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

- Two batch discharges occurred on October 8th and October 11th, 2024.
- Water produced by the water treatment plant is being recirculated for tunneling and to create grout for tunneling.

Point of Discharge from Water Treatment System Monitoring

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

Table 3: Discharge from Water Treatment System Information

Location	Date of Discharge	Date of Lab Sample (for the discharge)	Real Time Monitored	Field Samples Taken	Discharge Rate (batch)	Discharge Volume (batch)	Results
BC Rail	2024-10-08	2024-09-30	N/A-batch	Yes- for Batch	130-150 GPM	125.54 m^3	Yes, Lab Results
BC Rail	2024-10-11	2024-10-09	N/A-batch	Yes- for Batch	200 GPM	126 m^3	Yes, Lab Results

*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	2024-10-07	Yes-Appendix C	438 m^3
Woodfibre	2024-10-08	Yes-Appendix C	354 m^3
Woodfibre	2024-10-09	Yes-Appendix C	330 m^3
Woodfibre	2024-10-10	Yes-Appendix C	325 m^3
Woodfibre	2024-10-11	Yes-Appendix C	260 m^3
Woodfibre	2024-10-12	Yes-Appendix C	202 m^3
Woodfibre	2024-10-13	Yes-Appendix C	217 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

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**BC Rail Batch Water Discharge Report**	**Revision:**	**0**
Data	**October 8th**	**Prepared by:** **Date:**	**SD** **October 15th**

On October 8th, FKM initiated a new batch discharge at the BC Rail site. The discharge began at 2:32 PM and concluded at 7:40 PM. A total of 33,164.23 US gallons (125.54 m^3) of water was discharged, with an average flow rate ranging between 130 and 150 GPM.

Table 1: Lab Sample

Client Sample ID			BCR WTP		
Date Sampled			30-Sep-2024		
Time Sampled			10:00		
ALS Sample ID			VA24C5929-001		
Analyte	Lowest Detection Limit	Units	Sub-Matrix: Water	FAL-ST	MAL-ST
Field Tests (Matrix: Water)					
Temperature, field	0.10	°C	17.0		
pH, field	0.10	pH units	7.30		
Physical Tests (Matrix: Water)					
Conductivity	2.0	µS/cm	748		
Alkalinity, bicarbonate (as CaCO3)	2.0	mg/L	256		
Alkalinity, carbonate (as CaCO3)	2.0	mg/L	<2.0		
Alkalinity, hydroxide (as CaCO3)	2.0	mg/L	<2.0		
Alkalinity, phenolphthalein (as CaCO3)	2.0	mg/L	<2.0		
Alkalinity, total (as CaCO3)	2.0	mg/L	256		
Hardness (as CaCO3), dissolved	0.60	mg/L	<0.60		
Hardness (as CaCO3), from total Ca/Mg	0.60	mg/L	<0.60		
Oxidation-reduction potential [ORP]	0.10	mV	208		
Solids, total dissolved [TDS]	10	mg/L	436		
Solids, total suspended [TSS]	3.0	mg/L	<3.0		
Turbidity	0.10	NTU	0.44		
pH	0.10	pH units	7.55		
Anions and Nutrients (Matrix: Water)					

Ammonia, total (as N)	0.0050	mg/L	<0.0050	20.3	131
Bromide	0.050	mg/L	<0.250		
Chloride	0.50	mg/L	58.4	600	
Fluoride	0.020	mg/L	0.190	0.669	1.5
Nitrate (as N)	0.0050	mg/L	0.112	32.8	
Nitrite (as N)	0.0010	mg/L	<0.0050	0.06	
Nitrogen, total	0.030	mg/L	0.861		
Phosphorus, total	0.0020	mg/L	0.0132		
Sulfate (as SO4)	0.30	mg/L	46.7		
Ammonium (as NH4), field	0.0010	mg/L	<0.0032		
Organic / Inorganic Carbon (Matrix: Water)					
Carbon, dissolved organic [DOC]	0.50	mg/L	3.41		
Carbon, total organic [TOC]	0.50	mg/L	4.09		
Total Metals (Matrix: Water)					
Aluminum, total	0.0030	mg/L	<0.0030		
Antimony, total	0.00010	mg/L	0.00141	0.25	
Arsenic, total	0.00010	mg/L	0.00164		
Barium, total	0.00010	mg/L	0.00015		
Beryllium, total	0.000100	mg/L	<0.000100		
Bismuth, total	0.000050	mg/L	<0.000050		
Boron, total	0.010	mg/L	0.152		
Cadmium, total	0.0000050	mg/L	<0.0000050		
Calcium, total	0.050	mg/L	<0.050		
Cesium, total	0.000010	mg/L	0.000038		
Chromium, total	0.00050	mg/L	<0.00050		
Cobalt, total	0.00010	mg/L	<0.00010	0.11	
Copper, total	0.00050	mg/L	0.00208		0.003
Iron, total	0.010	mg/L	<0.010	1	
Lead, total	0.000050	mg/L	0.000141	0.0099	0.14
Lithium, total	0.0010	mg/L	0.0051		
Magnesium, total	0.0050	mg/L	0.0071		
Manganese, total	0.00010	mg/L	0.00041	0.715	
Mercury, total	0.0000050	mg/L	<0.0000050		
Molybdenum, total	0.000050	mg/L	0.0392	46	
Nickel, total	0.00050	mg/L	0.00065		

