024	1:15:00	7.1	0.268	6.5	9,718	Open	19.3	266
10/1/2024	1:30:00	7.2	0.265	6.5	9,722	Open	19.5	266

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	1:45:00	7.2	0.000	5.8	9,723	Open	19.7	266
10/1/2024	2:00:00	7.2	0.129	5.9	9,725	Open	19.8	267
10/1/2024	2:15:00	7.2	0.129	6.3	9,727	Open	19.9	267
10/1/2024	2:30:00	7.2	0.132	6	9,729	Open	19.9	267
10/1/2024	2:45:00	7.2	0.129	5.9	9,731	Open	20	267
10/1/2024	3:00:00	7.2	0.151	5.5	9,733	Open	20.1	267
10/1/2024	3:15:00	7.2	0.170	4.5	9,736	Open	20.1	267
10/1/2024	3:30:00	7.2	0.163	5.1	9,738	Open	20.2	267
10/1/2024	3:45:00	7.2	0.170	5.4	9,741	Open	20.3	267
10/1/2024	4:00:00	7.2	0.166	5.6	9,744	Open	20.3	267
10/1/2024	4:15:00	7.2	0.163	5	9,746	Open	20.3	267
10/1/2024	4:30:00	7.2	0.166	4.8	9,749	Open	20.4	267
10/1/2024	4:45:00	7.2	0.166	4.7	9,752	Open	20.4	267
10/1/2024	5:00:00	7.2	0.163	4.9	9,755	Open	20.4	267
10/1/2024	5:15:00	7.2	0.170	4.2	9,757	Open	20.4	267

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	5:30:00	7.2	0.170	4	9,760	Open	20.4	267
10/1/2024	5:45:00	7.2	0.170	3.8	9,763	Open	20.4	267
10/1/2024	6:00:00	7.2	0.170	3.8	9,766	Open	20.4	269
10/1/2024	6:15:00	7.2	0.166	3.8	9,768	Open	20.4	269
10/1/2024	6:30:00	7.2	0.518	399	9,769	Closed	19	267
10/1/2024	6:45:00	7.3	1.047	399.2	9,769	Closed	13.8	288
10/1/2024	7:00:00	7.2	0.000	399.3	9,769	Closed	14.3	293
10/1/2024	7:15:00	7.3	0.352	399.3	9,769	Closed	15.1	295
10/1/2024	7:30:00	7.2	0.340	399.3	9,769	Closed	15.6	295
10/1/2024	7:45:00	7.2	0.000	399.3	9,769	Closed	13.7	295
10/1/2024	8:00:00	7.2	0.155	399.3	9,769	Closed	13.6	298
10/1/2024	8:15:00	7.3	0.287	399.3	9,769	Closed	13.7	298
10/1/2024	8:30:00	7.2	0.068	385.2	9,769	Closed	13.7	298
10/1/2024	8:45:00	7.2	0.276	210.1	9,769	Closed	13.7	300
10/1/2024	9:00:00	7.2	0.284	131	9,769	Closed	13.8	298

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	9:15:00	7.2	0.268	91.4	9,769	Closed	13.8	300
10/1/2024	9:30:00	7.3	0.265	71.2	9,769	Closed	13.8	298
10/1/2024	9:45:00	7.3	0.272	64.4	9,769	Closed	13.8	298
10/1/2024	10:00:00	7.3	0.208	62.3	9,769	Closed	13.8	298
10/1/2024	10:15:00	7.3	0.280	61.2	9,769	Closed	13.9	295
10/1/2024	10:30:00	7.3	0.284	68.9	9,769	Closed	13.9	295
10/1/2024	10:45:00	7.2	0.261	66.1	9,769	Closed	13.9	293
10/1/2024	11:00:00	7.2	0.000	58.9	9,769	Closed	14.5	295
10/1/2024	11:15:00	7.2	0.352	64	9,769	Closed	14	292
10/1/2024	11:30:00	7.3	0.423	78.6	9,769	Closed	14	288
10/1/2024	11:45:00	7.3	0.295	65.5	9,769	Closed	14	288
10/1/2024	12:00:00	7.3	0.287	62	9,769	Closed	14	288
10/1/2024	12:15:00	7.3	0.276	56.9	9,769	Closed	14.1	288
10/1/2024	12:30:00	7.2	0.276	60.3	9,769	Closed	14	286
10/1/2024	12:45:00	7.2	0.276	61.6	9,769	Closed	14	288

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	13:00:00	7.3	0.272	61.6	9,769	Closed	14.1	288
10/1/2024	13:15:00	7.3	0.318	54.8	9,769	Closed	14.3	287
10/1/2024	13:30:00	7.3	0.302	58.5	9,769	Closed	14.4	287
10/1/2024	13:45:00	7.2	0.302	63.2	9,769	Closed	14.2	287
10/1/2024	14:00:00	7.2	0.302	5.8	9,769	Closed	14.4	287
10/1/2024	14:15:00	7.3	0.302	83.6	9,769	Closed	14.3	283
10/1/2024	14:30:00	7.3	0.310	76.3	9,769	Closed	14.2	288
10/1/2024	14:45:00	7.3	0.306	76.8	9,769	Closed	14.3	287
10/1/2024	15:00:00	7.3	0.306	75.7	9,769	Closed	14.3	286
10/1/2024	15:15:00	7.4	0.321	105.7	9,769	Closed	14.3	287
10/1/2024	15:30:00	7.4	0.310	77.5	9,769	Closed	14.4	283
10/1/2024	15:45:00	7.5	0.333	77.3	9,769	Closed	14.4	281
10/1/2024	16:00:00	7.3	0.336	74.7	9,769	Closed	14.5	282
10/1/2024	16:15:00	7.3	0.325	76.8	9,769	Closed	14.5	282
10/1/2024	16:30:00	7.5	0.302	74.4	9,769	Closed	14.7	280

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	16:45:00	7.6	0.295	68.2	9,769	Closed	14.7	280
10/1/2024	17:00:00	7.7	0.306	69.5	9,769	Closed	14.8	280
10/1/2024	17:15:00	7.6	0.299	67.8	9,769	Closed	14.7	279
10/1/2024	17:30:00	7.6	0.291	68.5	9,769	Closed	14.8	280
10/1/2024	17:45:00	7.7	0.287	71.9	9,769	Closed	14.7	280
10/1/2024	18:00:00	7.7	0.291	67.1	9,769	Closed	14.8	280
10/1/2024	18:15:00	7.7	0.287	69.5	9,769	Closed	14.8	278
10/1/2024	18:30:00	7.7	0.635	151.4	9,769	Closed	14.8	278
10/1/2024	18:45:00	7.7	0.272	203.5	9,769	Closed	14.8	278
10/1/2024	19:00:00	7.4	0.265	66.2	9,769	Closed	14.7	278
10/1/2024	19:15:00	7.4	0.261	44.2	9,769	Closed	14.8	280
10/1/2024	19:30:00	7.4	0.257	42.4	9,769	Closed	14.9	280
10/1/2024	19:45:00	7.4	0.265	41.6	9,769	Closed	14.9	278
10/1/2024	20:00:00	7.4	0.261	37.3	9,769	Closed	15.1	279
10/1/2024	20:15:00	7.5	0.261	33	9,769	Closed	15	275

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/1/2024	20:30:00	7.5	0.265	35.1	9,769	Closed	14.9	275
10/1/2024	20:45:00	7.5	0.261	31.9	9,769	Closed	15	276
10/1/2024	21:00:00	7.5	0.261	37.3	9,769	Closed	14.7	275
10/1/2024	21:15:00	7.5	0.268	25.5	9,769	Closed	14.7	275
10/1/2024	21:30:00	7.4	0.280	34.5	9,769	Closed	14.8	275
10/1/2024	21:45:00	7.4	0.280	37.5	9,769	Closed	14.7	275
10/1/2024	22:00:00	7.4	0.333	44.7	9,769	Closed	14.7	276
10/1/2024	22:15:00	7.4	0.367	49.1	9,769	Closed	14.5	274
10/1/2024	22:30:00	7.6	0.370	44.7	9,769	Closed	14.4	274
10/1/2024	22:45:00	7.5	0.325	71	9,769	Closed	14.5	272
10/1/2024	23:00:00	7.6	0.325	48.7	9,769	Closed	14.4	271
10/1/2024	23:15:00	7.7	0.348	43.4	9,769	Closed	14.4	271
10/1/2024	23:30:00	7.8	0.348	46.3	9,769	Closed	14.3	271
10/1/2024	23:45:00	7.7	0.336	63.6	9,769	Closed	14.9	272
10/2/2024	0:00:00	7.6	0.336	45	9,769	Closed	14.4	269

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	0:15:00	7.6	0.333	37.4	9,769	Closed	14.6	269
10/2/2024	0:30:00	7.7	0.227	41.4	9,769	Closed	14.4	269
10/2/2024	0:45:00	7.6	0.340	39	9,769	Closed	15	269
10/2/2024	1:00:00	7.4	0.344	41.2	9,769	Closed	14.4	269
10/2/2024	1:15:00	7.4	0.340	86.1	9,769	Closed	14.8	269
10/2/2024	1:30:00	7.4	0.340	32.1	9,769	Closed	14.5	270
10/2/2024	1:45:00	7.5	0.348	42.1	9,769	Closed	14.8	270
10/2/2024	2:00:00	7.5	0.299	32.5	9,769	Closed	15.2	267
10/2/2024	2:15:00	7.6	0.302	31.2	9,769	Open	14.7	267
10/2/2024	2:30:00	7.8	0.291	23.9	9,771	Closed	14.4	266
10/2/2024	2:45:00	7.8	0.314	35.3	9,771	Closed	14.4	265
10/2/2024	3:00:00	7.9	0.178	34.9	9,772	Closed	14.3	266
10/2/2024	3:15:00	7.9	0.340	28.7	9,774	Open	14.7	265
10/2/2024	3:30:00	7.6	0.348	25.7	9,779	Open	15.1	265
10/2/2024	3:45:00	7.5	0.333	31.5	9,784	Open	15.4	266

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	4:00:00	7.5	0.344	32.1	9,789	Open	15.6	265
10/2/2024	4:15:00	7.5	0.336	25.4	9,794	Open	15.6	265
10/2/2024	4:30:00	7.5	0.336	22.7	9,799	Open	15.8	267
10/2/2024	4:45:00	7.5	0.340	23.6	9,804	Open	15.9	267
10/2/2024	5:00:00	7.5	0.333	22.5	9,809	Open	15.9	267
10/2/2024	5:15:00	7.5	0.325	20.8	9,814	Open	16	267
10/2/2024	5:30:00	7.5	0.333	21.9	9,819	Open	16	266
10/2/2024	5:45:00	7.6	0.329	21.6	9,824	Open	16	265
10/2/2024	6:00:00	7.6	0.340	21.8	9,829	Open	16.1	263
10/2/2024	6:15:00	7.6	0.344	18	9,834	Open	15.9	265
10/2/2024	6:30:00	7.5	0.333	36.9	9,838	Closed	15.3	259
10/2/2024	6:45:00	7.5	0.333	38	9,838	Closed	15.5	263
10/2/2024	7:00:00	7.6	0.227	78.5	9,838	Closed	13.9	263
10/2/2024	7:15:00	7.8	0.197	75.4	9,838	Closed	13.7	262
10/2/2024	7:30:00	7.9	0.314	124.7	9,838	Closed	13.7	262

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	7:45:00	7.9	0.302	169.7	9,838	Closed	13.6	262
10/2/2024	8:00:00	7.9	0.314	119.9	9,838	Closed	14	260
10/2/2024	8:15:00	7.8	0.265	116.4	9,838	Closed	14.7	262
10/2/2024	8:30:00	7.8	0.261	98	9,838	Closed	15.3	262
10/2/2024	8:45:00	7.8	0.257	105.6	9,838	Closed	15.8	261
10/2/2024	9:00:00	7.8	0.265	104.9	9,838	Closed	16.9	262
10/2/2024	9:15:00	7.8	0.261	102.2	9,838	Closed	17.2	261
10/2/2024	9:30:00	7.8	0.261	86.2	9,838	Closed	17.6	259
10/2/2024	9:45:00	7.9	0.299	193.6	9,838	Closed	14.2	261
10/2/2024	10:00:00	7.9	0.238	194.3	9,838	Closed	14	262
10/2/2024	10:15:00	8	0.242	178.3	9,838	Closed	13.9	262
10/2/2024	10:30:00	8	0.261	206.3	9,838	Closed	13.8	262
10/2/2024	10:45:00	8	0.261	216.4	9,838	Closed	13.7	263
10/2/2024	11:00:00	8	0.272	203.7	9,838	Closed	13.8	264
10/2/2024	11:15:00	8	0.268	189.3	9,838	Closed	13.9	264

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	11:30:00	8	0.265	163.7	9,838	Closed	14	266
10/2/2024	11:45:00	8	0.268	123.8	9,838	Closed	14	265
10/2/2024	12:00:00	7.9	0.253	99.2	9,838	Closed	14.1	266
10/2/2024	12:15:00	7.9	0.246	85	9,838	Closed	14.2	266
10/2/2024	12:30:00	7.9	0.261	76.8	9,838	Closed	14.2	265
10/2/2024	12:45:00	7.9	0.249	76.3	9,838	Closed	14.4	265
10/2/2024	13:00:00	7.9	0.272	69.8	9,838	Closed	14.5	266
10/2/2024	13:15:00	7.9	0.276	74.7	9,838	Closed	14.5	267
10/2/2024	13:30:00	7.9	0.276	68	9,838	Closed	14.7	267
10/2/2024	13:45:00	7.7	0.302	81	9,838	Closed	14.9	267
10/2/2024	14:00:00	7.8	0.306	52.9	9,838	Closed	14.9	268
10/2/2024	14:15:00	7.9	0.299	51.8	9,838	Closed	15	268
10/2/2024	14:30:00	7.9	0.299	46.4	9,838	Closed	15	269
10/2/2024	14:45:00	7.9	0.295	42.8	9,838	Closed	15	268
10/2/2024	15:00:00	7.7	0.306	46.7	9,838	Closed	15	268

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	15:15:00	7.7	0.306	42.3	9,838	Closed	15	268
10/2/2024	15:30:00	7.8	0.310	37.3	9,838	Closed	15.3	269
10/2/2024	15:45:00	7.8	0.302	36.8	9,838	Closed	15.4	268
10/2/2024	16:00:00	7.8	0.306	38.7	9,838	Closed	15.4	269
10/2/2024	16:15:00	7.8	0.276	28.7	9,838	Closed	15.3	268
10/2/2024	16:30:00	7.9	0.280	33.3	9,838	Closed	15.4	268
10/2/2024	16:45:00	7.9	0.261	29.9	9,838	Closed	15.3	269
10/2/2024	17:00:00	7.9	0.257	35	9,838	Closed	15.2	268
10/2/2024	17:15:00	7.9	0.257	38.3	9,838	Closed	15.3	268
10/2/2024	17:30:00	7.9	0.257	34.2	9,838	Closed	15.3	269
10/2/2024	17:45:00	7.9	0.257	44.9	9,838	Closed	14.9	268
10/2/2024	18:00:00	7.9	0.265	43.3	9,838	Closed	14.9	268
10/2/2024	18:15:00	7.9	0.261	44.5	9,838	Closed	15	269
10/2/2024	18:30:00	7.9	0.261	47.4	9,838	Closed	14.9	267
10/2/2024	18:45:00	7.9	0.265	50	9,838	Closed	14.9	267

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	19:00:00	8	0.265	49	9,838	Closed	14.9	267
10/2/2024	19:15:00	7.9	0.261	50.2	9,838	Closed	14.9	267
10/2/2024	19:30:00	7.9	0.272	45.5	9,838	Closed	14.9	267
10/2/2024	19:45:00	7.8	0.276	48.4	9,838	Closed	14.9	267
10/2/2024	20:00:00	7.7	0.276	46.8	9,838	Closed	14.9	267
10/2/2024	20:15:00	7.7	0.276	51	9,838	Closed	14.8	269
10/2/2024	20:30:00	7.7	0.276	43.3	9,838	Closed	14.7	269
10/2/2024	20:45:00	7.7	0.284	41.5	9,838	Closed	14.7	269
10/2/2024	21:00:00	7.7	0.276	38.1	9,838	Closed	14.7	269
10/2/2024	21:15:00	7.7	0.272	29.4	9,838	Closed	14.8	272
10/2/2024	21:30:00	7.8	0.272	30	9,838	Closed	14.8	272
10/2/2024	21:45:00	7.8	0.272	26.2	9,838	Closed	14.7	272
10/2/2024	22:00:00	7.7	0.287	24.4	9,838	Closed	14.7	272
10/2/2024	22:15:00	7.7	0.291	25.5	9,838	Closed	14.7	272
10/2/2024	22:30:00	7.7	0.287	23.1	9,838	Closed	14.7	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	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/2/2024	22:45:00	7.6	0.306	20.8	9,838	Closed	14.7	272
10/2/2024	23:00:00	7.6	0.306	15.7	9,838	Closed	14.7	272
10/2/2024	23:15:00	7.6	0.340	20.2	9,838	Closed	14.7	272
10/2/2024	23:30:00	7.5	0.340	19.4	9,838	Closed	14.7	272
10/2/2024	23:45:00	7.5	0.333	22	9,838	Closed	14.7	272
10/3/2024	0:00:00	7.5	0.287	19.1	9,838	Closed	14.4	273
10/3/2024	0:15:00	7.7	0.295	17.8	9,838	Closed	14.4	272
10/3/2024	0:30:00	7.9	0.299	17.1	9,841	Open	14.4	272
10/3/2024	0:45:00	7.9	0.291	17.1	9,845	Closed	14.3	271
10/3/2024	1:00:00	7.9	0.291	16.7	9,845	Closed	14.3	271
10/3/2024	1:15:00	7.9	0.287	16.6	9,845	Closed	14.3	272
10/3/2024	1:30:00	7.9	0.284	16	9,845	Closed	14.3	272
10/3/2024	1:45:00	7.9	0.136	15	9,847	Open	14.2	271
10/3/2024	2:00:00	7.9	0.136	14.4	9,849	Open	14.2	272
10/3/2024	2:15:00	7.9	0.140	13.5	9,851	Open	14.2	272

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	2:30:00	7.9	0.132	13.4	9,853	Open	14.2	272
10/3/2024	2:45:00	7.9	0.136	11.7	9,854	Open	14.1	272
10/3/2024	3:00:00	7.9	0.136	10.4	9,856	Open	14.1	272
10/3/2024	3:15:00	7.9	0.132	9.3	9,858	Open	14.1	273
10/3/2024	3:30:00	7.9	0.204	10	9,860	Open	14.1	273
10/3/2024	3:45:00	7.9	0.208	10.2	9,864	Open	14	273
10/3/2024	4:00:00	8	0.212	9.8	9,867	Open	14	273
10/3/2024	4:15:00	8	0.208	8.4	9,870	Open	13.9	273
10/3/2024	4:30:00	8	0.208	8.9	9,874	Open	13.9	273
10/3/2024	4:45:00	8	0.284	9.9	9,877	Open	13.8	272
10/3/2024	5:00:00	7.9	0.197	11.1	9,881	Open	13.8	276
10/3/2024	5:15:00	7.9	0.189	11.7	9,884	Open	13.7	276
10/3/2024	5:30:00	8	0.193	13	9,887	Open	13.7	276
10/3/2024	5:45:00	8	0.178	14.8	9,890	Open	13.7	276
10/3/2024	6:00:00	8	0.174	16.1	9,892	Open	13.6	276

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	6:15:00	8	0.268	23.4	9,892	Closed	13.6	276
10/3/2024	6:30:00	7.9	0.302	28.1	9,892	Closed	13.6	276
10/3/2024	6:45:00	7.7	0.318	29.3	9,892	Closed	13.5	276
10/3/2024	7:00:00	7.7	0.318	34.5	9,892	Closed	13.5	276
10/3/2024	7:15:00	7.7	0.170	33.1	9,892	Closed	13.3	276
10/3/2024	7:30:00	7.8	0.208	32.5	9,892	Closed	13.3	276
10/3/2024	7:45:00	7.9	0.393	315.9	9,892	Closed	13.3	276
10/3/2024	8:00:00	7.7	0.314	147.9	9,892	Closed	13.2	273
10/3/2024	8:15:00	7.8	0.318	52.6	9,892	Closed	13.2	273
10/3/2024	8:30:00	7.9	0.321	32.8	9,892	Closed	13.2	273
10/3/2024	8:45:00	7.9	0.310	32.9	9,892	Closed	13.2	273
10/3/2024	9:00:00	8	0.318	28.6	9,892	Closed	13.3	273
10/3/2024	9:15:00	8	0.321	25.5	9,892	Closed	13.3	273
10/3/2024	9:30:00	8	0.280	24.7	9,892	Closed	13.3	271
10/3/2024	9:45:00	8	0.242	21.6	9,892	Closed	13.3	272

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	10:00:00	8	0.242	18	9,892	Closed	13.4	273
10/3/2024	10:15:00	8	0.257	18.8	9,892	Closed	13.4	271
10/3/2024	10:30:00	8	0.265	22.6	9,895	Open	13.5	273
10/3/2024	10:45:00	8	0.318	24.1	9,900	Open	13.6	273
10/3/2024	11:00:00	8	0.318	21.9	9,904	Open	13.7	273
10/3/2024	11:15:00	8	0.344	27.1	9,909	Open	13.8	273
10/3/2024	11:30:00	8	0.325	34.4	9,914	Open	13.8	273
10/3/2024	11:45:00	8	0.325	41.3	9,919	Open	13.9	271
10/3/2024	12:00:00	8	0.321	42.9	9,924	Open	14	273
10/3/2024	12:15:00	8	0.284	39.7	9,928	Open	14	272
10/3/2024	12:30:00	8	0.291	38.5	9,932	Open	14.1	271
10/3/2024	12:45:00	8	0.284	37.1	9,937	Open	14.1	273
10/3/2024	13:00:00	8	0.287	33.2	9,941	Open	14.1	273
10/3/2024	13:15:00	8	0.291	32.4	9,945	Open	14.1	272
10/3/2024	13:30:00	8	0.287	30.3	9,949	Open	14.2	272

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	13:45:00	8	0.291	29.2	9,953	Open	14.3	272
10/3/2024	14:00:00	8	0.299	28.4	9,957	Open	14.3	272
10/3/2024	14:15:00	8	0.287	27.7	9,962	Open	14.3	272
10/3/2024	14:30:00	8	0.291	26.6	9,966	Open	14.4	270
10/3/2024	14:45:00	8	0.321	28.6	9,970	Open	14.4	270
10/3/2024	15:00:00	8	0.321	26.7	9,975	Open	14.4	270
10/3/2024	15:15:00	8	0.318	24.6	9,980	Open	14.3	270
10/3/2024	15:30:00	8	0.318	21.9	9,985	Open	14.3	270
10/3/2024	15:45:00	8	0.321	21	9,989	Open	14.3	268
10/3/2024	16:00:00	6.9	0.363	23.1	9,994	Open	14.3	275
10/3/2024	16:15:00	7	0.321	22.9	9,999	Open	14.3	278
10/3/2024	16:30:00	7.3	0.333	20.3	10,004	Open	14.3	273
10/3/2024	16:45:00	6.9	0.333	20.2	10,009	Open	14.3	278
10/3/2024	17:00:00	7.3	0.325	28.3	10,014	Open	14.3	272
10/3/2024	17:15:00	6.8	0.325	20.2	10,018	Open	14.2	273

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	17:30:00	7.1	0.325	23.6	10,023	Open	14.3	273
10/3/2024	17:45:00	7.2	0.000	97.5	10,025	Closed	14.3	273
10/3/2024	18:00:00	6.7	0.280	55.9	10,025	Closed	14.2	274
10/3/2024	18:15:00	7.1	0.268	35.2	10,026	Open	14.2	273
10/3/2024	18:30:00	7.1	0.272	32.7	10,030	Open	14.2	271
10/3/2024	18:45:00	6.8	0.268	37.9	10,034	Open	14.2	273
10/3/2024	19:00:00	7.3	0.265	39.3	10,039	Open	14.2	269
10/3/2024	19:15:00	6.8	0.268	44.9	10,043	Open	14.1	269
10/3/2024	19:30:00	7	0.265	47.6	10,047	Open	14.1	273
10/3/2024	19:45:00	7.4	0.265	49.7	10,051	Open	14	266
10/3/2024	20:00:00	6.8	0.265	53.3	10,055	Open	14	273
10/3/2024	20:15:00	7.1	0.261	56	10,059	Open	13.9	271
10/3/2024	20:30:00	7.1	0.268	55.8	10,063	Open	14	268
10/3/2024	20:45:00	6.9	0.268	57.4	10,067	Open	13.9	273
10/3/2024	21:00:00	7.3	0.261	53.3	10,068	Open	13.9	269

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/3/2024	21:15:00	6.9	0.261	56.5	10,073	Open	13.8	271
10/3/2024	21:30:00	7	0.208	54.4	10,075	Closed	13.8	271
10/3/2024	21:45:00	7.3	0.280	58.9	10,075	Open	13.8	268
10/3/2024	22:00:00	6.8	0.234	57.2	10,079	Open	13.7	269
10/3/2024	22:15:00	7.1	0.238	54.8	10,082	Open	13.7	269
10/3/2024	22:30:00	7.3	0.284	63.4	10,086	Open	13.7	266
10/3/2024	22:45:00	6.9	0.284	64.7	10,090	Open	13.6	269
10/3/2024	23:00:00	7.2	0.302	55.4	10,094	Open	13.6	268
10/3/2024	23:15:00	6.9	0.318	51.7	10,099	Open	13.6	268
10/3/2024	23:30:00	7.1	0.318	45.2	10,104	Open	13.6	269
10/3/2024	23:45:00	7.2	0.310	38.5	10,109	Open	13.6	266
10/4/2024	0:00:00	6.9	0.310	36.5	10,113	Open	13.6	269
10/4/2024	0:15:00	7.3	0.329	36.6	10,118	Open	13.6	268
10/4/2024	0:30:00	6.8	0.333	38.5	10,123	Open	13.5	268
10/4/2024	0:45:00	7.2	0.321	36.3	10,128	Open	13.6	268

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	1:00:00	7	0.352	35.5	10,133	Open	13.5	266
10/4/2024	1:15:00	7	0.348	33.5	10,138	Open	13.6	268
10/4/2024	1:30:00	7.3	0.344	31.8	10,144	Open	13.5	266
10/4/2024	1:45:00	6.9	0.348	30.5	10,149	Open	13.5	267
10/4/2024	2:00:00	7.4	0.344	27.2	10,154	Open	13.5	266
10/4/2024	2:15:00	6.8	0.344	26.7	10,160	Open	13.5	266
10/4/2024	2:30:00	7.2	0.280	25.8	10,162	Closed	13.4	266
10/4/2024	2:45:00	7	0.280	26.2	10,162	Closed	13.4	266
10/4/2024	3:00:00	7	0.280	29.9	10,162	Closed	13.4	268
10/4/2024	3:15:00	7.4	0.272	37.3	10,162	Closed	13.4	266
10/4/2024	3:30:00	6.8	0.280	41.5	10,162	Closed	13.4	266
10/4/2024	3:45:00	7.1	0.352	56.6	10,164	Open	13.5	268
10/4/2024	4:00:00	7.1	0.344	69.2	10,169	Open	13.5	265
10/4/2024	4:15:00	7	0.352	72.1	10,174	Open	13.6	269
10/4/2024	4:30:00	7.4	0.344	71.6	10,180	Open	13.6	265

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	4:45:00	6.8	0.280	72.4	10,185	Open	13.5	267
10/4/2024	5:00:00	7.2	0.280	69.4	10,189	Open	13.5	267
10/4/2024	5:15:00	7	0.284	64.2	10,193	Open	13.5	265
10/4/2024	5:30:00	6.9	0.299	60.3	10,197	Open	13.5	268
10/4/2024	5:45:00	7.3	0.359	63.3	10,202	Open	13.6	265
10/4/2024	6:00:00	6.8	0.363	61.5	10,208	Open	13.7	265
10/4/2024	6:15:00	7.2	0.374	58.4	10,213	Open	13.7	265
10/4/2024	6:30:00	7.1	0.374	57	10,218	Open	13.7	265
10/4/2024	6:45:00	7	0.359	52.5	10,224	Open	13.6	265
10/4/2024	7:00:00	7.3	0.359	46	10,229	Open	13.6	265
10/4/2024	7:15:00	6.8	0.367	41.2	10,235	Open	13.6	265
10/4/2024	7:30:00	7.2	0.370	40.8	10,240	Open	13.6	267
10/4/2024	7:45:00	7.1	0.370	41.5	10,246	Open	13.6	265
10/4/2024	8:00:00	7	0.355	37.9	10,251	Open	13.6	267
10/4/2024	8:15:00	7.4	0.363	31.4	10,256	Open	13.6	266

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	8:30:00	6.8	0.348	30.2	10,262	Open	13.6	265
10/4/2024	8:45:00	7.2	0.340	25.7	10,267	Open	13.6	265
10/4/2024	9:00:00	7.1	0.340	22.1	10,273	Open	13.6	262
10/4/2024	9:15:00	7	0.340	21.3	10,278	Open	13.6	265
10/4/2024	9:30:00	7.3	0.344	19	10,283	Open	13.6	263
10/4/2024	9:45:00	6.8	0.344	20.5	10,289	Open	13.5	265
10/4/2024	10:00:00	7.1	0.325	18.1	10,294	Open	13.5	265
10/4/2024	10:15:00	7.2	0.340	18.9	10,298	Open	13.5	263
10/4/2024	10:30:00	6.9	0.329	17.4	10,303	Open	13.5	265
10/4/2024	10:45:00	7.3	0.318	43.1	10,308	Open	13.5	263
10/4/2024	11:00:00	7.6	0.302	20.9	10,313	Open	13.6	260
10/4/2024	11:15:00	7.3	0.314	20.6	10,318	Open	13.6	260
10/4/2024	11:30:00	6.8	0.314	19.7	10,322	Open	13.6	265
10/4/2024	11:45:00	7.2	0.299	20.3	10,327	Open	13.6	263
10/4/2024	12:00:00	7.2	0.295	21.6	10,332	Open	13.6	262

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	12:15:00	6.9	0.302	24.3	10,337	Open	13.6	265
10/4/2024	12:30:00	7.2	0.299	23.4	10,341	Open	13.7	263
10/4/2024	12:45:00	7.1	0.299	29.6	10,346	Open	13.7	262
10/4/2024	13:00:00	6.9	0.310	32.2	10,351	Open	13.7	265
10/4/2024	13:15:00	7.2	0.310	31.5	10,356	Open	13.7	265
10/4/2024	13:30:00	7.2	0.045	23.2	10,359	Open	13.9	262
10/4/2024	13:45:00	6.8	0.310	74.3	10,360	Closed	13.8	260
10/4/2024	14:00:00	7.2	0.321	61.7	10,360	Closed	13.8	261
10/4/2024	14:15:00	7.2	0.329	71.2	10,360	Closed	13.9	257
10/4/2024	14:30:00	6.9	0.329	96.2	10,360	Closed	13.9	261
10/4/2024	14:45:00	7.2	0.325	131.8	10,360	Closed	14	259
10/4/2024	15:00:00	7.3	0.329	143.4	10,360	Closed	14.2	259
10/4/2024	15:15:00	6.9	0.325	156.4	10,360	Closed	14	261
10/4/2024	15:30:00	7.2	0.450	264.2	10,360	Closed	13.8	259
10/4/2024	15:45:00	7	0.329	228.1	10,360	Closed	13.9	261

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	16:00:00	7.1	0.318	188.1	10,360	Closed	14	261
10/4/2024	16:15:00	7	0.650	261.9	10,360	Closed	13.9	259
10/4/2024	16:30:00	7.3	0.816	252.9	10,360	Closed	13.8	261
10/4/2024	16:45:00	7	0.775	233.6	10,360	Closed	13.9	264
10/4/2024	17:00:00	7.2	0.420	223.9	10,360	Closed	13.9	261
10/4/2024	17:15:00	6.9	0.299	251.4	10,360	Closed	13.9	261
10/4/2024	17:30:00	7.2	0.314	243.2	10,360	Closed	13.9	258
10/4/2024	17:45:00	7.1	0.306	224.9	10,360	Closed	14.2	263
10/4/2024	18:00:00	6.9	0.299	163.1	10,360	Closed	14.5	262
10/4/2024	18:15:00	7.2	0.302	154.6	10,360	Closed	14.9	261
10/4/2024	18:30:00	7.1	0.306	143.9	10,360	Closed	15.3	261
10/4/2024	18:45:00	6.8	0.302	140.9	10,360	Closed	15.6	261
10/4/2024	19:00:00	7.2	0.302	135.8	10,360	Closed	15.9	262
10/4/2024	19:15:00	7.3	0.299	137.1	10,360	Closed	16.4	263
10/4/2024	19:30:00	6.8	0.299	116.1	10,360	Closed	16.7	262

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	19:45:00	7.1	0.306	125	10,360	Closed	17.2	264
10/4/2024	20:00:00	7.4	0.302	115.3	10,360	Closed	17.6	261
10/4/2024	20:15:00	6.8	0.344	128.8	10,360	Closed	18.6	263
10/4/2024	20:30:00	7.1	0.348	202.5	10,360	Closed	14.9	254
10/4/2024	20:45:00	7.2	0.344	204.7	10,360	Closed	14.1	259
10/4/2024	21:00:00	6.9	0.340	141	10,360	Closed	14	264
10/4/2024	21:15:00	7.3	0.344	145.6	10,360	Closed	14.3	266
10/4/2024	21:30:00	7	0.344	150.3	10,360	Closed	14.4	263
10/4/2024	21:45:00	7	0.336	159.1	10,360	Closed	14.4	264
10/4/2024	22:00:00	7.3	0.340	142.4	10,360	Closed	14.4	264
10/4/2024	22:15:00	6.9	0.336	155.6	10,360	Closed	14.3	263
10/4/2024	22:30:00	7.1	0.333	151.3	10,360	Closed	14.3	266
10/4/2024	22:45:00	7.3	0.329	130.5	10,360	Closed	14.3	266
10/4/2024	23:00:00	6.9	0.333	183.1	10,360	Closed	14.3	266
10/4/2024	23:15:00	7	0.340	138.4	10,360	Closed	14.4	267

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/4/2024	23:30:00	7.3	0.340	127.9	10,360	Closed	15.1	267
10/4/2024	23:45:00	6.8	0.344	108.3	10,360	Closed	15.7	266
10/5/2024	0:00:00	7	0.344	100.2	10,360	Closed	16.3	266
10/5/2024	0:15:00	7.3	0.348	109.8	10,360	Closed	16.7	269
10/5/2024	0:30:00	6.8	0.340	104.6	10,360	Closed	17.2	268
10/5/2024	0:45:00	7.1	0.344	87.6	10,360	Closed	17.6	268
10/5/2024	1:00:00	7.3	0.215	95.3	10,360	Open	17.9	269
10/5/2024	1:15:00	6.8	0.336	108.1	10,364	Open	18.2	268
10/5/2024	1:30:00	7	0.333	134.4	10,369	Open	15.2	268
10/5/2024	1:45:00	7.2	0.325	109.3	10,374	Open	15.7	267
10/5/2024	2:00:00	7	0.329	102	10,379	Open	16.2	268
10/5/2024	2:15:00	6.9	0.336	124	10,383	Open	14.8	264
10/5/2024	2:30:00	7.2	0.333	126.3	10,388	Open	14.5	264
10/5/2024	2:45:00	7	0.336	104	10,393	Open	15.1	264
10/5/2024	3:00:00	6.9	0.333	97	10,398	Open	15.6	262

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	3:15:00	7.2	0.336	93.9	10,402	Open	16.1	262
10/5/2024	3:30:00	7.1	0.321	104.3	10,407	Open	16.5	263
10/5/2024	3:45:00	6.9	0.325	93.3	10,412	Open	16.9	262
10/5/2024	4:00:00	7.2	0.299	76	10,415	Closed	17.3	264
10/5/2024	4:15:00	7.2	0.306	100.4	10,415	Closed	17.6	264
10/5/2024	4:30:00	6.8	0.310	80.3	10,417	Open	17.9	266
10/5/2024	4:45:00	7.1	0.314	79.4	10,422	Open	18.2	266
10/5/2024	5:00:00	7.3	0.185	290	10,426	Closed	14.7	259
10/5/2024	5:15:00	6.7	0.185	216.7	10,426	Closed	14.3	266
10/5/2024	5:30:00	6.9	0.189	231.7	10,426	Closed	13.8	264
10/5/2024	5:45:00	7.2	0.302	232.5	10,426	Closed	13.6	261
10/5/2024	6:00:00	6.9	0.302	219.3	10,426	Closed	13.6	262
10/5/2024	6:15:00	6.9	0.155	226.5	10,426	Closed	13.6	265
10/5/2024	6:30:00	7.2	0.151	222	10,426	Closed	13.6	262
10/5/2024	6:45:00	7.1	0.147	228.5	10,426	Closed	13.6	262