Phosphorus, total	0.050	mg/L	<0.050		
Potassium, total	0.050	mg/L	2.97		
Rubidium, total	0.00020	mg/L	0.00346		
Selenium, total	0.000050	mg/L	0.000302		
Silicon, total	0.10	mg/L	6.11		
Silver, total	0.000010	mg/L	<0.000010	0.0001	0.003
Sodium, total	0.050	mg/L	182		
Strontium, total	0.00020	mg/L	<0.00020		
Sulfur, total	0.50	mg/L	17.6		
Tellurium, total	0.00020	mg/L	<0.00020		
Thallium, total	0.000010	mg/L	<0.000010		
Thorium, total	0.00010	mg/L	<0.00010		
Tin, total	0.00010	mg/L	<0.00010		
Titanium, total	0.00030	mg/L	<0.00030		
Tungsten, total	0.00010	mg/L	0.00165		
Uranium, total	0.000010	mg/L	<0.000010		
Vanadium, total	0.00050	mg/L	<0.00050		
Zinc, total	0.0030	mg/L	0.0035		0.055
Zirconium, total	0.00020	mg/L	<0.00020		
Dissolved Metals (Matrix: Water)					
Aluminum, dissolved	0.0010	mg/L	<0.0010		
Antimony, dissolved	0.00010	mg/L	0.00139		
Arsenic, dissolved	0.00010	mg/L	0.00163		
Barium, dissolved	0.00010	mg/L	0.00010		
Beryllium, dissolved	0.000100	mg/L	<0.000100		
Bismuth, dissolved	0.000050	mg/L	<0.000050		
Boron, dissolved	0.010	mg/L	0.135		
Cadmium, dissolved	0.0000050	mg/L	<0.0000100	0.000107	
Calcium, dissolved	0.050	mg/L	<0.050		
Cesium, dissolved	0.000010	mg/L	0.000042		
Chromium, dissolved	0.00050	mg/L	<0.00050		
Cobalt, dissolved	0.00010	mg/L	<0.00010		
Copper, dissolved	0.00020	mg/L	0.00188	0.005	
Iron, dissolved	0.010	mg/L	<0.010		
Lead, dissolved	0.000050	mg/L	0.000109		
Lithium, dissolved	0.0010	mg/L	0.0048		

Magnesium, dissolved	0.0050	mg/L	0.0053		
Manganese, dissolved	0.00010	mg/L	0.00031		
Mercury, dissolved	0.0000050	mg/L	<0.0000050		
Molybdenum, dissolved	0.000050	mg/L	0.0378		
Nickel, dissolved	0.00050	mg/L	0.00060		
Phosphorus, dissolved	0.050	mg/L	<0.050		
Potassium, dissolved	0.050	mg/L	2.86		
Rubidium, dissolved	0.00020	mg/L	0.00344		
Selenium, dissolved	0.000050	mg/L	0.000377		
Silicon, dissolved	0.050	mg/L	6.02		
Silver, dissolved	0.000010	mg/L	<0.000010		
Sodium, dissolved	0.050	mg/L	174		
Strontium, dissolved	0.00020	mg/L	<0.00020		
Sulfur, dissolved	0.50	mg/L	16.5		
Tellurium, dissolved	0.00020	mg/L	<0.00020		
Thallium, dissolved	0.000010	mg/L	<0.000010		
Thorium, dissolved	0.00010	mg/L	<0.00010		
Tin, dissolved	0.00010	mg/L	<0.00010		
Titanium, dissolved	0.00030	mg/L	<0.00030		
Tungsten, dissolved	0.00010	mg/L	0.00156		
Uranium, dissolved	0.000010	mg/L	<0.000010		
Vanadium, dissolved	0.00050	mg/L	<0.00050		
Zinc, dissolved	0.0010	mg/L	0.0029	0.009	
Zirconium, dissolved	0.00020	mg/L	<0.00020		
Dissolved mercury filtration location			Laboratory		
Dissolved metals filtration location			Laboratory		
Aggregate Organics (Matrix: Water)					
Phenols, total (4AAP)	0.0010	mg/L	<0.0010		
Volatile Organic Compounds (Matrix: Water)					
Chlorobenzene	0.50	µg/L	<0.50		
Chloromethane	5.0	µg/L	<5.0		
Dichlorobenzene, 1,2-	0.50	µg/L	<0.50		
Dichlorobenzene, 1,3-	0.50	µg/L	<0.50		
Dichlorobenzene, 1,4-	0.50	µg/L	<0.50		
Dichloropropane, 1,2-	0.50	µg/L	<0.50		

Dichloropropylene, cis+trans-1,3-	0.75	µg/L	<0.75		
Dichloropropylene, cis-1,3-	0.50	µg/L	<0.50		
Tetrachloroethane, 1,1,1,2-	0.50	µg/L	<0.50		
Tetrachloroethane, 1,1,2,2-	0.20	µg/L	<0.20		
Trichloroethane, 1,1,2-	0.50	µg/L	<0.50		
Trichlorofluoromethane	0.50	µg/L	<0.50		
Volatile Organic Compounds [Drycleaning] (Matrix: Water)					
Carbon tetrachloride	0.50	µg/L	<0.50		
Chloroethane	0.50	µg/L	<0.50		
Dichloroethane, 1,1-	0.50	µg/L	<0.50		
Dichloroethane, 1,2-	0.50	µg/L	<0.50		
Dichloroethylene, 1,1-	0.50	µg/L	<0.50		
Dichloroethylene, cis-1,2-	0.50	µg/L	<0.50		
Dichloroethylene, trans-1,2-	0.50	µg/L	<0.50		
Dichloromethane	1.0	µg/L	<1.0		
Dichloropropylene, trans-1,3-	0.50	µg/L	<0.50		
Tetrachloroethylene	0.50	µg/L	<0.50		
Trichloroethane, 1,1,1-	0.50	µg/L	<0.50		
Trichloroethylene	0.50	µg/L	<0.50		
Vinyl chloride	0.40	µg/L	<0.40		
Volatile Organic Compounds [Fuels] (Matrix: Water)					
Benzene	0.50	µg/L	<0.50		
Ethylbenzene	0.50	µg/L	<0.50		
Methyl-tert-butyl ether [MTBE]	0.50	µg/L	<0.50		
Styrene	0.50	µg/L	<0.50		
Toluene	0.40	µg/L	<0.40		
Xylene, m+p-	0.40	µg/L	<0.40		
Xylene, o-	0.30	µg/L	<0.30		
Xylenes, total	0.50	µg/L	<0.50		
Volatile Organic Compounds [THMs] (Matrix: Water)					
Bromodichloromethane	0.50	µg/L	<0.50		
Bromoform	0.50	µg/L	<0.50		
Chloroform	0.50	µg/L	<0.50		

Dibromochloromethane	0.50	µg/L	<0.50		
Hydrocarbons (Matrix: Water)					
EPH (C10-C19)	250	µg/L	<250		
EPH (C19-C32)	250	µg/L	<250		
LEPHw	250	µg/L	<250		
HEPHw	250	µg/L	<250		
Hydrocarbons Surrogates (Matrix: Water)					
Bromobenzotrifluoride, 2- (EPH surrogate)	1.0	%	82.2		
Volatile Organic Compounds Surrogates (Matrix: Water)					
Bromofluorobenzene, 4-	1.0	%	83.3		
Difluorobenzene, 1,4-	1.0	%	97.7		
Polycyclic Aromatic Hydrocarbons (Matrix: Water)					
Acenaphthene	0.010	µg/L	0.013		
Acenaphthylene	0.010	µg/L	<0.010		
Acridine	0.010	µg/L	0.018		
Anthracene	0.010	µg/L	<0.019		
Benz(a)anthracene	0.010	µg/L	<0.010		
Benzo(a)pyrene	0.0050	µg/L	<0.0050		
Benzo(b+j)fluoranthene	0.010	µg/L	<0.010		
Benzo(b+j+k)fluoranthene	0.015	µg/L	<0.015		
Benzo(g,h,i)perylene	0.010	µg/L	<0.010		
Benzo(k)fluoranthene	0.010	µg/L	<0.010		
Chrysene	0.010	µg/L	<0.010		
Dibenz(a,h)anthracene	0.0050	µg/L	<0.0050		
Fluoranthene	0.010	µg/L	0.045		
Fluorene	0.010	µg/L	0.023		
Indeno(1,2,3-c,d)pyrene	0.010	µg/L	<0.010		
Methylnaphthalene, 1-	0.010	µg/L	<0.010		
Methylnaphthalene, 2-	0.010	µg/L	<0.010		
Naphthalene	0.050	µg/L	<0.050		
Phenanthrene	0.020	µg/L	0.146		
Pyrene	0.010	µg/L	0.032		

Quinoline	0.050	µg/L	<0.050		
Polycyclic Aromatic Hydrocarbons Surrogates (Matrix: Water)					
Chrysene-d12	0.1	%	102		
Naphthalene-d8	0.1	%	96.2		
Phenanthrene-d10	0.1	%	102		
Glycols (Matrix: Water)					
Diethylene glycol	5.0	mg/L	<5.0		
Ethylene glycol	5.0	mg/L	<5.0		
Propylene glycol, 1,2-	5.0	mg/L	<5.0		
Triethylene glycol	5.0	mg/L	<5.0		
Glycols, total (EG+DEG+PG)	10	mg/L	<10		
Glycols Surrogates (Matrix: Water)					
Propanediol, 1,3-	1.0	%	86.4		

Table 2: Calculation the guideline

Parameters Used to Calculate Guidelines	PH	Temp	Hardness	DOC
	7.3	10	17.8	<0.5

Table 2: In-Situ Sample

Date	Time	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	Salinity (ppt)	PH	ORP (mV)	NTU	Visible sheen
10/08/2024	02:37:31 PM	15.7	680	9.50	0.33	7.41	60.3	4.37	No

Photos:

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**BC Rail Batch Water Discharge Report**	**Revision:**	**0**
Data	**October 8th**	**Prepared by:** **Date:**	**SD** **October 15th**

Photo 1: No visible sheen observed

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**BC Rail Batch Water Discharge Report**	**Revision:**	**0**
Data	**October 11th**	**Prepared by:** **Date:**	**SD** **October 18th**

On October 15th, FKM initiated a new batch discharge at the BC Rail site. The discharge began at 12:32 PM and concluded at 4:30 PM. A total of 33,337.797 US gallons (126.01 m^3) of water was discharged, with an average flow rate ranging between 200 and 220 GPM.