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	7:00:00	6.8	0.155	259.5	10,426	Closed	13.7	266
10/5/2024	7:15:00	7	0.159	316	10,426	Closed	13.7	264
10/5/2024	7:30:00	7.3	0.238	316.9	10,426	Closed	13.7	261
10/5/2024	7:45:00	6.8	0.367	275.2	10,426	Closed	13.7	266
10/5/2024	8:00:00	7.2	0.359	397.8	10,426	Closed	13.7	262
10/5/2024	8:15:00	7	0.340	273.4	10,426	Closed	13.7	261
10/5/2024	8:30:00	7.1	0.340	271.3	10,426	Closed	13.8	261
10/5/2024	8:45:00	7.3	0.352	339.3	10,426	Closed	13.8	261
10/5/2024	9:00:00	6.9	0.352	332.6	10,426	Closed	13.8	266
10/5/2024	9:15:00	7.3	0.363	337.7	10,426	Closed	13.9	264
10/5/2024	9:30:00	6.9	0.355	329	10,426	Closed	13.9	264
10/5/2024	9:45:00	7.2	0.355	323.9	10,426	Closed	13.9	264
10/5/2024	10:00:00	7.1	0.344	298.7	10,426	Closed	14	264
10/5/2024	10:15:00	7	0.348	306.4	10,426	Closed	14	266
10/5/2024	10:30:00	7.3	0.363	302.7	10,426	Closed	14	262

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	10:45:00	6.9	0.355	302	10,426	Closed	14	268
10/5/2024	11:00:00	7.2	0.352	302.1	10,426	Closed	14	264
10/5/2024	11:15:00	7	0.355	292	10,426	Closed	14.3	263
10/5/2024	11:30:00	6.9	0.363	229	10,426	Closed	14	263
10/5/2024	11:45:00	7.3	0.363	285.1	10,426	Closed	14.1	263
10/5/2024	12:00:00	6.9	0.333	212.2	10,426	Closed	14.1	262
10/5/2024	12:15:00	7.1	0.336	205.8	10,426	Closed	14.5	264
10/5/2024	12:30:00	7.3	0.344	179.7	10,429	Open	14.6	266
10/5/2024	12:45:00	6.9	0.348	177.9	10,431	Open	14.7	264
10/5/2024	13:00:00	7.2	0.340	151.5	10,433	Closed	14.6	264
10/5/2024	13:15:00	7.2	0.348	149.6	10,436	Closed	14.7	265
10/5/2024	13:30:00	7	0.352	146.7	10,440	Open	14.9	263
10/5/2024	13:45:00	7.2	0.374	135	10,442	Open	14.8	262
10/5/2024	14:00:00	7.1	0.333	138	10,444	Open	14.7	262
10/5/2024	14:15:00	7	0.389	135.7	10,448	Closed	14.8	266

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	14:30:00	7.3	0.412	136	10,452	Open	14.8	266
10/5/2024	14:45:00	7	0.404	127.6	10,454	Open	14.9	261
10/5/2024	15:00:00	7.1	0.397	111.9	10,456	Open	14.9	265
10/5/2024	15:15:00	7.3	0.389	115.9	10,461	Closed	15.1	266
10/5/2024	15:30:00	6.8	0.367	113.5	10,464	Open	15	264
10/5/2024	15:45:00	7.1	0.435	118.1	10,467	Open	15.4	267
10/5/2024	16:00:00	7.3	0.420	126.8	10,470	Closed	15.5	264
10/5/2024	16:15:00	6.9	0.374	113.4	10,474	Closed	15.2	264
10/5/2024	16:30:00	7	0.389	106.4	10,478	Open	15.2	263
10/5/2024	16:45:00	7.3	0.389	94.9	10,480	Open	15.2	264
10/5/2024	17:00:00	6.8	0.374	98.9	10,482	Closed	15.3	263
10/5/2024	17:15:00	7.1	0.389	103.5	10,488	Closed	15.2	264
10/5/2024	17:30:00	7.3	0.404	93.8	10,492	Open	15.2	264
10/5/2024	17:45:00	6.9	0.370	88.4	10,492	Closed	15.2	264
10/5/2024	18:00:00	7.2	0.370	86.3	10,492	Closed	15.1	263

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	18:15:00	7.1	0.401	85.1	10,493	Open	15.2	264
10/5/2024	18:30:00	6.9	0.370	74.4	10,496	Open	15.2	267
10/5/2024	18:45:00	7.3	0.386	77.2	10,500	Closed	15.2	266
10/5/2024	19:00:00	6.9	0.363	71.8	10,504	Open	15.2	266
10/5/2024	19:15:00	7	0.348	64.4	10,509	Open	15.2	267
10/5/2024	19:30:00	7.3	0.412	67.5	10,515	Open	15.2	267
10/5/2024	19:45:00	6.9	0.412	58.4	10,522	Open	15.4	264
10/5/2024	20:00:00	7	0.401	43.1	10,528	Open	15.5	268
10/5/2024	20:15:00	7.3	0.446	46.9	10,534	Open	15.5	268
10/5/2024	20:30:00	6.9	0.427	44	10,541	Open	15.3	264
10/5/2024	20:45:00	7.1	0.450	43.1	10,547	Open	15.4	269
10/5/2024	21:00:00	7.2	0.435	46.1	10,554	Open	15.2	266
10/5/2024	21:15:00	6.9	0.435	45.3	10,561	Open	15.3	267
10/5/2024	21:30:00	7.3	0.427	47.6	10,567	Open	15.4	271
10/5/2024	21:45:00	7	0.427	46.4	10,574	Open	15.2	264

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/5/2024	22:00:00	7	0.423	48.2	10,580	Open	15.2	269
10/5/2024	22:15:00	7.3	0.423	54.5	10,586	Open	15.2	267
10/5/2024	22:30:00	6.9	0.427	50.6	10,592	Open	15.1	263
10/5/2024	22:45:00	7.2	0.423	47.4	10,599	Open	15.2	268
10/5/2024	23:00:00	7.1	0.423	49.8	10,605	Open	15.1	266
10/5/2024	23:15:00	7	0.412	46.7	10,611	Open	15.1	266
10/5/2024	23:30:00	7.3	0.423	44.9	10,617	Open	15.1	269
10/5/2024	23:45:00	6.9	0.412	45.6	10,623	Open	15.2	264
10/6/2024	0:00:00	7.1	0.412	49.3	10,629	Open	15.1	264
10/6/2024	0:15:00	7.3	0.412	51.7	10,635	Open	15	267
10/6/2024	0:30:00	6.9	0.412	47.8	10,641	Open	15.1	267
10/6/2024	0:45:00	7.3	0.397	44.4	10,648	Open	14.9	266
10/6/2024	1:00:00	7	0.416	49.9	10,654	Open	15	267
10/6/2024	1:15:00	7	0.408	47.7	10,660	Open	15.1	269
10/6/2024	1:30:00	7.4	0.404	51.7	10,666	Open	15.2	268

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	1:45:00	6.9	0.404	58.1	10,672	Open	15.2	266
10/6/2024	2:00:00	7.2	0.401	65.1	10,678	Open	15.2	268
10/6/2024	2:15:00	7.1	0.404	72.2	10,684	Open	15.2	266
10/6/2024	2:30:00	7	0.389	75.8	10,687	Closed	15.1	269
10/6/2024	2:45:00	7.4	0.382	83.5	10,690	Closed	15.2	269
10/6/2024	3:00:00	6.9	0.397	92.1	10,693	Open	15.2	268
10/6/2024	3:15:00	7.2	0.404	90.9	10,695	Open	15.1	271
10/6/2024	3:30:00	7.2	0.393	100.8	10,699	Closed	15.2	269
10/6/2024	3:45:00	6.9	0.389	103.1	10,703	Closed	15.2	271
10/6/2024	4:00:00	7.3	0.404	104.5	10,705	Open	15.2	271
10/6/2024	4:15:00	6.9	0.382	103.6	10,707	Closed	15.1	269
10/6/2024	4:30:00	7.1	0.000	112.2	10,712	Closed	15.3	273
10/6/2024	4:45:00	7.2	0.389	105.2	10,715	Open	15.4	271
10/6/2024	5:00:00	7	0.389	111.9	10,718	Open	15.3	271
10/6/2024	5:15:00	7	0.370	109.9	10,720	Closed	14.9	270

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	5:30:00	7.3	0.367	106.8	10,724	Closed	14.8	270
10/6/2024	5:45:00	6.9	0.401	111.5	10,727	Open	14.8	270
10/6/2024	6:00:00	7.1	0.374	106.1	10,728	Closed	14.6	269
10/6/2024	6:15:00	7.3	0.378	103.7	10,733	Closed	14.6	269
10/6/2024	6:30:00	6.9	0.386	105.4	10,735	Open	14.5	269
10/6/2024	6:45:00	7.2	0.367	103	10,737	Closed	14.5	271
10/6/2024	7:00:00	7.2	0.370	104.3	10,742	Closed	14.6	269
10/6/2024	7:15:00	6.9	0.393	103.4	10,745	Open	14.6	270
10/6/2024	7:30:00	7.2	0.469	182	10,749	Open	14.6	271
10/6/2024	7:45:00	6.9	0.469	140.8	10,751	Open	14.2	266
10/6/2024	8:00:00	7	0.442	130.4	10,756	Closed	14	269
10/6/2024	8:15:00	7.2	0.480	88.8	10,760	Open	14.1	267
10/6/2024	8:30:00	7.1	0.446	149.4	10,763	Open	14.1	268
10/6/2024	8:45:00	7.1	0.473	109	10,767	Closed	14	264
10/6/2024	9:00:00	7.1	0.431	107.7	10,771	Closed	14	268

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	9:15:00	7.1	0.435	104.5	10,776	Open	14	266
10/6/2024	9:30:00	7.1	0.427	98.6	10,778	Open	14	268
10/6/2024	9:45:00	7.1	0.420	97.5	10,780	Closed	14	266
10/6/2024	10:00:00	7.1	0.412	97.3	10,785	Closed	14.1	266
10/6/2024	10:15:00	7.1	0.427	96	10,789	Open	14.1	264
10/6/2024	10:30:00	7.1	0.359	90.8	10,794	Open	14.2	267
10/6/2024	10:45:00	7.2	0.363	83.9	10,800	Open	14.2	264
10/6/2024	11:00:00	7	0.363	89.6	10,805	Open	14.2	266
10/6/2024	11:15:00	7.3	0.348	82.6	10,811	Open	14.3	265
10/6/2024	11:30:00	7	0.355	89.6	10,816	Open	14.4	268
10/6/2024	11:45:00	7.3	0.363	88.5	10,822	Open	14.4	264
10/6/2024	12:00:00	6.9	0.427	83.4	10,827	Open	14.5	267
10/6/2024	12:15:00	7.3	0.427	72.4	10,834	Open	14.6	263
10/6/2024	12:30:00	6.9	0.431	70.1	10,840	Open	14.7	264
10/6/2024	12:45:00	7.3	0.423	70	10,846	Open	14.8	264

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	13:00:00	6.9	0.435	66.6	10,852	Open	14.8	262
10/6/2024	13:15:00	7.3	0.423	65.2	10,859	Open	14.9	262
10/6/2024	13:30:00	6.9	0.427	60	10,865	Open	14.9	261
10/6/2024	13:45:00	7.3	0.423	51.7	10,871	Open	14.9	262
10/6/2024	14:00:00	6.9	0.412	51.9	10,878	Open	14.9	261
10/6/2024	14:15:00	7.3	0.420	43.1	10,884	Open	15	262
10/6/2024	14:30:00	6.9	0.427	46.7	10,890	Open	15	259
10/6/2024	14:45:00	7.3	0.423	41.9	10,896	Open	15	261
10/6/2024	15:00:00	6.9	0.420	35.3	10,903	Open	15	260
10/6/2024	15:15:00	7.3	0.420	34.4	10,909	Open	15	259
10/6/2024	15:30:00	6.9	0.420	34.3	10,915	Open	15	259
10/6/2024	15:45:00	7.3	0.435	26.9	10,921	Open	15	260
10/6/2024	16:00:00	6.9	0.423	28	10,928	Open	15	258
10/6/2024	16:15:00	7.2	0.431	27.6	10,934	Open	15.1	261
10/6/2024	16:30:00	6.9	0.438	31.7	10,941	Open	15.1	258

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	16:45:00	7.2	0.404	35.8	10,947	Open	14.9	258
10/6/2024	17:00:00	6.9	0.401	46.2	10,954	Open	14.8	257
10/6/2024	17:15:00	7.2	0.397	44.4	10,960	Open	14.8	258
10/6/2024	17:30:00	6.9	0.404	45.7	10,966	Open	14.7	257
10/6/2024	17:45:00	7.2	0.397	47.2	10,972	Open	14.7	253
10/6/2024	18:00:00	6.9	0.401	48.4	10,978	Open	14.6	253
10/6/2024	18:15:00	7.2	0.397	55.3	10,984	Open	14.5	255
10/6/2024	18:30:00	7	0.393	48.6	10,990	Open	14.5	255
10/6/2024	18:45:00	7.2	0.386	46.2	10,996	Open	14.4	255
10/6/2024	19:00:00	7	0.397	46.1	11,002	Open	14.4	253
10/6/2024	19:15:00	7.1	0.389	50.4	11,009	Open	14.3	256
10/6/2024	19:30:00	7	0.382	53.4	11,015	Open	14.2	253
10/6/2024	19:45:00	7.1	0.386	52.2	11,021	Open	14.2	255
10/6/2024	20:00:00	7	0.389	54.8	11,027	Open	14.1	253
10/6/2024	20:15:00	7.1	0.397	49.6	11,033	Open	14.1	257

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**September 30th to October 6th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 21st**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/6/2024	20:30:00	7.1	0.393	47.8	11,039	Open	14	255
10/6/2024	20:45:00	7.1	0.386	45.6	11,045	Open	13.9	256
10/6/2024	21:00:00	7.1	0.386	51.1	11,051	Open	13.9	255
10/6/2024	21:15:00	7.1	0.386	44	11,057	Open	13.8	258
10/6/2024	21:30:00	7.2	0.386	45.4	11,063	Open	13.8	255
10/6/2024	21:45:00	7	0.408	42.3	11,069	Open	13.7	258
10/6/2024	22:00:00	7.2	0.393	42	11,075	Open	13.7	114
10/6/2024	22:15:00	7	0.382	40.1	11,081	Open	13.7	258
10/6/2024	22:30:00	7.3	0.386	38.7	11,086	Open	13.6	114
10/6/2024	22:45:00	7	0.393	33.9	11,092	Open	13.6	256
10/6/2024	23:00:00	7.3	0.389	35.9	11,098	Open	13.5	113
10/6/2024	23:15:00	6.9	0.374	31.2	11,104	Open	13.5	259
10/6/2024	23:30:00	7.3	0.386	34	11,109	Open	13.5	114
10/6/2024	23:45:00	6.9	0.370	33.7	11,115	Open	13.4	259

Appendix B: Photos

Photo 1: No visible sheen observed in the WTP tank, September 30th

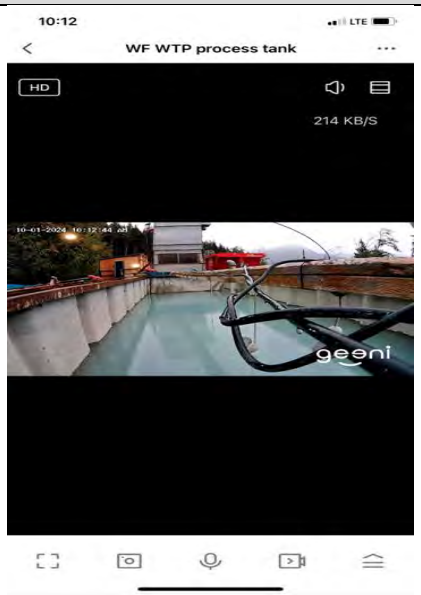



Photo 2: No visible sheen observed in the WTP water, October 1st


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

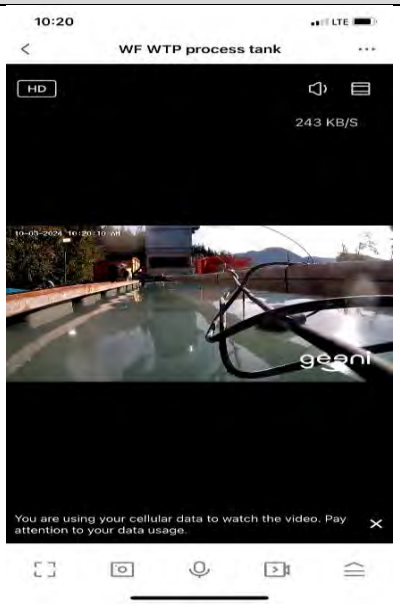



Photo 4: No visible sheen observed in the WTP water, October 4th

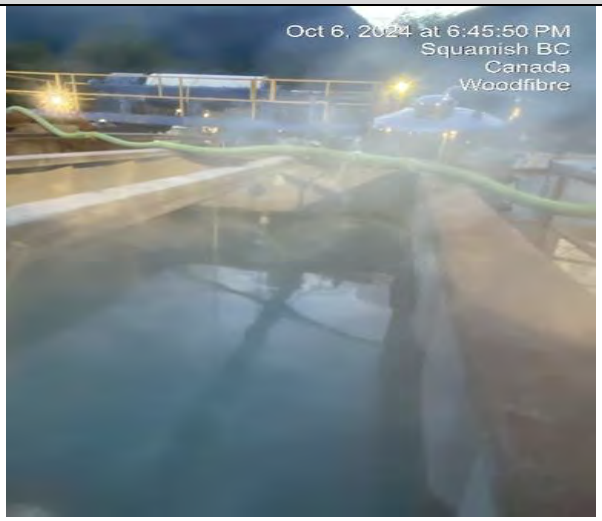

Photo 5: No visible sheen observed in the WTP water, October 6th


Photo 6: YSI logging in Est Creek during discharge

Photo 7: YSI readings in East Creek during discharge


Photo 8: YSI probe location/ monitoring during discharge

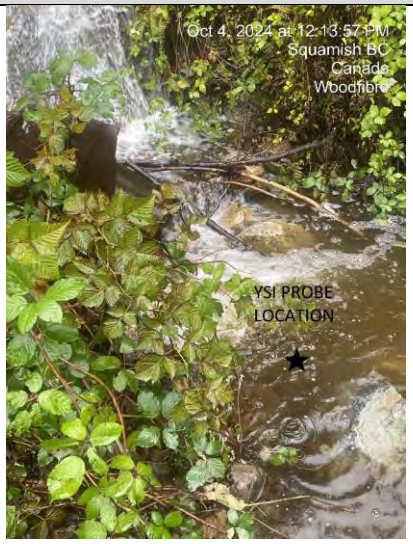



Photo 9: YSI readings in East Creek during discharge


Photo 10: YSI probe location/ monitoring during discharge

Photo 11: YSI monitoring/ logging data within East Creek downstream of WTP discharge


Appendix D: Woodfibre Site Receiving Environment Documentation

Woodfibre Site Receiving Environment Sample Analysis

TRITON	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					VA24C6316-001	VA24C6316-002					
	Date Sampled					02-Oct-2024	02-Oct-2024					
	Time Sampled					09:36	12:19					
Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Water	Water					
						N/A	N/A		Guideline notes			
In Situ Parameters												
pH (field)	pH units	6.5-9.0	6.5-9.0	7.0-8.7	7.0-8.7	7.25	7.18		If natural pH < 6.5, no statisticaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C [4] 5 week averages: US: 14.8 DS: 15.2	-	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C [4] 5 week averages: US: 14.8 DS: 15.2	-	12.2	13.8		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	-	-	-	-	40	42					
Turbidity (field)	NTU	Varies with background, see note Guideline = 8.5	Varies with background, see note Guideline = 2.77 5-week discrete sampling average = 2.56 (DS)	Varies with background, see note Guideline = 8.5	Varies with background, see note Guideline = 2.77 5-week discrete sampling average = 2.56 (DS)	0.45	1.20		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	9.63	9.41		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	-	-	-	-	10.3	11.5					
Total Dissolved Solids	mg/L	-	-	-	-	41	34					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 28	Varies with background, see note Guideline = 8.00 5-week discrete sampling average = 3.46 (DS)	Varies with background, see note Guideline = 28	Varies with background, see note Guideline = 8.00 5-week discrete sampling average = 3.46 (DS)	< 3.0	< 3.0		Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 25 = DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.	Change from background of 25 mg/L at any one time for duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 25 = DS guideline Change from background of 10 mg/L at any one time when background 25-100 mg/L during high flows or turbid waters. Calculation: US value + 10 = DS guideline Change from background of 10% when background is > 100 mg/L at any time during high flows or turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 5 mg/L @ one time for a druation of 30 days in clear flow. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Organic Carbon (DOC)	mg/L	-	-	-	-	2.74	2.31			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	8.4	10.7	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. Guideline = 15.7	Varies with pH and temperature. See note. Guideline = 1.78	Varies with pH and temperature. See note. Guideline = 83	Varies with pH, temperature and salinity. See note. Guideline = 8.7	< 0.0050	< 0.0050		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	600	150	> 110% of background	< 90% of background	1	0.92				Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.	Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that
Fluoride	mg/L	Varies with hardness Guideline =0.420	-	1.5	-	0.025	0.033		Guideline has interim status. Guideline is calculated with the following equation: Guideline = [-51.73 + 92.57 log10 (hardness)] * 0.01			
Nitrate (as N)	mg/L	32.8	3	-	3.7	0.0642	0.0052					
Nitrite (as N)	mg/L	Varies with chloride. Table 27B, see note. Guideline = 0.06	Varies with chloride. Table 27B, see note. Guideline = 0.02	-	-	< 0.0010	< 0.0010		Varies with chloride. Refer to Table 27B in BC WQG for guideline values.	Varies with chloride. Refer to Table 27B in BC WQG for guideline values.		
Total Nitrogen	mg/L	-	-	-	-	0.108	0.05					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0072	0.0081			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. Guideline = 128	-	-	3.88	3.66			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	-	Varies with pH, DOC, hardness Guideline = 0.085 5-week field average = 0.056 (US), 0.081 (DS)	-	-	0.0644	0.0915			Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.25	0.074	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00014	0.00016					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.00463	0.0057			Working guideline status		
Beryllium (Be)-Total	mg/L	-	0.00013	-	0.100	< 0.000100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Total	mg/L	-	1.2	-	1.2	< 0.010	< 0.010					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	< 0.0000050	0.0000064					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	3.29	3.84					
Cesium (Cs)-Total	mg/L	-	-	-	-	< 0.000010	0.000014					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	-	0.0025	-	0.0015	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00066	0.00054					
Iron (Fe)-Total	mg/L	1	-	-	-	0.068	0.085					
Lead (Pb)-Total	mg/L	-	-	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	-	-	-	-	0.503	0.475					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.82	Varies with hardness Guideline = 0.77	-	-	0.002	0.00288		Guideline varies with hardness. The guideline is calculated using the following equation: Guideline = (0.0044 * hardness + 0.605) Guideline applies to samples with hardness 25-259 mg/L. Lowest value for guideline is 0.77 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline varies with hardness, refer to BC Water Quality Guidelines for more information. The guideline is calculated using the following formula: Guideline = (0.01102 * hardness + 0.54) Guideline applies to samples with hardness 37-450 mg/L. Lowest value for guideline is 0.81 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Mercury (Hg)-Total	mg/L	-	Varies with methyl mercury Guideline = N/A	-	-	< 0.0000050	< 0.0000050			When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L Guideline = 0.1/[MeHg/totalHg]. When MeHg ≤ 0.5% of total Hg, guideline is equal to 0.02 mg/L		
Molybdenum (Mo)-Total	mg/L	46	7.6	-	-	0.000482	0.00136					
Nickel (Ni)-Total	mg/L	-	-	-	0.0083	< 0.00050	< 0.00050			Working guideline status. Guideline varies with hardness. Refer to BC Water Quality Guidelines for more information. Hardness 0 ≤ 60: 0.025 Hardness > 60 ≤ 180: Guideline = (EXP((0.76 * (LN(hardness)) + 1.06))/1000) Hardness ≥ 180: 0.15		Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	< 0.050	< 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	-	-	-	-	0.269	0.249					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00058	0.00055					
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 guidelines for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guideliens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	4.79	5					
Silver (Ag)-Total	mg/L	Varies with hardness, see note Guideline = 0.0001	Varies with hardness, see note Guideline = 0.00005	0.003	0.0015	< 0.000010	< 0.000010		Varies with hardness Guideline ranges: Hardness ≤ 100: 0.0001 Hardness > 100: 0.003	Varies with hardness Guideline ranges: Hardness ≤ 100: 0.00005 Hardness > 100: 0.0015		Guideline applies to open coast and estuaries. Guideline is applicable to the EGP site.
Sodium (Na)-Total	mg/L	-	-	-	-	2.07	2.04					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0167	0.0161					
Sulfur (S)-Total	mg/L	-	-	-	-	0.93	1.02					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week field average = < 0.000010 (US), 0.000048 (DS)	-	-	< 0.000010	< 0.000010			30-day average, site-specific objective for the lower Columbia River, BC. Guideline is for reference only and does not apply to the EGP site.		
Thorium (Th)-Total	mg/L	-	-	-	-	< 0.00010	< 0.000010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.00087	0.00232					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.000083	0.000162			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005	< 0.00050	< 0.00050					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010	< 0.0030	< 0.0030					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0453	0.0373					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00012	0.00013					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0044	0.00474					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	< 0.010	< 0.010					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note Guideline = 0.000057	Varies with hardness, see note Guideline = 0.000039	-	-	0.000006	< 0.0000050		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	-	Categorical, see note	-	-	3.02	3.74	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 = 0.0029	Guideline varies with other parameters, see note Guideline = 0.0004 5-week field average = **0.0005** (US), **0.0004** (DS)	-	-	***0.00054***	***0.00042***	**Dissolved copper at the upstream and downstream location exceeds long-term BCWQG for FAL.** However, this is likely naturally occurring because upstream (i.e., background) has higher concentration compared to downstream site.	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	-	-	-	0.043	0.037					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline: 0.00189 5-week field average = 0.00005 (US), 0.00005 (DS)	-	-	< 0.000050	< 0.000050			Guideline varies with DOC and hardness, refer to BC Water Quality Guidelines for more information. Guideline uses equation (EXP((0.514*LN(DOC))+(0.214*(LN(Hardness)))+0.4354))/2/1000 where DOC range is 0.5-31.5 mg/L and hardness range is 4.7-511 mg/L.		
Lithium (Li)-Dissolved	mg/L	-	-	-	-	< 0.0010	< 0.0010					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	0.473	0.461					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00136	0.00186					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000456	0.00132					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with pH, temperature, DOC, and hardness Guideline: 0.019	Guideline varies with pH, temperature, DOC, and hardness Guideline: 0.00118 5-week field average = 0.0005 (US), 0.0005 (DS)	-	-	< 0.0005	< 0.0005		Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.26	0.236					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00064	0.00051					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.88	5.06					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.93	1.86					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0148	0.0148					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.15	1.06					
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	-	-	-	-	0.000077	0.000126					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.010	Varies with pH, DOC, hardness Guideline = 0.0037	-	-	< 0.0010	0.0013		Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Applied Guideline:		**British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life** **British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life**										
Color Key:	**Exceeds both FAL and MAL Guidelines**	**Exceeds FAL Short term Guideline**	***Exceeds FAL Long term Guideline***	**Exceeds MAL Short term Guideline**	***Exceeds MAL Long term Guideline***							
Color Key:		**Exceeds FAL Short and Long-Term Guideline**		**Exceeds MAL Short and Long-term Guidelines**								

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

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

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

[4]Background temperature ranges: Dec-Feb: 0.3-8.0C; Mar-Apr: 3.0-10.2C; May-June: 6.8-15.1C; Jul-present: 12.9-18.2C

Reference: AquaTROLL In-Situ Data Logger - Background water quality readings collected from Dec.-present.
For guidelines dependent on other parameters, when hardness, pH or DOC are below the range stated in the guideline, the lowest value in the range is used to calculate the

Parameters Used to Calculate Guidelines

Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Values: WLNG US1 (Upstream)	Values: WLNG DS 1 (Downstream)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				7.25	7.18
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				12.2	13.8
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				0.45	1.20
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				10.3	11.5
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				2.74	2.31
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				8.4	10.7
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1	0.92

Woodfibre Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C6316**			
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Account Manager	:	
Address	:	Address	:	
Telephone	:	Telephone	:	
Project	: 11964	Date Samples Received	:	02-Oct-2024 17:30
PO	: 11964 - Task 20 -Phase 3C-4C	Date Analysis Commenced	:	05-Oct-2024
C-O-C number	: ----	Issue Date	:	10-Oct-2024 16:55
Sampler	: ----			
Site	: Water Analysis			
Quote number	: VA23-TRIT100-012			
No. of samples received	: 2			
No. of samples analysed	: 2			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
		Metals, Burnaby, British Columbia
		Inorganics, Calgary, Alberta
		Metals, Burnaby, British Columbia
		Inorganics, Burnaby, British Columbia
		Metals, Waterloo, Ontario
		Inorganics, Waterloo, Ontario
		Administration, Burnaby, British Columbia
		Metals, Burnaby, British Columbia
		Metals, Burnaby, British Columbia

General Comments

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

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

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

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

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

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

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

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

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
				Client sampling date / time	02-Oct-2024 09:36	02-Oct-2024 12:19	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6316-001	VA24C6316-002	----	----	----
					Result	Result	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	40.000	42.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.25	7.18	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	12.2	13.8	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	9.49	11.2	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	10.3	11.5	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	41	34	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	8.4	10.7	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	1.00	0.92	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.025	0.033	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0642	0.0052	----	----	----
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	0.108	0.050	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0072	0.0081	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	3.88	3.66	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/CG	0.50	mg/L	2.74	2.31	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	02-Oct-2024 09:36	02-Oct-2024 12:19	----	----	----
						VA24C6316-001	VA24C6316-002	----	----	----
						Result	Result	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	<0.0015	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0644	0.0915	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00014	0.00016	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00463	0.00570	----	----	----
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		<0.0000050	0.0000064	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		3.29	3.84	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		<0.000010	0.000014	----	----	----
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		0.00066	0.00054	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.068	0.085	----	----	----
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		0.503	0.475	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	02-Oct-2024 09:36	02-Oct-2024 12:19	----	----	----
						VA24C6316-001	VA24C6316-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00200	0.00288	----	----	----
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		0.000482	0.00136	----	----	----
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		0.269	0.249	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00058	0.00055	----	----	----
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		4.79	5.00	----	----	----
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		2.07	2.04	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0167	0.0161	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		0.93	1.02	----	----	----
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	----	----	----
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		0.00087	0.00232	----	----	----
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		0.000083	0.000162	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time: 02-Oct-2024 09:36	02-Oct-2024 12:19	----	----	----
					VA24C6316-001	VA24C6316-002	----	----	----
					Result	Result	----	----	----
Total Metals									
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	0.0453	0.0373	----	----	----
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	0.00013	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00440	0.00474	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L	<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000060	<0.0000050	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	3.02	3.74	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	<0.000010	<0.000010	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00054	0.00042	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.043	0.037	----	----	----
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	0.473	0.461	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00136	0.00186	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time: 02-Oct-2024 09:36	02-Oct-2024 12:19	----	----	----
					VA24C6316-001	VA24C6316-002	----	----	----
					Result	Result	----	----	----
Dissolved Metals									
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.000456	0.00132	----	----	----
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	0.260	0.236	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L	0.00064	0.00051	----	----	----
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	4.88	5.06	----	----	----
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	1.86	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0148	0.0148	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	1.15	1.06	----	----	----
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	0.000077	0.000126	----	----	----
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	<0.0010	0.0013	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG US 1	WLNG DS 1	----	----	----
					Client sampling date / time	02-Oct-2024 09:36	02-Oct-2024 12:19	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6316-001	VA24C6316-002	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/WT	0.00050	mg/L		<0.00050	<0.00050	----	----	----

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

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

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C6316**	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	: 02-Oct-2024 17:30
PO	: 11964 - Task 20 -Phase 3C-4C	Issue Date	: 10-Oct-2024 16:55
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	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	10-Oct-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG US 1	E298	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	10-Oct-2024	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.Br-L	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG US 1	E235.Br-L	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG DS 1	E235.Cl	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG US 1	E235.Cl	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG DS 1	E235.F	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WLNG US 1	E235.F	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO3-L	02-Oct-2024	05-Oct-2024	3 days	3 days	✓	05-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO3-L	02-Oct-2024	05-Oct-2024	3 days	3 days	✓	05-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO2-L	02-Oct-2024	05-Oct-2024	3 days	3 days	✓	05-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO2-L	02-Oct-2024	05-Oct-2024	3 days	3 days	✓	05-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG DS 1	E235.SO4	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG US 1	E235.SO4	02-Oct-2024	05-Oct-2024	28 days	3 days	✓	05-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG DS 1	E366	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	09-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG US 1	E366	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	09-Oct-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG DS 1	E372-U	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	09-Oct-2024	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG US 1	E372-U	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	09-Oct-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG DS 1	E509	02-Oct-2024	10-Oct-2024	28 days	8 days	✓	10-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG US 1	E509	02-Oct-2024	10-Oct-2024	28 days	8 days	✓	10-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG DS 1	E421	02-Oct-2024	07-Oct-2024	180 days	5 days	✓	07-Oct-2024	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG US 1	E421	02-Oct-2024	07-Oct-2024	180 days	5 days	✓	07-Oct-2024	180 days	6 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	02-Oct-2024	----	----	----		08-Oct-2024	----	6 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	02-Oct-2024	----	----	----		08-Oct-2024	----	6 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG DS 1	E358-L	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	09-Oct-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
WLNG US 1	E358-L	02-Oct-2024	08-Oct-2024	28 days	6 days	✓	09-Oct-2024	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG DS 1	E290	02-Oct-2024	05-Oct-2024	14 days	3 days	✓	05-Oct-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WLNG US 1	E290	02-Oct-2024	05-Oct-2024	14 days	3 days	✓	05-Oct-2024	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	02-Oct-2024	----	----	----		08-Oct-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	02-Oct-2024	----	----	----		08-Oct-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	02-Oct-2024	----	----	----		08-Oct-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	02-Oct-2024	----	----	----		08-Oct-2024	7 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG DS 1	E532	02-Oct-2024	----	----	----		07-Oct-2024	28 days	5 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG US 1	E532	02-Oct-2024	----	----	----		07-Oct-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG DS 1	E508	02-Oct-2024	10-Oct-2024	28 days	8 days	✓	10-Oct-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG US 1	E508	02-Oct-2024	10-Oct-2024	28 days	8 days	✓	10-Oct-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG DS 1	E420	02-Oct-2024	07-Oct-2024	180 days	5 days	✓	08-Oct-2024	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG US 1	E420	02-Oct-2024	07-Oct-2024	180 days	5 days	✓	08-Oct-2024	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG DS 1	E395	02-Oct-2024	----	----	----		06-Oct-2024	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG US 1	E395	02-Oct-2024	----	----	----		06-Oct-2024	7 days	4 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1692027	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1696672	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1692022	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	1692021	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1702466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1691225	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1697293	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1692020	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1692023	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1692024	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1692025	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1697543	1	17	5.8	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694796	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1700926	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1691299	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1696674	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1696675	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1697524	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1692027	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1696672	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1692022	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	1692021	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1702466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1691225	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1697293	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1692020	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1692023	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1692024	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1692025	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1697543	1	17	5.8	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694796	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1700926	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1691299	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1696674	1	16	6.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1696675	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1697524	1	17	5.8	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1692027	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1696672	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1692022	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	1692021	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1702466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1691225	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1697293	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1692020	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1692023	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1692024	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1692025	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1697543	1	17	5.8	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694796	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1700926	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1691299	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1696674	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1696675	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1697524	1	17	5.8	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1696672	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1692022	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	1692021	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1702466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1691225	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1697293	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1692020	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1692023	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1692024	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1692025	1	18	5.5	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1694796	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1700926	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1691299	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1696674	1	16	6.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1696675	1	16	6.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1693270	1	16	6.2	5.0	✓

Methodology References and Summaries

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

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

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

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

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

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

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C6316**	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	: 02-Oct-2024 17:30
PO	: 11964 - Task 20 -Phase 3C-4C	Date Analysis Commenced	: 05-Oct-2024
C-O-C number	: ----	Issue Date	: 10-Oct-2024 16:56
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*
		Vancouver Metals, Burnaby, British Columbia
		Calgary Inorganics, Calgary, Alberta
		Vancouver Metals, Burnaby, British Columbia
		Vancouver Inorganics, Burnaby, British Columbia
		Waterloo Inorganics, Waterloo, Ontario
		Waterloo Metals, Waterloo, Ontario
		Vancouver Administration, Burnaby, British Columbia
		Vancouver Metals, Burnaby, British Columbia
		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: 1692027)											
FJ2403020-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	149	147	1.08%	20%	----
Physical Tests (QC Lot: 1697524)											
VA24C6316-001	WLNG US 1	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1697543)											
VA24C6316-001	WLNG US 1	Solids, total dissolved [TDS]	----	E162	10	mg/L	41	38	3	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1692020)											
FJ2403017-001	Anonymous	Fluoride	16984-48-8	E235.F	0.400	mg/L	<0.400	<0.400	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1692021)											
FJ2403017-001	Anonymous	Chloride	16887-00-6	E235.Cl	10.0	mg/L	24.8	25.7	0.88	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1692022)											
FJ2403017-001	Anonymous	Bromide	24959-67-9	E235.Br-L	1.00	mg/L	2.23	1.91	0.314	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1692023)											
FJ2403017-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	27.2	28.1	3.24%	20%	----
Anions and Nutrients (QC Lot: 1692024)											
FJ2403017-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	0.187	0.199	0.0121	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1692025)											
FJ2403017-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	873	900	3.05%	20%	----
Anions and Nutrients (QC Lot: 1696672)											
VA24C5741-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0067	0.0067	0.00006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1696674)											
VA24C5741-003	Anonymous	Nitrogen, total	7727-37-9	E366	0.030	mg/L	0.045	0.044	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1696675)											
VA24C6040-004	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0178	0.0180	0.0003	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1697293)											
VA24C5913-012	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.41	2.40	0.02	Diff <2x LOR	----
Total Sulfides (QC Lot: 1693270)											
TY2410899-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0038	mg/L	0.0094	0.0089	0.0005	Diff <2x LOR	----
Total Metals (QC Lot: 1691299)											
FJ2402977-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0109	0.0105	0.0004	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00052	0.00065	0.00013	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: 1691299) - continued											
FJ2402977-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00114	0.00118	2.99%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.242	0.235	3.01%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000056	<0.0000050	0.0000006	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	39.5	42.0	6.27%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00059	0.00061	0.00002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00072	0.00069	0.00003	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	1.04	1.03	1.04%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000064	0.000067	0.000003	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0051	0.0053	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	16.0	15.8	1.52%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.235	0.234	0.507%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00115	0.00120	3.94%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00059	0.00055	0.00004	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	0.719	0.704	2.02%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00086	0.00100	0.00014	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.03	3.10	2.12%	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	2.05	2.10	1.98%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.100	0.104	3.44%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	0.85	1.00	0.15	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	0.00036	<0.00030	0.00006	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000171	0.000181	5.89%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1691299) - continued											
FJ2402977-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1700926)											
VA24C6133-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1691225)											
VA24C6308-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00211	0.00218	3.40%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.207	0.203	2.11%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.012	0.012	0.0001	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	119	118	1.01%	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	<0.00020	0.00027	0.00007	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	3.51	3.48	0.654%	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	0.0061	0.0059	0.0001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	39.0	38.7	0.752%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.120	0.119	1.13%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00310	0.00323	4.13%	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	0.091	0.098	0.006	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	9.60	9.20	4.20%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00425	0.00398	6.55%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000109	0.000104	0.000005	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	9.93	10.5	5.54%	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	116	116	0.561%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.05	1.09	3.40%	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: 1691225) - continued											
VA24C6308-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	40.4	43.1	6.32%	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	0.000920	0.000922	0.191%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	0.0011	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1694796)											
VA24C6036-001	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: 1692027)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1697524)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1697543)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1692020)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1692021)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1692022)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1692023)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1692024)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1692025)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1696672)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1696674)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1696675)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1697293)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1693270)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1691299)						
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: 1691299) - 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: 1700926)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1691225)						
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: 1691225) - 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: 1702466)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1694796)						
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: 1692027)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1697524)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1697543)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 1692020)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	106	90.0	110	----
Anions and Nutrients (QCLot: 1692021)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1692022)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	110	85.0	115	----
Anions and Nutrients (QCLot: 1692023)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1692024)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1692025)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1696672)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.0	85.0	115	----
Anions and Nutrients (QCLot: 1696674)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	89.2	75.0	125	----
Anions and Nutrients (QCLot: 1696675)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	89.2	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1697293)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	110	80.0	120	----
Total Sulfides (QCLot: 1693270)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	99.4	80.0	120	----
Total Metals (QCLot: 1691299)									

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: 1691299) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	110	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	99.3	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.0	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	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	101	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	100	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.2	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.3	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.9	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	97.3	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	95.2	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.8	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	113	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.4	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	106	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.6	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	99.5	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	99.6	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.9	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	98.3	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	98.2	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.4	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1691299) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.7	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.7	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.0	80.0	120	----
Total Metals (QCLot: 1700926)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	99.8	80.0	120	----
Dissolved Metals (QCLot: 1691225)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.6	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	97.7	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.2	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	88.8	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	86.1	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.9	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	89.1	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	94.6	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.6	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	93.7	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.3	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	88.0	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.4	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	98.3	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.0	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	93.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.3	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.4	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	107	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	89.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	95.3	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.8	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1691225) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	96.3	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	96.7	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	95.9	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.5	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	95.6	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.1	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.4	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	95.8	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	98.9	80.0	120	----
Speciated Metals (QCLot: 1694796)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	97.1	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: 1692020)										
FJ2403017-002	Anonymous	Fluoride	16984-48-8	E235.F	21.8 mg/L	20 mg/L	109	75.0	125	----
Anions and Nutrients (QCLot: 1692021)										
FJ2403017-002	Anonymous	Chloride	16887-00-6	E235.Cl	2020 mg/L	2000 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1692022)										
FJ2403017-002	Anonymous	Bromide	24959-67-9	E235.Br-L	10.3 mg/L	10 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1692023)										
FJ2403017-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	50.8 mg/L	50 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1692024)										
FJ2403017-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	10.1 mg/L	10 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1692025)										
FJ2403017-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1960 mg/L	2000 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1696672)										
VA24C5741-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0962 mg/L	0.1 mg/L	96.2	75.0	125	----
Anions and Nutrients (QCLot: 1696674)										
VA24C6040-003	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1696675)										
VA24C6040-005	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0458 mg/L	0.05 mg/L	91.5	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1697293)										
VA24C5913-012	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.16 mg/L	5 mg/L	103	70.0	130	----
Total Sulfides (QCLot: 1693270)										
TY2410995-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.219 mg/L	0.2 mg/L	109	75.0	125	----
Total Metals (QCLot: 1691299)										
FJ2402977-002	Anonymous	Aluminum, total	7429-90-5	E420	0.196 mg/L	0.2 mg/L	98.2	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Boron, total	7440-42-8	E420	0.095 mg/L	0.1 mg/L	94.6	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00999 mg/L	0.01 mg/L	99.9	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0399 mg/L	0.04 mg/L	99.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1691299) - continued										
FJ2402977-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Copper, total	7440-50-8	E420	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Iron, total	7439-89-6	E420	1.95 mg/L	2 mg/L	97.7	70.0	130	----
		Lead, total	7439-92-1	E420	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0989 mg/L	0.1 mg/L	98.9	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	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, total	7440-09-7	E420	3.81 mg/L	4 mg/L	95.3	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, total	7440-21-3	E420	9.25 mg/L	10 mg/L	92.5	70.0	130	----
		Silver, total	7440-22-4	E420	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		Sodium, total	7440-23-5	E420	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	20.1 mg/L	20 mg/L	100	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00373 mg/L	0.004 mg/L	93.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Tin, total	7440-31-5	E420	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00394 mg/L	0.004 mg/L	98.5	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0996 mg/L	0.1 mg/L	99.6	70.0	130	----
		Zinc, total	7440-66-6	E420	0.392 mg/L	0.4 mg/L	97.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
Total Metals (QCLot: 1700926)										
VA24C6150-001	Anonymous	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1691225)										
VA24C6332-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.192 mg/L	0.2 mg/L	96.1	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00887 mg/L	0.01 mg/L	88.7	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.089 mg/L	0.1 mg/L	89.4	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00360 mg/L	0.004 mg/L	89.9	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00954 mg/L	0.01 mg/L	95.4	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0375 mg/L	0.04 mg/L	93.7	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0183 mg/L	0.02 mg/L	91.7	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: 1691225) - continued										
VA24C6332-001	Anonymous	Copper, dissolved	7440-50-8	E421	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0924 mg/L	0.1 mg/L	92.4	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0356 mg/L	0.04 mg/L	88.9	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.32 mg/L	10 mg/L	93.2	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.82 mg/L	4 mg/L	95.5	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	8.96 mg/L	10 mg/L	89.6	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0394 mg/L	0.04 mg/L	98.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00376 mg/L	0.004 mg/L	93.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0182 mg/L	0.02 mg/L	90.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00382 mg/L	0.004 mg/L	95.6	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0957 mg/L	0.1 mg/L	95.7	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.373 mg/L	0.4 mg/L	93.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
Dissolved Metals (QCLot: 1702466)										
VA24C6216-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000934 mg/L	0 mg/L	93.4	70.0	130	----
Speciated Metals (QCLot: 1694796)										
VA24C6036-001	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
Company:	Triton Environmental
Contact:	
Phone:	
	he final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Distribution

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

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

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

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

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: 10-OCT-2024

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

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

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
						F					P	P			F/P							
	WLNG US 1	02-OCT-24	09:36	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.25 cond: 40 µS/cm temp: 12.2 °C																					
	WLNG DS 1	02-OCT-24	12:19	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.18 cond: 42 µS/cm temp: 13.8 °C																					

Environmental Division
Vancouver
Work Order Reference
VA24C6316

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 / Specify Criteria to add (electron

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			

RELEASE (client use)

Date: 02-OCT-2024 Time: 17:05

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by: DN Date: OCT 2 Time: 5:30 pm

ATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2018 FRONT

ay 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

2024-10-2-Chycoski-F021A

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	10/02/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669337 -123.248308
Temperature(c):	Low 8 High 14	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 12:19:00 **Flow Volume (visual):** low

Notes: Moved sonde back to original location near tunnel entrance due to higher flows in the creek.

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Changed out old malfunctioning turbidity sensor.

Photos

Photo: 1

Location: EAS DS 1

Description: US view

Photo: 2

Location: EAS DS 1

Description: Across view

Photos

Photo: 3

Location: EAS DS 1

Description: DS view

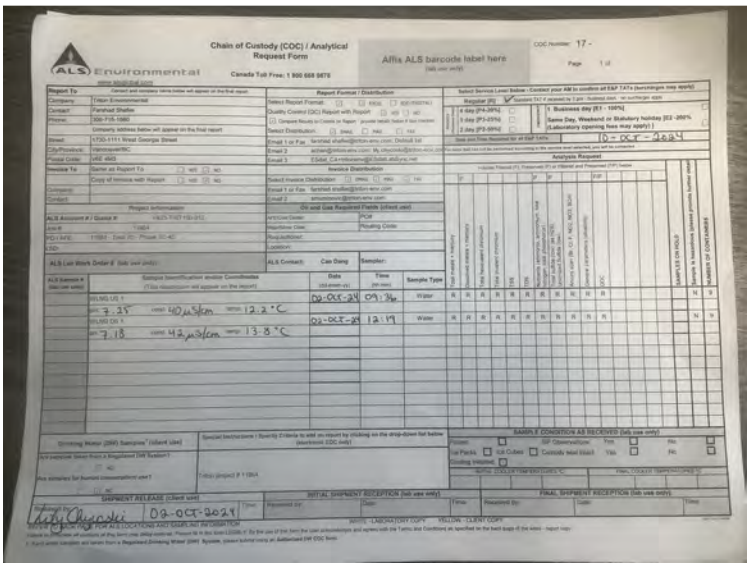


Photo: 4

Location: EAS DS 1

Description: Lab COC

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-2-Chycoski-98AA5

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	10/02/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 8 High 14	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Damp

Observations

Time: 09:36:00 **Flow Volume (visual):** low

Notes:

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

Samples Collected - Parameters

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

Logger Maintenance

Logger Maintenance Performed?	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

2024-10-2-Chycoski-98AA5

Photos

Photo: 3

Location: EAS US 1

Description: DS view

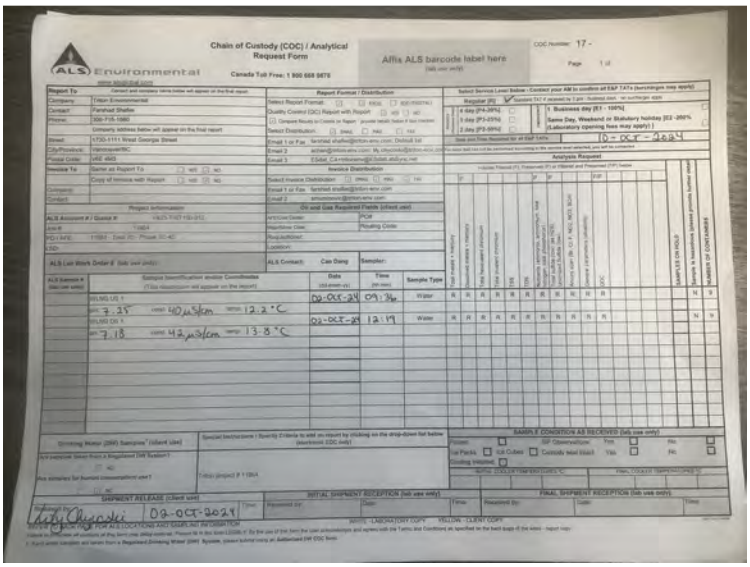


Photo: 4

Location: EAS US 1

Description: Lab COC

Sign Off

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

EGP-STU-003 (WLNG US) 2024-09-30 to 2024-10-06

Received	Temperature C	Specific Conductivity ÂµS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU	TL Battery V
10/6/2024 23:50	12.1	48.4	0.02	7	412.82	9.51	0.29	12.24
10/6/2024 23:40	12.11	49.19	0.03	7	412.76	9.5	0.31	12.21
10/6/2024 23:30	12.12	49.09	0.02	7	413.32	9.52	0.27	12.14
10/6/2024 23:20	12.14	49.36	0.03	7.03	411.01	9.51	0.29	12.14
10/6/2024 23:10	12.15	49.68	0.03	6.96	416.17	9.49	0.29	12.14
10/6/2024 23:00	12.17	49.45	0.03	7.01	413.09	9.49	0.3	12.24
10/6/2024 22:50	12.19	49.28	0.03	6.99	414.36	9.51	0.26	12.14
10/6/2024 22:40	12.21	49.86	0.03	7.02	412.65	9.5	0.27	12.24
10/6/2024 22:30	12.23	49.37	0.03	7.02	412.46	9.47	0.29	12.24
10/6/2024 22:20	12.24	50.2	0.03	7.02	412.13	9.48	0.28	12.17
10/6/2024 22:10	12.25	50.07	0.03	7.01	413.37	9.47	0.3	12.24
10/6/2024 22:00	12.27	50.48	0.03	7	413.08	9.49	0.52	12.26
10/6/2024 21:50	12.28	50.15	0.03	7.01	412.73	9.5	0.63	12.26
10/6/2024 21:40	12.3	50.85	0.03	7.02	412.24	9.46	0.29	12.26
10/6/2024 21:30	12.32	50.42	0.03	7.02	412.3	9.46	0.29	12.26
10/6/2024 21:20	12.34	51.03	0.03	7	412.57	9.46	0.29	12.26
10/6/2024 21:10	12.36	50.7	0.03	7.02	411.8	9.46	0.31	12.26
10/6/2024 21:00	12.38	50.93	0.03	7.02	411.36	9.44	0.31	12.17
10/6/2024 20:50	12.4	50.29	0.03	7.01	412.11	9.44	0.31	12.17
10/6/2024 20:40	12.42	50.59	0.03	7.02	410.82	9.44	0.3	12.29
10/6/2024 20:30	12.44	49.96	0.03	7	411.83	9.43	0.32	12.29
10/6/2024 20:20	12.45	50.42	0.03	7	411.51	9.45	0.28	12.26
10/6/2024 20:10	12.47	49.96	0.03	7	411.69	9.44	0.28	12.29
10/6/2024 20:00	12.48	50.08	0.03	6.99	411.36	9.43	0.29	12.29
10/6/2024 19:50	12.49	49.58	0.03	7.01	410.42	9.45	0.43	12.29
10/6/2024 19:40	12.51	49.91	0.03	7.02	409.64	9.43	0.32	12.19
10/6/2024 19:30	12.52	49.57	0.03	7.02	409.62	9.41	0.3	12.19
10/6/2024 19:20	12.53	50.1	0.03	7.02	409	9.42	0.33	12.31
10/6/2024 19:10	12.54	49.4	0.03	7	410.11	9.42	0.3	12.31
10/6/2024 19:00	12.56	49.82	0.03	7.02	408.39	9.41	0.31	12.31
10/6/2024 18:50	12.57	49.52	0.03	7.02	407.61	9.4	0.32	12.31
10/6/2024 18:40	12.58	50.13	0.03	7.02	406.94	9.42	0.28	12.33
10/6/2024 18:30	12.59	49.7	0.03	7.02	406.67	9.41	0.31	12.33
10/6/2024 18:20	12.61	50.59	0.03	7.02	405.88	9.41	0.45	12.33
10/6/2024 18:10	12.62	49.77	0.03	7.01	405.7	9.41	0.57	12.36
10/6/2024 18:00	12.64	51.11	0.03	7.02	404.44	9.42	0.32	12.38
10/6/2024 17:50	12.65	51.29	0.03	7.02	404.25	9.42	0.31	12.38
10/6/2024 17:40	12.67	51.78	0.03	7.02	403.41	9.41	0.29	12.38
10/6/2024 17:30	12.69	51.6	0.03	7.02	403.72	9.42	0.33	12.31
10/6/2024 17:20	12.71	51.95	0.03	7.02	402.85	9.42	0.3	12.43
10/6/2024 17:10	12.72	51.81	0.03	7.03	402.12	9.44	0.31	12.36

EGP-STU-003 (WLNG US) 2024-09-30 to 2024-10-06

10/6/2024 17:00	12.73	52.34	0.03	7.04	401.08	9.45	0.34	12.43
10/6/2024 16:50	12.73	52.04	0.03	7.04	400.78	9.43	0.32	12.43
10/6/2024 16:40	12.74	52.85	0.03	7.06	399.14	9.43	0.3	12.41
10/6/2024 16:30	12.74	52.91	0.03	7.05	399.3	9.46	0.33	12.55
10/6/2024 16:20	12.77	53.45	0.03	7.06	398.34	9.49	0.32	12.76
10/6/2024 16:10	12.76	53.65	0.03	7.05	398.81	9.52	0.31	13.46
10/6/2024 16:00	12.76	54.22	0.03	7.07	397.46	9.52	0.31	13.34
10/6/2024 15:50	12.76	54.03	0.03	7.05	398.45	9.5	0.3	13.17
10/6/2024 15:40	12.75	54.64	0.03	7.05	397.85	9.51	0.33	13.41
10/6/2024 15:30	12.75	54.35	0.03	7.06	397.54	9.5	0.32	12.98
10/6/2024 15:20	12.76	54.79	0.03	7.07	395.9	9.5	0.31	12.84
10/6/2024 15:10	12.76	54.29	0.03	7.06	397.01	9.56	0.29	13.56
10/6/2024 15:00	12.76	55.19	0.03	7.09	394.68	9.54	0.31	13.58
10/6/2024 14:50	12.76	55.53	0.03	7.09	394.84	9.58	0.31	13.58
10/6/2024 14:40	12.75	56.31	0.03	7.08	394.71	9.56	0.29	13.6
10/6/2024 14:30	12.76	56.23	0.03	7.08	395.46	9.57	0.32	13.58
10/6/2024 14:20	12.78	56.97	0.03	7.08	395.05	9.6	0.32	13.58
10/6/2024 14:10	12.72	56.96	0.03	7.07	396.41	9.57	0.37	13.58
10/6/2024 14:00	12.7	58.57	0.03	7.08	395.58	9.55	0.29	13.32
10/6/2024 13:50	12.69	58.77	0.03	7.07	395.79	9.56	0.31	12.81
10/6/2024 13:40	12.7	59.8	0.03	7.09	394.25	9.57	0.3	12.98
10/6/2024 13:30	12.68	60.1	0.03	7.08	395.27	9.56	0.31	13.58
10/6/2024 13:20	12.67	60.82	0.03	7.08	394.51	9.59	0.29	12.91
10/6/2024 13:10	12.65	60.96	0.03	7.06	395.54	9.58	0.31	13
10/6/2024 13:00	12.64	61.9	0.03	7.1	392.48	9.57	0.3	12.86
10/6/2024 12:50	12.67	61.55	0.03	7.1	392.3	9.63	0.31	13.53
10/6/2024 12:40	12.65	62.86	0.03	7.11	392.13	9.61	0.31	13.56
10/6/2024 12:30	12.65	62.8	0.03	7.1	392.68	9.63	0.29	13.56
10/6/2024 12:20	12.6	64.39	0.03	7.11	392.66	9.65	0.32	13.48
10/6/2024 12:10	12.56	64.78	0.03	7.1	394.02	9.66	0.28	13.58
10/6/2024 12:00	12.48	65.77	0.03	7.11	393.88	9.67	0.3	13.51
10/6/2024 11:50	12.43	65.94	0.03	7.11	395.18	9.66	0.28	13.41
10/6/2024 11:40	12.4	66.69	0.03	7.1	395.37	9.69	0.29	13.6
10/6/2024 11:30	12.36	66.99	0.03	7.09	396.71	9.66	0.28	13.36
10/6/2024 11:20	12.36	67.48	0.03	7.12	395.19	9.7	0.3	13.34
10/6/2024 11:10	12.34	67.3	0.03	7.1	397.41	9.69	0.28	13.6
10/6/2024 11:00	12.3	67.67	0.04	7.1	397.74	9.68	0.29	13.27
10/6/2024 10:50	12.27	67.31	0.03	7.09	399.63	9.69	0.35	13.44
10/6/2024 10:40	12.25	67.82	0.04	7.1	399.38	9.7	0.28	13.34
10/6/2024 10:30	12.22	67.73	0.04	7.1	400.69	9.7	0.28	13.15
10/6/2024 10:20	12.18	68.2	0.04	7.1	401.64	9.71	0.3	13.58
10/6/2024 10:10	12.1	66.98	0.03	7.08	404	9.71	0.27	12.79
10/6/2024 10:00	12.08	68.57	0.04	7.09	403.42	9.68	0.3	12.72
10/6/2024 9:50	12.05	68.35	0.04	7.07	406.07	9.68	0.25	12.67
10/6/2024 9:40	12.02	68.92	0.04	7.09	405.53	9.66	0.29	12.57
10/6/2024 9:30	12	69.08	0.04	7.08	407.44	9.65	0.31	12.38
10/6/2024 9:20	11.99	69.34	0.04	7.08	407.56	9.65	0.3	12.45

EGP-STU-003 (WLNG US) 2024-09-30 to 2024-10-06

10/6/2024 9:10	11.97	69.18	0.04	7.07	409.28	9.66	0.3	12.5
10/6/2024 9:00	11.96	70.17	0.04	7.06	410.04	9.66	0.28	12.43
10/6/2024 8:50	11.94	70.12	0.04	7.07	410.14	9.64	0.27	12.33
10/6/2024 8:40	11.93	70.93	0.04	7.08	410.5	9.65	0.29	12.24
10/6/2024 8:30	11.92	71.12	0.04	7.06	412.35	9.63	0.3	12.14
10/6/2024 8:20	11.91	71.32	0.04	7.07	411.78	9.59	0.27	12.05
10/6/2024 8:10	11.91	71.4	0.04	7.07	412.5	9.62	0.26	12.05
10/6/2024 8:00	11.91	72.06	0.04	7.07	412.3	9.59	0.27	12.05
10/6/2024 7:50	11.9	71.96	0.04	7.06	413.02	9.6	0.29	12.05
10/6/2024 7:40	11.9	72.5	0.04	7.07	412.19	9.61	0.27	12.05
10/6/2024 7:30	11.9	71.72	0.04	7.05	413.65	9.6	0.28	12.05
10/6/2024 7:20	11.9	72.83	0.04	7.07	412.08	9.6	0.29	12.05
10/6/2024 7:10	11.9	72.44	0.04	7.06	413.07	9.6	0.3	12.05
10/6/2024 7:00	11.9	73.03	0.04	7.07	412.08	9.58	0.39	11.97
10/6/2024 6:50	11.9	73.18	0.04	7.07	412.72	9.59	0.26	11.97
10/6/2024 6:40	11.91	73.59	0.04	7.06	412.55	9.59	0.29	12.05
10/6/2024 6:30	11.92	73.6	0.04	7.08	412.11	9.58	0.27	11.97
10/6/2024 6:20	11.93	73.83	0.04	7.08	411.81	9.57	0.28	11.97
10/6/2024 6:10	11.93	74.1	0.04	7.06	412.99	9.57	0.29	12
10/6/2024 6:00	11.94	74.61	0.04	7.08	411.85	9.58	0.3	12.09
10/6/2024 5:50	11.94	74.42	0.04	7.06	413.23	9.56	0.3	12.07
10/6/2024 5:40	11.95	74.9	0.04	7.08	411.91	9.58	0.3	12.09
10/6/2024 5:30	11.96	74.68	0.04	7.07	412.36	9.57	0.29	12.09
10/6/2024 5:20	11.96	75.48	0.04	7.08	411.72	9.55	0.29	12.09
10/6/2024 5:10	11.96	75.16	0.04	7.08	412.16	9.56	0.29	12.09
10/6/2024 5:00	11.97	76.07	0.04	7.08	411.93	9.56	0.29	12.09
10/6/2024 4:50	11.97	76.09	0.04	7.07	412.51	9.55	0.28	12.12
10/6/2024 4:40	11.98	76.56	0.04	7.08	411.97	9.58	0.28	12.09
10/6/2024 4:30	11.98	76.47	0.04	7.1	411.08	9.56	0.27	12.09
10/6/2024 4:20	11.99	76.99	0.04	7.08	411.63	9.59	0.47	12.09
10/6/2024 4:10	11.99	76.35	0.04	7.08	412.28	9.56	0.3	12.02
10/6/2024 4:00	12	76.94	0.04	7.08	411.51	9.57	0.3	12.12
10/6/2024 3:50	12	76.86	0.04	7.08	411.78	9.57	0.39	12.09
10/6/2024 3:40	12.01	77.38	0.04	7.06	412.27	9.58	0.26	12.12
10/6/2024 3:30	12.01	76.89	0.04	7.07	412.11	9.57	0.33	12.12
10/6/2024 3:20	12.02	77.24	0.04	7.08	411.17	9.57	0.28	12.02
10/6/2024 3:10	12.02	77.56	0.04	7.07	412.42	9.58	0.29	12.02
10/6/2024 3:00	12.02	77.44	0.04	7.09	411.07	9.59	0.27	12.12
10/6/2024 2:50	12.03	77.87	0.04	7.08	411.26	9.57	0.27	12.12
10/6/2024 2:40	12.03	78.57	0.04	7.09	410.97	9.59	0.27	12.14
10/6/2024 2:30	12.03	78.14	0.04	7.07	412.17	9.57	0.27	12.05
10/6/2024 2:20	12.04	78.74	0.04	7.07	411.56	9.57	0.29	12.14
10/6/2024 2:10	12.05	78.87	0.04	7.08	411.42	9.56	0.27	12.14
10/6/2024 2:00	12.05	78.97	0.04	7.06	412.31	9.58	0.29	12.14
10/6/2024 1:50	12.05	78.57	0.04	7.08	411.63	9.58	0.29	12.14
10/6/2024 1:40	12.06	79.33	0.04	7.07	411.55	9.58	0.31	12.05
10/6/2024 1:30	12.06	78.71	0.04	7.08	411.27	9.58	0.29	12.05

EGP-STU-003 (WLNG US) 2024-09-30 to 2024-10-06

10/6/2024 1:20	12.07	79.41	0.04	7.08	411	9.58	0.27	12.05
10/6/2024 1:10	12.07	78.91	0.04	7.07	411.71	9.59	0.28	12.14
10/6/2024 1:00	12.07	78.85	0.04	7.08	410.84	9.57	0.29	12.07
10/6/2024 0:50	12.08	78.23	0.04	7.07	411.98	9.58	0.33	12.09
10/6/2024 0:40	12.09	78.47	0.04	7.07	411.28	9.58	0.3	12.07
10/6/2024 0:30	12.09	78.18	0.04	7.06	412.05	9.58	0.33	12.07
10/6/2024 0:20	12.09	78.06	0.04	7.08	410.64	9.59	0.29	12.07
10/6/2024 0:10	12.09	77.56	0.04	7.06	412.51	9.59	0.3	12.17
10/6/2024 0:00	12.1	77.57	0.04	7.08	411.06	9.59	0.29	12.19
10/5/2024 23:50	12.1	77.29	0.04	7.06	412.28	9.59	0.27	12.19
10/5/2024 23:40	12.1	77.75	0.04	7.07	411.34	9.58	0.3	12.19
10/5/2024 23:30	12.11	77.31	0.04	7.07	411.77	9.58	0.3	12.19
10/5/2024 23:20	12.11	78.12	0.04	7.07	411.06	9.57	0.27	12.19
10/5/2024 23:10	12.11	78.2	0.04	7.06	411.86	9.58	0.28	12.19
10/5/2024 23:00	12.11	78.66	0.04	7.08	410.68	9.57	0.29	12.19
10/5/2024 22:50	12.11	78.31	0.04	7.07	411.85	9.6	0.33	12.12
10/5/2024 22:40	12.11	78.89	0.04	7.08	411.03	9.59	0.3	12.21
10/5/2024 22:30	12.11	77.6	0.04	7.07	411.2	9.59	0.3	12.21
10/5/2024 22:20	12.12	78.55	0.04	7.08	410.33	9.58	0.3	12.21
10/5/2024 22:10	12.12	78.14	0.04	7.06	411.53	9.6	0.3	12.12
10/5/2024 22:00	12.12	78.64	0.04	7.08	409.82	9.58	0.34	12.21
10/5/2024 21:50	12.12	78.39	0.04	7.07	411.19	9.58	0.3	12.12
10/5/2024 21:40	12.13	78.64	0.04	7.08	409.94	9.59	0.29	12.12
10/5/2024 21:30	12.13	78.22	0.04	7.06	410.86	9.58	0.33	12.14
10/5/2024 21:20	12.14	79.06	0.04	7.06	410.4	9.58	0.46	12.24
10/5/2024 21:10	12.14	78.75	0.04	7.07	409.84	9.58	0.31	12.24
10/5/2024 21:00	12.15	79.62	0.04	7.07	409.1	9.59	0.32	12.24
10/5/2024 20:50	12.15	79.59	0.04	7.09	408.39	9.58	0.36	12.24
10/5/2024 20:40	12.16	79.67	0.04	7.07	409.03	9.59	0.28	12.17
10/5/2024 20:30	12.16	78.88	0.04	7.07	408.6	9.56	0.29	12.14
10/5/2024 20:20	12.17	79.81	0.04	7.08	407.72	9.59	0.31	12.26
10/5/2024 20:10	12.18	79.34	0.04	7.07	407.95	9.58	0.3	12.19
10/5/2024 20:00	12.19	79.51	0.04	7.07	407.39	9.57	0.27	12.29
10/5/2024 19:50	12.2	78.9	0.04	7.07	407.43	9.6	0.27	12.29
10/5/2024 19:40	12.21	79.76	0.04	7.07	406.65	9.58	0.31	12.29
10/5/2024 19:30	12.22	78.81	0.04	7.09	405.36	9.59	0.29	12.29
10/5/2024 19:20	12.23	79.03	0.04	7.07	405.22	9.57	0.3	12.29
10/5/2024 19:10	12.23	79.06	0.04	7.08	405.08	9.58	0.35	12.29
10/5/2024 19:00	12.24	78.9	0.04	7.08	404.23	9.57	0.34	12.21
10/5/2024 18:50	12.25	78.34	0.04	7.07	404.51	9.57	0.28	12.21
10/5/2024 18:40	12.26	78.41	0.04	7.08	403.06	9.58	0.3	12.24
10/5/2024 18:30	12.27	78.26	0.04	7.04	404.41	9.57	0.32	12.33
10/5/2024 18:20	12.28	78.4	0.04	7.07	402.17	9.6	0.31	12.26
10/5/2024 18:10	12.29	78.32	0.04	7.07	401.94	9.59	0.31	12.33
10/5/2024 18:00	12.3	78.87	0.04	7.07	400.81	9.59	0.31	12.36
10/5/2024 17:50	12.31	77.58	0.04	7.07	400.49	9.58	0.3	12.33
10/5/2024 17:40	12.31	79.27	0.04	7.07	399.47	9.6	0.29	12.48

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10/5/2024 17:30	12.32	78.25	0.04	7.07	399.37	9.61	0.33	12.5
10/5/2024 17:20	12.32	79.21	0.04	7.08	398.21	9.62	0.29	12.5
10/5/2024 17:10	12.32	79.04	0.04	7.09	397.4	9.59	0.37	12.5
10/5/2024 17:00	12.32	79.48	0.04	7.09	396.9	9.63	0.29	12.48
10/5/2024 16:50	12.32	79.46	0.04	7.08	397.53	9.64	0.33	12.55
10/5/2024 16:40	12.32	80.14	0.04	7.1	395.9	9.64	0.31	12.55
10/5/2024 16:30	12.31	79.83	0.04	7.1	395.76	9.66	0.36	12.53
10/5/2024 16:20	12.32	80.17	0.04	7.09	395.3	9.66	0.31	12.67
10/5/2024 16:10	12.32	79.93	0.04	7.09	395.86	9.66	0.27	12.6
10/5/2024 16:00	12.31	80.56	0.04	7.1	394.57	9.66	0.32	12.67
10/5/2024 15:50	12.31	80.04	0.04	7.09	394.81	9.68	0.35	12.65
10/5/2024 15:40	12.3	80.3	0.04	7.1	393.82	9.69	0.3	12.67
10/5/2024 15:30	12.28	80.14	0.04	7.1	393.66	9.66	0.34	12.6
10/5/2024 15:20	12.28	80.46	0.04	7.11	392.57	9.67	0.27	12.62
10/5/2024 15:10	12.27	80.17	0.04	7.11	392.77	9.68	0.33	12.74
10/5/2024 15:00	12.26	80.9	0.04	7.11	393.02	9.7	0.38	12.74
10/5/2024 14:50	12.26	81.08	0.04	7.12	393.16	9.72	0.37	13.05
10/5/2024 14:40	12.21	81.53	0.04	7.12	393.36	9.74	0.31	13.27
10/5/2024 14:30	12.19	80.61	0.04	7.11	393.85	9.73	0.3	12.72
10/5/2024 14:20	12.18	82.01	0.04	7.11	393.39	9.73	0.32	12.62
10/5/2024 14:10	12.16	81.52	0.04	7.12	393.75	9.75	0.4	12.84
10/5/2024 14:00	12.15	82	0.04	7.12	393.99	9.78	0.45	13.15
10/5/2024 13:50	12.11	82.13	0.04	7.12	395.23	9.77	0.29	12.91
10/5/2024 13:40	12.08	83.47	0.04	7.12	396.01	9.77	0.3	12.69
10/5/2024 13:30	12.06	83.68	0.04	7.11	397.31	9.77	0.33	12.6
10/5/2024 13:20	12.04	85.12	0.04	7.13	396.61	9.79	0.32	12.57
10/5/2024 13:10	12.02	85.75	0.04	7.12	397.54	9.77	0.37	12.65
10/5/2024 13:00	12.01	86.74	0.05	7.13	397.11	9.79	0.32	12.62
10/5/2024 12:50	12	87.22	0.05	7.14	397.4	9.79	0.57	12.62
10/5/2024 12:40	11.99	80.72	0.04	7.14	398.4	9.82	0.29	12.6
10/5/2024 12:30	11.98	88.13	0.05	7.16	398.97	9.79	0.35	12.76
10/5/2024 12:20	11.96	89.45	0.05	7.15	400.42	9.84	0.3	13.15
10/5/2024 12:10	11.92	90.34	0.05	7.15	401.62	9.82	0.36	12.76
10/5/2024 12:00	11.91	91.21	0.05	7.23	402.38	9.86	0.31	12.81
10/5/2024 11:50	11.86	92.49	0.05	7.38	405.56	9.81	0.31	12.74
10/5/2024 11:40	11.83	92.91	0.05	7.13	406.54	9.81	0.28	12.6
10/5/2024 11:30	11.81	93.06	0.05	7.14	406.88	9.82	0.28	12.48
10/5/2024 11:20	11.8	93.84	0.05	7.14	406.77	9.82	0.45	12.6
10/5/2024 11:10	11.79	93.51	0.05	7.14	407.94	9.83	0.32	12.65
10/5/2024 11:00	11.76	94.17	0.05	7.14	408.28	9.83	0.35	12.6
10/5/2024 10:50	11.75	93.65	0.05	7.14	409.46	9.87	0.3	12.62
10/5/2024 10:40	11.73	94.67	0.05	7.14	409.41	9.83	0.32	12.5
10/5/2024 10:30	11.7	94.58	0.05	7.13	411.49	9.87	0.29	12.38
10/5/2024 10:20	11.68	95.55	0.05	7.14	411.14	9.85	0.27	12.26
10/5/2024 10:10	11.66	95.46	0.05	7.14	412.26	9.83	2.59	12.02
10/5/2024 10:00	11.65	95.84	0.05	7.14	412.24	9.82	0.3	11.97
10/5/2024 9:50	11.64	95.57	0.05	7.14	413.2	9.83	0.29	12.02