Table 1: Lab Sample

Client Sample ID		BCR WTP		
Date Sampled		09-Oct-2024		
Time Sampled		17:00		
ALS Sample ID		VA24C6975-001		
Analyte	Units	Sub-Matrix: Water	FAL-ST	MAL-ST
Field Tests (Matrix: Water)				
Temperature, field	°C	15.7		
pH, field	pH units	7.30		
Physical Tests (Matrix: Water)				
Conductivity	µS/cm	630		
Alkalinity, bicarbonate (as CaCO3)	mg/L	170		
Alkalinity, carbonate (as CaCO3)	mg/L	<2.0		
Alkalinity, hydroxide (as CaCO3)	mg/L	<2.0		
Alkalinity, phenolphthalein (as CaCO3)	mg/L	<2.0		
Alkalinity, total (as CaCO3)	mg/L	170		
Hardness (as CaCO3), dissolved	mg/L	<0.60		
Hardness (as CaCO3), from total Ca/Mg	mg/L	<0.60		
Oxidation-reduction potential [ORP]	mV	156		
Solids, total dissolved [TDS]	mg/L	389		
Solids, total suspended [TSS]	mg/L	<3.0		
Turbidity	NTU	0.92		
pH	pH units	7.91		

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**BC Rail Batch Water Discharge Report**	**Revision:**	**0**
Data	**October 11th**	**Prepared by:** **Date:**	**SD** **October 18th**

Anions and Nutrients (Matrix: Water)				
Ammonia, total (as N)	mg/L	0.0863	20.3	131
Bromide	mg/L	<0.050		
Chloride	mg/L	63.1	600	
Fluoride	mg/L	0.126	0.669	1.5
Nitrate (as N)	mg/L	0.356	32.8	
Nitrite (as N)	mg/L	<0.0010	0.06	
Nitrogen, total	mg/L	1.15		
Phosphorus, total	mg/L	0.0093		
Sulfate (as SO4)	mg/L	50.2		
Ammonium (as NH4), field	mg/L	0.110		
Organic / Inorganic Carbon (Matrix: Water)				
Carbon, dissolved organic [DOC]	mg/L	4.14		
Carbon, total organic [TOC]	mg/L	4.97		
Total Metals (Matrix: Water)				
Aluminum, total	mg/L	<0.0030		
Antimony, total	mg/L	0.00137	0.25	
Arsenic, total	mg/L	0.00131		
Barium, total	mg/L	0.00013		
Beryllium, total	mg/L	<0.000100		
Bismuth, total	mg/L	<0.000050		
Boron, total	mg/L	0.135		
Cadmium, total	mg/L	<0.0000150		
Calcium, total	mg/L	<0.050		
Cesium, total	mg/L	0.000035		
Chromium, total	mg/L	<0.00050		
Cobalt, total	mg/L	<0.00010	0.11	
Copper, total	mg/L	0.00119		0.003
Iron, total	mg/L	<0.010	1	
Lead, total	mg/L	0.000117	0.0099	0.14
Lithium, total	mg/L	0.0037		
Magnesium, total	mg/L	0.0074		
Manganese, total	mg/L	0.00045	0.715	
Mercury, total	mg/L	<0.0000050		
Molybdenum, total	mg/L	0.0403	46	

Nickel, total	mg/L	0.00072		
Phosphorus, total	mg/L	<0.050		
Potassium, total	mg/L	3.05		
Rubidium, total	mg/L	0.00359		
Selenium, total	mg/L	0.000365		
Silicon, total	mg/L	5.07		
Silver, total	mg/L	<0.000010	0.0001	0.003
Sodium, total	mg/L	129		
Strontium, total	mg/L	<0.00020		
Sulfur, total	mg/L	18.7		
Tellurium, total	mg/L	<0.00020		
Thallium, total	mg/L	<0.000010		
Thorium, total	mg/L	<0.00010		
Tin, total	mg/L	<0.00010		
Titanium, total	mg/L	<0.00030		
Tungsten, total	mg/L	0.00080		
Uranium, total	mg/L	<0.000010		
Vanadium, total	mg/L	<0.00050		
Zinc, total	mg/L	<0.0030		0.055
Zirconium, total	mg/L	<0.00020		
Dissolved Metals (Matrix: Water)				
Aluminum, dissolved	mg/L	<0.0010		
Antimony, dissolved	mg/L	0.00139		
Arsenic, dissolved	mg/L	0.00135		
Barium, dissolved	mg/L	0.00014		
Beryllium, dissolved	mg/L	<0.000100		
Bismuth, dissolved	mg/L	<0.000050		
Boron, dissolved	mg/L	0.143		
Cadmium, dissolved	mg/L	<0.0000150	0.000107	
Calcium, dissolved	mg/L	0.056		
Cesium, dissolved	mg/L	0.000035		
Chromium, dissolved	mg/L	<0.00050		
Cobalt, dissolved	mg/L	<0.00010		
Copper, dissolved	mg/L	0.00114	0.005	
Iron, dissolved	mg/L	<0.010		
Lead, dissolved	mg/L	0.000092		