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10/5/2024 9:40	11.63	96.71	0.05	7.13	413.08	9.82	0.32	11.95
10/5/2024 9:40	11.63	96.71	0.05	7.13	413.08	9.82	0.32	11.95
10/5/2024 9:30	11.62	95.37	0.05	7.14	413.65	9.8	0.31	12.02
10/5/2024 9:20	11.61	97.61	0.05	7.13	413.67	9.82	0.38	11.97
10/5/2024 9:10	11.6	97.14	0.05	7.13	414.1	9.82	0.28	11.88
10/5/2024 9:00	11.6	97.7	0.05	7.14	413.9	9.83	0.35	11.9
10/5/2024 8:50	11.6	97.52	0.05	7.13	414.84	9.8	0.35	11.97
10/5/2024 8:40	11.59	98.65	0.05	7.14	414.17	9.82	0.32	12
10/5/2024 8:30	11.59	98.73	0.05	7.14	414.73	9.82	0.35	11.97
10/5/2024 8:20	11.59	90.88	0.05	7.14	416.04	9.81	0.41	11.88
10/5/2024 8:10	11.58	99.28	0.05	7.14	416.89	9.8	0.32	11.9
10/5/2024 8:00	11.58	100.43	0.05	7.14	416.54	9.8	1.02	11.93
10/5/2024 7:50	11.58	100.21	0.05	7.13	417.46	9.81	0.34	11.93
10/5/2024 7:40	11.58	101.76	0.05	7.15	416.42	9.79	2.49	11.85
10/5/2024 7:30	11.59	101.61	0.05	7.13	417.25	9.79	0.3	11.83
10/5/2024 7:20	11.6	102.44	0.05	7.15	416.08	9.79	0.32	11.93
10/5/2024 7:10	11.59	101.98	0.05	7.15	416.2	9.8	0.45	11.85
10/5/2024 7:00	11.6	103.33	0.05	7.14	416.77	9.8	0.35	11.93
10/5/2024 6:50	11.59	101.91	0.05	7.17	415.08	9.79	0.73	11.93
10/5/2024 6:40	11.59	104.25	0.05	7.15	415.68	9.78	0.34	11.93
10/5/2024 6:30	11.59	104.12	0.05	7.14	416.4	9.78	0.43	11.93
10/5/2024 6:20	11.59	105.52	0.06	7.15	415.75	9.78	0.32	11.83
10/5/2024 6:10	11.59	105.6	0.06	7.15	415.76	9.79	0.4	11.9
10/5/2024 6:00	11.6	97.17	0.05	7.16	415.79	9.78	0.31	11.9
10/5/2024 5:50	11.59	106.45	0.06	7.15	416.54	9.78	0.31	11.83
10/5/2024 5:40	11.6	107.53	0.06	7.16	416.15	9.78	0.39	11.93
10/5/2024 5:30	11.6	106.99	0.06	7.16	416.58	9.77	0.47	11.93
10/5/2024 5:20	11.61	108.47	0.06	7.17	416.17	9.79	0.35	11.93
10/5/2024 5:10	11.61	108.46	0.06	7.15	417.48	9.78	0.35	11.93
10/5/2024 5:00	11.62	109.44	0.06	7.17	416.32	9.78	0.64	11.93
10/5/2024 4:50	11.63	109.11	0.06	7.17	417.1	9.76	0.55	11.93
10/5/2024 4:40	11.63	100.3	0.05	7.18	417.1	9.79	0.4	11.9
10/5/2024 4:30	11.63	110.73	0.06	7.16	418.32	9.78	0.65	11.93
10/5/2024 4:20	11.64	111.46	0.06	7.17	417.82	9.78	0.41	11.95
10/5/2024 4:10	11.64	111.68	0.06	7.17	418.64	9.79	0.33	11.95
10/5/2024 4:00	11.65	112.75	0.06	7.18	418.36	9.77	0.38	11.85
10/5/2024 3:50	11.66	113.04	0.06	7.17	419.1	9.76	0.57	11.83
10/5/2024 3:40	11.68	114.26	0.06	7.18	418.59	9.78	1.11	11.95
10/5/2024 3:30	11.69	113.34	0.06	7.18	418.91	9.78	0.34	11.95
10/5/2024 3:20	11.7	115.52	0.06	7.18	419.27	9.76	0.39	11.95
10/5/2024 3:10	11.7	115.78	0.06	7.17	420.19	9.78	0.67	11.95
10/5/2024 3:00	11.71	116.51	0.06	7.19	419.49	9.75	0.38	11.95
10/5/2024 2:50	11.72	116.97	0.06	7.19	419.93	9.79	0.58	11.95
10/5/2024 2:40	11.72	106.59	0.06	7.19	419.96	9.77	0.41	11.88
10/5/2024 2:30	11.73	118.46	0.06	7.19	420.29	9.78	0.4	11.93
10/5/2024 2:20	11.74	108.7	0.06	7.19	420.53	9.76	0.48	11.85
10/5/2024 2:10	11.74	118.93	0.06	7.19	420.9	9.77	0.45	11.85

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10/5/2024 2:00	11.75	120.83	0.06	7.19	420.73	9.75	0.4	11.88
10/5/2024 1:50	11.75	121.55	0.06	7.19	421.36	9.77	0.42	11.95
10/5/2024 1:40	11.75	122.65	0.06	7.2	420.2	9.76	0.56	11.95
10/5/2024 1:30	11.76	123.07	0.07	7.19	420.92	9.76	0.55	11.93
10/5/2024 1:20	11.76	124.37	0.07	7.2	420.11	9.75	0.65	11.85
10/5/2024 1:10	11.77	125.11	0.07	7.19	420.9	9.74	1.1	11.85
10/5/2024 1:00	11.78	126.6	0.07	7.16	419.77	9.71	0.52	11.93
10/5/2024 0:50	11.78	127.29	0.07	7.21	420.15	9.75	0.4	11.97
10/5/2024 0:40	11.79	127.96	0.07	7.22	419.42	9.75	0.36	11.97
10/5/2024 0:30	11.8	127.07	0.07	7.22	419.58	9.75	0.39	11.97
10/5/2024 0:20	11.82	130.13	0.07	7.22	419.2	9.76	0.43	11.97
10/5/2024 0:10	11.83	130.64	0.07	7.22	419.52	9.74	0.45	11.88
10/5/2024 0:00	11.85	131.95	0.07	7.22	418.73	9.73	0.56	11.88
10/4/2024 23:50	11.86	132.19	0.07	7.21	419.38	9.74	0.59	11.88
10/4/2024 23:40	11.88	133.85	0.07	7.22	418.65	9.71	0.43	11.88
10/4/2024 23:30	11.89	132.51	0.07	7.22	418.85	9.72	0.49	11.97
10/4/2024 23:20	11.9	136.18	0.07	7.24	417.62	9.73	0.7	11.97
10/4/2024 23:10	11.92	137.1	0.07	7.23	417.71	9.72	0.53	11.97
10/4/2024 23:00	11.94	138.55	0.07	7.23	417.16	9.72	0.6	11.97
10/4/2024 22:50	11.96	138.48	0.07	7.23	417.25	9.7	0.51	11.95
10/4/2024 22:40	11.98	141.21	0.08	7.25	415.96	9.71	0.51	11.97
10/4/2024 22:30	12	140.78	0.07	7.24	416.41	9.71	0.63	12
10/4/2024 22:20	12.01	143.63	0.08	7.26	414.97	9.71	0.68	11.97
10/4/2024 22:10	12.03	142.82	0.08	7.25	415.27	9.69	0.55	12
10/4/2024 22:00	12.04	146.39	0.08	7.26	414.6	9.67	0.47	12
10/4/2024 21:50	12.06	147.6	0.08	7.26	414.75	9.69	0.69	12
10/4/2024 21:40	12.07	149.89	0.08	7.27	413.58	9.65	0.52	11.97
10/4/2024 21:30	12.08	151.23	0.08	7.26	413.8	9.69	0.62	11.97
10/4/2024 21:20	12.1	153.31	0.08	7.28	412.87	9.68	0.51	11.97
10/4/2024 21:10	12.11	155	0.08	7.27	413.02	9.67	0.67	11.88
10/4/2024 21:00	12.12	157.3	0.08	7.28	412.24	9.66	0.63	12
10/4/2024 20:50	12.13	157	0.08	7.28	412.26	9.65	0.64	11.9
10/4/2024 20:40	12.14	159.82	0.09	7.29	411.22	9.65	0.56	11.9
10/4/2024 20:30	12.14	161.31	0.09	7.29	411.02	9.66	0.71	12
10/4/2024 20:20	12.15	162.98	0.09	7.29	410.16	9.64	0.69	11.9
10/4/2024 20:10	12.16	163.4	0.09	7.29	410.16	9.64	1.12	11.9
10/4/2024 20:00	12.16	167.4	0.09	7.3	408.87	9.64	0.81	11.9
10/4/2024 19:50	12.17	165.77	0.09	7.29	409.13	9.65	0.66	12
10/4/2024 19:40	12.17	164.12	0.09	7.29	408.74	9.63	1.3	12
10/4/2024 19:30	12.17	160.64	0.09	7.28	408.69	9.65	0.8	12
10/4/2024 19:20	12.18	149.81	0.08	7.29	407.73	9.63	2.01	12.02
10/4/2024 19:10	12.18	162.28	0.09	7.26	408.93	9.63	0.99	12.02
10/4/2024 19:00	12.18	153.25	0.08	7.25	408.58	9.64	0.91	12
10/4/2024 18:50	12.18	148.32	0.08	7.23	409.12	9.65	0.77	11.93
10/4/2024 18:40	12.18	144.89	0.08	7.23	408.47	9.64	0.85	11.93
10/4/2024 18:30	12.19	147.1	0.08	7.22	408.35	9.64	1.13	12.02
10/4/2024 18:20	12.19	146.1	0.08	7.22	407.26	9.64	0.76	12.02

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10/4/2024 18:10	12.19	144.34	0.08	7.21	407.1	9.64	0.94	12.02
10/4/2024 18:00	12.19	147.23	0.08	7.22	405.69	9.62	0.71	11.93
10/4/2024 17:50	12.2	149.11	0.08	7.22	405.43	9.64	1.93	11.93
10/4/2024 17:40	12.2	151.41	0.08	7.23	403.73	9.65	0.75	12.02
10/4/2024 17:30	12.19	153.36	0.08	7.24	403.25	9.65	0.9	12.05
10/4/2024 17:20	12.19	156.84	0.08	7.25	402.16	9.64	0.69	11.97
10/4/2024 17:10	12.18	158.6	0.08	7.25	401.7	9.65	1.47	12.12
10/4/2024 17:00	12.17	162.25	0.09	7.25	401.12	9.65	0.67	12.12
10/4/2024 16:50	12.17	165.11	0.09	7.26	400.51	9.64	0.74	12.09
10/4/2024 16:40	12.17	169.87	0.09	7.27	399.64	9.65	2.09	12.07
10/4/2024 16:30	12.16	173.09	0.09	7.29	398.28	9.65	0.83	12.05
10/4/2024 16:20	12.16	178.87	0.1	7.3	397.02	9.65	0.78	12.12
10/4/2024 16:10	12.16	179.86	0.1	7.3	396.38	9.64	1.2	12.26
10/4/2024 16:00	12.16	183.68	0.1	7.32	395.03	9.64	0.82	12.21
10/4/2024 15:50	12.16	185.99	0.1	7.33	393.82	9.63	1.5	12.21
10/4/2024 15:40	12.16	195.58	0.1	7.34	392.58	9.65	1.51	12.24
10/4/2024 15:30	12.15	201.21	0.11	7.36	391.55	9.64	1.01	12.24
10/4/2024 15:20	12.15	207.56	0.11	7.37	389.9	9.66	1.29	12.24
10/4/2024 15:10	12.13	212.61	0.11	7.38	389.32	9.66	1.5	12.21
10/4/2024 15:00	12.12	217.6	0.12	7.4	387.4	9.64	2.32	12.21
10/4/2024 14:50	12.1	223.89	0.12	7.41	386.36	9.66	2.82	12.19
10/4/2024 14:40	12.07	228.19	0.12	7.42	385.86	9.67	1.23	12.14
10/4/2024 14:30	12.02	221.62	0.12	7.4	386.62	9.7	2.54	12.09
10/4/2024 14:20	12.02	230.27	0.12	7.42	385.14	9.68	4.49	11.97
10/4/2024 14:10	12.01	239.7	0.13	7.44	383.85	9.66	1.25	11.97
10/4/2024 14:00	11.99	253.49	0.14	7.46	381.8	9.67	3.18	12.07
10/4/2024 13:50	11.95	262.56	0.14	7.48	380.7	9.69	3.06	12.02
10/4/2024 13:40	11.93	273.01	0.15	7.51	378.95	9.7	2.29	12.19
10/4/2024 13:30	11.9	280.04	0.15	7.53	377.95	9.71	2.53	12.12
10/4/2024 13:20	11.88	286.17	0.15	7.54	377.14	9.7	6.34	12.21
10/4/2024 13:10	11.85	286.8	0.15	7.54	376.44	9.71	3.48	12.17
10/4/2024 13:00	11.84	291.72	0.16	7.56	375.18	9.71	6.95	12.19
10/4/2024 12:50	11.8	286.64	0.15	7.55	375.65	9.72	2.98	12.14
10/4/2024 12:40	11.79	296.1	0.16	7.59	373.64	9.7	3.29	12.05
10/4/2024 12:30	11.77	308.01	0.17	7.61	372.79	9.72	3.44	12.17
10/4/2024 12:20	11.75	313.55	0.17	7.63	371.81	9.72	2.68	12.07
10/4/2024 12:10	11.71	313.35	0.17	7.63	372.07	9.73	4.56	12.12
10/4/2024 12:00	11.69	317.42	0.17	7.63	372.07	9.74	1.57	12.17
10/4/2024 11:50	11.67	310.33	0.17	7.61	373.02	9.73	1.4	12.14
10/4/2024 11:40	11.66	308.62	0.17	7.61	373.08	9.73	1.64	12.02
10/4/2024 11:30	11.65	306.79	0.17	7.6	373.43	9.72	1.52	12.12
10/4/2024 11:20	11.64	315.18	0.17	7.62	372.39	9.73	3.36	12.09
10/4/2024 11:10	11.62	317.35	0.17	7.62	372.89	9.74	1.95	12
10/4/2024 11:00	11.6	322.74	0.17	7.63	371.95	9.73	1.22	12.07
10/4/2024 10:50	11.59	328.98	0.18	7.63	372.38	9.74	2.4	11.95
10/4/2024 10:40	11.58	337.43	0.18	7.65	371.79	9.74	2.49	11.97
10/4/2024 10:30	11.55	333.55	0.18	7.65	371.82	9.75	1.75	11.97

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10/4/2024 10:20	11.53	340.72	0.18	7.66	371.28	9.73	8.98	12.09
10/4/2024 10:10	11.5	336.55	0.18	7.65	371.81	9.77	3.94	12.07
10/4/2024 10:00	11.48	335.95	0.18	7.65	371.6	9.77	2.77	11.97
10/4/2024 9:50	11.47	338.26	0.18	7.66	371.4	9.75	6.7	12.07
10/4/2024 9:40	11.45	349.06	0.19	7.67	370.91	9.76	4.34	12.05
10/4/2024 9:30	11.42	355.26	0.19	7.68	370.55	9.75	4.88	12.07
10/4/2024 9:20	11.38	364.38	0.2	7.7	369.5	9.75	5.05	12.07
10/4/2024 9:10	11.36	374.67	0.2	7.7	369.48	9.77	4.46	12.07
10/4/2024 9:00	11.34	399.98	0.22	7.72	368.38	9.77	5.06	12.07
10/4/2024 8:50	11.33	412.89	0.22	7.73	367.9	9.75	11.02	12.07
10/4/2024 8:40	11.29	428.37	0.23	7.74	367.72	9.76	8.82	12.05
10/4/2024 8:30	11.27	434.57	0.24	7.74	367.71	9.78	6.6	11.95
10/4/2024 8:20	11.24	441.16	0.24	7.74	367.75	9.76	7.39	12.05
10/4/2024 8:10	11.23	442.67	0.24	7.74	367.97	9.77	7.39	12.05
10/4/2024 8:00	11.22	466.17	0.25	7.75	367.57	9.76	9.66	12.05
10/4/2024 7:50	11.2	466.81	0.26	7.75	368.25	9.76	8.48	11.97
10/4/2024 7:40	11.18	452.65	0.25	7.74	368.97	9.77	9.36	11.97
10/4/2024 7:30	11.17	441.89	0.24	7.72	369.95	9.77	7.47	11.95
10/4/2024 7:20	11.17	429.01	0.23	7.71	370.8	9.75	14.07	11.95
10/4/2024 7:10	11.17	412.37	0.22	7.69	371.79	9.76	8.03	11.97
10/4/2024 7:00	11.16	408.16	0.22	7.68	372.14	9.76	6.76	12.05
10/4/2024 6:50	11.17	396.14	0.22	7.67	373.56	9.74	8.82	12.05
10/4/2024 6:40	11.17	396.31	0.22	7.67	373.97	9.73	9.42	12.07
10/4/2024 6:30	11.19	385.42	0.21	7.66	375.08	9.72	8.39	12.09
10/4/2024 6:20	11.2	374.5	0.2	7.64	376.31	9.7	7.88	12.09
10/4/2024 6:10	11.22	371.49	0.2	7.63	377.7	9.68	8.92	12.07
10/4/2024 6:00	11.24	383.89	0.21	7.64	378.23	9.67	5.54	12.07
10/4/2024 5:50	11.25	404.59	0.22	7.64	378.98	9.65	7.79	12.09
10/4/2024 5:40	11.27	439.31	0.24	7.65	379.6	9.66	6.68	12.09
10/4/2024 5:30	11.29	461.84	0.25	7.64	380.8	9.65	5.36	12.02
10/4/2024 5:20	11.31	501.38	0.27	7.64	382.26	9.65	5.95	12.09
10/4/2024 5:10	11.34	528.74	0.29	7.63	384.57	9.61	3.85	12.09
10/4/2024 5:00	11.36	557.57	0.31	7.6	387.52	9.59	4.6	12.02
10/4/2024 4:50	11.37	548.22	0.3	7.54	392.06	9.57	2.99	12.02
10/4/2024 4:40	11.37	486.88	0.27	7.46	398.08	9.57	1.63	12
10/4/2024 4:30	11.36	412.59	0.22	7.36	404.88	9.54	1.25	12
10/4/2024 4:20	11.37	282.56	0.15	7.23	413.04	9.53	0.73	12.12
10/4/2024 4:10	11.37	117.45	0.06	7.1	420.45	9.52	0.64	12.02
10/4/2024 4:00	11.39	31.22	0.02	7.05	422.06	9.51	0.5	12.02
10/4/2024 3:50	11.4	22.11	0.01	7.07	422.45	9.48	0.41	12.12
10/4/2024 3:40	11.42	22.07	0.01	7.07	423.58	9.48	0.48	12.12
10/4/2024 3:30	11.43	22.32	0.01	7.05	425.03	9.45	0.32	12.02
10/4/2024 3:20	11.44	22.03	0.01	7.04	427.03	9.45	0.33	12.02
10/4/2024 3:10	11.45	22.26	0.01	7.04	427.73	9.46	0.33	12.14
10/4/2024 3:00	11.46	22.17	0.01	7.02	430.32	9.47	0.32	12.14
10/4/2024 2:50	11.47	22.26	0.01	7.03	430.5	9.45	0.29	12.14
10/4/2024 2:40	11.48	22	0.01	7.01	433.09	9.44	0.65	12.17

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10/4/2024 2:30	11.48	22.2	0.01	7.04	431.98	9.43	0.55	12.17
10/4/2024 2:20	11.49	22.16	0.01	7.02	435.45	9.43	0.31	12.19
10/4/2024 2:10	11.5	22.21	0.01	7.04	434.97	9.43	0.25	12.14
10/4/2024 2:00	11.5	22.14	0.01	7.03	436.41	9.44	0.24	12.07
10/4/2024 1:50	11.5	22.18	0.01	7.04	436.04	9.43	0.26	12.05
10/4/2024 1:40	11.51	22.16	0.01	7.04	437.07	9.44	0.26	12.19
10/4/2024 1:30	11.51	22.22	0.01	7.03	437.12	9.46	0.25	12.09
10/4/2024 1:20	11.52	22.17	0.01	7.03	438.02	9.45	0.47	12.17
10/4/2024 1:10	11.52	22.24	0.01	7.04	437.35	9.45	0.28	12.17
10/4/2024 1:00	11.52	22.04	0.01	7.04	437.79	9.43	0.26	12.17
10/4/2024 0:50	11.53	22.23	0.01	7.02	438.4	9.44	0.25	12.07
10/4/2024 0:40	11.53	22.01	0.01	7.06	436.66	9.45	0.26	12.17
10/4/2024 0:30	11.54	22.22	0.01	7.04	437.74	9.44	0.26	12.19
10/4/2024 0:20	11.54	22.18	0.01	7.04	438.18	9.43	0.22	12.19
10/4/2024 0:10	11.54	22.26	0.01	7.05	436.89	9.43	0.24	12.21
10/4/2024 0:00	11.54	22.22	0.01	7.06	436.5	9.45	0.26	12.21
10/3/2024 23:50	11.54	22.23	0.01	7.03	437.37	9.42	0.25	12.21
10/3/2024 23:40	11.55	22.17	0.01	7.05	436.82	9.43	0.25	12.21
10/3/2024 23:30	11.55	22.28	0.01	7.05	436.42	9.42	0.27	12.21
10/3/2024 23:20	11.55	22.25	0.01	7.06	436.24	9.44	0.28	12.21
10/3/2024 23:10	11.55	22.16	0.01	7.04	436.24	9.45	0.26	12.21
10/3/2024 23:00	11.56	22.32	0.01	7.04	437.2	9.43	0.26	12.12
10/3/2024 22:50	11.56	22.29	0.01	7.04	436.34	9.44	0.25	12.12
10/3/2024 22:40	11.57	22.23	0.01	7.04	436.71	9.44	0.26	12.21
10/3/2024 22:30	11.58	22.33	0.01	7.04	436.03	9.46	0.24	12.19
10/3/2024 22:20	11.59	22	0.01	7.08	433.9	9.46	0.25	12.12
10/3/2024 22:10	11.59	22.35	0.01	7.03	436.37	9.44	0.26	12.21
10/3/2024 22:00	11.6	21.93	0.01	7.09	433.01	9.45	0.23	12.12
10/3/2024 21:50	11.61	22.33	0.01	7.04	435.36	9.44	0.92	12.24
10/3/2024 21:40	11.61	22.24	0.01	7.05	434.75	9.44	0.22	12.24
10/3/2024 21:30	11.63	22.22	0.01	7.03	435.39	9.43	0.26	12.24
10/3/2024 21:20	11.63	22.25	0.01	7.03	435.54	9.42	0.27	12.24
10/3/2024 21:10	11.64	22.33	0.01	7.03	434.87	9.4	0.26	12.24
10/3/2024 21:00	11.65	22.06	0.01	7.05	433.9	9.42	0.25	12.17
10/3/2024 20:50	11.66	22.39	0.01	7.05	433.31	9.43	0.28	12.24
10/3/2024 20:40	11.67	22.35	0.01	7.1	430.82	9.41	0.29	12.26
10/3/2024 20:30	11.68	22.4	0.01	7.04	433.08	9.43	0.25	12.26
10/3/2024 20:20	11.69	22.3	0.01	7.06	432.23	9.43	0.26	12.26
10/3/2024 20:10	11.7	22.33	0.01	7.04	433.23	9.42	0.24	12.26
10/3/2024 20:00	11.7	22.28	0.01	7.08	430.51	9.43	0.27	12.26
10/3/2024 19:50	11.71	22.37	0.01	7.05	431.57	9.44	0.27	12.26
10/3/2024 19:40	11.72	22.14	0.01	7.05	431.92	9.43	0.26	12.26
10/3/2024 19:30	11.74	22.35	0.01	7.05	430.77	9.42	0.27	12.26
10/3/2024 19:20	11.74	22.32	0.01	7.09	428.58	9.41	0.26	12.19
10/3/2024 19:10	11.76	22.46	0.01	7.06	429.21	9.43	0.26	12.29
10/3/2024 19:00	11.76	22.3	0.01	7.06	429.26	9.42	0.27	12.29
10/3/2024 18:50	11.78	22.25	0.01	7.04	429.1	9.44	0.27	12.29

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10/3/2024 18:40	11.78	22.26	0.01	7.09	426.16	9.45	0.25	12.29
10/3/2024 18:30	11.8	22.29	0.01	7.06	427.35	9.45	0.28	12.31
10/3/2024 18:20	11.81	22.17	0.01	7.09	425.11	9.46	0.27	12.33
10/3/2024 18:10	11.82	22.24	0.01	7.07	425.3	9.48	0.26	12.33
10/3/2024 18:00	11.83	22.17	0.01	7.06	425.32	9.49	0.28	12.38
10/3/2024 17:50	11.85	22.26	0.01	7.06	424.34	9.48	0.25	12.41
10/3/2024 17:40	11.86	22.12	0.01	7.08	423.45	9.5	0.27	12.43
10/3/2024 17:30	11.87	22.22	0.01	7.08	422.1	9.54	0.26	12.41
10/3/2024 17:20	11.88	22.07	0.01	7.09	421.04	9.53	0.28	12.41
10/3/2024 17:10	11.89	22.14	0.01	7.08	420.54	9.54	0.27	12.33
10/3/2024 17:00	11.9	21.97	0.01	7.08	420.03	9.55	0.26	12.48
10/3/2024 16:50	11.91	22.04	0.01	7.1	418.24	9.59	0.29	12.6
10/3/2024 16:40	11.91	21.84	0.01	7.12	416.7	9.59	0.29	12.5
10/3/2024 16:30	11.91	22.02	0.01	7.11	416.58	9.62	0.27	12.55
10/3/2024 16:20	11.91	21.84	0.01	7.12	416.11	9.62	0.3	12.93
10/3/2024 16:10	11.91	21.9	0.01	7.1	416.11	9.62	0.26	12.79
10/3/2024 16:00	11.9	21.77	0.01	7.1	416.13	9.65	0.27	13.2
10/3/2024 15:50	11.9	21.96	0.01	7.1	414.92	9.65	0.25	13.03
10/3/2024 15:40	11.9	21.75	0.01	7.13	413.81	9.65	0.25	13.03
10/3/2024 15:30	11.89	21.92	0.01	7.11	413.76	9.67	0.29	13.63
10/3/2024 15:20	11.87	21.85	0.01	7.12	413.2	9.66	0.28	13.67
10/3/2024 15:10	11.88	21.9	0.01	7.11	412.16	9.68	0.27	13.65
10/3/2024 15:00	11.9	21.66	0.01	7.15	409.94	9.7	0.26	13.63
10/3/2024 14:50	11.93	21.88	0.01	7.13	410.36	9.69	0.26	13.6
10/3/2024 14:40	11.93	21.78	0.01	7.13	411.22	9.73	0.27	13.6
10/3/2024 14:30	11.88	21.84	0.01	7.15	409.04	9.76	0.27	13.6
10/3/2024 14:20	11.81	21.62	0.01	7.16	408.96	9.78	0.25	13.63
10/3/2024 14:10	11.75	21.82	0.01	7.13	409.75	9.78	0.28	13.63
10/3/2024 14:00	11.7	19.49	0.01	7.24	404.45	9.78	0.26	13.63
10/3/2024 13:50	11.69	21.77	0.01	7.12	410.06	9.81	0.26	13.48
10/3/2024 13:40	11.65	21.45	0.01	7.14	410.09	9.81	0.26	13.63
10/3/2024 13:30	11.62	21.63	0.01	7.14	409.01	9.84	0.24	13.56
10/3/2024 13:20	11.55	21.63	0.01	7.15	409	9.85	0.3	13.65
10/3/2024 13:10	11.51	21.73	0.01	7.14	409.01	9.84	0.27	13.53
10/3/2024 13:00	11.47	21.32	0.01	7.15	408.52	9.85	0.26	13.56
10/3/2024 12:50	11.44	21.72	0.01	7.14	408.05	9.87	0.25	13.67
10/3/2024 12:40	11.42	21.57	0.01	7.12	409.58	9.88	0.25	13.56
10/3/2024 12:30	11.42	21.7	0.01	7.14	407.66	9.9	0.26	13.56
10/3/2024 12:20	11.37	21.65	0.01	7.12	409.21	9.89	0.24	13.65
10/3/2024 12:10	11.38	21.77	0.01	7.13	407.59	9.9	0.27	13.67
10/3/2024 12:00	11.38	21.49	0.01	7.12	408.58	9.91	0.26	13.65
10/3/2024 11:50	11.37	21.74	0.01	7.13	407.92	9.93	0.26	13.67
10/3/2024 11:40	11.44	21.67	0.01	7.14	408.27	9.94	0.26	13.65
10/3/2024 11:30	11.44	21.8	0.01	7.14	408.1	9.94	0.25	13.67
10/3/2024 11:20	11.4	21.64	0.01	7.16	409.02	9.96	0.26	13.67
10/3/2024 11:10	11.34	21.76	0.01	7.14	410.96	9.96	0.3	13.7
10/3/2024 11:00	11.24	21.65	0.01	7.11	414.28	9.98	0.25	13.7

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10/3/2024 10:50	11.18	21.73	0.01	7.14	413.26	9.99	0.25	13.7
10/3/2024 10:40	11.12	21.61	0.01	7.13	415.76	10.01	0.22	13.7
10/3/2024 10:30	11.07	21.73	0.01	7.14	415.69	10.02	0.24	13.6
10/3/2024 10:20	10.99	21.62	0.01	7.11	418.82	10.02	0.24	13.63
10/3/2024 10:10	10.95	21.67	0.01	7.12	418.71	10.02	0.22	13.75
10/3/2024 10:00	10.85	21.45	0.01	7.1	421.7	10.02	0.25	13.75
10/3/2024 9:50	10.75	21.66	0.01	7.11	422.63	10.04	0.2	13.75
10/3/2024 9:40	10.64	21.65	0.01	7.1	424.89	10.06	0.23	13.77
10/3/2024 9:30	10.55	21.73	0.01	7.1	425.79	10.04	0.21	13.77
10/3/2024 9:20	10.49	21.65	0.01	7.08	428.42	10.04	0.21	13.77
10/3/2024 9:10	10.45	21.75	0.01	7.1	428.09	10.02	0.22	13.67
10/3/2024 9:00	10.41	21.55	0.01	7.09	429.84	10.01	0.2	13.77
10/3/2024 8:50	10.38	21.85	0.01	7.07	431.71	10.01	0.22	13.51
10/3/2024 8:40	10.34	21.79	0.01	7.06	433.21	9.98	0.21	13.75
10/3/2024 8:30	10.31	21.9	0.01	7.06	433.86	9.96	0.19	13.1
10/3/2024 8:20	10.29	21.68	0.01	7.05	435.39	9.92	0.2	12.43
10/3/2024 8:10	10.29	21.9	0.01	7.06	435.01	9.93	0.22	12.12
10/3/2024 8:00	10.3	21.49	0.01	7.07	435.21	9.93	0.19	12.07
10/3/2024 7:50	10.3	21.92	0.01	7.05	436.1	9.93	0.21	12.17
10/3/2024 7:40	10.31	21.58	0.01	7.04	437.06	9.92	0.2	12.17
10/3/2024 7:30	10.31	22.02	0.01	7.03	437.29	9.9	0.2	12.12
10/3/2024 7:20	10.33	21.9	0.01	7.02	437.96	9.9	0.22	12.12
10/3/2024 7:10	10.35	22.07	0.01	7.04	437.02	9.89	0.21	12.09
10/3/2024 7:00	10.37	21.79	0.01	7.07	435.47	9.88	0.21	12.09
10/3/2024 6:50	10.4	22.06	0.01	7.03	436.86	9.9	0.21	12
10/3/2024 6:40	10.42	21.9	0.01	7.05	436.15	9.87	0.23	12.02
10/3/2024 6:30	10.44	22.09	0.01	7.03	436.59	9.87	0.22	12.12
10/3/2024 6:20	10.45	21.99	0.01	7.04	436.49	9.89	0.22	12.02
10/3/2024 6:10	10.47	22.13	0.01	7.04	436.27	9.88	0.2	12.02
10/3/2024 6:00	10.49	21.82	0.01	7.03	436.94	9.87	0.21	12.12
10/3/2024 5:50	10.51	22.09	0.01	7.04	435.85	9.85	0.23	12.12
10/3/2024 5:40	10.53	22.06	0.01	7.03	436.58	9.86	0.24	12.02
10/3/2024 5:30	10.54	22.15	0.01	7.05	435.27	9.84	0.21	12.12
10/3/2024 5:20	10.55	22.02	0.01	7.03	436.45	9.83	0.21	12.12
10/3/2024 5:10	10.56	22.18	0.01	7.04	435.56	9.83	0.21	12.09
10/3/2024 5:00	10.58	21.98	0.01	7.05	435.23	9.84	0.21	12.14
10/3/2024 4:50	10.61	22.16	0.01	7.03	435.53	9.82	0.22	12.14
10/3/2024 4:40	10.62	22.1	0.01	7.02	436.37	9.84	0.22	12.14
10/3/2024 4:30	10.65	22.2	0.01	7.05	434.45	9.83	0.23	12.14
10/3/2024 4:20	10.67	22.09	0.01	7.03	436.21	9.82	0.21	12.14
10/3/2024 4:10	10.69	22.16	0.01	7.04	435.2	9.79	0.22	12.14
10/3/2024 4:00	10.71	22.31	0.01	7.07	433.87	9.81	0.23	12.14
10/3/2024 3:50	10.74	22.19	0.01	7.03	435.62	9.81	0.23	12.14
10/3/2024 3:40	10.76	22.09	0.01	7.04	435.42	9.78	0.22	12.17
10/3/2024 3:30	10.79	22.23	0.01	7.03	435.52	9.8	0.23	12.07
10/3/2024 3:20	10.82	22.08	0.01	7.02	436.31	9.78	0.24	12.07
10/3/2024 3:10	10.85	22.3	0.01	7.04	434.72	9.79	0.25	12.07

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10/3/2024 3:00	10.88	22.24	0.01	7.05	434.27	9.79	0.23	12.05
10/3/2024 2:50	10.9	22.25	0.01	7.05	434.13	9.76	0.23	12.17
10/3/2024 2:40	10.92	22.1	0.01	7.04	435.02	9.75	0.24	12.14
10/3/2024 2:30	10.94	22.33	0.01	7.04	434.37	9.75	0.24	12.17
10/3/2024 2:20	10.95	22.05	0.01	7.02	435.69	9.74	0.24	12.19
10/3/2024 2:10	10.97	22.37	0.01	7.03	434.66	9.74	0.25	12.19
10/3/2024 2:00	10.99	22.24	0.01	7.03	435.31	9.74	0.22	12.19
10/3/2024 1:50	11.02	22.41	0.01	7.04	434.25	9.76	0.24	12.17
10/3/2024 1:40	11.05	22.29	0.01	7.05	433.79	9.72	0.24	12.07
10/3/2024 1:30	11.08	22.3	0.01	7.04	434.02	9.73	0.27	12.07
10/3/2024 1:20	11.1	22.24	0.01	7.04	434.23	9.73	0.22	12.12
10/3/2024 1:10	11.13	22.33	0.01	7.04	433.87	9.72	0.23	12.19
10/3/2024 1:00	11.16	22.24	0.01	7.03	434.86	9.7	0.25	12.19
10/3/2024 0:50	11.18	22.46	0.01	7.02	434.68	9.7	0.26	12.09
10/3/2024 0:40	11.2	22.42	0.01	7.05	433.55	9.69	0.25	12.09
10/3/2024 0:30	11.23	22.49	0.01	7.03	433.98	9.68	0.28	12.09
10/3/2024 0:20	11.26	22.27	0.01	7.02	434.72	9.68	0.26	12.09
10/3/2024 0:10	11.28	22.52	0.01	7.04	433.21	9.68	0.23	12.19
10/3/2024 0:00	11.3	22.29	0.01	7.03	434.27	9.68	0.26	12.14
10/2/2024 23:50	11.33	22.51	0.01	7.02	433.92	9.66	0.25	12.21
10/2/2024 23:40	11.35	22.39	0.01	7.02	434.14	9.66	0.24	12.21
10/2/2024 23:30	11.38	22.56	0.01	7.03	433.41	9.66	0.25	12.21
10/2/2024 23:20	11.41	22.42	0.01	7.04	432.69	9.66	0.23	12.21
10/2/2024 23:10	11.44	22.6	0.01	7.03	432.72	9.66	0.27	12.21
10/2/2024 23:00	11.46	22.53	0.01	7.04	432.7	9.64	0.26	12.21
10/2/2024 22:50	11.49	22.64	0.01	7.03	432.52	9.62	0.27	12.24
10/2/2024 22:40	11.52	22.58	0.01	7.02	433.17	9.63	0.28	12.21
10/2/2024 22:30	11.54	22.7	0.01	7.04	431.74	9.63	0.26	12.24
10/2/2024 22:20	11.56	22.58	0.01	7.04	432.26	9.61	0.39	12.14
10/2/2024 22:10	11.59	22.63	0.01	7.03	431.92	9.61	0.28	12.14
10/2/2024 22:00	11.62	22.64	0.01	7.03	432.43	9.59	0.27	12.21
10/2/2024 21:50	11.65	22.74	0.01	7.02	432.05	9.58	0.27	12.12
10/2/2024 21:40	11.67	22.68	0.01	7.06	430.16	9.57	0.28	12.14
10/2/2024 21:30	11.7	22.68	0.01	7.04	430.87	9.57	0.29	12.21
10/2/2024 21:20	11.73	22.72	0.01	7.04	431.18	9.56	0.26	12.21
10/2/2024 21:10	11.76	20.74	0.01	7.05	430.44	9.54	0.27	12.26
10/2/2024 21:00	11.79	22.69	0.01	7.04	430.7	9.56	0.29	12.26
10/2/2024 20:50	11.82	22.84	0.01	7.03	430.45	9.55	0.26	12.24
10/2/2024 20:40	11.85	22.68	0.01	7.03	430.95	9.52	0.28	12.26
10/2/2024 20:30	11.88	22.95	0.01	7.04	429.51	9.53	0.27	12.24
10/2/2024 20:20	11.9	22.79	0.01	7.03	430.28	9.53	0.28	12.29
10/2/2024 20:10	11.93	23.01	0.01	7.05	428.51	9.52	0.27	12.29
10/2/2024 20:00	11.97	22.87	0.01	7.06	427.96	9.51	0.27	12.29
10/2/2024 19:50	12	23.02	0.01	7.05	427.81	9.51	0.27	12.29
10/2/2024 19:40	12.03	22.89	0.01	7.03	429.01	9.5	0.27	12.29
10/2/2024 19:30	12.06	22.93	0.01	7.04	427.85	9.5	0.29	12.29
10/2/2024 19:20	12.08	23.02	0.01	7.05	426.96	9.5	0.3	12.29