Lithium, dissolved	mg/L	0.0038		
Magnesium, dissolved	mg/L	0.0079		
Manganese, dissolved	mg/L	0.00044		
Mercury, dissolved	mg/L	<0.0000050		
Molybdenum, dissolved	mg/L	0.0412		
Nickel, dissolved	mg/L	0.00145		
Phosphorus, dissolved	mg/L	<0.050		
Potassium, dissolved	mg/L	3.23		
Rubidium, dissolved	mg/L	0.00352		
Selenium, dissolved	mg/L	0.000444		
Silicon, dissolved	mg/L	5.10		
Silver, dissolved	mg/L	<0.000010		
Sodium, dissolved	mg/L	136		
Strontium, dissolved	mg/L	<0.00020		
Sulfur, dissolved	mg/L	18.4		
Tellurium, dissolved	mg/L	<0.00020		
Thallium, dissolved	mg/L	<0.000010		
Thorium, dissolved	mg/L	<0.00010		
Tin, dissolved	mg/L	<0.00010		
Titanium, dissolved	mg/L	<0.00030		
Tungsten, dissolved	mg/L	0.00081		
Uranium, dissolved	mg/L	<0.000010		
Vanadium, dissolved	mg/L	<0.00050		
Zinc, dissolved	mg/L	0.0024	0.009	
Zirconium, dissolved	mg/L	<0.00020		
Dissolved mercury filtration location		Laboratory		
Dissolved metals filtration location		Laboratory		
Aggregate Organics (Matrix: Water)				
Phenols, total (4AAP)	mg/L	<0.0010		
Volatile Organic Compounds (Matrix: Water)				
Chlorobenzene	µg/L	<0.50		
Chloromethane	µg/L	<5.0		
Dichlorobenzene, 1,2-	µg/L	<0.50		
Dichlorobenzene, 1,3-	µg/L	<0.50		
Dichlorobenzene, 1,4-	µg/L	<0.50		

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		
Volatile Organic Compounds [Drycleaning] (Matrix: Water)				
Carbon tetrachloride	µg/L	<0.50		
Chloroethane	µg/L	<0.50		
Dichloroethane, 1,1-	µg/L	<0.50		
Dichloroethane, 1,2-	µg/L	<0.50		
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	<1.0		
Dichloropropylene, trans-1,3-	µg/L	<0.50		
Tetrachloroethylene	µg/L	<0.50		
Trichloroethane, 1,1,1-	µg/L	<0.50		
Trichloroethylene	µg/L	<0.50		
Vinyl chloride	µg/L	<0.40		
Volatile Organic Compounds [Fuels] (Matrix: Water)				
Benzene	µg/L	<0.50		
Ethylbenzene	µg/L	<0.50		
Methyl-tert-butyl ether [MTBE]	µg/L	<0.50		
Styrene	µg/L	<0.50		
Toluene	µg/L	<0.40		
Xylene, m+p-	µg/L	<0.40		
Xylene, o-	µg/L	<0.30		
Xylenes, total	µg/L	<0.50		
Volatile Organic Compounds [THMs] (Matrix: Water)				
Bromodichloromethane	µg/L	<0.50		
Bromoform	µg/L	<0.50		

Chloroform	µg/L	<0.50		
Dibromochloromethane	µg/L	<0.50		
Hydrocarbons (Matrix: Water)				
EPH (C10-C19)	µg/L	<250		
EPH (C19-C32)	µg/L	<250		
VHw (C6-C10)	µg/L	<100		
LEPHw	µg/L	<250		
VPHw	µg/L	<100		
HEPHw	µg/L	<250		
Hydrocarbons Surrogates (Matrix: Water)				
Bromobenzotrifluoride, 2- (EPH surrogate)	%	84.2		
Dichlorotoluene, 3,4-	%	107		
Volatile Organic Compounds Surrogates (Matrix: Water)				
Bromofluorobenzene, 4-	%	99.8		
Difluorobenzene, 1,4-	%	98.4		
Polycyclic Aromatic Hydrocarbons (Matrix: Water)				
Acenaphthene	µg/L	<0.010		
Acenaphthylene	µg/L	<0.010		
Acridine	µg/L	<0.010		
Anthracene	µg/L	<0.010		
Benz(a)anthracene	µg/L	<0.010		
Benzo(a)pyrene	µg/L	<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	<0.010		
Dibenz(a,h)anthracene	µg/L	<0.0050		
Fluoranthene	µg/L	<0.010		
Fluorene	µg/L	<0.010		
Indeno(1,2,3-c,d)pyrene	µg/L	<0.010		
Methylnaphthalene, 1-	µg/L	<0.010		

Methylnaphthalene, 2-	µg/L	<0.010		
Naphthalene	µg/L	<0.050		
Phenanthrene	µg/L	<0.020		
Pyrene	µg/L	<0.010		
Quinoline	µg/L	<0.050		

Table 2: Calculation the guideline

Parameters Used to Calculate Guidelines	PH	Temp	Hardness	DOC
	7.3	10	17.8	<0.5

Table 2: In-Situ Sample

Date	Time	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	Salinity (ppt)	PH	ORP (mV)	NTU	Visible sheen
10/11/2024	02:37:31 PM	17.2	608	8.29	0.30	7.48	222.5	4.77	No

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**BC Rail Batch Water Discharge Report**	**Revision:**	**0**
Data	**October 11th**	**Prepared by:** **Date:**	**SD** **October 18th**

Photos:

Photo 1: No visible sheen observed

BCR Site Batch Sample Lab Documentation

No Discharges

CERTIFICATE OF ANALYSIS

Work Order	:	**VA24C5929**			
Amendment	:	**1**			
Client	:	**Frontier-Kemper Michels Joint Venture**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Sara Derakhshi	Account Manager	:	Thomas Chang
Address	:	404-850 Harbourside Drive North Vancouver British Columbia Canada V7P 0A3	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	:	+1 604 253 4188
Project	:	----	Date Samples Received	:	30-Sep-2024 13:00
PO	:	----	Date Analysis Commenced	:	01-Oct-2024
C-O-C number	:	20-970465	Issue Date	:	07-Oct-2024 15:31
Sampler	:	----			
Site	:	BCR			
Quote number	:	WTP Discharge			
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*
Daniel Shabestani	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Jing Liu	Laboratory Analyst	Inorganics, Edmonton, Alberta
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Organics, Burnaby, British Columbia
Thomas Chang	Account Manager	Administration, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	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
µg/L	micrograms per litre
°C	degrees celsius
pH units	pH units
NTU	nephelometric turbidity units
mV	millivolts
µS/cm	microsiemens per centimetre
-	no units

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

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

Workorder Comments

Amendment (07/10/2024): This report has been amended and re-released to allow the reporting of additional analytical data.

Sample Comments

Sample	*Client Id*	*Comment*
VA24C5929-001	BCR WTP	Water sample for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptance criteria.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	BCR WTP	----	----	----	----
				Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C5929-001	----	----	----	----
					Result	----	----	----	----
Field Tests									
pH, field	----	EF001/VA	0.10	pH units	7.30	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	17.0	----	----	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	2.0	mg/L	256	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	256	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	748	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	<0.60	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	<0.60	----	----	----	----
Oxidation-reduction potential [ORP]	----	E125/VA	0.10	mV	208	----	----	----	----
pH	----	E108/VA	0.10	pH units	7.55	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	436	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.44	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	----	----	----	----
Ammonium (as NH4), field	14798-03-9	EC298A/VA	0.0010	mg/L	<0.0032	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.250 DLDS	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	58.4	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					BCR WTP	----	----	----	----
					Client sampling date / time				
					30-Sep-2024 10:00	----	----	----	----
					VA24C5929-001	----	----	----	----
					Result	----	----	----	----
Anions and Nutrients									
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.190	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.112	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0050 DLDS	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L	0.861	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0132	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	46.7	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	3.41	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	4.09	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	<0.0030	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00141	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00164	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00015	----	----	----	----
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	0.152	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	<0.050	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000038	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
						VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00208	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		<0.010	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000141	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0051	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.0071	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00041	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.0392	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00065	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.97	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00346	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000302	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		6.11	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		182	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		17.6	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
						VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00165	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0035	----	----	----	----
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		<0.0010	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		0.00139	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00163	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00010	----	----	----	----
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		0.135	----	----	----	----
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		<0.050	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000042	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
						VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Dissolved Metals										
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00188	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		<0.010	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000109	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0048	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.0053	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00031	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0378	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00060	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		2.86	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00344	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000377	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		6.02	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		174	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		16.5	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					BCR WTP	----	----	----	----
					Client sampling date / time				
					30-Sep-2024 10:00	----	----	----	----
					VA24C5929-001	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	0.00156	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0029	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Laboratory	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Laboratory	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
						VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
						VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds [Fuels]										
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	----	----	----	----
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	----	----	----	----
HEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
LEPHw	----	EC600A/VA	250	µg/L		<250	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		82.2	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		83.3	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		97.7	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
						VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		0.013	----	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		0.018	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.019 DLQ	----	----	----	----
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		0.045	----	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		0.023	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		0.146	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		0.032	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	30-Sep-2024 10:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C5929-001	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		102	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		96.2	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		102	----	----	----	----
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	%		86.4	----	----	----	----