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10/2/2024 19:10	12.11	23.01	0.01	7.04	426.66	9.49	0.28	12.29
10/2/2024 19:00	12.13	23.02	0.01	7.03	426.84	9.48	0.29	12.31
10/2/2024 18:50	12.16	23	0.01	7.05	424.51	9.48	0.29	12.31
10/2/2024 18:40	12.18	23.05	0.01	7.04	425.25	9.5	0.32	12.24
10/2/2024 18:30	12.21	23.04	0.01	7.05	423.48	9.49	0.29	12.31
10/2/2024 18:20	12.24	22.88	0.01	7.05	423.07	9.49	0.29	12.33
10/2/2024 18:10	12.26	23.13	0.01	7.07	421.52	9.49	0.31	12.33
10/2/2024 18:00	12.28	22.93	0.01	7.03	423.19	9.51	0.33	12.29
10/2/2024 17:50	12.3	23.09	0.01	7.07	420.38	9.51	0.29	12.41
10/2/2024 17:40	12.31	23.07	0.01	7.04	421.74	9.52	0.28	12.5
10/2/2024 17:30	12.33	23.13	0.01	7.07	419.63	9.52	0.29	12.53
10/2/2024 17:20	12.34	22.99	0.01	7.05	420.65	9.54	0.28	12.5
10/2/2024 17:10	12.36	23.15	0.01	7.06	419.16	9.51	0.3	12.53
10/2/2024 17:00	12.38	22.8	0.01	7.07	418.93	9.55	0.31	12.53
10/2/2024 16:50	12.39	23.07	0.01	7.07	417.83	9.54	0.31	12.43
10/2/2024 16:40	12.4	23.04	0.01	7.09	417.1	9.54	0.3	12.48
10/2/2024 16:30	12.42	23.09	0.01	7.08	416.75	9.55	0.29	12.55
10/2/2024 16:20	12.42	22.91	0.01	7.07	417.75	9.55	0.31	12.74
10/2/2024 16:10	12.43	23.09	0.01	7.06	417.61	9.54	0.27	12.72
10/2/2024 16:00	12.43	23.02	0.01	7.07	417.14	9.53	0.3	12.69
10/2/2024 15:50	12.44	23.11	0.01	7.06	417.01	9.53	0.33	12.67
10/2/2024 15:40	12.44	22.83	0.01	7.06	417.24	9.52	0.29	12.62
10/2/2024 15:30	12.44	23.08	0.01	7.06	415.86	9.52	0.32	12.45
10/2/2024 15:20	12.45	22.83	0.01	7.07	414.82	9.52	0.32	12.55
10/2/2024 15:10	12.47	23.11	0.01	7.08	413.03	9.53	0.28	12.45
10/2/2024 15:00	12.48	23.03	0.01	7.09	411.73	9.54	0.3	12.57
10/2/2024 14:50	12.5	23.04	0.01	7.1	409.67	9.56	0.3	12.81
10/2/2024 14:40	12.5	22.79	0.01	7.09	409.93	9.56	0.86	12.96
10/2/2024 14:30	12.52	22.96	0.01	7.11	407.81	9.6	0.31	12.81
10/2/2024 14:20	12.56	22.89	0.01	7.11	406.94	9.63	0.3	12.84
10/2/2024 14:10	12.57	22.95	0.01	7.12	405.52	9.63	0.3	13.58
10/2/2024 14:00	12.54	22.93	0.01	7.11	406.19	9.63	0.31	13.56
10/2/2024 13:50	12.56	23.03	0.01	7.11	405.2	9.62	0.31	13.56
10/2/2024 13:40	12.6	22.79	0.01	7.12	404.92	9.66	0.31	13.53
10/2/2024 13:30	12.57	23.07	0.01	7.12	403.98	9.67	0.28	13.56
10/2/2024 13:20	12.5	22.97	0.01	7.11	405.2	9.71	0.3	13.58
10/2/2024 13:10	12.5	23.06	0.01	7.12	403.68	9.68	0.29	13.53
10/2/2024 13:00	12.53	22.72	0.01	7.13	404.34	9.69	0.3	13.56
10/2/2024 12:50	12.46	23.08	0.01	7.12	404.82	9.69	0.32	13.48
10/2/2024 12:40	12.41	22.56	0.01	7.12	405.29	9.71	0.29	13.6
10/2/2024 12:30	12.37	23.07	0.01	7.13	404.71	9.75	0.29	13.51
10/2/2024 12:20	12.35	22.97	0.01	7.13	405.21	9.77	0.37	13.51
10/2/2024 12:10	12.32	23.1	0.01	7.14	404.15	9.77	0.29	13.51
10/2/2024 12:00	12.27	23.02	0.01	7.11	406.91	9.78	0.31	13.63
10/2/2024 11:50	12.22	23.06	0.01	7.14	405.64	9.8	0.29	13.51
10/2/2024 11:40	12.17	22.9	0.01	7.13	407.63	9.82	0.29	13.53
10/2/2024 11:30	12.06	23.1	0.01	7.14	408.07	9.85	0.29	13.65

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10/2/2024 11:20	11.9	22.93	0.01	7.14	410.13	9.85	0.28	13.67
10/2/2024 11:10	11.81	23.14	0.01	7.12	411.86	9.84	0.29	13.67
10/2/2024 11:00	11.78	23.14	0.01	7.1	414	9.85	0.27	13.27
10/2/2024 10:50	11.82	23.12	0.01	7.11	413.65	9.86	0.27	13.22
10/2/2024 10:40	11.72	23.23	0.01	7.11	415.82	9.85	0.26	13.67
10/2/2024 10:30	11.6	23.21	0.01	7.11	416.55	9.85	0.26	13.12
10/2/2024 10:20	11.55	23.31	0.01	7.08	419.61	9.84	0.29	13.27
10/2/2024 10:10	11.47	23.46	0.01	7.07	420.46	9.82	0.27	12.84
10/2/2024 10:00	11.44	23.47	0.01	7.09	420.72	9.83	0.27	12.69
10/2/2024 9:50	11.42	23.56	0.01	7.09	420.72	9.83	0.26	12.72
10/2/2024 9:40	11.39	23.62	0.01	7.08	421.91	9.84	0.26	12.72
10/2/2024 9:30	11.37	23.61	0.01	7.07	422.69	9.82	0.24	12.65
10/2/2024 9:20	11.35	23.59	0.01	7.06	424.44	9.82	0.26	12.65
10/2/2024 9:10	11.33	23.83	0.01	7.06	424.38	9.83	0.26	12.74
10/2/2024 9:00	11.31	23.76	0.01	7.07	425.65	9.83	0.25	12.79
10/2/2024 8:50	11.29	24.05	0.01	7.07	426.17	9.83	0.26	12.98
10/2/2024 8:40	11.26	24.02	0.01	7.04	428.81	9.81	0.27	13.17
10/2/2024 8:30	11.24	24.3	0.01	7.06	428.24	9.77	0.26	12.36
10/2/2024 8:20	11.22	24.13	0.01	7.05	429.38	9.74	0.26	12.07
10/2/2024 8:10	11.22	24.42	0.01	7.05	429.67	9.72	0.24	12
10/2/2024 8:00	11.21	24.45	0.01	7.04	430.98	9.74	0.26	12.02
10/2/2024 7:50	11.22	24.64	0.01	7.05	430.31	9.71	0.26	11.9
10/2/2024 7:40	11.22	24.49	0.01	7.03	431.77	9.71	0.26	11.97
10/2/2024 7:30	11.23	24.76	0.01	7.04	431.02	9.69	0.25	12
10/2/2024 7:20	11.24	24.71	0.01	7.03	431.78	9.68	0.28	12
10/2/2024 7:10	11.25	24.84	0.01	7.03	431.45	9.7	0.23	12
10/2/2024 7:00	11.26	24.85	0.01	7.04	431.69	9.69	0.25	12
10/2/2024 6:50	11.27	25.1	0.01	7.05	430.3	9.7	0.26	12.02
10/2/2024 6:40	11.28	25.05	0.01	7.04	431.76	9.68	0.24	12
10/2/2024 6:30	11.3	25.26	0.01	7.03	431.75	9.67	0.26	12
10/2/2024 6:20	11.31	24.91	0.01	7.03	432.39	9.67	0.22	11.9
10/2/2024 6:10	11.33	25.44	0.01	7.05	430.85	9.66	0.25	11.9
10/2/2024 6:00	11.36	25.35	0.01	7.03	432.01	9.65	0.23	12.02
10/2/2024 5:50	11.38	25.68	0.01	7.05	430.6	9.66	0.24	12.02
10/2/2024 5:40	11.4	25.67	0.01	7.04	431.62	9.63	0.26	12.02
10/2/2024 5:30	11.42	25.85	0.01	7.03	431.61	9.63	0.26	12.02
10/2/2024 5:20	11.43	25.89	0.01	7.02	432.71	9.62	0.28	12
10/2/2024 5:10	11.45	26.1	0.01	7.02	432.48	9.63	0.27	11.93
10/2/2024 5:00	11.46	25.99	0.01	7.03	432.14	9.64	0.28	11.9
10/2/2024 4:50	11.48	26.42	0.01	7.03	431.88	9.61	0.26	12
10/2/2024 4:40	11.49	26.18	0.01	7.05	431.25	9.63	0.27	11.9
10/2/2024 4:30	11.5	26.7	0.01	7.05	430.65	9.62	0.25	12
10/2/2024 4:20	11.52	26.63	0.01	7.04	431.64	9.61	0.27	12
10/2/2024 4:10	11.53	27.01	0.01	7.05	430.72	9.61	0.28	12
10/2/2024 4:00	11.54	27.02	0.01	7.05	431.27	9.6	0.26	11.93
10/2/2024 3:50	11.55	27.26	0.01	7.04	431.24	9.61	0.27	12
10/2/2024 3:40	11.57	27.29	0.01	7.06	430.84	9.61	0.26	11.95

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10/2/2024 3:30	11.59	27.52	0.01	7.05	430.84	9.6	0.25	12.05
10/2/2024 3:20	11.6	27.36	0.01	7.04	431.72	9.59	0.28	12.02
10/2/2024 3:10	11.62	27.39	0.01	7.03	431.79	9.59	0.26	12.05
10/2/2024 3:00	11.63	26.86	0.01	7.04	431.5	9.57	0.28	12.05
10/2/2024 2:50	11.65	26.55	0.01	7.04	430.95	9.59	0.24	12.02
10/2/2024 2:40	11.66	25.3	0.01	7.03	431.81	9.57	0.28	11.95
10/2/2024 2:30	11.68	24.74	0.01	7.03	431.63	9.57	0.31	12.02
10/2/2024 2:20	11.69	23.89	0.01	7.03	431.75	9.58	0.29	11.93
10/2/2024 2:10	11.7	23.92	0.01	7.03	431.28	9.56	0.27	11.93
10/2/2024 2:00	11.71	23.66	0.01	7.03	431.77	9.56	0.3	11.93
10/2/2024 1:50	11.72	23.76	0.01	7.02	431.82	9.58	0.27	12.05
10/2/2024 1:40	11.73	23.33	0.01	7.03	431.38	9.56	0.28	12.05
10/2/2024 1:30	11.73	23.79	0.01	7.03	430.81	9.55	0.29	11.95
10/2/2024 1:20	11.74	23.69	0.01	7.03	431.51	9.54	0.27	11.93
10/2/2024 1:10	11.75	23.8	0.01	7.05	429.93	9.56	0.27	12.02
10/2/2024 1:00	11.76	23.72	0.01	7.03	430.93	9.55	0.28	12.02
10/2/2024 0:50	11.76	24.02	0.01	7.04	430.25	9.56	0.31	12.05
10/2/2024 0:40	11.77	23.8	0.01	7.03	430.86	9.55	0.28	12.05
10/2/2024 0:30	11.77	24.11	0.01	7.04	430.05	9.54	0.29	12.05
10/2/2024 0:20	11.78	24.03	0.01	7.03	430.97	9.54	0.28	12.05
10/2/2024 0:10	11.79	24.23	0.01	7.04	429.65	9.55	0.3	12.05
10/2/2024 0:00	11.8	23.94	0.01	7.04	430.56	9.54	0.3	11.97
10/1/2024 23:50	11.8	24.27	0.01	7.05	429.48	9.52	0.29	11.95
10/1/2024 23:40	11.8	24.25	0.01	7.04	430.1	9.53	0.31	11.97
10/1/2024 23:30	11.8	24.34	0.01	7.02	430.64	9.53	0.29	11.97
10/1/2024 23:20	11.81	24.33	0.01	7.03	430.15	9.51	0.29	12.07
10/1/2024 23:10	11.81	24.56	0.01	7.04	429.57	9.52	0.28	12.09
10/1/2024 23:00	11.81	24.62	0.01	7.02	430.89	9.53	0.27	12.09
10/1/2024 22:50	11.81	24.66	0.01	7.04	429.19	9.52	0.28	12.09
10/1/2024 22:40	11.82	24.79	0.01	7.03	429.93	9.51	0.29	12.09
10/1/2024 22:30	11.82	24.91	0.01	7.03	429.36	9.51	0.29	12
10/1/2024 22:20	11.82	24.59	0.01	7.05	428.63	9.54	0.29	12.14
10/1/2024 22:10	11.83	25.09	0.01	7.05	427.82	9.53	0.29	12.14
10/1/2024 22:00	11.83	25.07	0.01	7.02	429.47	9.52	0.31	12.14
10/1/2024 21:50	11.83	25.32	0.01	7.03	428.6	9.52	0.28	12.14
10/1/2024 21:40	11.83	25.17	0.01	7.04	428.56	9.51	0.29	12.14
10/1/2024 21:30	11.84	25.49	0.01	7.04	427.59	9.52	0.34	12.07
10/1/2024 21:20	11.84	25.61	0.01	7.06	426.79	9.5	0.36	12.07
10/1/2024 21:10	11.85	25.78	0.01	7.05	426.41	9.52	0.29	12.19
10/1/2024 21:00	11.85	25.79	0.01	7.04	427.17	9.53	0.28	12.19
10/1/2024 20:50	11.85	25.92	0.01	7.06	425.6	9.52	0.31	12.12
10/1/2024 20:40	11.85	25.97	0.01	7.04	426.57	9.52	0.27	12.21
10/1/2024 20:30	11.86	26.34	0.01	7.04	425.69	9.51	0.27	12.21
10/1/2024 20:20	11.86	26.2	0.01	7.04	426.04	9.51	0.28	12.14
10/1/2024 20:10	11.87	26.64	0.01	7.05	424.53	9.52	0.28	12.14
10/1/2024 20:00	11.87	26.63	0.01	7.02	425.98	9.51	0.3	12.14
10/1/2024 19:50	11.88	26.94	0.01	7.06	423.36	9.51	0.29	12.26

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10/1/2024 19:40	11.89	26.94	0.01	7.05	423.72	9.52	0.32	12.29
10/1/2024 19:30	11.9	27.3	0.01	7.06	422.36	9.5	0.26	12.29
10/1/2024 19:20	11.92	27	0.01	7.04	422.95	9.52	0.28	12.29
10/1/2024 19:10	11.93	27.73	0.01	7.04	421.9	9.5	0.3	12.29
10/1/2024 19:00	11.95	27.67	0.01	7.05	421.29	9.5	0.28	12.31
10/1/2024 18:50	11.96	28.14	0.01	7.07	419.53	9.5	0.29	12.21
10/1/2024 18:40	11.98	28.29	0.01	7.06	419.87	9.5	0.28	12.33
10/1/2024 18:30	12	28.82	0.01	7.07	418.35	9.52	0.28	12.36
10/1/2024 18:20	12.01	28.79	0.01	7.08	417.24	9.53	0.3	12.36
10/1/2024 18:10	12.03	29.58	0.01	7.09	416.07	9.54	0.3	12.38
10/1/2024 18:00	12.03	29.59	0.01	7.09	415.55	9.55	0.28	12.41
10/1/2024 17:50	12.04	30.63	0.01	7.09	414.95	9.56	0.3	12.41
10/1/2024 17:40	12.05	30.91	0.02	7.08	415.62	9.57	0.29	12.38
10/1/2024 17:30	12.06	31.78	0.02	7.08	414.69	9.58	0.3	12.43
10/1/2024 17:20	12.05	31.89	0.02	7.09	414.23	9.6	0.3	12.38
10/1/2024 17:10	12.05	33.1	0.02	7.09	413.29	9.6	0.29	12.43
10/1/2024 17:00	12.05	33.62	0.02	7.1	412.86	9.6	0.3	12.65
10/1/2024 16:50	12.03	34.86	0.02	7.11	411.47	9.62	0.3	12.62
10/1/2024 16:40	12.02	35.47	0.02	7.11	411.94	9.61	0.29	12.57
10/1/2024 16:30	12.02	36.99	0.02	7.12	410.73	9.64	0.29	12.62
10/1/2024 16:20	12	38.13	0.02	7.11	411.67	9.66	0.28	12.79
10/1/2024 16:10	11.98	39.72	0.02	7.11	411.21	9.66	0.27	12.67
10/1/2024 16:00	11.96	40.63	0.02	7.11	411.82	9.66	0.29	12.76
10/1/2024 15:50	11.95	42.41	0.02	7.12	410.83	9.69	0.29	12.74
10/1/2024 15:40	11.94	43.36	0.02	7.11	411.81	9.7	0.28	12.76
10/1/2024 15:30	11.93	44.23	0.02	7.12	411.3	9.69	0.28	12.86
10/1/2024 15:20	11.91	43.48	0.02	7.08	414.53	9.71	0.29	12.88
10/1/2024 15:10	11.87	42.07	0.02	7.1	413.94	9.72	0.3	12.84
10/1/2024 15:00	11.85	38.13	0.02	7.1	415.27	9.72	0.27	12.88
10/1/2024 14:50	11.81	32.26	0.02	7.07	416.72	9.69	0.29	12.74
10/1/2024 14:40	11.79	27.09	0.01	7.06	417.55	9.71	0.29	12.65
10/1/2024 14:30	11.78	23.46	0.01	7.09	415.85	9.71	0.31	12.62
10/1/2024 14:20	11.77	22.61	0.01	7.07	417.09	9.71	0.29	12.62
10/1/2024 14:10	11.75	22.61	0.01	7.06	418.04	9.72	0.29	12.6
10/1/2024 14:00	11.72	22.35	0.01	7.07	417.9	9.69	0.29	12.38
10/1/2024 13:50	11.71	22.55	0.01	7.07	417.67	9.7	0.28	12.26
10/1/2024 13:40	11.7	22.5	0.01	7.04	419.49	9.69	0.29	12.26
10/1/2024 13:30	11.69	22.62	0.01	7.07	417.33	9.71	0.33	12.31
10/1/2024 13:20	11.68	22.54	0.01	7.06	417.97	9.72	0.28	12.45
10/1/2024 13:10	11.66	22.62	0.01	7.07	417.52	9.71	0.28	12.43
10/1/2024 13:00	11.65	22.15	0.01	7.05	419.26	9.74	0.31	12.38
10/1/2024 12:50	11.64	22.65	0.01	7.06	419.09	9.72	0.29	12.45
10/1/2024 12:40	11.62	22.3	0.01	7.06	419.92	9.73	0.3	12.5
10/1/2024 12:30	11.61	22.63	0.01	7.07	419.41	9.72	0.31	12.41
10/1/2024 12:20	11.6	22.5	0.01	7.04	421.69	9.72	0.3	12.45
10/1/2024 12:10	11.6	22.63	0.01	7.06	421.2	9.72	0.3	12.45
10/1/2024 12:00	11.59	22.33	0.01	7.06	421.55	9.75	0.28	12.36

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10/1/2024 11:50	11.57	22.56	0.01	7.06	421.68	9.72	0.29	12.38
10/1/2024 11:40	11.56	22.31	0.01	7.04	423.19	9.69	0.3	12.33
10/1/2024 11:30	11.55	22.62	0.01	7.04	423.05	9.7	0.3	12.29
10/1/2024 11:20	11.54	22.48	0.01	7.06	422.24	9.72	0.26	12.26
10/1/2024 11:10	11.53	22.49	0.01	7.06	422.7	9.72	0.33	12.24
10/1/2024 11:00	11.52	22.44	0.01	7.05	424.65	9.74	0.28	12.21
10/1/2024 10:50	11.52	22.6	0.01	7.06	424.46	9.73	0.28	12.07
10/1/2024 10:40	11.5	22.53	0.01	7.06	425.5	9.73	0.32	12.17
10/1/2024 10:30	11.49	22.52	0.01	7.04	427.37	9.73	0.29	12.09
10/1/2024 10:20	11.47	22.36	0.01	7.03	428.8	9.73	0.28	12.24
10/1/2024 10:10	11.46	22.7	0.01	7.03	429.28	9.7	0.24	12.19
10/1/2024 10:00	11.46	22.55	0.01	7.02	431.26	9.71	0.27	12.05
10/1/2024 9:50	11.45	22.74	0.01	7.04	430.13	9.71	0.29	12.02
10/1/2024 9:40	11.43	22.61	0.01	7.02	432.44	9.69	0.26	12.14
10/1/2024 9:30	11.43	22.76	0.01	7.03	432.06	9.69	0.26	12.14
10/1/2024 9:20	11.42	22.62	0.01	7.04	431.84	9.69	0.24	12.12
10/1/2024 9:10	11.41	22.76	0.01	7.03	432.82	9.71	0.27	12.05
10/1/2024 9:00	11.4	22.61	0.01	7.01	434.11	9.69	0.29	12.12
10/1/2024 8:50	11.4	22.79	0.01	7.02	434.06	9.68	0.28	12.12
10/1/2024 8:40	11.39	22.7	0.01	7.01	435.24	9.68	0.28	12.12
10/1/2024 8:30	11.38	22.77	0.01	7.03	434.76	9.69	0.29	11.97
10/1/2024 8:20	11.38	22.62	0.01	7.01	435.86	9.66	0.25	12.09
10/1/2024 8:10	11.38	22.86	0.01	7.02	435.6	9.67	0.29	12.07
10/1/2024 8:00	11.38	22.54	0.01	6.99	437.42	9.66	0.29	12.07
10/1/2024 7:50	11.38	22.84	0.01	7.02	435.66	9.67	0.28	12.07
10/1/2024 7:40	11.37	22.43	0.01	7.02	435.86	9.65	0.25	12.05
10/1/2024 7:30	11.38	22.9	0.01	7.01	436.29	9.64	0.27	12.05
10/1/2024 7:20	11.38	22.79	0.01	7.01	436.53	9.64	0.26	11.95
10/1/2024 7:10	11.38	22.79	0.01	7.02	436.2	9.65	0.27	11.95
10/1/2024 7:00	11.38	22.44	0.01	7	437.17	9.64	0.28	12.05
10/1/2024 6:50	11.38	22.89	0.01	7.02	436.33	9.65	0.3	11.95
10/1/2024 6:40	11.38	22.71	0.01	7.01	436.86	9.65	0.27	12.05
10/1/2024 6:30	11.38	22.93	0.01	7.01	436.49	9.64	0.28	12.07
10/1/2024 6:20	11.38	22.8	0.01	6.99	438.02	9.64	0.28	12.05
10/1/2024 6:10	11.38	22.95	0.01	7.03	435.33	9.65	0.25	12.05
10/1/2024 6:00	11.38	22.8	0.01	7.01	436.6	9.64	0.29	12.05
10/1/2024 5:50	11.39	22.95	0.01	7.02	436.13	9.65	0.28	11.97
10/1/2024 5:40	11.39	22.88	0.01	7.03	435.92	9.64	0.27	12.05
10/1/2024 5:30	11.39	22.99	0.01	7.02	435.9	9.64	0.26	12.07
10/1/2024 5:20	11.39	22.67	0.01	7.03	435.71	9.65	0.26	12.07
10/1/2024 5:10	11.39	22.98	0.01	7.02	436.13	9.65	0.27	12.07
10/1/2024 5:00	11.39	22.92	0.01	7.03	435.75	9.65	0.28	12.07
10/1/2024 4:50	11.39	23.01	0.01	7.02	436.33	9.68	0.26	12.07
10/1/2024 4:40	11.38	22.86	0.01	6.99	437.51	9.66	0.27	11.97
10/1/2024 4:30	11.39	22.97	0.01	7	437.19	9.66	0.26	12.07
10/1/2024 4:20	11.39	22.55	0.01	7.01	436.57	9.66	0.27	12.07
10/1/2024 4:10	11.4	22.98	0.01	7.02	436.16	9.68	0.28	12

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10/1/2024 4:00	11.39	22.89	0.01	7	437.41	9.66	0.27	12.07
10/1/2024 3:50	11.39	23.05	0.01	7	437.24	9.66	0.26	11.97
10/1/2024 3:40	11.39	22.8	0.01	7.01	436.85	9.66	0.28	11.97
10/1/2024 3:30	11.39	23	0.01	7	437.42	9.69	0.29	12.05
10/1/2024 3:20	11.39	23.14	0.01	7.07	432.21	9.66	0.28	12.07
10/1/2024 3:10	11.39	23.08	0.01	7.02	434.75	9.67	0.26	12.09
10/1/2024 3:00	11.39	22.55	0.01	7.02	435.23	9.66	0.29	12.09
10/1/2024 2:50	11.4	23.03	0.01	7.02	434.64	9.66	0.28	12.09
10/1/2024 2:40	11.4	23.04	0.01	7	436.19	9.67	0.28	12.09
10/1/2024 2:30	11.41	22.96	0.01	7.02	434.6	9.66	0.28	12.09
10/1/2024 2:20	11.41	23	0.01	7.02	435.1	9.66	0.27	12.09
10/1/2024 2:10	11.42	23.13	0.01	7.02	434.64	9.67	0.29	12
10/1/2024 2:00	11.42	22.63	0.01	7	435.75	9.67	0.27	12
10/1/2024 1:50	11.44	23.13	0.01	7.02	434.49	9.67	0.28	12
10/1/2024 1:40	11.45	23.07	0.01	6.99	436.08	9.66	0.28	12.09
10/1/2024 1:30	11.47	23.16	0.01	7.01	434.39	9.65	0.29	12.14
10/1/2024 1:20	11.49	23.05	0.01	7	435.3	9.63	0.3	12.05
10/1/2024 1:10	11.5	23.25	0.01	7.02	433.8	9.65	0.29	12.05
10/1/2024 1:00	11.52	23.01	0.01	7.01	434.32	9.64	0.28	12.05
10/1/2024 0:50	11.53	23.19	0.01	7.01	434.1	9.66	0.29	12.05
10/1/2024 0:40	11.55	23.16	0.01	6.99	434.89	9.66	0.28	12.14
10/1/2024 0:30	11.56	23.28	0.01	7.01	433.55	9.64	0.26	12.17
10/1/2024 0:20	11.58	23.16	0.01	7.02	433.32	9.64	0.31	12.17
10/1/2024 0:10	11.6	23.2	0.01	7.02	432.86	9.63	0.29	12.19
10/1/2024 0:00	11.62	23.18	0.01	7	434.26	9.63	0.3	12.19
9/30/2024 23:50	11.64	23.17	0.01	7.01	433.24	9.62	0.29	12.19
9/30/2024 23:40	11.66	23.22	0.01	7.02	432.66	9.61	0.29	12.19
9/30/2024 23:30	11.69	23.2	0.01	7.01	432.56	9.64	0.29	12.19
9/30/2024 23:20	11.71	23.25	0.01	7	433.85	9.62	0.28	12.19
9/30/2024 23:10	11.73	23.23	0.01	7	433.19	9.6	0.32	12.12
9/30/2024 23:00	11.75	22.83	0.01	6.99	434.05	9.61	0.28	12.19
9/30/2024 22:50	11.77	23.42	0.01	7.01	432.42	9.6	0.3	12.12
9/30/2024 22:40	11.79	23.32	0.01	7.01	432.85	9.6	0.29	12.09
9/30/2024 22:30	11.8	23.42	0.01	7.02	431.45	9.61	0.28	12.19
9/30/2024 22:20	11.81	23.36	0.01	7.02	431.88	9.58	0.27	12.12
9/30/2024 22:10	11.82	23.43	0.01	7	432.36	9.59	0.29	12.12
9/30/2024 22:00	11.83	23.13	0.01	7.01	431.89	9.6	0.29	12.12
9/30/2024 21:50	11.84	23.47	0.01	7.02	430.75	9.59	0.29	12.24
9/30/2024 21:40	11.85	23.36	0.01	6.98	433.07	9.58	0.3	12.24
9/30/2024 21:30	11.85	23.48	0.01	7	431.11	9.59	0.31	12.24
9/30/2024 21:20	11.86	23.42	0.01	7	431.32	9.59	0.3	12.14
9/30/2024 21:10	11.86	23.56	0.01	7.02	429.42	9.6	0.3	12.21
9/30/2024 21:00	11.86	22.98	0.01	7.02	429.84	9.59	0.3	12.12
9/30/2024 20:50	11.87	23.59	0.01	7.03	428.6	9.59	0.31	12.24
9/30/2024 20:40	11.87	22.96	0.01	7	429.76	9.6	0.3	12.24
9/30/2024 20:30	11.87	23.57	0.01	7.02	428.17	9.57	0.29	12.26
9/30/2024 20:20	11.87	23.28	0.01	7	429.71	9.6	0.28	12.24

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9/30/2024 20:10	11.88	23.55	0.01	7.02	427.8	9.61	0.3	12.26
9/30/2024 20:00	11.88	23.25	0.01	7.02	427.66	9.59	0.31	12.19
9/30/2024 19:50	11.88	23.52	0.01	7.01	427.55	9.58	0.3	12.26
9/30/2024 19:40	11.88	23.43	0.01	7.01	427.69	9.58	0.29	12.17
9/30/2024 19:30	11.89	23.7	0.01	7.02	426.06	9.59	0.3	12.26
9/30/2024 19:20	11.89	23.61	0.01	7.01	426.5	9.6	0.28	12.19
9/30/2024 19:10	11.89	23.66	0.01	7.03	424.44	9.59	0.3	12.19
9/30/2024 19:00	11.89	23.72	0.01	7.04	423.81	9.59	0.27	12.26
9/30/2024 18:50	11.9	23.67	0.01	7.01	424.59	9.61	0.3	12.29
9/30/2024 18:40	11.9	23.61	0.01	7.01	424.44	9.63	0.31	12.17
9/30/2024 18:30	11.91	23.79	0.01	7.03	422.2	9.63	0.29	12.29
9/30/2024 18:20	11.91	23.54	0.01	7.03	421.97	9.62	0.29	12.31
9/30/2024 18:10	11.91	23.76	0.01	7.04	420.37	9.62	0.3	12.21
9/30/2024 18:00	11.92	23.72	0.01	7.04	420.07	9.63	0.29	12.33
9/30/2024 17:50	11.93	23.75	0.01	7.03	419.88	9.62	0.29	12.33
9/30/2024 17:40	11.93	23.6	0.01	7.03	419.45	9.64	0.3	12.38
9/30/2024 17:30	11.93	23.73	0.01	7.03	418.01	9.65	0.31	12.31
9/30/2024 17:20	11.93	23.67	0.01	7.03	417.84	9.67	0.28	12.41
9/30/2024 17:10	11.93	23.63	0.01	7.02	417.2	9.71	0.29	12.41
9/30/2024 17:00	11.92	23.47	0.01	7.04	416.55	9.7	0.29	12.55
9/30/2024 16:50	11.91	23.69	0.01	7.05	415.18	9.74	0.3	12.67
9/30/2024 16:40	11.9	23.65	0.01	7.04	415.86	9.73	0.31	12.62
9/30/2024 16:30	11.89	23.72	0.01	7.05	414.41	9.76	0.29	12.65
9/30/2024 16:20	11.87	23.65	0.01	7.04	415.72	9.77	0.31	13
9/30/2024 16:10	11.85	23.9	0.01	7.05	414.14	9.75	0.28	13.03
9/30/2024 16:00	11.84	23.73	0.01	7.05	414.86	9.76	0.3	12.72
9/30/2024 15:50	11.82	24.01	0.01	7.04	415.31	9.77	0.28	12.57
9/30/2024 15:40	11.8	23.91	0.01	7.03	415.51	9.75	0.31	12.41
9/30/2024 15:30	11.8	24.15	0.01	7.06	412.51	9.75	0.27	12.62
9/30/2024 15:20	11.79	23.61	0.01	7.05	413.32	9.76	0.3	12.67
9/30/2024 15:10	11.79	24.21	0.01	7.06	411.17	9.79	0.3	12.62
9/30/2024 15:00	11.78	23.62	0.01	7.08	410.15	9.8	0.28	12.81
9/30/2024 14:50	11.77	24.2	0.01	7.07	409.81	9.83	0.29	12.93
9/30/2024 14:40	11.74	24.11	0.01	7.08	409.81	9.84	0.3	13.7
9/30/2024 14:30	11.72	24.17	0.01	7.08	409.21	9.84	0.27	13.75
9/30/2024 14:20	11.69	24.19	0.01	7.08	409.53	9.85	0.28	13.65
9/30/2024 14:10	11.67	24.31	0.01	7.07	409.32	9.85	0.31	13.7
9/30/2024 14:00	11.64	23.96	0.01	7.08	408.57	9.85	0.28	13.32
9/30/2024 13:50	11.62	24.31	0.01	7.06	408.73	9.85	0.29	12.86
9/30/2024 13:40	11.59	23.84	0.01	7.12	405.56	9.88	0.28	13.24
9/30/2024 13:30	11.57	24.36	0.01	7.08	406.89	9.9	0.3	13.36
9/30/2024 13:20	11.54	24.26	0.01	7.07	407.7	9.91	0.27	13.39
9/30/2024 13:10	11.51	24.3	0.01	7.08	406.24	9.93	1.86	13.6
9/30/2024 13:00	11.47	24.08	0.01	7.08	406.98	9.94	0.3	13.72
9/30/2024 12:50	11.46	24.33	0.01	7.08	406.17	9.94	0.26	13.72
9/30/2024 12:40	11.46	24.33	0.01	7.09	406.17	9.98	0.27	13.72
9/30/2024 12:30	11.41	24.39	0.01	7.1	404.63	9.97	0.27	13.7

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9/30/2024 12:20	11.36	24.33	0.01	7.08	406.35	10	0.26	13.63
9/30/2024 12:10	11.31	24.45	0.01	7.08	405.71	10.01	0.26	13.6
9/30/2024 12:00	11.31	24.2	0.01	7.07	407.15	10.04	0.26	13.75
9/30/2024 11:50	11.26	24.41	0.01	7.09	406.49	10.04	0.26	13.75
9/30/2024 11:40	11.17	24.19	0.01	7.06	409.36	10.03	0.25	13.75
9/30/2024 11:30	11.16	24.58	0.01	7.08	407.99	10.04	0.28	13.75
9/30/2024 11:20	11.12	24.43	0.01	7.07	409.37	10.03	0.26	13.6
9/30/2024 11:10	11.11	24.68	0.01	7.08	407.69	10.04	0.26	13.75
9/30/2024 11:00	11.16	24.63	0.01	7.04	410.46	10.06	0.26	13.75
9/30/2024 10:50	11.2	24.78	0.01	7.08	408.19	10.04	0.25	13.75
9/30/2024 10:40	11.23	24.67	0.01	7.06	411.59	10.06	0.25	13.65
9/30/2024 10:30	11.18	24.88	0.01	7.08	411.11	10.06	0.28	13.75
9/30/2024 10:20	11.12	24.81	0.01	7.07	414	10.07	0.26	13.67
9/30/2024 10:10	11.06	24.94	0.01	7.1	413.24	10.07	0.25	13.77
9/30/2024 10:00	10.99	24.46	0.01	7.08	417.25	10.08	0.28	13.79
9/30/2024 9:50	10.9	24.99	0.01	7.08	418.53	10.09	0.23	13.79
9/30/2024 9:40	10.82	25.08	0.01	7.06	422.49	10.1	0.27	13.79
9/30/2024 9:30	10.73	25.15	0.01	7.05	424.24	10.08	0.23	13.7
9/30/2024 9:20	10.69	25.2	0.01	7.05	426.18	10.06	0.26	13.72
9/30/2024 9:10	10.67	25.34	0.01	7.06	426.11	10.06	0.27	13.7
9/30/2024 9:00	10.66	25.17	0.01	7.06	427.3	10.06	0.24	13.7
9/30/2024 8:50	10.63	25.47	0.01	7.05	428.51	10.05	0.26	13.82
9/30/2024 8:40	10.59	25.53	0.01	7.03	431.58	10.03	0.33	13.82
9/30/2024 8:30	10.58	25.67	0.01	7.04	431.07	10.01	0.25	12.98
9/30/2024 8:20	10.58	25.34	0.01	7.03	432.94	9.99	0.24	12.91
9/30/2024 8:10	10.58	25.8	0.01	7.02	433.4	10.02	0.23	12.65
9/30/2024 8:00	10.59	25.72	0.01	7.02	434.66	9.98	0.24	12.09
9/30/2024 7:50	10.6	26.13	0.01	7.03	433.61	9.96	0.26	12.09
9/30/2024 7:40	10.62	26.22	0.01	7.02	434.83	9.96	0.23	12.09
9/30/2024 7:30	10.63	26.44	0.01	7.03	433.68	9.94	0.24	12.07
9/30/2024 7:20	10.65	25.98	0.01	7.01	435.33	9.95	0.24	12.07
9/30/2024 7:10	10.67	26.66	0.01	7.01	434.95	9.94	0.24	12.07
9/30/2024 7:00	10.69	26.57	0.01	7.01	435.74	9.96	0.27	12.05
9/30/2024 6:50	10.72	26.66	0.01	7.03	433.89	9.93	0.26	11.95
9/30/2024 6:40	10.74	26.77	0.01	7.02	435	9.92	0.26	11.95
9/30/2024 6:30	10.76	26.9	0.01	7.03	433.98	9.91	0.26	12.05
9/30/2024 6:20	10.78	26.53	0.01	7.02	434.39	9.89	0.25	12.05
9/30/2024 6:10	10.8	27.08	0.01	7.02	434	9.91	0.26	12.07
9/30/2024 6:00	10.82	27.01	0.01	7.03	433.78	9.89	0.26	12.07
9/30/2024 5:50	10.84	27.27	0.01	7.04	432.75	9.89	0.26	12.07
9/30/2024 5:40	10.85	27.01	0.01	7	435.12	9.88	0.26	12.05
9/30/2024 5:30	10.87	27.44	0.01	7.01	433.85	9.88	0.26	12.05
9/30/2024 5:20	10.88	27.33	0.01	7.02	433.99	9.89	0.29	12.07
9/30/2024 5:10	10.91	27.51	0.01	7.03	432.84	9.88	0.26	12.07
9/30/2024 5:00	10.93	27.54	0.01	6.99	435.39	9.85	0.27	12.07
9/30/2024 4:50	10.96	27.7	0.01	7.02	433.16	9.86	0.32	12.07
9/30/2024 4:40	10.98	27.61	0.01	7.02	433.06	9.83	0.27	12.05

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9/30/2024 4:30	11	27.69	0.01	7.03	432.14	9.86	0.24	12.07
9/30/2024 4:20	11.02	27.74	0.01	7.01	433.49	9.84	0.26	12
9/30/2024 4:10	11.04	27.89	0.01	7.01	433.1	9.84	0.28	12.09
9/30/2024 4:00	11.07	27.57	0.01	7	434.22	9.83	0.26	12.07
9/30/2024 3:50	11.1	27.94	0.01	7.03	432.26	9.81	0.27	12.09
9/30/2024 3:40	11.13	27.89	0.01	7.01	433.67	9.8	0.29	12.09
9/30/2024 3:30	11.15	27.96	0.01	7.03	431.66	9.81	0.3	12.09
9/30/2024 3:20	11.18	28	0.01	7.01	433.42	9.8	0.27	12.09
9/30/2024 3:10	11.21	28.06	0.01	7.03	431.26	9.78	0.28	12
9/30/2024 3:00	11.23	27.91	0.01	7.02	432.54	9.79	0.28	12.09
9/30/2024 2:50	11.26	28.11	0.01	7.02	431.91	9.79	0.27	12
9/30/2024 2:40	11.28	27.51	0.01	7.01	432.72	9.78	0.28	12
9/30/2024 2:30	11.32	28.2	0.01	7.01	432.52	9.75	0.29	12.02
9/30/2024 2:20	11.34	28.18	0.01	7.01	433.03	9.76	0.28	12.12
9/30/2024 2:10	11.36	28.27	0.01	7.01	432.15	9.76	0.28	12.12
9/30/2024 2:00	11.4	28.19	0.01	7.01	432.44	9.75	0.3	12.12
9/30/2024 1:50	11.43	28.31	0.01	7.03	430.9	9.74	0.28	12.02
9/30/2024 1:40	11.45	28.24	0.01	7.01	432.15	9.71	0.29	12.02
9/30/2024 1:30	11.48	28.36	0.01	7.03	430.6	9.73	0.28	12.05
9/30/2024 1:20	11.51	27.92	0.01	7.01	431.8	9.71	0.31	12.14
9/30/2024 1:10	11.54	28.23	0.01	7.04	429.9	9.72	0.29	12.14
9/30/2024 1:00	11.56	28.3	0.01	7	432.59	9.7	0.3	12.14
9/30/2024 0:50	11.59	28.4	0.01	7.02	430.55	9.69	0.3	12.14
9/30/2024 0:40	11.61	28.31	0.01	7	431.89	9.68	0.28	12.14
9/30/2024 0:30	11.64	28.42	0.01	7.02	430.81	9.68	0.29	12.17
9/30/2024 0:20	11.66	28.3	0.01	7.02	431.09	9.67	0.3	12.07
9/30/2024 0:10	11.69	28.51	0.01	6.99	432.11	9.66	0.29	12.05
9/30/2024 0:00	11.72	28.49	0.01	7.03	430.31	9.67	0.32	12.17

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Received	Temperature C	Specific Conductivity ÂµS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU	TL Battery V
10/6/2024 23:50	12.45	93.16	0.04	7.1	287.8	9.67	48.34	12.26
10/6/2024 23:40	12.46	93.04	0.04	7.16	283.71	9.66	29.65	12.29
10/6/2024 23:30	12.48	92.03	0.04	7.34	281.23	9.67	30.87	12.29
10/6/2024 23:20	12.49	93.26	0.04	7.13	287.46	9.65	33.16	12.29
10/6/2024 23:10	12.51	92.94	0.04	7.1	285.68	9.66	27.83	12.29
10/6/2024 23:00	12.53	92.06	0.04	7.36	280.7	9.66	29.95	12.19
10/6/2024 22:50	12.55	92.61	0.04	7.16	286.6	9.65	34.15	12.19
10/6/2024 22:40	12.58	93.27	0.04	7.08	287.23	9.64	30.86	12.19
10/6/2024 22:30	12.6	90.83	0.04	7.38	280.06	9.65	32.08	12.29
10/6/2024 22:20	12.62	91.69	0.04	7.19	285.99	9.63	36.43	12.19
10/6/2024 22:10	12.64	92.12	0.04	7.06	287.84	9.63	30.93	12.17
10/6/2024 22:00	12.67	90	0.04	7.38	279.81	9.63	32.77	12.17
10/6/2024 21:50	12.69	90.27	0.04	7.21	285	9.62	33.94	12.19
10/6/2024 21:40	12.71	91.31	0.04	7.05	288.58	9.6	35.87	12.31
10/6/2024 21:30	12.73	89.64	0.04	7.36	280.02	9.62	34.34	12.31
10/6/2024 21:20	12.75	90.37	0.04	7.24	285.09	9.6	33.18	12.31
10/6/2024 21:10	12.77	90.94	0.04	7.06	288.72	9.59	33.72	12.31
10/6/2024 21:00	12.8	90.01	0.04	7.33	280.9	9.6	35.29	12.31
10/6/2024 20:50	12.82	89.77	0.04	7.25	284.88	9.59	37.48	12.31
10/6/2024 20:40	12.85	90.96	0.04	7.06	289.89	9.57	37.42	12.21
10/6/2024 20:30	12.88	89.82	0.04	7.3	281.95	9.58	42.65	12.29
10/6/2024 20:20	12.91	89.48	0.04	7.26	285.42	9.57	34.63	12.33
10/6/2024 20:10	12.94	89.79	0.04	7.06	290.31	9.55	35.58	12.24
10/6/2024 20:00	12.97	88.91	0.04	7.28	282.91	9.55	37.2	12.26
10/6/2024 19:50	13	88.47	0.04	7.27	285.3	9.55	40.14	12.36
10/6/2024 19:40	13.02	89.34	0.04	7.07	290.91	9.53	37.59	12.36
10/6/2024 19:30	13.05	88.08	0.04	7.26	283.61	9.54	40.37	12.36
10/6/2024 19:20	13.07	88.24	0.04	7.28	285.31	9.53	36.17	12.36
10/6/2024 19:10	13.09	88.64	0.04	7.08	290.55	9.51	36.51	12.36
10/6/2024 19:00	13.12	88.43	0.04	7.24	284.55	9.53	33.32	12.38
10/6/2024 18:50	13.15	87.57	0.04	7.29	285.51	9.52	39.31	12.38
10/6/2024 18:40	13.17	88.91	0.04	7.09	291.56	9.51	34.93	12.38
10/6/2024 18:30	13.2	87.91	0.04	7.22	286.33	9.51	36.51	12.33
10/6/2024 18:20	13.23	87.69	0.04	7.3	286.56	9.51	33.08	12.36
10/6/2024 18:10	13.25	88.01	0.04	7.09	292.79	9.49	35.77	12.38
10/6/2024 18:00	13.28	88.37	0.04	7.2	288.02	9.5	35.95	12.48
10/6/2024 17:50	13.3	87.33	0.04	7.3	287.69	9.5	35	12.72
10/6/2024 17:40	13.34	88.38	0.04	7.1	294.1	9.5	33.9	12.79
10/6/2024 17:30	13.37	87.87	0.04	7.19	289.49	9.48	35.41	12.88
10/6/2024 17:20	13.4	87.7	0.04	7.3	288.82	9.48	33.6	13
10/6/2024 17:10	13.44	87.97	0.04	7.1	295.39	9.47	31.34	13.2

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10/6/2024 17:00	13.47	88.37	0.04	7.17	291.47	9.48	29.99	13.24
10/6/2024 16:50	13.49	86.8	0.04	7.32	289.56	9.49	30.93	13.44
10/6/2024 16:40	13.51	88.75	0.04	7.1	296.86	9.46	27.53	13.24
10/6/2024 16:30	13.54	88.59	0.04	7.13	293.57	9.47	29.26	13.41
10/6/2024 16:20	13.57	88.04	0.04	7.34	289.65	9.49	32.52	13.44
10/6/2024 16:10	13.57	88.64	0.04	7.12	296.06	9.48	32.03	13.46
10/6/2024 16:00	13.56	89.44	0.04	7.09	294.5	9.46	30.03	13.46
10/6/2024 15:50	13.58	87.94	0.04	7.35	288.89	9.48	29.95	13.29
10/6/2024 15:40	13.58	88.84	0.04	7.14	295.66	9.48	31.85	13.41
10/6/2024 15:30	13.59	88.76	0.04	7.08	295.51	9.46	33.38	13.29
10/6/2024 15:20	13.61	88.21	0.04	7.34	289.74	9.47	30.21	13.27
10/6/2024 15:10	13.63	88.55	0.04	7.14	295.94	9.48	33.36	13.53
10/6/2024 15:00	13.64	89.49	0.04	7.08	295.38	9.46	34.2	13.53
10/6/2024 14:50	13.64	88.21	0.04	7.34	288.87	9.47	36.3	13.53
10/6/2024 14:40	13.62	89.58	0.04	7.14	294.92	9.48	34.34	13.53
10/6/2024 14:30	13.6	89.79	0.04	7.09	293.43	9.47	36.61	13.53
10/6/2024 14:20	13.61	89.47	0.04	7.33	287.61	9.47	42.01	13.53
10/6/2024 14:10	13.56	89.84	0.04	7.13	292.41	9.49	39.2	13.56
10/6/2024 14:00	13.52	90.56	0.04	7.08	291.36	9.47	40.87	13.56
10/6/2024 13:50	13.5	89.5	0.04	7.33	285.39	9.49	42.06	13.39
10/6/2024 13:40	13.5	90.65	0.04	7.13	291.2	9.48	47.17	13.29
10/6/2024 13:30	13.5	90.85	0.04	7.07	290.79	9.48	48.78	13.51
10/6/2024 13:20	13.5	90.71	0.04	7.32	284.88	9.49	55.09	13.41
10/6/2024 13:10	13.48	91.33	0.04	7.13	290.13	9.48	61.84	13.53
10/6/2024 13:00	13.48	92.37	0.04	7.05	290.04	9.48	65.51	13.36
10/6/2024 12:50	13.48	91.27	0.04	7.32	283.05	9.5	59.3	13.41
10/6/2024 12:40	13.46	92.41	0.04	7.14	287.34	9.5	79.15	13.39
10/6/2024 12:30	13.44	92.68	0.04	7.04	286.56	9.5	71.42	13.39
10/6/2024 12:20	13.37	92.04	0.04	7.32	277.79	9.52	63.1	13.44
10/6/2024 12:10	13.3	92.43	0.04	7.14	281.24	9.53	75.32	13.46
10/6/2024 12:00	13.22	93.12	0.04	7.02	280.92	9.53	71.73	13.48
10/6/2024 11:50	13.14	89.88	0.04	7.31	271.6	9.56	72.43	13.58
10/6/2024 11:40	13.1	90.74	0.04	7.18	274.78	9.58	85.09	13.6
10/6/2024 11:30	13.07	91.06	0.04	7.03	276.93	9.57	84.92	13.63
10/6/2024 11:20	13.03	90.68	0.04	7.26	267.79	9.58	81.8	13.46
10/6/2024 11:10	13	90.67	0.04	7.23	268.45	9.58	80.1	13.63
10/6/2024 11:00	12.95	91.91	0.04	7.06	271.68	9.59	82.15	13.39
10/6/2024 10:50	12.91	92.46	0.04	7.18	264.31	9.59	80.65	13.65
10/6/2024 10:40	12.86	92.39	0.04	7.26	261.75	9.58	75.8	13.15
10/6/2024 10:30	12.8	92.96	0.04	7.1	264.11	9.6	72.39	12.93
10/6/2024 10:20	12.75	93.3	0.04	7.1	259.17	9.61	71.85	12.81
10/6/2024 10:10	12.69	92.71	0.04	7.18	255.06	9.64	70.32	12.79
10/6/2024 10:00	12.14	59.93	0.03	7.12	257.74	9.75	49.02	12.72
10/6/2024 9:50	12.62	92.38	0.04	7.05	255.14	9.65	66.8	12.76
10/6/2024 9:40	12.09	59.91	0.03	7.19	253.62	9.76	43.12	12.67
10/6/2024 9:30	12.54	91.14	0.04	7.11	253.71	9.66	71.24	12.5
10/6/2024 9:20	12.03	59.09	0.03	7.22	253.03	9.76	34.51	12.6

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10/6/2024 9:10	12.56	93.7	0.04	7.17	253.34	9.65	64.71	12.57
10/6/2024 9:00	12.02	61.88	0.03	7.13	257.1	9.76	39.68	12.55
10/6/2024 8:50	12.54	95.78	0.04	7.05	254.69	9.64	62.46	12.48
10/6/2024 8:40	12.16	67.4	0.03	7.34	248.13	9.64	36.93	12.41
10/6/2024 8:30	12.51	96.64	0.04	7.1	253.87	9.62	68.29	12.33
10/6/2024 8:20	11.99	62.87	0.03	7.24	250.76	9.72	31.88	12.26
10/6/2024 8:10	12.5	97.05	0.05	7.15	253.02	9.63	61.5	12.26
10/6/2024 8:00	11.9	60.34	0.03	7.04	258.72	9.76	27.53	12.14
10/6/2024 7:50	12.51	99.47	0.05	6.93	257.65	9.6	66.54	12.21
10/6/2024 7:40	11.89	60.03	0.03	7.18	251.5	9.75	24.76	12.21
10/6/2024 7:30	12.52	99.9	0.05	7.2	252.46	9.6	91.64	12.21
10/6/2024 7:20	12.19	73.49	0.03	7.16	254.46	9.6	33.4	12.19
10/6/2024 7:10	12.43	96.42	0.04	6.98	255.1	9.62	62.4	12.21
10/6/2024 7:00	12.27	78.28	0.04	7.27	249.25	9.57	32.65	12.21
10/6/2024 6:50	12.46	97.66	0.05	7.16	252.52	9.61	65.28	12.12
10/6/2024 6:40	11.91	60.74	0.03	7.07	257.08	9.73	18.79	12.12
10/6/2024 6:30	12.48	99.42	0.05	6.94	256.63	9.6	67.56	12.21
10/6/2024 6:20	11.9	60.58	0.03	7.17	251.71	9.74	16.3	12.19
10/6/2024 6:10	12.47	98.42	0.05	7.17	252.25	9.61	58.04	12.09
10/6/2024 6:00	11.86	58.37	0.03	7.01	258.98	9.77	13.87	12.09
10/6/2024 5:50	12.5	98.22	0.05	6.92	262.74	9.57	61.86	12.21
10/6/2024 5:40	12.28	94.83	0.04	7	260.13	9.72	57.06	12.19
10/6/2024 5:30	12.06	66	0.03	7.3	248.92	9.66	17.53	12.09
10/6/2024 5:20	12.38	97.12	0.05	6.88	262.7	9.64	64.49	12.24
10/6/2024 5:10	11.98	63.84	0.03	7.04	260.59	9.72	14.34	12.24
10/6/2024 5:00	12.47	99.73	0.05	7.05	254.75	9.61	63.34	12.24
10/6/2024 4:50	11.96	61.84	0.03	7.23	251.64	9.74	11.53	12.24
10/6/2024 4:40	12.44	99.41	0.05	7.12	255.65	9.63	60.96	12.24
10/6/2024 4:30	11.96	62.84	0.03	7.13	257.58	9.74	10.64	12.24
10/6/2024 4:20	12.46	101.18	0.05	6.97	259.93	9.63	65.28	12.24
10/6/2024 4:10	11.95	62.26	0.03	7.18	256.1	9.75	9.55	12.24
10/6/2024 4:00	12.48	101.38	0.05	7.25	255.25	9.63	65.45	12.14
10/6/2024 3:50	11.96	62.65	0.03	7.06	263.08	9.75	9.17	12.24
10/6/2024 3:40	12.48	101.96	0.05	6.94	263.17	9.62	62.49	12.17
10/6/2024 3:30	11.96	63.25	0.03	7.17	257.7	9.76	8.2	12.17
10/6/2024 3:20	12.48	101.22	0.05	7.2	259.12	9.64	56.02	12.24
10/6/2024 3:10	11.96	62.76	0.03	7.04	266.32	9.76	7.78	12.17
10/6/2024 3:00	12.49	102.57	0.05	6.92	265.51	9.62	57.02	12.24
10/6/2024 2:50	11.96	63.48	0.03	7.15	259.94	9.75	9.46	12.24
10/6/2024 2:40	12.48	101.71	0.05	7.14	262.75	9.63	49.05	12.26
10/6/2024 2:30	11.94	61.81	0.03	7.03	270.74	9.77	6.89	12.26
10/6/2024 2:20	12.53	102.71	0.05	6.94	275.99	9.62	47.15	12.26
10/6/2024 2:10	12.53	101.74	0.05	7.33	262.9	9.62	45.32	12.26
10/6/2024 2:00	12.53	101	0.05	7.24	268.28	9.64	39.74	12.26
10/6/2024 1:50	12.54	101.36	0.05	7	276.09	9.62	38.58	12.24
10/6/2024 1:40	12.55	101.41	0.05	6.98	273.86	9.62	37.45	12.24
10/6/2024 1:30	12.55	100.81	0.05	7.36	262.81	9.64	34.31	12.17

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10/6/2024 1:20	12.55	100.49	0.05	7.2	269.86	9.64	33.97	12.14
10/6/2024 1:10	12.55	100.74	0.05	6.96	277.19	9.63	31.75	12.24
10/6/2024 1:00	12.56	100.4	0.05	7	272.48	9.63	29.54	12.17
10/6/2024 0:50	12.57	99.77	0.05	7.37	262.48	9.64	29.02	12.21
10/6/2024 0:40	12.57	99.85	0.05	7.18	269.81	9.65	29.3	12.19
10/6/2024 0:30	12.57	99.96	0.05	6.95	276.77	9.63	28.72	12.19
10/6/2024 0:20	12.58	99.67	0.05	7.02	270.45	9.63	28.08	12.19
10/6/2024 0:10	12.58	98.99	0.05	7.33	262.41	9.64	29	12.19
10/6/2024 0:00	12.59	99.06	0.05	7.15	270.08	9.64	27.51	12.29
10/5/2024 23:50	12.59	99.19	0.05	6.92	276.33	9.64	28.51	12.31
10/5/2024 23:40	12.59	98.94	0.05	7.06	268.57	9.63	26.92	12.31
10/5/2024 23:30	12.6	98.29	0.05	7.31	262.85	9.64	29.56	12.31
10/5/2024 23:20	12.6	98.05	0.05	7.12	270.39	9.63	29.7	12.31
10/5/2024 23:10	12.61	98.59	0.05	6.9	276.23	9.62	28.47	12.31
10/5/2024 23:00	12.62	98.25	0.05	7.09	266.65	9.63	29.05	12.31
10/5/2024 22:50	12.62	97.64	0.05	7.29	262.85	9.64	28.57	12.31
10/5/2024 22:40	12.62	97.56	0.05	7.11	269.49	9.62	28.49	12.26
10/5/2024 22:30	12.63	97.93	0.05	6.89	274.99	9.63	36.82	12.19
10/5/2024 22:20	12.64	97.75	0.05	7.12	264.19	9.62	28.84	12.33
10/5/2024 22:10	12.64	97.46	0.05	7.27	261.95	9.63	28.16	12.24
10/5/2024 22:00	12.65	97.6	0.05	7.1	268.65	9.62	28.54	12.24
10/5/2024 21:50	12.65	98.21	0.05	6.88	273.98	9.61	27.57	12.33
10/5/2024 21:40	12.67	98.14	0.05	7.14	262.41	9.62	27.55	12.33
10/5/2024 21:30	12.67	97.88	0.05	7.25	260.98	9.63	25.8	12.33
10/5/2024 21:20	12.68	98.17	0.05	7.07	267.8	9.62	27.46	12.33
10/5/2024 21:10	12.69	98.48	0.05	6.88	271.52	9.61	26.09	12.36
10/5/2024 21:00	12.7	98.05	0.05	7.17	259.89	9.62	25.11	12.36
10/5/2024 20:50	12.7	97.84	0.05	7.24	260.22	9.62	25.53	12.36
10/5/2024 20:40	12.71	97.89	0.05	7.06	266.43	9.62	25.64	12.24
10/5/2024 20:30	12.72	98.11	0.05	6.87	270.17	9.6	23.63	12.24
10/5/2024 20:20	12.72	97.58	0.05	7.18	257.59	9.62	24.37	12.33
10/5/2024 20:10	12.7	96.2	0.04	7.23	257.89	9.62	21.2	12.38
10/5/2024 20:00	12.71	96.14	0.04	7.06	263.64	9.61	25.02	12.38
10/5/2024 19:50	12.72	96.41	0.04	6.86	267.82	9.61	24.61	12.41
10/5/2024 19:40	12.73	95.97	0.04	7.07	257.67	9.62	27.77	12.41
10/5/2024 19:30	12.74	95.29	0.04	7.25	253.01	9.63	33.71	12.41
10/5/2024 19:20	12.72	94.52	0.04	7.11	257.39	9.63	31.96	12.41
10/5/2024 19:10	12.71	93.36	0.04	6.91	260.69	9.64	30.38	12.41
10/5/2024 19:00	12.71	93.71	0.04	6.91	253.83	9.62	33.87	12.41
10/5/2024 18:50	12.09	61.71	0.03	6.97	253.88	9.78	3.61	12.41
10/5/2024 18:40	12.74	93.63	0.04	7.16	248.26	9.64	37.34	12.41
10/5/2024 18:30	12.12	61.91	0.03	6.95	255.12	9.78	3.86	12.36
10/5/2024 18:30	12.11	61.66	0.03	6.94	252.23	9.78	4.21	12.36
10/5/2024 18:20	12.75	93.5	0.04	6.92	251.05	9.64	41.73	12.45
10/5/2024 18:10	12.11	61.24	0.03	6.96	251.13	9.79	3.77	12.41
10/5/2024 18:00	12.12	61.44	0.03	6.97	253.32	9.8	3.26	12.57
10/5/2024 17:50	12.14	61.45	0.03	6.96	255.99	9.8	4.46	12.72

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10/5/2024 17:40	12.17	62.23	0.03	6.97	259.16	9.8	4.21	12.76
10/5/2024 17:30	12.79	92.48	0.04	7.26	250.85	9.66	48.82	12.81
10/5/2024 17:20	12.23	63.19	0.03	7.01	260.13	9.79	5.14	12.79
10/5/2024 17:10	12.8	92.91	0.04	6.99	257.56	9.66	49.65	12.81
10/5/2024 17:00	12.21	63.05	0.03	6.99	259.05	9.8	4.49	12.88
10/5/2024 16:50	12.81	92.44	0.04	7.24	250.22	9.67	49.03	13.17
10/5/2024 16:40	12.21	62.7	0.03	6.98	260.01	9.82	4.55	12.98
10/5/2024 16:30	12.79	92.47	0.04	7.01	256.56	9.67	54.63	12.84
10/5/2024 16:20	12.22	62.98	0.03	6.99	259.49	9.83	4.08	13.1
10/5/2024 16:10	12.79	91.85	0.04	7.2	250.92	9.69	52.32	13.2
10/5/2024 16:00	12.22	63.18	0.03	7.02	259.55	9.82	5.87	13.03
10/5/2024 15:50	12.79	92.84	0.04	7.19	254.02	9.69	56.36	13.03
10/5/2024 15:40	12.27	66.18	0.03	7.03	258.46	9.81	17.29	13.05
10/5/2024 15:30	12.7	93.59	0.04	6.93	256.89	9.76	74.04	12.91
10/5/2024 15:20	12.3	71.37	0.03	7.22	250.35	9.81	36.78	13.08
10/5/2024 15:10	12.75	94.79	0.04	7.3	246.43	9.72	73.23	13.15
10/5/2024 15:00	12.28	71.39	0.03	7.21	250.42	9.82	39.21	13.17
10/5/2024 14:50	12.71	92.23	0.04	6.94	253.76	9.71	57.87	13.48
10/5/2024 14:40	12.2	71.22	0.03	7.24	245.97	9.84	82.73	13.32
10/5/2024 14:30	12.61	93.92	0.04	7.27	244.67	9.75	90.26	12.88
10/5/2024 14:20	12.14	68.49	0.03	7.1	254.54	9.86	78.21	12.91
10/5/2024 14:10	12.6	91.92	0.04	6.95	252.75	9.75	59.58	13.12
10/5/2024 14:00	12.08	64.91	0.03	6.97	254.65	9.89	6.42	13.48
10/5/2024 13:50	12.5	90.62	0.04	7.21	245.6	9.77	58.52	13.15
10/5/2024 13:40	12	65.47	0.03	6.97	255.36	9.89	5.03	12.91
10/5/2024 13:30	12.44	91.74	0.04	6.92	249.52	9.78	60.25	12.81
10/5/2024 13:20	11.96	66.51	0.03	6.97	251	9.9	5.08	12.88
10/5/2024 13:10	12.39	91.3	0.04	7.22	241.63	9.79	69.58	12.84
10/5/2024 13:00	11.95	67.2	0.03	6.95	252.68	9.91	4.68	12.81
10/5/2024 12:50	12.37	91.45	0.04	6.95	246.99	9.8	68.11	12.81
10/5/2024 12:40	11.95	68	0.03	6.95	249.1	9.93	5.66	12.81
10/5/2024 12:30	12.34	91.5	0.04	7.24	235.17	9.83	78.29	13.12
10/5/2024 12:20	11.89	68.39	0.03	6.95	245.29	9.93	4.12	13.44
10/5/2024 12:10	11.82	68.83	0.03	6.95	244.56	9.94	5.96	12.86
10/5/2024 12:00	11.79	69.53	0.03	6.93	244.85	9.96	3.8	12.98
10/5/2024 11:50	11.75	69.44	0.03	6.93	243.48	9.96	4.2	12.91
10/5/2024 11:40	11.71	69.81	0.03	6.92	244.29	9.95	3.95	12.67
10/5/2024 11:30	11.7	69.86	0.03	6.93	242.88	9.96	5.24	12.74
10/5/2024 11:20	11.69	70.44	0.03	6.91	244.32	9.97	4.36	12.74
10/5/2024 11:10	11.67	70.36	0.03	6.93	243	9.97	4.18	12.81
10/5/2024 11:00	11.66	70.64	0.03	6.93	243.35	9.96	7.21	12.76
10/5/2024 10:50	11.63	70.82	0.03	6.93	242.24	9.97	3.62	12.79
10/5/2024 10:40	11.61	71.36	0.03	6.91	242.82	9.98	5.61	12.69
10/5/2024 10:30	11.58	71.4	0.03	6.92	241.97	9.98	5.66	12.6
10/5/2024 10:20	11.55	71.65	0.03	6.92	241.73	9.99	4.35	12.53
10/5/2024 10:10	11.53	72.04	0.03	6.91	241.6	9.98	4.24	12.38
10/5/2024 10:00	11.52	72.14	0.03	6.92	241.16	9.98	5.12	12.14

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10/5/2024 9:50	11.51	72.72	0.03	6.91	241.31	9.98	5.5	12.14
10/5/2024 9:40	11.49	72.94	0.03	6.9	241.65	9.98	5.1	12.09
10/5/2024 9:30	11.48	73.15	0.03	6.9	241.14	9.96	4.47	12.14
10/5/2024 9:20	11.47	73.63	0.03	6.89	241.22	9.98	4.08	12.12
10/5/2024 9:10	11.47	73.69	0.03	6.9	241.41	9.97	4.32	12.09
10/5/2024 9:00	11.47	74.32	0.03	6.9	241.36	9.98	5.34	12.07
10/5/2024 8:50	11.46	74.62	0.03	6.89	241.56	9.98	4.69	12.12
10/5/2024 8:40	11.46	75.41	0.03	6.9	240.77	9.96	4.09	12
10/5/2024 8:30	11.45	75.43	0.03	6.9	240.38	9.97	5.14	12.02
10/5/2024 8:20	11.45	75.93	0.03	6.9	240.78	9.96	4.36	12.02
10/5/2024 8:10	11.44	76.49	0.04	6.9	240.15	9.97	4.29	11.95
10/5/2024 8:00	11.44	77.25	0.04	6.9	240.34	9.96	4.41	11.9
10/5/2024 7:50	11.44	77.25	0.04	6.89	240.07	9.95	4.01	11.95
10/5/2024 7:40	11.43	77.96	0.04	6.9	240.27	9.95	4.81	12.02
10/5/2024 7:30	11.44	77.7	0.04	6.89	240.33	9.94	4.4	12.02
10/5/2024 7:20	11.44	78.31	0.04	6.9	240.39	9.95	3.94	11.93
10/5/2024 7:10	11.44	78.79	0.04	6.89	240.14	9.94	7.36	12
10/5/2024 7:00	11.44	78.86	0.04	6.91	239.96	9.95	4	12.02
10/5/2024 6:50	11.44	79.62	0.04	6.9	239.75	9.94	4.75	12.02
10/5/2024 6:40	11.44	80	0.04	6.89	240.9	9.95	4.67	11.9
10/5/2024 6:30	11.44	80.32	0.04	6.89	240.34	9.94	5.81	11.9
10/5/2024 6:20	11.44	80.66	0.04	6.89	240.79	9.95	7.28	11.9
10/5/2024 6:10	11.44	81.27	0.04	6.9	239.21	9.95	5.27	11.97
10/5/2024 6:00	11.44	81.46	0.04	6.9	240.18	9.93	5.09	11.9
10/5/2024 5:50	11.45	82.23	0.04	6.89	240.42	9.94	5.44	11.88
10/5/2024 5:40	11.45	82.56	0.04	6.91	239.89	9.93	4.36	11.9
10/5/2024 5:30	11.46	82.92	0.04	6.9	240.1	9.94	4.43	11.9
10/5/2024 5:20	11.46	83.95	0.04	6.91	240.87	9.93	7.14	11.93
10/5/2024 5:10	11.47	84.37	0.04	6.92	241.86	9.93	6.04	12.02
10/5/2024 5:00	11.71	96.2	0.04	7.17	233.24	9.88	53.32	12.02
10/5/2024 4:50	11.76	99.06	0.05	7.13	233.96	9.87	58.61	12.02
10/5/2024 4:40	11.77	99.33	0.05	7.02	236.08	9.85	55.78	12
10/5/2024 4:30	11.75	98.85	0.05	6.91	233.96	9.85	56.33	12.02
10/5/2024 4:20	11.47	86.58	0.04	6.9	240.95	9.93	4.6	12.02
10/5/2024 4:10	11.48	87.19	0.04	6.91	241.66	9.93	5.2	12
10/5/2024 4:00	11.51	88.7	0.04	6.94	242.59	9.93	8.14	11.93
10/5/2024 3:50	11.79	100.74	0.05	6.99	238.41	9.84	58.82	12.02
10/5/2024 3:40	11.8	101.37	0.05	6.91	239.29	9.86	58.66	12.02
10/5/2024 3:30	11.81	101.52	0.05	7.13	232.32	9.84	42.31	12.02
10/5/2024 3:20	11.82	102.57	0.05	7.17	232.09	9.84	39.42	12.02
10/5/2024 3:10	11.83	102.37	0.05	7.08	235.89	9.84	39.49	12.02
10/5/2024 3:00	11.83	103.44	0.05	6.94	239.44	9.83	38.93	12.02
10/5/2024 2:50	11.83	103.64	0.05	6.97	236.38	9.84	38.16	12
10/5/2024 2:40	11.84	104.58	0.05	7.17	231	9.84	38.21	11.93
10/5/2024 2:30	11.84	104.28	0.05	7.11	233.82	9.83	35.6	12.02
10/5/2024 2:20	11.85	105.11	0.05	7.02	236.44	9.83	34.24	11.9
10/5/2024 2:10	11.85	105.84	0.05	6.91	238.78	9.83	35.59	11.88