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 REPORT

Work Order	: **VA24C5929**	Page	: 1 of 23
Amendment	: **1**		
Client	: Frontier-Kemper Michels Joint Venture	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 30-Sep-2024 13:00
PO	: ----	Date Analysis Commenced	: 01-Oct-2024
C-O-C number	: 20-970465	Issue Date	: 07-Oct-2024 15:31
Sampler	: ----		
Site	: BCR		
Quote number	: WTP Discharge		
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
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Daniel Shabestani	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Jing Liu	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Organics, Burnaby, British Columbia
Thomas Chang	Account Manager	Vancouver Administration, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	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: 1682296)											
FJ2402881-001	Anonymous	Turbidity	----	E121	0.10	NTU	2.37	2.38	0.422%	15%	----
Physical Tests (QC Lot: 1682486)											
VA24C5213-004	Anonymous	Conductivity	----	E100	2.0	µS/cm	308	308	0.00%	10%	----
Physical Tests (QC Lot: 1682487)											
VA24C5213-004	Anonymous	pH	----	E108	0.10	pH units	8.32	8.32	0.00%	4%	----
Physical Tests (QC Lot: 1682488)											
VA24C5213-004	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	155	154	0.129%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	3.8	3.8	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	1.9	1.9	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	158	158	0.126%	20%	----
Physical Tests (QC Lot: 1684207)											
VA24C5929-001	BCR WTP	Oxidation-reduction potential [ORP]	----	E125	0.10	mV	208	218	4.41%	15%	----
Physical Tests (QC Lot: 1684429)											
FJ2402920-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	100	93	6	Diff <2x LOR	----
Physical Tests (QC Lot: 1684449)											
FJ2402920-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1683476)											
FJ2402920-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0088	0.0085	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689194)											
VA24C5929-001	BCR WTP	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.190	0.170	0.020	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689195)											
VA24C5929-001	BCR WTP	Chloride	16887-00-6	E235.Cl	2.50	mg/L	58.4	58.1	0.501%	20%	----
Anions and Nutrients (QC Lot: 1689196)											
VA24C5929-001	BCR WTP	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689197)											
VA24C5929-001	BCR WTP	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.112	0.106	0.0060	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689198)											
VA24C5929-001	BCR WTP	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	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*
Anions and Nutrients (QC Lot: 1689199)											
VA24C5929-001	BCR WTP	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	46.7	46.4	0.646%	20%	----
Anions and Nutrients (QC Lot: 1689264)											
VA24C5929-001	BCR WTP	Nitrogen, total	7727-37-9	E366	0.150	mg/L	0.861	0.826	0.035	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1689265)											
VA24C5929-001	BCR WTP	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0132	0.0127	0.0005	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1689485)											
VA24C5929-001	BCR WTP	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.09	3.72	0.37	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1689486)											
VA24C5929-001	BCR WTP	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.41	3.80	0.38	Diff <2x LOR	----
Total Metals (QC Lot: 1682613)											
FJ2402920-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0729	0.0733	0.514%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00024	0.00024	0.000002	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0350	0.0355	1.32%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	0.000057	0.000051	0.000006	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	0.0000552	0.0000565	2.33%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	29.6	29.6	0.0518%	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	0.00172	0.00170	0.00002	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00043	0.00043	0.0000002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.0154	0.0153	0.719%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.122	0.126	3.50%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.0141	0.0140	0.504%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0038	0.0036	0.0001	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	6.75	6.82	1.08%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00613	0.00601	1.86%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000798	0.000847	6.02%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00278	0.00282	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	0.659	0.660	0.132%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00048	0.00046	0.00002	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000276	0.000302	0.000026	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: 1682613) - continued											
FJ2402920-001	Anonymous	Silicon, total	7440-21-3	E420	0.10	mg/L	1.90	1.96	3.11%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	1.32	1.34	1.04%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.102	0.113	10.1%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	5.57	6.12	9.48%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	0.00032	0.00030	0.00002	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00068	0.00078	0.00010	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	0.000474	0.000485	2.24%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0326	0.0318	2.68%	20%	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1686138)											
VA24C5153-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000120	0.0000129	0.0000009	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1682732)											
VA24C5917-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	0.0023	0.0021	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	0.00032	0.00036	0.00004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.132	0.130	1.29%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	0.0000110	0.0000115	0.0000005	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.100	mg/L	300	294	1.86%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	0.0123	0.0123	0.104%	20%	----
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	0.0027	0.0027	0.00004	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: 1682732) - continued											
VA24C5917-001	Anonymous	Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	62.1	63.0	1.51%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.00037	0.00037	0.000004	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.00171	0.00186	8.92%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	4.56	4.52	0.910%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00040	mg/L	0.00344	0.00326	0.00018	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	0.00272	0.00267	1.86%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	12.7	12.8	0.805%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	17.9	17.6	1.31%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	1.39	1.46	4.90%	20%	----
		Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	251	250	0.0958%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	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	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.00507	0.00538	6.03%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	0.00321	0.00323	0.00001	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1684523)											
VA24C5929-001	BCR WTP	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1692544)											
CG2414531-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1689388)											
VA24C5929-001	BCR WTP	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	----