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10/5/2024 2:00	11.85	106.36	0.05	7.06	232.59	9.82	32.44	11.97
10/5/2024 1:50	11.85	106.72	0.05	7.15	230.82	9.82	33.06	11.97
10/5/2024 1:40	11.85	107.33	0.05	7.09	233.26	9.82	28.98	11.9
10/5/2024 1:30	11.85	107.92	0.05	7	235.34	9.82	32.4	11.9
10/5/2024 1:20	11.85	108.21	0.05	6.91	236.44	9.82	32.84	11.9
10/5/2024 1:10	11.79	107.04	0.05	7.09	228.48	9.84	25.72	11.97
10/5/2024 1:00	11.58	100.98	0.05	6.92	236.54	9.9	4.7	12
10/5/2024 0:50	11.58	101.86	0.05	6.92	236.3	9.9	4.89	12.02
10/5/2024 0:40	11.58	103.02	0.05	6.93	235.67	9.89	5	12.02
10/5/2024 0:30	11.59	102.99	0.05	6.92	236	9.89	4.58	12.02
10/5/2024 0:20	11.6	103.82	0.05	6.92	236.26	9.89	5.07	12.02
10/5/2024 0:10	11.61	104.67	0.05	6.92	236.02	9.88	4.99	12.02
10/5/2024 0:00	11.62	105.69	0.05	6.93	235.91	9.89	5.22	11.93
10/4/2024 23:50	11.63	106.88	0.05	6.94	235.45	9.87	5.79	11.95
10/4/2024 23:40	11.65	108.09	0.05	6.93	235.89	9.87	4.59	12.05
10/4/2024 23:30	11.66	108.33	0.05	6.93	236.14	9.86	6.3	12.05
10/4/2024 23:20	11.68	109.67	0.05	6.94	235.56	9.86	5.79	12.05
10/4/2024 23:10	11.69	110.9	0.05	6.94	235.95	9.85	5.4	12.02
10/4/2024 23:00	11.72	111.4	0.05	6.95	236.61	9.85	5.75	12
10/4/2024 22:50	11.72	113.18	0.05	6.95	235.79	9.84	6.21	12
10/4/2024 22:40	11.73	114.63	0.05	6.94	236.34	9.83	5.43	12
10/4/2024 22:30	11.76	116.14	0.05	6.94	235.79	9.83	5.57	12
10/4/2024 22:20	11.76	117.06	0.05	6.95	236.5	9.83	5.77	12.05
10/4/2024 22:10	11.78	117.99	0.06	6.95	236.56	9.83	5.23	12.05
10/4/2024 22:00	11.79	119.33	0.06	6.95	236.83	9.82	5.69	11.95
10/4/2024 21:50	11.98	124.38	0.06	7.01	228.63	9.76	29.72	12.05
10/4/2024 21:40	11.82	122.7	0.06	6.95	236.95	9.81	5.5	12.05
10/4/2024 21:30	11.86	124.55	0.06	7	233.45	9.79	9.23	12.02
10/4/2024 21:20	11.84	126.16	0.06	6.96	237.3	9.81	5.88	12.02
10/4/2024 21:10	11.85	126.74	0.06	6.96	237.23	9.8	4.94	11.93
10/4/2024 21:00	11.85	128.41	0.06	6.97	237.3	9.79	6.3	12.02
10/4/2024 20:50	11.87	129.16	0.06	6.96	237.81	9.79	5.31	11.95
10/4/2024 20:40	11.88	130.47	0.06	6.97	236.88	9.79	5.44	12.05
10/4/2024 20:30	11.88	132.02	0.06	6.96	237.86	9.79	5.39	11.95
10/4/2024 20:20	11.89	134.11	0.06	6.96	237.76	9.78	8.3	11.95
10/4/2024 20:10	11.94	137.51	0.06	6.97	191.88	9.75	36	11.95
10/4/2024 20:00	11.89	134.39	0.06	6.97	237.92	9.79	5.93	11.93
10/4/2024 19:50	11.9	133.05	0.06	6.95	239.17	9.77	6.29	12.07
10/4/2024 19:40	11.9	135.2	0.06	6.95	238.78	9.76	5.64	12.07
10/4/2024 19:30	11.9	132.73	0.06	6.95	238.93	9.78	5.11	12.07
10/4/2024 19:20	11.9	125.95	0.06	6.93	239.71	9.76	5.87	12.07
10/4/2024 19:10	11.91	122.96	0.06	6.92	240.51	9.77	4.85	12.07
10/4/2024 19:00	11.91	120.64	0.06	6.9	241.67	9.77	7.93	12.07
10/4/2024 18:50	11.91	121.62	0.06	6.92	240.31	9.76	6.74	12.07
10/4/2024 18:40	11.91	121.15	0.06	6.91	240.75	9.75	38.96	12.07
10/4/2024 18:30	11.91	117.75	0.06	6.92	240.14	9.75	5.15	12.09
10/4/2024 18:20	11.92	121.94	0.06	6.91	240.57	9.76	8.31	12.09

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10/4/2024 18:10	11.92	127.15	0.06	6.91	240.42	9.76	4.87	11.97
10/4/2024 18:00	11.91	128.55	0.06	6.92	239.86	9.76	5.83	12.05
10/4/2024 17:50	11.91	131.21	0.06	6.92	239.93	9.76	9.45	12.17
10/4/2024 17:40	11.91	133.13	0.06	6.93	239.51	9.77	6.36	12.17
10/4/2024 17:30	11.91	136.52	0.06	6.93	238.99	9.77	6.62	12.26
10/4/2024 17:20	11.9	137.47	0.06	6.94	238.56	9.76	7.97	12.19
10/4/2024 17:10	11.9	142.15	0.07	6.95	237.67	9.77	5.28	12.24
10/4/2024 17:00	11.89	145.85	0.07	6.95	237.03	9.78	8.1	12.12
10/4/2024 16:50	11.88	149.42	0.07	6.95	237.16	9.76	8.65	12.17
10/4/2024 16:40	11.88	154.78	0.07	6.96	236.43	9.77	4.79	12.09
10/4/2024 16:30	11.87	154.93	0.07	6.96	235.98	9.78	7.03	12.07
10/4/2024 16:20	11.87	162.27	0.08	6.97	235.58	9.76	6.33	12.21
10/4/2024 16:10	11.86	165.68	0.08	6.98	234.73	9.77	5.9	12.33
10/4/2024 16:00	11.86	171.21	0.08	6.99	234.28	9.77	8.26	12.48
10/4/2024 15:50	11.86	177.64	0.08	7	233.49	9.76	6.55	12.5
10/4/2024 15:40	11.85	182.35	0.09	7.01	233.15	9.76	8.88	12.53
10/4/2024 15:30	11.84	188.12	0.09	7.02	232.53	9.77	9.55	12.55
10/4/2024 15:20	11.83	194	0.09	7.03	232.09	9.77	9.22	12.6
10/4/2024 15:10	11.81	197.78	0.09	7.03	231.27	9.77	11.14	12.57
10/4/2024 15:00	11.79	202.95	0.1	7.04	230.93	9.78	8.55	12.45
10/4/2024 14:50	11.77	202.3	0.1	7.04	230.76	9.78	7.72	12.53
10/4/2024 14:40	11.75	205	0.1	7.04	230.38	9.8	8.5	12.43
10/4/2024 14:30	11.72	212.46	0.1	7.06	229.3	9.8	13.44	12.41
10/4/2024 14:20	11.69	220.85	0.1	7.07	228.63	9.8	9.31	12.29
10/4/2024 14:10	11.68	231.02	0.11	7.08	227.77	9.8	8.83	12.41
10/4/2024 14:00	11.66	238.46	0.11	7.1	227.12	9.8	9.23	12.41
10/4/2024 13:50	11.64	243.89	0.12	7.12	225.88	9.81	9.68	12.45
10/4/2024 13:40	11.62	253.55	0.12	7.13	225.81	9.81	9.32	12.65
10/4/2024 13:30	11.65	243.38	0.12	7.17	222.87	9.8	11.89	12.65
10/4/2024 13:20	11.68	245.26	0.12	7.21	221.81	9.78	18.85	12.5
10/4/2024 13:10	11.66	246.94	0.12	7.14	224.52	9.79	15.5	12.45
10/4/2024 13:00	11.64	244.83	0.12	7.05	227.7	9.79	13.12	12.38
10/4/2024 12:50	11.64	257.34	0.12	7.12	224.06	9.8	14.36	12.33
10/4/2024 12:40	11.63	265.97	0.13	7.27	219.57	9.79	10.64	12.31
10/4/2024 12:30	11.62	265.35	0.13	7.22	221.93	9.8	12.83	12.26
10/4/2024 12:20	11.59	266.55	0.13	7.12	226.46	9.81	13.31	12.43
10/4/2024 12:10	11.58	259.56	0.12	7.08	226.52	9.8	12.07	12.38
10/4/2024 12:00	11.56	257.94	0.12	7.27	219.75	9.8	13.29	12.29
10/4/2024 11:50	11.55	259.16	0.12	7.26	220.37	9.79	9.27	12.24
10/4/2024 11:40	11.55	264.36	0.13	7.17	225.49	9.8	11.38	12.24
10/4/2024 11:30	11.54	264.01	0.13	7.07	228.18	9.8	10.4	12.21
10/4/2024 11:20	11.53	268.41	0.13	7.19	222.63	9.8	10.91	12.21
10/4/2024 11:10	11.53	270.13	0.13	7.38	215.63	9.8	8.81	12.12
10/4/2024 11:00	11.52	279.89	0.13	7.36	218.71	9.81	13.35	12.09
10/4/2024 10:50	11.5	277.33	0.13	7.33	220.06	9.81	13.82	12.07
10/4/2024 10:40	11.5	280.45	0.13	7.25	225.45	9.81	10.72	12.07
10/4/2024 10:30	11.48	276.24	0.13	7.12	229.7	9.81	13.62	11.97

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10/4/2024 10:20	11.46	276.03	0.13	7.17	227.7	9.82	10.62	12.07
10/4/2024 10:10	11.45	275.97	0.13	7.33	221.93	9.81	12.61	11.95
10/4/2024 10:00	11.44	279.19	0.13	7.24	228.08	9.82	10.56	11.97
10/4/2024 9:50	11.44	286.59	0.14	7.12	230.71	9.81	16.07	12.14
10/4/2024 9:40	11.43	293.55	0.14	7.24	227.62	9.82	10.56	12.17
10/4/2024 9:30	11.42	304.12	0.15	7.34	224.89	9.81	15.44	12.14
10/4/2024 9:20	11.41	314.13	0.15	7.24	230.11	9.82	14.15	12.14
10/4/2024 9:10	11.41	341.58	0.16	7.13	233.71	9.82	16.1	12.14
10/4/2024 9:00	11.41	326.64	0.16	7.3	227.2	9.81	27.96	12.12
10/4/2024 8:50	11.4	345.69	0.17	7.34	227.22	9.82	15.03	12.09
10/4/2024 8:40	11.39	333.84	0.16	7.21	232.78	9.79	18.88	12.07
10/4/2024 8:30	11.39	352.63	0.17	7.13	233.04	9.8	25.43	11.97
10/4/2024 8:20	11.4	345.34	0.17	7.37	225.79	9.8	19.94	12.07
10/4/2024 8:10	11.41	347.12	0.17	7.32	226.33	9.78	20.33	11.97
10/4/2024 8:00	11.43	321.2	0.15	7.17	234.73	9.77	21.97	11.97
10/4/2024 7:50	11.45	310.4	0.15	7.16	234.82	9.76	20.5	12.07
10/4/2024 7:40	11.47	295.71	0.14	7.38	227.48	9.76	20.36	11.97
10/4/2024 7:30	11.49	286.13	0.14	7.27	233.76	9.75	21.95	12.09
10/4/2024 7:20	11.52	281.17	0.13	7.11	241.5	9.74	22.76	12.12
10/4/2024 7:10	11.56	287.23	0.14	7.23	237.4	9.74	22.82	12.12
10/4/2024 7:00	11.6	268.55	0.13	7.37	238.44	9.72	26.58	12.12
10/4/2024 6:50	11.64	267.87	0.13	7.22	245.28	9.7	27.09	12.12
10/4/2024 6:40	11.72	246.74	0.12	7.08	252.01	9.68	30.27	12.07
10/4/2024 6:30	11.78	260.73	0.12	7.36	244.53	9.67	27.96	12.12
10/4/2024 6:20	11.82	242.44	0.12	7.36	250.36	9.66	30.27	12.12
10/4/2024 6:10	11.86	275.49	0.13	7.19	253.99	9.65	32.67	12
10/4/2024 6:00	11.89	275.02	0.13	7.15	251.21	9.65	34.55	12.14
10/4/2024 5:50	11.93	280.86	0.13	7.44	241.66	9.64	31.6	12.14
10/4/2024 5:40	11.95	278.49	0.13	7.3	251.77	9.63	34.62	12.14
10/4/2024 5:30	11.93	279.36	0.13	7.12	260.24	9.65	31.59	12.17
10/4/2024 5:20	11.94	226.87	0.11	7.2	263.21	9.66	34.27	12.17
10/4/2024 5:10	11.98	177.61	0.08	7.42	262.98	9.65	32.53	12.17
10/4/2024 5:00	12.02	119.38	0.06	7.25	270.65	9.64	36.38	12.17
10/4/2024 4:50	12.07	98.99	0.05	7.11	275.35	9.62	41.42	12.19
10/4/2024 4:40	12.14	101.72	0.05	7.3	267.25	9.61	50.78	12.17
10/4/2024 4:30	12.22	109.2	0.05	7.46	268.13	9.59	49.12	12.17
10/4/2024 4:20	12.26	113.3	0.05	7.28	274.86	9.6	44.84	12.07
10/4/2024 4:10	12.31	122.96	0.06	7.17	274.99	9.57	47.04	12.17
10/4/2024 4:00	12.36	120.83	0.06	7.56	259.79	9.59	52.27	12.07
10/4/2024 3:50	12.36	123.75	0.06	7.41	257.59	9.59	46.24	12.17
10/4/2024 3:40	11.42	36.48	0.02	7.19	276.35	9.78	10.26	12.14
10/4/2024 3:30	11.45	38.08	0.02	7.21	275.01	9.77	10.19	12.24
10/4/2024 3:20	11.47	36.96	0.02	7.21	277.95	9.78	8.84	12.24
10/4/2024 3:10	11.5	39.02	0.02	7.24	278.39	9.77	12.88	12.24
10/4/2024 3:00	11.55	37.61	0.02	7.26	273.35	9.76	13.52	12.24
10/4/2024 2:50	11.62	37.82	0.02	7.25	277.98	9.76	10.28	12.24
10/4/2024 2:40	11.72	39.23	0.02	7.26	289.42	9.73	15.21	12.24

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10/4/2024 2:30	12.05	59.73	0.03	7.39	283.2	9.63	34.62	12.24
10/4/2024 2:20	12.61	134.3	0.06	7.19	277.09	9.58	26.47	12.14
10/4/2024 2:10	12.64	140.9	0.07	7.43	270.94	9.57	27.38	12.14
10/4/2024 2:00	12.66	136.19	0.06	7.52	270.03	9.57	25.29	12.12
10/4/2024 1:50	12.67	143.43	0.07	7.27	269.83	9.55	28.75	12.14
10/4/2024 1:40	12.67	137.6	0.06	7.24	269.92	9.55	28.69	12.21
10/4/2024 1:30	12.69	142.9	0.07	7.61	263.93	9.57	31.43	12.17
10/4/2024 1:20	12.69	137.36	0.06	7.37	260.31	9.55	29.88	12.14
10/4/2024 1:10	12.7	137.67	0.06	7.18	268.55	9.54	32.18	12.26
10/4/2024 1:00	12.71	136.83	0.06	7.51	259.71	9.56	30.31	12.26
10/4/2024 0:50	12.72	136.53	0.06	7.49	262.14	9.54	29.46	12.26
10/4/2024 0:40	12.73	137.41	0.06	7.26	259.14	9.54	28.96	12.26
10/4/2024 0:30	12.76	136.6	0.06	7.28	258.38	9.54	31.83	12.29
10/4/2024 0:20	12.76	136.78	0.06	7.58	262.85	9.54	33.94	12.29
10/4/2024 0:10	12.77	143.44	0.07	7.36	262.05	9.52	33.26	12.29
10/4/2024 0:00	12.78	137.3	0.06	7.18	264.3	9.51	30.66	12.29
10/3/2024 23:50	12.79	143.09	0.07	7.47	261.5	9.53	34.43	12.29
10/3/2024 23:40	12.8	137.72	0.06	7.5	261.98	9.51	35.62	12.29
10/3/2024 23:30	12.81	144.41	0.07	7.28	257.52	9.5	38.5	12.29
10/3/2024 23:20	12.83	137.84	0.06	7.22	258.66	9.5	42.59	12.29
10/3/2024 23:10	12.84	143.61	0.07	7.61	254.53	9.49	44.86	12.19
10/3/2024 23:00	12.84	137.3	0.06	7.42	260.52	9.49	48.61	12.19
10/3/2024 22:50	12.83	143.36	0.07	7.22	258.34	9.48	58.36	12.29
10/3/2024 22:40	12.86	137.55	0.06	7.33	260.38	9.48	48.8	12.21
10/3/2024 22:30	12.88	142.83	0.07	7.58	254.92	9.49	50.09	12.21
10/3/2024 22:20	12.88	136.12	0.06	7.39	263.14	9.49	39.8	12.19
10/3/2024 22:10	12.89	142.61	0.07	7.21	260.01	9.48	43.17	12.31
10/3/2024 22:00	12.9	136.36	0.06	7.32	258.14	9.48	44.25	12.31
10/3/2024 21:50	12.87	142.51	0.07	7.53	248.33	9.5	49.16	12.33
10/3/2024 21:40	11.92	40.29	0.02	7.28	273.18	9.72	6.85	12.33
10/3/2024 21:30	12.43	70.19	0.03	7.39	272.6	9.54	12.96	12.33
10/3/2024 21:20	13.01	137.67	0.06	7.24	259.14	9.46	44.52	12.33
10/3/2024 21:10	13.02	137.49	0.06	7.59	251.43	9.46	43.63	12.31
10/3/2024 21:00	12.24	50.32	0.02	7.36	268.03	9.62	7.7	12.29
10/3/2024 20:50	13.09	137.21	0.06	7.25	257.81	9.44	43.42	12.29
10/3/2024 20:40	13.1	136.15	0.06	7.25	266.45	9.44	41.35	12.33
10/3/2024 20:30	13.12	137.9	0.06	7.61	259.43	9.45	39.98	12.33
10/3/2024 20:20	13.15	137.41	0.06	7.45	266.68	9.44	38.36	12.33
10/3/2024 20:10	13.17	139.44	0.07	7.24	269.32	9.42	39.17	12.26
10/3/2024 20:00	13.18	138.65	0.07	7.27	262.62	9.44	39.82	12.26
10/3/2024 19:50	13.21	137.79	0.06	7.6	259.99	9.43	38.13	12.36
10/3/2024 19:40	13.23	138.46	0.07	7.44	258.38	9.42	35.4	12.26
10/3/2024 19:30	13.27	139.46	0.07	7.23	264.77	9.42	34.67	12.36
10/3/2024 19:20	13.28	138.37	0.07	7.24	264.38	9.42	33.47	12.38
10/3/2024 19:10	13.31	138.3	0.07	7.6	260.99	9.42	32.51	12.38
10/3/2024 19:00	13.33	138.24	0.07	7.44	267.28	9.41	28.26	12.38
10/3/2024 18:50	13.34	145.7	0.07	7.2	268.64	9.4	25.66	12.36

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10/3/2024 18:40	13.36	139.39	0.07	7.23	259.17	9.41	25.7	12.26
10/3/2024 18:30	13.36	138.82	0.07	7.63	250.99	9.4	26.66	12.26
10/3/2024 18:20	13.31	138.25	0.07	7.48	244.54	9.43	28.26	12.43
10/3/2024 18:10	12.15	37.91	0.02	7.32	265.79	9.73	3.41	12.69
10/3/2024 18:00	12.3	39.97	0.02	7.35	262.88	9.69	6.46	12.88
10/3/2024 17:50	12.92	81.49	0.04	7.63	260.47	9.46	20.19	12.93
10/3/2024 17:40	13.25	127.78	0.06	7.53	261.28	9.4	37.78	12.98
10/3/2024 17:30	13.4	142.64	0.07	7.29	264.99	9.38	19.34	12.93
10/3/2024 17:20	13.4	141.66	0.07	7.19	263.07	9.37	17.57	12.98
10/3/2024 17:10	13.41	140.75	0.07	7.6	257.86	9.38	16.98	13.15
10/3/2024 17:00	13.42	140.88	0.07	7.45	259.72	9.38	18.32	13.12
10/3/2024 16:50	13.45	142.14	0.07	7.22	265.53	9.37	17.68	13
10/3/2024 16:40	13.48	141.45	0.07	7.33	254.22	9.38	17.26	13.12
10/3/2024 16:30	13.48	141.18	0.07	7.59	255.43	9.38	20.04	13.24
10/3/2024 16:20	13.49	141.95	0.07	7.34	258.83	9.38	20.85	13.39
10/3/2024 16:10	13.5	142.65	0.07	7.17	262.56	9.37	19.14	13.41
10/3/2024 16:00	13.5	141	0.07	7.54	252.75	9.39	22.74	13.46
10/3/2024 15:50	13.51	146.14	0.07	8.01	237.97	9.39	17.47	13.39
10/3/2024 15:40	13.51	139.2	0.07	8	235.87	9.39	17.87	13.63
10/3/2024 15:30	13.52	140.1	0.07	8	238.15	9.38	20.09	13.6
10/3/2024 15:20	13.52	139.33	0.07	8	234.73	9.4	19.88	13.6
10/3/2024 15:10	13.55	140.6	0.07	8	240.93	9.4	23.96	13.58
10/3/2024 15:00	13.57	140.06	0.07	8.01	236.58	9.4	22.41	13.58
10/3/2024 14:50	13.59	140.28	0.07	7.99	240.86	9.4	23.39	13.58
10/3/2024 14:40	13.59	139.08	0.07	7.99	237	9.4	19.92	13.48
10/3/2024 14:30	13.56	139.6	0.07	8	241.71	9.41	22.74	13.58
10/3/2024 14:20	13.53	139.77	0.07	7.99	238.74	9.42	19.97	13.58
10/3/2024 14:10	13.47	140.16	0.07	7.99	241.38	9.43	23.02	13.6
10/3/2024 14:00	13.44	139.74	0.07	7.98	237.67	9.44	20.48	13.58
10/3/2024 13:50	13.44	140.3	0.07	7.99	241.36	9.44	23.01	13.58
10/3/2024 13:40	13.42	140.23	0.07	7.99	237.61	9.44	23.77	13.6
10/3/2024 13:30	13.38	139.9	0.07	7.99	243.33	9.46	23.54	13.6
10/3/2024 13:20	13.34	138.69	0.07	7.98	247.24	9.47	22.26	13.51
10/3/2024 13:10	13.29	146.07	0.07	7.99	243.81	9.47	24.62	13.6
10/3/2024 13:00	13.25	139.4	0.07	7.98	239.91	9.48	24.85	13.6
10/3/2024 12:50	13.21	140.02	0.07	7.98	241.62	9.48	28.32	13.58
10/3/2024 12:40	13.19	139.69	0.07	7.97	246.92	9.49	28	13.41
10/3/2024 12:30	13.15	146.49	0.07	7.98	244.53	9.52	27.69	13.48
10/3/2024 12:20	13.08	139.56	0.07	7.98	239.64	9.52	27.43	13.48
10/3/2024 12:10	13.04	141.4	0.07	7.96	243.95	9.52	30.06	13.58
10/3/2024 12:00	13.01	140.84	0.07	7.97	241.25	9.53	28.41	13.58
10/3/2024 11:50	12.96	141.33	0.07	7.96	242.62	9.54	28.88	13.58
10/3/2024 11:40	12.94	140.23	0.07	7.97	240.13	9.55	27.89	13.58
10/3/2024 11:30	12.88	141.79	0.07	7.96	240.54	9.56	21.67	13.6
10/3/2024 11:20	12.79	140.74	0.07	7.96	238.59	9.57	20.49	13.63
10/3/2024 11:10	12.71	141.04	0.07	7.95	240.13	9.59	16.47	13.65
10/3/2024 11:00	12.65	140.86	0.07	7.95	234.73	9.6	18.22	13.72

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10/3/2024 10:50	12.57	140.6	0.07	7.95	233.96	9.63	20.68	13.77
10/3/2024 10:40	12.48	140.39	0.07	7.94	229.02	9.64	20.11	12.91
10/3/2024 10:30	12.29	138.82	0.07	7.94	219.8	9.69	35.11	12.88
10/3/2024 10:20	10.53	34.39	0.01	7.22	250.79	10.21	2.84	12.84
10/3/2024 10:10	10.5	34.47	0.01	7.22	251.68	10.21	2.84	12.91
10/3/2024 10:00	10.46	34.64	0.01	7.22	246.53	10.21	2.93	12.62
10/3/2024 9:50	10.42	34.7	0.01	7.21	248.93	10.23	3.03	12.5
10/3/2024 9:40	10.38	34.55	0.01	7.22	243.81	10.24	2.97	12.57
10/3/2024 9:30	10.37	34.96	0.02	7.2	246.48	10.24	2.95	12.53
10/3/2024 9:20	10.34	34.82	0.02	7.23	236.09	10.24	3.37	12.45
10/3/2024 9:10	10.33	35.21	0.02	7.22	239.21	10.24	3.98	12.38
10/3/2024 9:00	10.3	35.8	0.02	7.24	230.92	10.24	4.32	12.29
10/3/2024 8:50	10.31	43.4	0.02	7.22	252.5	10.23	209.08	12.21
10/3/2024 8:40	10.31	34.88	0.02	7.18	249.84	10.22	2.75	12.17
10/3/2024 8:30	10.32	35.14	0.02	7.17	253.58	10.23	2.73	12.07
10/3/2024 8:20	10.32	35.05	0.02	7.18	246.74	10.22	2.74	12.05
10/3/2024 8:10	10.33	35.18	0.02	7.19	249.54	10.21	3.88	12.14
10/3/2024 8:00	10.34	35.26	0.02	7.19	244.83	10.2	2.83	12.12
10/3/2024 7:50	10.36	35.36	0.02	7.18	248.7	10.2	2.76	12.12
10/3/2024 7:40	10.39	35.46	0.02	7.2	241.49	10.19	3.14	12.09
10/3/2024 7:30	10.39	35.46	0.02	7.19	247.58	10.19	3.02	12.09
10/3/2024 7:20	10.42	35.53	0.02	7.2	242.95	10.18	2.89	12.07
10/3/2024 7:10	10.47	35.7	0.02	7.19	246.47	10.17	2.83	12.05
10/3/2024 7:00	10.52	35.79	0.02	7.21	240.75	10.15	2.76	11.97
10/3/2024 6:50	10.58	36.15	0.02	7.21	245.52	10.16	2.79	12.07
10/3/2024 6:40	10.65	36.37	0.02	7.23	236.47	10.14	2.97	12.07
10/3/2024 6:30	10.75	36.96	0.02	7.23	242.51	10.11	2.97	12.05
10/3/2024 6:20	10.92	38.41	0.02	7.3	236.9	10.09	3.11	11.97
10/3/2024 6:10	11.44	53.04	0.02	7.56	230.45	9.91	3.66	12.07
10/3/2024 6:00	12.42	136.89	0.06	7.93	219.87	9.66	12.52	12
10/3/2024 5:50	12.44	136.89	0.06	7.92	224.4	9.66	11.47	12.09
10/3/2024 5:40	12.45	137.33	0.06	7.93	226.35	9.67	10.79	12.14
10/3/2024 5:30	12.48	144.21	0.07	7.93	225.32	9.65	10.17	12.17
10/3/2024 5:20	12.5	137.68	0.06	7.92	227.67	9.64	9.64	12.17
10/3/2024 5:10	12.53	144.59	0.07	7.91	228.52	9.63	9.17	12.17
10/3/2024 5:00	12.63	141.62	0.07	7.92	229.83	9.6	11.35	12.17
10/3/2024 4:50	12.65	148.27	0.07	7.94	227.74	9.59	11.45	12.17
10/3/2024 4:40	12.62	138.91	0.07	7.94	228.36	9.6	8.73	12.17
10/3/2024 4:30	12.64	144.99	0.07	7.93	227.5	9.6	9.8	12.17
10/3/2024 4:20	12.67	138.2	0.06	7.92	224.34	9.59	9.47	12.07
10/3/2024 4:10	12.71	139.15	0.07	7.92	228.83	9.58	10.82	12.19
10/3/2024 4:00	12.72	138.52	0.07	7.92	226.83	9.58	9.46	12.19
10/3/2024 3:50	12.75	138.68	0.07	7.9	228.47	9.58	9.86	12.09
10/3/2024 3:40	12.78	137.64	0.06	7.91	232.97	9.56	10.17	12.19
10/3/2024 3:30	12.67	139.45	0.07	7.91	231.83	9.6	9.49	12.19
10/3/2024 3:20	12.69	133.22	0.06	7.9	229.96	9.59	10.75	12.12
10/3/2024 3:10	12.71	133.16	0.06	7.9	232	9.59	8.97	12.17

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10/3/2024 3:00	12.72	133.1	0.06	7.9	227.9	9.59	10.09	12.21
10/3/2024 2:50	12.64	132.01	0.06	7.89	230.2	9.6	10.17	12.21
10/3/2024 2:40	12.75	132.46	0.06	7.9	220.63	9.57	10.79	12.21
10/3/2024 2:30	12.75	132.49	0.06	7.89	230.52	9.58	10.72	12.21
10/3/2024 2:20	12.75	132.33	0.06	7.89	226.84	9.59	16.36	12.21
10/3/2024 2:10	12.74	132.3	0.06	7.88	228.36	9.58	11.04	12.21
10/3/2024 2:00	12.73	132.3	0.06	7.89	223.96	9.59	11.45	12.19
10/3/2024 1:50	12.69	132.54	0.06	7.88	220.27	9.58	12.77	12.19
10/3/2024 1:40	12.17	130.72	0.06	7.83	209.1	9.7	15.2	12.09
10/3/2024 1:30	11.11	36	0.02	7.16	237.78	10.02	2.74	12.05
10/3/2024 1:20	11.16	36.16	0.02	7.19	240.75	10.02	2.75	12.19
10/3/2024 1:10	11.24	36.87	0.02	7.21	246.36	10.01	2.76	12.24
10/3/2024 1:00	11.41	38.24	0.02	7.27	239.75	9.96	2.92	12.17
10/3/2024 0:50	12.01	59.55	0.03	7.56	236.88	9.72	6.93	12.24
10/3/2024 0:40	12.97	139.11	0.07	7.86	225.69	9.52	20.57	12.14
10/3/2024 0:30	12.86	139.57	0.07	7.85	220.7	9.54	20.47	12.24
10/3/2024 0:20	11.17	35.33	0.02	7.15	252.48	10.01	2.72	12.24
10/3/2024 0:10	11.19	35.54	0.02	7.15	250.06	10	2.66	12.29
10/3/2024 0:00	11.22	36.9	0.02	7.14	249.99	9.99	2.69	12.29
10/2/2024 23:50	11.24	35.51	0.02	7.15	253.68	9.99	2.76	12.26
10/2/2024 23:40	11.26	35.4	0.02	7.14	251.54	9.99	2.69	12.29
10/2/2024 23:30	11.29	35.56	0.02	7.14	254.28	9.98	2.77	12.29
10/2/2024 23:20	11.32	35.39	0.02	7.15	248.65	9.97	2.82	12.29
10/2/2024 23:10	11.35	35.59	0.02	7.14	251.64	9.97	2.75	12.29
10/2/2024 23:00	11.38	35.4	0.02	7.15	243.71	9.97	2.71	12.29
10/2/2024 22:50	11.4	35.64	0.02	7.14	248.7	9.96	2.77	12.24
10/2/2024 22:40	11.42	35.48	0.02	7.15	248.26	9.94	2.69	12.29
10/2/2024 22:30	11.44	35.48	0.02	7.15	246.05	9.95	2.67	12.29
10/2/2024 22:20	11.44	35.52	0.02	7.16	243.49	9.94	2.93	12.19
10/2/2024 22:10	11.47	35.57	0.02	7.15	245.41	9.93	2.68	12.29
10/2/2024 22:00	11.5	35.6	0.02	7.15	246.61	9.93	2.89	12.29
10/2/2024 21:50	11.53	35.67	0.02	7.15	244.12	9.93	2.63	12.31
10/2/2024 21:40	11.55	35.62	0.02	7.17	246.48	9.93	2.86	12.29
10/2/2024 21:30	11.58	35.81	0.02	7.15	244.04	9.92	2.8	12.29
10/2/2024 21:20	11.61	35.58	0.02	7.17	242.65	9.9	2.8	12.31
10/2/2024 21:10	11.62	35.71	0.02	7.16	242.38	9.9	2.81	12.31
10/2/2024 21:00	11.65	35.61	0.02	7.17	242.8	9.91	2.67	12.29
10/2/2024 20:50	11.69	35.86	0.02	7.15	239.59	9.89	2.69	12.29
10/2/2024 20:40	11.72	35.81	0.02	7.17	239.08	9.89	2.83	12.21
10/2/2024 20:30	11.75	35.69	0.02	7.17	232.8	9.88	2.79	12.29
10/2/2024 20:20	11.77	35.67	0.02	7.17	236.91	9.87	2.97	12.26
10/2/2024 20:10	11.79	35.75	0.02	7.17	236.08	9.86	2.77	12.33
10/2/2024 20:00	11.83	35.58	0.02	7.17	239.13	9.86	2.9	12.36
10/2/2024 19:50	11.87	35.56	0.02	7.16	231.09	9.85	2.88	12.36
10/2/2024 19:40	11.9	35.54	0.02	7.17	234.74	9.84	3.35	12.36
10/2/2024 19:30	11.93	35.53	0.02	7.17	234.68	9.84	2.78	12.36
10/2/2024 19:20	11.97	35.56	0.02	7.18	237.62	9.83	2.81	12.36

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10/2/2024 19:10	12	37.03	0.02	7.18	232.49	9.84	22.91	12.36
10/2/2024 19:00	12.04	35.39	0.02	7.19	231.56	9.83	2.93	12.38
10/2/2024 18:50	12.08	35.42	0.02	7.18	219.4	9.82	2.8	12.41
10/2/2024 18:40	12.12	35.28	0.02	7.2	236.39	9.82	2.87	12.43
10/2/2024 18:30	12.16	36.91	0.02	7.2	219.91	9.81	3.82	12.45
10/2/2024 18:20	12.21	35.16	0.02	7.21	214.23	9.82	2.9	12.48
10/2/2024 18:10	12.25	35.25	0.02	7.19	221.15	9.81	3.15	12.6
10/2/2024 18:00	12.29	35.03	0.02	7.21	214.9	9.81	3.68	12.84
10/2/2024 17:50	12.32	35.06	0.02	7.21	218.63	9.82	2.94	13.17
10/2/2024 17:40	12.36	35.12	0.02	7.21	216.5	9.82	3.24	13.24
10/2/2024 17:30	12.39	35.35	0.02	7.22	220.21	9.81	2.92	13.24
10/2/2024 17:20	12.42	35.31	0.02	7.21	219.88	9.81	3.05	13.2
10/2/2024 17:10	12.47	35.86	0.02	7.24	230.43	9.8	3.6	13.22
10/2/2024 17:00	12.6	37.11	0.02	7.3	225.16	9.77	3.86	13.17
10/2/2024 16:50	13.5	121.58	0.06	7.76	220.66	9.56	38.07	13.05
10/2/2024 16:40	12.48	34.9	0.02	7.2	239.89	9.8	2.7	13.05
10/2/2024 16:30	12.51	36.37	0.02	7.21	231.13	9.81	5.74	13.05
10/2/2024 16:20	12.55	34.93	0.02	7.2	226.78	9.8	3.48	13.32
10/2/2024 16:10	12.56	35.11	0.02	7.2	233.87	9.8	2.73	13.27
10/2/2024 16:00	12.59	34.82	0.02	7.22	230.82	9.78	2.93	13.27
10/2/2024 15:50	12.62	34.83	0.02	7.19	236.06	9.78	2.8	13.24
10/2/2024 15:40	12.66	36.27	0.02	7.19	231.5	9.77	2.84	13.27
10/2/2024 15:30	12.69	34.76	0.02	7.21	242.42	9.77	2.95	13.15
10/2/2024 15:20	12.72	36.03	0.02	7.2	224.21	9.76	3.07	13.1
10/2/2024 15:10	12.76	34.46	0.01	7.2	230.11	9.76	3.23	13.03
10/2/2024 15:00	12.83	34.51	0.01	7.21	243.71	9.75	3.1	13.24
10/2/2024 14:50	12.9	35.91	0.02	7.22	230.26	9.73	3.17	13.29
10/2/2024 14:40	12.95	34.35	0.01	7.21	239.9	9.73	3.3	13.24
10/2/2024 14:30	13	34.4	0.01	7.19	246.1	9.72	2.9	13.2
10/2/2024 14:20			0.02		298.11	9.69	7.16	13.15
10/2/2024 14:10	13.18	33.65	0.01	7.28	301.29	9.67	0	13.56
10/2/2024 14:00								13.46
10/2/2024 13:50								13.56
10/2/2024 13:40	13.14	36.4	0.02	7.27	322.56	9.68	0.65	13.53
10/2/2024 13:30	13.24	57.18	0.03	7.51	309.03	9.59	107.06	13.53
10/2/2024 13:20	13.42	102.89	0.05	7.57	324.61	9.47	478.85	13.53
10/2/2024 13:10	12.87	34.2	0.01	7.21	333.26	9.73	0	13.51
10/2/2024 13:00	12.95	34.41	0.01	7.19	336.22	9.75	3.47	13.44
10/2/2024 12:50	12.84	34.19	0.01	7.18	329.06	9.76	0	13.39
10/2/2024 12:40	12.79	34.23	0.01	7.21	325.09	9.78	0	13.39
10/2/2024 12:30	12.74	34.2	0.01	7.32	308.27	9.79	2.96	13.51
10/2/2024 12:20	12.75	35.64	0.02	7.5	271.8	9.79	6.57	13.53
10/2/2024 12:10			0.02		281.79	9.59	1.82	13.56
10/2/2024 12:00	20.01	0.06	0	6.68	33.46	8.8	281.37	13.58
10/2/2024 11:50	15.21	0.07	0	6.62	149.41	8.95	3.59	13.22
10/2/2024 11:40	15.64	0.07	0	7.67	160.4	9	4.58	13.05
10/2/2024 11:30	13.11	260.67	0.12	7.76	232.24	9.27	57.9	13.51

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10/2/2024 11:20	12.99	265.54	0.13	7.76	238.15	9.27	52.92	13.65
10/2/2024 11:10	12.91	230.05	0.11	7.8	233.63	9.29	61.3	13.56
10/2/2024 11:00	12.92	252.72	0.12	7.77	236.14	9.26	52.08	13.67
10/2/2024 10:50	12.95	251.08	0.12	7.78	233.41	9.22	51.35	13.67
10/2/2024 10:40	12.92	266.61	0.13	7.76	234.34	9.27	49.15	13.6
10/2/2024 10:30	12.84	253.26	0.12	7.77	232.04	9.29	51.25	13.56
10/2/2024 10:20	12.83	248.24	0.12	7.76	233.29	9.33	49.97	13.51
10/2/2024 10:10	12.79	257.24	0.12	7.76	230.61	9.3	48.79	12.96
10/2/2024 10:00	12.77	256.01	0.12	7.77	231.2	9.29	52.25	12.96
10/2/2024 9:50	12.74	246.18	0.12	7.77	225.93	9.31	46.43	12.98
10/2/2024 9:40	12.74	262.28	0.13	7.75	231.45	9.28	49.38	12.96
10/2/2024 9:30	12.74	279.84	0.13	7.75	225.57	9.27	56.59	12.86
10/2/2024 9:20	12.7	241.31	0.11	7.78	232.3	9.29	47.42	12.79
10/2/2024 9:10	12.7	270.44	0.13	7.76	227.77	9.28	72.43	12.65
10/2/2024 9:00	12.68	258.94	0.12	7.76	228.34	9.33	47.15	12.57
10/2/2024 8:50	12.65	253.41	0.12	7.78	223.96	9.32	46.95	12.41
10/2/2024 8:40	12.63	260.97	0.12	7.75	229.76	9.29	45.07	12.29
10/2/2024 8:30	12.62	270.56	0.13	7.76	225.82	9.3	57.57	12.12
10/2/2024 8:20	12.6	275.52	0.13	7.76	225.92	9.3	44.39	12.12
10/2/2024 8:10	12.57	260.36	0.12	7.78	221.78	9.31	43.39	12.02
10/2/2024 8:00	12.56	269.08	0.13	7.77	222.38	9.3	44.06	12.02
10/2/2024 7:50	12.54	259.83	0.12	7.79	216.49	9.3	45.6	12.12
10/2/2024 7:40	12.54	262.68	0.13	7.78	220.64	9.28	44.23	12.07
10/2/2024 7:30	12.51	267.87	0.13	7.79	210.11	9.3	55.24	12
10/2/2024 7:20	12.44	208.86	0.1	7.83	218.88	9.51	50.22	12
10/2/2024 7:10	12.42	188.16	0.09	7.86	216.58	9.62	53.76	12.09
10/2/2024 7:00	12.43	181.37	0.09	7.87	219.44	9.66	48.53	12.09
10/2/2024 6:50	12.43	181.99	0.09	7.87	217.1	9.67	44.7	12.09
10/2/2024 6:40	12.43	180.18	0.09	7.87	219.6	9.66	43.08	12.07
10/2/2024 6:30	12.44	182.08	0.09	7.87	217.32	9.66	43.87	11.97
10/2/2024 6:20	12.44	181.66	0.09	7.87	219.22	9.66	44.95	11.97
10/2/2024 6:10	12.46	182.87	0.09	7.86	217.58	9.64	39.28	11.97
10/2/2024 6:00	12.47	181.95	0.09	7.86	219.21	9.65	49.88	12.09
10/2/2024 5:50	12.49	181.39	0.09	7.87	214.99	9.64	40.41	12.09
10/2/2024 5:40	12.52	181.27	0.09	7.86	219.31	9.64	38.5	12.09
10/2/2024 5:30	12.54	178.73	0.08	7.86	214.95	9.64	44.21	12.09
10/2/2024 5:20	12.55	180.12	0.09	7.86	218.69	9.62	41.39	12.09
10/2/2024 5:10	12.56	180.17	0.09	7.86	214.82	9.62	47.51	12
10/2/2024 5:00	12.58	180.48	0.09	7.86	219.32	9.62	49.35	12
10/2/2024 4:50	12.59	179.43	0.08	7.86	217.41	9.62	41.57	12.09
10/2/2024 4:40	12.6	178.82	0.08	7.86	219.92	9.62	40.59	12.12
10/2/2024 4:30	12.6	179.24	0.08	7.86	217.93	9.62	36.53	12.07
10/2/2024 4:20	12.6	178.59	0.08	7.86	219.03	9.62	41.6	12.07
10/2/2024 4:10	12.6	180.02	0.09	7.86	214.62	9.61	35.17	12.07
10/2/2024 4:00	12.6	179.1	0.08	7.86	218.51	9.61	53.4	12.14
10/2/2024 3:50	12.58	176.23	0.08	7.86	216.94	9.62	49.69	12.12
10/2/2024 3:40	12.54	175.33	0.08	7.84	217.69	9.63	71.53	12.14

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10/2/2024 3:30	12.56	167.51	0.08	7.81	215.58	9.63	50.35	12.14
10/2/2024 3:20	12.7	246.16	0.12	7.76	222.66	9.39	59.68	12.14
10/2/2024 3:10	12.68	193.13	0.09	7.8	216.46	9.51	56.92	12.14
10/2/2024 3:00	12.75	256.5	0.12	7.76	220.93	9.2	47.55	12.17
10/2/2024 2:50	12.78	278.83	0.13	7.76	217.84	9.22	58.63	12.14
10/2/2024 2:40	12.75	209.36	0.1	7.81	220.43	9.44	51.3	12.14
10/2/2024 2:30	12.76	191.79	0.09	7.82	217.83	9.51	44.19	12.14
10/2/2024 2:20	12.77	213.47	0.1	7.82	219.34	9.45	52.42	12.07
10/2/2024 2:10	12.77	181.17	0.09	7.86	215.2	9.57	40.69	12.14
10/2/2024 2:00	12.77	179.33	0.08	7.86	218.56	9.57	42.88	12.12
10/2/2024 1:50	12.77	180.08	0.09	7.85	215.02	9.58	41.7	12.17
10/2/2024 1:40	12.76	180.33	0.09	7.86	218.62	9.58	42.98	12.12
10/2/2024 1:30	12.75	180.66	0.09	7.86	216.72	9.57	45.35	12.12
10/2/2024 1:20	12.74	180.71	0.09	7.85	218.59	9.58	39.95	12.12
10/2/2024 1:10	12.73	177.92	0.08	7.84	217.76	9.58	46.99	12.24
10/2/2024 1:00	12.74	169.27	0.08	7.82	219.42	9.57	69.48	12.14
10/2/2024 0:50	12.81	204	0.1	7.82	213.89	9.42	44.11	12.17
10/2/2024 0:40	12.81	211.36	0.1	7.81	220.89	9.41	39.85	12.26
10/2/2024 0:30	12.8	184.37	0.09	7.85	218.07	9.53	43.68	12.26
10/2/2024 0:20	12.82	182.17	0.09	7.85	219.51	9.54	41.17	12.26
10/2/2024 0:10	12.83	181.12	0.09	7.85	215.63	9.55	34.62	12.24
10/2/2024 0:00	12.84	178.52	0.08	7.85	219.22	9.55	62.17	12.17
10/1/2024 23:50	12.85	182.47	0.09	7.85	216.12	9.54	41.84	12.26
10/1/2024 23:40	12.85	180.3	0.09	7.85	218.87	9.55	35.15	12.14
10/1/2024 23:30	12.84	180.03	0.09	7.85	218.51	9.56	40.53	12.29
10/1/2024 23:20	12.84	179.42	0.08	7.85	219.29	9.55	37.65	12.29
10/1/2024 23:10	12.83	179.98	0.09	7.85	215.58	9.55	40.14	12.29
10/1/2024 23:00	12.83	178.76	0.08	7.83	220.27	9.55	39.37	12.26
10/1/2024 22:50	12.83	181.5	0.09	7.84	218.45	9.52	37.18	12.26
10/1/2024 22:40	12.83	179.14	0.08	7.85	219.54	9.56	44.82	12.31
10/1/2024 22:30	12.81	177.73	0.08	7.85	215.73	9.56	46.68	12.31
10/1/2024 22:20	12.8	176.63	0.08	7.84	219.12	9.55	39.89	12.31
10/1/2024 22:10	12.79	177.05	0.08	7.84	218.19	9.55	37.45	12.31
10/1/2024 22:00	12.77	176.67	0.08	7.83	219.73	9.56	74.71	12.31
10/1/2024 21:50	12.74	176.35	0.08	7.82	217.06	9.56	34.03	12.31
10/1/2024 21:40	12.7	171.7	0.08	7.81	219.65	9.57	75.42	12.31
10/1/2024 21:30	12.63	167.24	0.08	7.79	218.98	9.59	99.39	12.19
10/1/2024 21:20	12.68	153	0.07	7.73	225.72	9.57	90.88	12.29
10/1/2024 21:10	12.89	251.39	0.12	7.72	220.24	9.23	46.27	12.33
10/1/2024 21:00	12.88	241.43	0.11	7.71	225	9.2	42.12	12.33
10/1/2024 20:50	12.89	249.29	0.12	7.72	219.6	9.19	46.48	12.36
10/1/2024 20:40	12.88	244.53	0.12	7.71	225.24	9.21	35.45	12.33
10/1/2024 20:30	12.89	250.34	0.12	7.72	219.23	9.19	45.48	12.24
10/1/2024 20:20	12.91	258.45	0.12	7.71	224.46	9.16	38.49	12.24
10/1/2024 20:10	12.9	247.83	0.12	7.73	218.87	9.14	67.48	12.24
10/1/2024 20:00	12.87	253.38	0.12	7.71	220.49	9.24	37.74	12.38
10/1/2024 19:50	12.89	264.57	0.13	7.72	218.8	9.24	39.72	12.38

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10/1/2024 19:40	12.87	241.01	0.11	7.72	218.35	9.24	42.49	12.38
10/1/2024 19:30	12.88	222.23	0.11	7.75	216.39	9.22	43.07	12.38
10/1/2024 19:20	12.91	237.18	0.11	7.73	219.57	9.19	56.62	12.41
10/1/2024 19:10	12.93	258.48	0.12	7.73	215.11	9.17	48.41	12.41
10/1/2024 19:00	12.95	261.96	0.12	7.73	221.61	9.22	40.87	12.43
10/1/2024 18:50	12.92	205.19	0.1	7.81	218.55	9.33	38.68	12.43
10/1/2024 18:40	12.93	192.39	0.09	7.81	219.57	9.46	36.2	12.5
10/1/2024 18:30	12.94	178.84	0.08	7.84	216.82	9.52	32.51	12.6
10/1/2024 18:20	12.96	179.01	0.08	7.84	219.35	9.52	31.46	12.67
10/1/2024 18:10	12.97	177.34	0.08	7.84	217.29	9.51	32.81	12.74
10/1/2024 18:00	12.96	178.46	0.08	7.84	219.92	9.52	35.89	12.79
10/1/2024 17:50	12.95	178.53	0.08	7.84	217.29	9.53	36.88	12.72
10/1/2024 17:40	12.93	177.37	0.08	7.84	220.38	9.53	53.91	12.69
10/1/2024 17:30	12.9	176.04	0.08	7.83	217.61	9.54	40.59	12.65
10/1/2024 17:20	12.83	168.57	0.08	7.81	222.68	9.56	43.33	12.81
10/1/2024 17:10	12.81	147.58	0.07	7.76	224.94	9.57	50.33	13.24
10/1/2024 17:00	13.06	243.64	0.12	7.74	222.94	9.19	39.24	13.36
10/1/2024 16:50	13.05	261.75	0.12	7.73	218.69	9.2	47.17	13.17
10/1/2024 16:40	12.95	212.51	0.1	7.78	222.47	9.42	70.66	13.2
10/1/2024 16:30	12.91	200.35	0.1	7.81	220.4	9.43	45.44	13.27
10/1/2024 16:20	12.84	177.63	0.08	7.81	222.28	9.55	43.49	13.65
10/1/2024 16:10	12.71	144.26	0.07	7.75	224.93	9.62	97.72	13.67
10/1/2024 16:00	13.07	246.41	0.12	7.71	226.84	9.21	43.86	13.67
10/1/2024 15:50	13.03	260.45	0.12	7.72	220.24	9.22	47.12	13.7
10/1/2024 15:40	13.04	261.62	0.12	7.72	227.25	9.19	42.4	13.39
10/1/2024 15:30	13.05	255.55	0.12	7.73	220.04	9.22	56.68	13.7
10/1/2024 15:20	13.05	234.9	0.11	7.74	226.94	9.23	48.23	13.7
10/1/2024 15:10	13.04	264.51	0.13	7.73	222.84	9.22	80.6	13.72
10/1/2024 15:00	13.04	269.06	0.13	7.72	222.22	9.24	43.64	13.72
10/1/2024 14:50	12.94	256.59	0.12	7.72	219.31	9.25	44.99	13.72
10/1/2024 14:40	12.94	255.94	0.12	7.73	220.14	9.21	44.37	13.17
10/1/2024 14:30	12.96	267.89	0.13	7.73	215.8	9.21	49.19	13.12
10/1/2024 14:20	12.96	267.51	0.13	7.73	218.69	9.21	44.79	13.03
10/1/2024 14:10	12.94	267.92	0.13	7.74	213.69	9.21	75.2	13
10/1/2024 14:00	12.66	191.8	0.09	7.77	219.26	9.42	58.16	12.74
10/1/2024 13:50	12.61	193.45	0.09	7.77	215.73	9.47	88.91	12.76
10/1/2024 13:40	12.5	162.4	0.08	7.74	223.29	9.61	69.03	12.84
10/1/2024 13:30	12.67	160.44	0.08	7.79	218.08	9.42	85.86	12.88
10/1/2024 13:20	12.89	255.39	0.12	7.72	223.93	9.22	47.76	12.91
10/1/2024 13:10	12.86	250.23	0.12	7.72	218.96	9.23	68.71	12.91
10/1/2024 13:00	12.81	236.12	0.11	7.73	223.01	9.21	50.09	12.79
10/1/2024 12:50	12.85	244.55	0.12	7.72	218.87	9.2	107.57	12.88
10/1/2024 12:40	12.86	257.02	0.12	7.71	224.46	9.2	48.99	12.86
10/1/2024 12:30	12.86	267.94	0.13	7.71	218.27	9.21	58.29	12.84
10/1/2024 12:20	12.81	250.19	0.12	7.73	223.12	9.2	53.38	12.81
10/1/2024 12:10	12.82	244.35	0.12	7.72	219.14	9.23	85.77	12.81
10/1/2024 12:00	12.8	244.36	0.12	7.72	219.59	9.28	70.07	12.79

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10/1/2024 11:50	12.8	237.79	0.11	7.73	215.37	9.22	53.65	12.74
10/1/2024 11:40	12.84	262.39	0.13	7.72	220.14	9.23	47.73	12.67
10/1/2024 11:30	12.76	248.22	0.12	7.73	213.19	9.27	62.31	12.62
10/1/2024 11:20	12.84	268.43	0.13	7.72	216.68	9.19	67.85	12.57
10/1/2024 11:10	12.76	257.82	0.12	7.71	220.7	9.37	123	12.43
10/1/2024 11:00	12.55	181.31	0.09	7.72	224.5	9.55	88.77	12.5
10/1/2024 10:50	12.74	200.03	0.09	7.78	218.45	9.21	84.08	12.45
10/1/2024 10:40	12.82	238.9	0.11	7.72	225.37	9.23	46.31	12.29
10/1/2024 10:30	12.82	263.75	0.13	7.71	221.43	9.24	61.71	12.48
10/1/2024 10:20	12.83	263.26	0.13	7.72	222.52	9.22	50.19	12.29
10/1/2024 10:10	12.78	262.98	0.13	7.71	218.14	9.24	50.55	12.24
10/1/2024 10:00	12.76	242.27	0.12	7.72	224.23	9.22	55.44	12.19
10/1/2024 9:50	12.78	260.8	0.12	7.72	221.35	9.24	64.1	12.33
10/1/2024 9:40	12.77	250.48	0.12	7.72	220.27	9.23	46.63	12.33
10/1/2024 9:30	12.75	255.78	0.12	7.71	217.75	9.27	50.09	12.21
10/1/2024 9:20	12.75	256.34	0.12	7.72	218.7	9.25	46.01	12.29
10/1/2024 9:10	12.77	265.86	0.13	7.71	216.73	9.21	49.56	12.24
10/1/2024 9:00	12.72	247.22	0.12	7.73	216.31	9.25	54.47	12.14
10/1/2024 8:50	12.71	252.27	0.12	7.73	212.59	9.26	46.51	12.21
10/1/2024 8:40	12.79	277.38	0.13	7.7	219.25	9.22	47.39	12.09
10/1/2024 8:30	12.74	265.21	0.13	7.71	212.82	9.24	53.59	12.19
10/1/2024 8:20	12.71	241.24	0.11	7.72	218.08	9.22	47.03	12.07
10/1/2024 8:10	12.72	264.4	0.13	7.72	210.91	9.26	63.32	12.17
10/1/2024 8:00	12.73	262.89	0.13	7.72	216.64	9.23	54.31	12.14
10/1/2024 7:50	12.7	254.73	0.12	7.73	211.43	9.24	50.72	12.14
10/1/2024 7:40	12.71	256.14	0.12	7.73	211.74	9.25	54.44	12.12
10/1/2024 7:30	12.71	252.89	0.12	7.73	206.85	9.23	63.75	12.02
10/1/2024 7:20	12.7	265.65	0.13	7.73	212.44	9.22	58.26	12.09
10/1/2024 7:10	12.72	266.13	0.13	7.73	206.6	9.23	87.56	12.09
10/1/2024 7:00	12.73	276.91	0.13	7.73	204.73	9.18	66.31	12.09
10/1/2024 6:50	12.52	214.57	0.1	7.81	204.18	9.43	152.2	12.14
10/1/2024 6:40	12.48	220.1	0.1	7.76	207.43	9.51	165.79	12.14
10/1/2024 6:30	12.38	188.85	0.09	7.81	202.35	9.61	204.91	12.12
10/1/2024 6:20	12.37	188.44	0.09	7.81	204.54	9.62	213.43	12.12
10/1/2024 6:10	12.37	187.49	0.09	7.8	205.37	9.61	220.4	12.09
10/1/2024 6:00	12.37	184.64	0.09	7.81	207.23	9.62	157.98	12.17
10/1/2024 5:50	12.37	183.58	0.09	7.81	205.22	9.63	137.99	12.17
10/1/2024 5:40	12.37	184.18	0.09	7.8	206.83	9.63	111.92	12.17
10/1/2024 5:30	12.36	178.14	0.08	7.81	203.8	9.64	90.83	12.17
10/1/2024 5:20	12.36	178.02	0.08	7.8	205.91	9.64	73.81	12.17
10/1/2024 5:10	12.36	176.74	0.08	7.81	206.92	9.66	63.31	12.19
10/1/2024 5:00	12.36	174.69	0.08	7.81	206.9	9.65	53.18	12.17
10/1/2024 4:50	12.36	174.87	0.08	7.81	204.19	9.66	48.16	12.09
10/1/2024 4:40	12.36	176.22	0.08	7.8	204.58	9.65	43.67	12.17
10/1/2024 4:30	12.36	174.38	0.08	7.8	203.58	9.66	50.18	12.19
10/1/2024 4:20	12.36	173.89	0.08	7.8	205.3	9.66	41.11	12.07
10/1/2024 4:10	12.36	172.54	0.08	7.79	203.34	9.65	50.9	12.19

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10/1/2024 4:00	12.36	173.45	0.08	7.79	205.68	9.65	43.26	12.19
10/1/2024 3:50	12.36	171.87	0.08	7.79	203.21	9.66	48.59	12.09
10/1/2024 3:40	12.36	173.92	0.08	7.79	206.42	9.66	46.75	12.12
10/1/2024 3:30	12.35	171.3	0.08	7.79	204.44	9.66	60.66	12.21
10/1/2024 3:20	12.35	172.49	0.08	7.8	206.21	9.66	61.57	12.21
10/1/2024 3:10	12.36	175.37	0.08	7.79	205.14	9.65	59.93	12.24
10/1/2024 3:00	12.35	175.79	0.08	7.78	207.55	9.65	69.44	12.24
10/1/2024 2:50	12.35	177.74	0.08	7.78	206.58	9.65	109.74	12.24
10/1/2024 2:40	12.36	181.16	0.09	7.78	209.65	9.63	188.24	12.24
10/1/2024 2:30	12.38	184.44	0.09	7.78	209.3	9.61	402.14	12.24
10/1/2024 2:20	12.36	179.97	0.09	7.77	210.63	9.65	312.8	12.12
10/1/2024 2:10	12.38	174.11	0.08	7.77	208.87	9.65	45.03	12.09
10/1/2024 2:00	12.46	212.14	0.1	7.76	212.08	9.52	34.64	12.14
10/1/2024 1:50	12.36	190.09	0.09	7.8	205.22	9.62	33.77	12.24
10/1/2024 1:40	12.33	180.67	0.09	7.81	208.34	9.69	30.17	12.24
10/1/2024 1:30	12.34	179.71	0.08	7.81	207.1	9.69	26.1	12.26
10/1/2024 1:20	12.36	180.41	0.09	7.8	209.36	9.68	20.45	12.14
10/1/2024 1:10	12.37	178.56	0.08	7.8	207.71	9.69	23.93	12.12
10/1/2024 1:00	12.38	179.41	0.08	7.8	208.83	9.69	31.41	12.12
10/1/2024 0:50	12.39	178.31	0.08	7.8	207.59	9.68	23.35	12.19
10/1/2024 0:40	12.41	175.8	0.08	7.8	208.95	9.68	22.3	12.26
10/1/2024 0:30	12.41	173.58	0.08	7.8	209.3	9.68	20.82	12.26
10/1/2024 0:20	12.44	171.74	0.08	7.8	210.2	9.68	19.42	12.26
10/1/2024 0:10	12.45	170.97	0.08	7.8	208.58	9.68	18.82	12.29
10/1/2024 0:00	12.46	168.38	0.08	7.81	209.44	9.67	20.34	12.26
9/30/2024 23:50	12.47	167.35	0.08	7.8	208.33	9.68	21.5	12.29
9/30/2024 23:40	12.48	166.13	0.08	7.81	208.41	9.68	18.01	12.29
9/30/2024 23:30	12.5	166.44	0.08	7.81	208.16	9.68	18.47	12.19
9/30/2024 23:20	12.53	166.56	0.08	7.8	209.79	9.66	17.57	12.26
9/30/2024 23:10	12.56	165.32	0.08	7.81	208.22	9.66	21.98	12.29
9/30/2024 23:00	12.58	164.98	0.08	7.81	208.99	9.66	19.39	12.29
9/30/2024 22:50	12.61	165.47	0.08	7.8	209.9	9.65	16.85	12.19
9/30/2024 22:40	12.64	166.33	0.08	7.8	210.94	9.66	16.92	12.17
9/30/2024 22:30	12.66	166.24	0.08	7.8	211.29	9.65	18.46	12.19
9/30/2024 22:20	12.67	164.51	0.08	7.8	210.43	9.65	16.81	12.19
9/30/2024 22:10	12.7	165.16	0.08	7.8	209.08	9.65	18.68	12.21
9/30/2024 22:00	12.73	165.86	0.08	7.8	209.75	9.63	15.78	12.31
9/30/2024 21:50	12.75	165.21	0.08	7.81	207.82	9.64	18.61	12.31
9/30/2024 21:40	12.77	167.96	0.08	7.8	207.53	9.62	19.49	12.31
9/30/2024 21:30	12.76	163.69	0.08	7.82	205.48	9.65	21.97	12.31
9/30/2024 21:20	12.76	160.9	0.08	7.82	206.42	9.65	24.34	12.31
9/30/2024 21:10	12.77	160.38	0.08	7.83	206.03	9.65	31.47	12.29
9/30/2024 21:00	12.79	159.91	0.08	7.82	207.81	9.66	35.69	12.31
9/30/2024 20:50	12.82	160.71	0.08	7.83	208.21	9.64	26.88	12.31
9/30/2024 20:40	12.83	163.1	0.08	7.82	208.88	9.63	22.41	12.33
9/30/2024 20:30	12.84	166.22	0.08	7.79	209.6	9.61	16.93	12.33
9/30/2024 20:20	12.85	165.52	0.08	7.8	209.12	9.63	16.03	12.26

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9/30/2024 20:10	12.86	166.8	0.08	7.81	209.55	9.62	13.87	12.33
9/30/2024 20:00	12.86	166.71	0.08	7.8	210.17	9.62	16.39	12.33
9/30/2024 19:50	12.87	165.73	0.08	7.8	210	9.61	21.47	12.33
9/30/2024 19:40	12.87	166.11	0.08	7.8	210.89	9.61	13.97	12.33
9/30/2024 19:30	12.87	164.25	0.08	7.8	210.86	9.6	13.89	12.26
9/30/2024 19:20	12.88	164.25	0.08	7.8	209.41	9.61	15	12.26
9/30/2024 19:10	12.88	165.56	0.08	7.79	210.56	9.6	19.32	12.36
9/30/2024 19:00	12.88	166.8	0.08	7.79	210.23	9.61	23.17	12.36
9/30/2024 18:50	12.88	164.1	0.08	7.8	209.11	9.62	13.67	12.36
9/30/2024 18:40	12.87	164.53	0.08	7.8	209.55	9.63	12.23	12.26
9/30/2024 18:30	12.87	163.36	0.08	7.81	209.38	9.63	15.09	12.36
9/30/2024 18:20	12.86	163.79	0.08	7.8	210.43	9.62	11.6	12.5
9/30/2024 18:10	12.86	162.83	0.08	7.8	210.77	9.63	11.4	12.57
9/30/2024 18:00	12.85	162.91	0.08	7.8	208.9	9.64	13.82	12.62
9/30/2024 17:50	12.86	162.24	0.08	7.79	210.36	9.64	17.06	12.72
9/30/2024 17:40	12.85	162.69	0.08	7.79	210.42	9.64	11.59	12.76
9/30/2024 17:30	12.83	161.38	0.08	7.8	209.9	9.65	16.27	12.72
9/30/2024 17:20	12.82	160.59	0.08	7.79	209.97	9.66	12.72	12.84
9/30/2024 17:10	12.81	159.41	0.08	7.8	210.29	9.66	29.59	12.96
9/30/2024 17:00	12.77	158.72	0.07	7.8	209.36	9.68	13.73	13.27
9/30/2024 16:50	12.74	157.11	0.07	7.79	210.98	9.7	18.25	13.36
9/30/2024 16:40	12.7	155.18	0.07	7.78	211.38	9.7	20.72	13.34
9/30/2024 16:30	12.63	150.72	0.07	7.8	212.38	9.71	28.35	13.32
9/30/2024 16:20	12.56	135.61	0.06	7.78	216.63	9.75	32.6	13.7
9/30/2024 16:10	12.98	202.12	0.1	7.71	217.68	9.28	91.95	13.34
9/30/2024 16:00	13.13	253.77	0.12	7.67	221.58	9.19	23.72	13.2
9/30/2024 15:50	13.11	260.58	0.12	7.67	221.6	9.23	15.03	13.22
9/30/2024 15:40	13.1	262.53	0.13	7.66	222.02	9.21	16.32	13.32
9/30/2024 15:30	13.09	261.56	0.12	7.66	220.72	9.22	35.58	13.29
9/30/2024 15:20	13.05	249.77	0.12	7.67	219.63	9.24	15.21	13.29
9/30/2024 15:10	13.11	271.69	0.13	7.66	220.72	9.22	15.83	13.27
9/30/2024 15:00	13.09	260.56	0.12	7.67	220.22	9.23	18.3	13.36
9/30/2024 14:50	13.09	259.41	0.12	7.67	219.46	9.25	15.48	13.58
9/30/2024 14:40	13.05	252.3	0.12	7.68	221.09	9.26	13.32	13.6
9/30/2024 14:30	13.04	247.08	0.12	7.68	219.08	9.24	55.4	13.67
9/30/2024 14:20	13.02	253.1	0.12	7.68	219.44	9.26	17.33	13.56
9/30/2024 14:10	13.01	249.2	0.12	7.68	217.96	9.28	41.2	13.67
9/30/2024 14:00	13.01	254.35	0.12	7.68	217.39	9.25	17.78	13.51
9/30/2024 13:50	13.03	258.39	0.12	7.67	218.42	9.27	19.59	13.39
9/30/2024 13:40	13.01	252.57	0.12	7.68	217	9.25	16.05	13.65
9/30/2024 13:30	13.03	260.95	0.12	7.68	216.89	9.27	27.47	13.63
9/30/2024 13:20	13.02	256.56	0.12	7.68	216.36	9.29	18.9	13.6
9/30/2024 13:10	13.03	259.52	0.12	7.68	215.01	9.27	25.89	13.63
9/30/2024 13:00	13	261.77	0.12	7.67	214.7	9.29	13.88	13.51
9/30/2024 12:50	12.99	253.48	0.12	7.68	212.58	9.3	24.8	13.44
9/30/2024 12:40	13.03	251.76	0.12	7.69	213.6	9.27	12.4	13.51
9/30/2024 12:30	12.78	231.23	0.11	7.72	213.35	9.46	21.5	13.51

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9/30/2024 12:20	12.59	187.66	0.09	7.7	215.13	9.62	14.94	13.51
9/30/2024 12:10	12.54	186.07	0.09	7.71	214.9	9.62	127.75	13.53
9/30/2024 12:00	12.57	193.81	0.09	7.69	214.3	9.62	50.37	13.65
9/30/2024 11:50	12.48	184.22	0.09	7.72	213.89	9.64	21.25	13.65
9/30/2024 11:40	12.42	186.91	0.09	7.72	213.32	9.58	50.09	13.65
9/30/2024 11:30	12.88	284.7	0.14	7.62	202.56	9.25	663.57	13.65
9/30/2024 11:20	12.35	187.54	0.09	7.72	213.16	9.65	28.2	13.65
9/30/2024 11:10	12.33	188.26	0.09	7.73	210.26	9.63	31.71	13.63
9/30/2024 11:00	12.34	193.69	0.09	7.74	210.98	9.66	30.38	13.6
9/30/2024 10:50	12.31	198.77	0.09	7.75	207.75	9.61	36.91	13.51
9/30/2024 10:40	12.26	201.06	0.1	7.75	207.58	9.67	32.71	13.6
9/30/2024 10:30	12.12	189.94	0.09	7.78	203.48	9.75	42.18	13.58
9/30/2024 10:20	11.96	171.79	0.08	7.79	204.01	9.85	31.91	13.7
9/30/2024 10:10	11.88	168.59	0.08	7.78	202.74	9.84	33.82	13.72
9/30/2024 10:00	11.81	167.07	0.08	7.76	205.29	9.9	33.63	13.77
9/30/2024 9:50	11.72	164	0.08	7.73	207.3	9.88	43	13.79
9/30/2024 9:40	11.74	153.61	0.07	7.68	212.23	9.79	35.03	13.84
9/30/2024 9:30	11.97	175.65	0.08	7.69	212.27	9.67	36.26	13.34
9/30/2024 9:20	11.99	182.74	0.09	7.69	212.16	9.7	25.81	12.74
9/30/2024 9:10	11.98	183.34	0.09	7.69	211.31	9.63	35.19	12.55
9/30/2024 9:00	11.98	184.58	0.09	7.69	211	9.61	28.13	12.5
9/30/2024 8:50	11.95	181.55	0.09	7.69	209.31	9.66	28.21	12.29
9/30/2024 8:40	11.93	182.9	0.09	7.69	211.45	9.69	27.14	12.19
9/30/2024 8:30	11.93	183.06	0.09	7.7	209.43	9.66	39.56	12.07
9/30/2024 8:20	11.93	183.8	0.09	7.69	210.63	9.67	24.8	12.09
9/30/2024 8:10	11.93	182.84	0.09	7.7	209.55	9.63	34.59	12.26
9/30/2024 8:00	11.94	184.78	0.09	7.7	209.11	9.59	26.36	12.19
9/30/2024 7:50	11.96	186.46	0.09	7.71	207.52	9.64	26.44	12.14
9/30/2024 7:40	11.97	188.46	0.09	7.7	209.26	9.68	26.7	12.14
9/30/2024 7:30	11.98	190.12	0.09	7.72	208.32	9.62	29.13	12.12
9/30/2024 7:20	11.99	194.68	0.09	7.72	206.36	9.57	26.33	12.12
9/30/2024 7:10	12	199.21	0.09	7.73	205.68	9.61	28.46	12.09
9/30/2024 7:00	11.98	202.39	0.1	7.74	203.75	9.66	32.5	12.07
9/30/2024 6:50	11.92	194.04	0.09	7.75	202	9.74	29.71	11.97
9/30/2024 6:40	11.78	172.58	0.08	7.78	202.86	9.87	30.99	12.05
9/30/2024 6:30	11.75	162.8	0.08	7.71	207.45	9.88	35.95	12.05
9/30/2024 6:20	12.03	173.45	0.08	7.69	208.92	9.71	29.8	12.02
9/30/2024 6:10	12.11	187.97	0.09	7.71	207.5	9.6	47.22	12.09
9/30/2024 6:00	12.13	191.31	0.09	7.71	209.28	9.63	15.83	12
9/30/2024 5:50	12.15	195.06	0.09	7.72	207.42	9.58	15.58	12.02
9/30/2024 5:40	12.15	199.84	0.09	7.73	205.61	9.62	16.56	12.09
9/30/2024 5:30	12.13	203.14	0.1	7.74	203.99	9.61	20.72	12.12
9/30/2024 5:20	12.1	198.83	0.09	7.74	203.74	9.69	18.46	12.12
9/30/2024 5:10	12	174.42	0.08	7.78	201.51	9.77	19.68	12.09
9/30/2024 5:00	12	172.79	0.08	7.77	201.02	9.78	30.64	12.12
9/30/2024 4:50	11.99	170.36	0.08	7.77	201.5	9.79	32.04	12.14
9/30/2024 4:40	11.99	161.65	0.08	7.73	205.3	9.83	29.49	12.12

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9/30/2024 4:30	12.15	185.16	0.09	7.73	205	9.59	49.9	12.02
9/30/2024 4:20	12.14	193.56	0.09	7.73	204.17	9.69	23.89	12.12
9/30/2024 4:10	12.02	161.44	0.08	7.73	205.18	9.78	31.15	12.14
9/30/2024 4:00	12.23	163.92	0.08	7.7	208.45	9.71	33.5	12.14
9/30/2024 3:50	12.34	193.43	0.09	7.72	207.02	9.53	23.71	12.14
9/30/2024 3:40	12.35	196.42	0.09	7.72	207.01	9.57	22.48	12.14
9/30/2024 3:30	12.36	201.21	0.1	7.74	205.43	9.53	25.02	12.17
9/30/2024 3:20	12.34	196.6	0.09	7.75	203.69	9.61	26.83	12.07
9/30/2024 3:10	12.31	185.33	0.09	7.75	203.81	9.67	34.45	12.17
9/30/2024 3:00	12.3	174.16	0.08	7.76	202.85	9.69	28.25	12.07
9/30/2024 2:50	12.32	172.61	0.08	7.76	203	9.69	29.58	12.05
9/30/2024 2:40	12.34	171.98	0.08	7.76	202.21	9.68	31.58	12.14
9/30/2024 2:30	12.36	173.54	0.08	7.76	202.08	9.69	33.51	12.19
9/30/2024 2:20	12.38	173.97	0.08	7.76	202.13	9.72	26.91	12.19
9/30/2024 2:10	12.4	172.53	0.08	7.76	201.13	9.68	25.71	12.09
9/30/2024 2:00	12.42	171.75	0.08	7.76	203.23	9.71	25.56	12.05
9/30/2024 1:50	12.44	170.06	0.08	7.76	203.1	9.67	25.33	12.07
9/30/2024 1:40	12.46	170.73	0.08	7.75	202.55	9.67	22.54	12.07
9/30/2024 1:30	12.48	169.37	0.08	7.76	201.45	9.66	27.82	12.09
9/30/2024 1:20	12.49	167.73	0.08	7.76	203.26	9.7	25.2	12.21
9/30/2024 1:10	12.51	169.7	0.08	7.75	202.52	9.64	37.21	12.21
9/30/2024 1:00	12.51	167.95	0.08	7.75	203.9	9.7	23.49	12.21
9/30/2024 0:50	12.48	160.68	0.08	7.72	204.66	9.65	110.78	12.21
9/30/2024 0:40	12.58	151.68	0.07	7.69	208.57	9.66	28.86	12.24
9/30/2024 0:30	12.7	187.8	0.09	7.7	207.4	9.46	23.25	12.14
9/30/2024 0:20	12.72	190.79	0.09	7.71	206.81	9.44	21.25	12.14
9/30/2024 0:10	12.74	194.76	0.09	7.72	206.33	9.45	21.87	12.24
9/30/2024 0:00	12.75	196.42	0.09	7.73	205.03	9.47	21.98	12.26