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: 1689388) - continued											
VA24C5929-001	BCR WTP	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	----
		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	----
Glycols (QC Lot: 1694646)											
VA24C5929-001	BCR WTP	Diethylene glycol	111-46-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Ethylene glycol	107-21-1	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Propylene glycol, 1,2-	57-55-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Triethylene glycol	112-27-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1682296)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1682486)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1682488)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1684429)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1684449)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1683476)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1689194)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1689195)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1689196)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1689197)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1689198)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1689199)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1689264)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1689265)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1689485)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1689486)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1682613)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1682613) - continued						
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	----
Total Metals (QCLot: 1686138)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1682732)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1682732) - continued						
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: 1684523)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 1692544)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1689388)						
Benzene	71-43-2	E611C	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611C	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	<0.50	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611C	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611C	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611C	5	µg/L	<5.0	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1689388) - continued						
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611C	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	<0.20	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611C	0.4	µg/L	<0.40	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	<0.40	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1694647)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1694648)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1694648) - continued						
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----
Glycols (QCLot: 1694646)						
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: 1682296)									
Turbidity	----	E121	0.1	NTU	200 NTU	96.0	85.0	115	----
Physical Tests (QCLot: 1682486)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	97.9	90.0	110	----
Physical Tests (QCLot: 1682487)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1682488)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	110	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1684429)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1684449)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1683476)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	92.6	85.0	115	----
Anions and Nutrients (QCLot: 1689194)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 1689195)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1689196)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 1689197)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1689198)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1689199)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1689264)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	96.5	75.0	125	----
Anions and Nutrients (QCLot: 1689265)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	90.5	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
Organic / Inorganic Carbon (QCLot: 1689485)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	98.2	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1689486)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.7	80.0	120	----
Total Metals (QCLot: 1682613)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	102	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	94.8	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	98.9	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	104	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	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.8	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	111	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	108	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.4	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.4	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	90.2	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	109	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1682613) - continued									
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	99.1	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	111	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	107	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	110	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.7	80.0	120	----
Total Metals (QCLot: 1686138)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	102	80.0	120	----
Dissolved Metals (QCLot: 1682732)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.3	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.0	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.4	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.5	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	96.1	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.6	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.9	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.4	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	110	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	96.1	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1682732) - continued									
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	98.6	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	103	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	106	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	97.0	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.4	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	109	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	106	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	97.2	80.0	120	----
Aggregate Organics (QCLot: 1692544)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	97.4	85.0	115	----
Volatile Organic Compounds (QCLot: 1689388)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	95.8	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	87.8	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	93.2	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	94.5	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	104	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	89.0	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	88.1	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	93.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	90.5	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	90.7	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	91.9	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	91.6	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	90.2	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	87.3	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: 1689388) - continued									
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	90.8	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	88.7	70.0	130	----
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	90.4	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	98.6	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	93.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	97.7	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	91.6	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	93.0	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	95.9	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	91.9	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	86.7	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	94.4	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	90.3	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	92.4	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	84.4	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	64.8	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	88.7	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	96.8	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	92.9	70.0	130	----
Hydrocarbons (QCLot: 1694647)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	120	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	123	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1694648)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	103	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	129	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	110	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: 1694648) - continued									
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	110	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	110	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	110	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	117	60.0	130	----
Glycols (QCLot: 1694646)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	90.5	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	90.2	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	90.9	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	91.2	70.0	130	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1683476)										
FJ2402920-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0933 mg/L	0.1 mg/L	93.3	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1689485)										
VA24C6388-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.04 mg/L	5 mg/L	101	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1689486)										
VA24C6388-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.00 mg/L	5 mg/L	100.0	70.0	130	----
Total Metals (QCLot: 1682613)										
FJ2402920-002	Anonymous	Aluminum, total	7429-90-5	E420	0.197 mg/L	0.2 mg/L	98.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0185 mg/L	0.02 mg/L	92.7	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00892 mg/L	0.01 mg/L	89.2	70.0	130	----
		Boron, total	7440-42-8	E420	0.092 mg/L	0.1 mg/L	92.6	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00946 mg/L	0.01 mg/L	94.6	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Copper, total	7440-50-8	E420	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Iron, total	7439-89-6	E420	1.88 mg/L	2 mg/L	93.9	70.0	130	----
		Lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0969 mg/L	0.1 mg/L	96.9	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, total	7440-09-7	E420	3.68 mg/L	4 mg/L	91.9	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	----
		Silicon, total	7440-21-3	E420	9.21 mg/L	10 mg/L	92.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.00384 mg/L	0.004 mg/L	96.0	70.0	130	----
		Sodium, total	7440-23-5	E420	1.97 mg/L	2 mg/L	98.7	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	18.4 mg/L	20 mg/L	92.1	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0196 mg/L	0.02 mg/L	98.0	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: 1682613) - continued										
FJ2402920-002	Anonymous	Tin, total	7440-31-5	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0395 mg/L	0.04 mg/L	98.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00384 mg/L	0.004 mg/L	96.0	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.407 mg/L	0.4 mg/L	102	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	----
Total Metals (QCLot: 1686138)										
VA24C5298-001	Anonymous	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1682732)										
VA24C5917-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.384 mg/L	0.4 mg/L	96.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0409 mg/L	0.04 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	0.0724 mg/L	0.08 mg/L	90.5	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0171 mg/L	0.02 mg/L	85.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.170 mg/L	0.2 mg/L	85.0	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00761 mg/L	0.008 mg/L	95.2	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0746 mg/L	0.08 mg/L	93.3	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0372 mg/L	0.04 mg/L	92.9	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0351 mg/L	0.04 mg/L	87.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	3.73 mg/L	4 mg/L	93.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.185 mg/L	0.2 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	0.0365 mg/L	0.04 mg/L	91.3	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0394 mg/L	0.04 mg/L	98.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0725 mg/L	0.08 mg/L	90.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	21.4 mg/L	20 mg/L	107	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	7.68 mg/L	8 mg/L	96.0	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0859 mg/L	0.08 mg/L	107	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	18.3 mg/L	20 mg/L	91.6	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00764 mg/L	0.008 mg/L	95.5	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	0.0808 mg/L	0.08 mg/L	101	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00778 mg/L	0.008 mg/L	97.3	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1682732) - continued										
VA24C5917-002	Anonymous	Titanium, dissolved	7440-32-6	E421	0.0776 mg/L	0.08 mg/L	97.0	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0418 mg/L	0.04 mg/L	104	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00773 mg/L	0.008 mg/L	96.6	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.195 mg/L	0.2 mg/L	97.6	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.771 mg/L	0.8 mg/L	96.4	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0813 mg/L	0.08 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1684523)										
YL2401555-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000961 mg/L	0 mg/L	96.1	70.0	130	----
Aggregate Organics (QCLot: 1692544)										
CG2414531-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0194 mg/L	0.02 mg/L	97.2	75.0	125	----
Volatile Organic Compounds (QCLot: 1689388)										
VA24C5929-001	BCR WTP	Benzene	71-43-2	E611C	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	87.5 µg/L	100 µg/L	87.5	60.0	140	----
		Bromoform	75-25-2	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	92.0 µg/L	100 µg/L	92.0	60.0	140	----
		Chlorobenzene	108-90-7	E611C	92.1 µg/L	100 µg/L	92.1	60.0	140	----
		Chloroethane	75-00-3	E611C	98.4 µg/L	100 µg/L	98.4	50.0	150	----
		Chloroform	67-66-3	E611C	88.3 µg/L	100 µg/L	88.3	60.0	140	----
		Chloromethane	74-87-3	E611C	79.6 µg/L	100 µg/L	79.6	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	91.1 µg/L	100 µg/L	91.1	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	89.9 µg/L	100 µg/L	89.9	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	91.0 µg/L	100 µg/L	91.0	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	83.9 µg/L	100 µg/L	83.9	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	88.9 µg/L	100 µg/L	88.9	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	85.7 µg/L	100 µg/L	85.7	60.0	140	----
		Dichloromethane	75-09-2	E611C	89.4 µg/L	100 µg/L	89.4	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	97.0 µg/L	100 µg/L	97.0	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	89.1 µg/L	100 µg/L	89.1	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Ethylbenzene	100-41-4	E611C	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	97.8 µg/L	100 µg/L	97.8	60.0	140	----
		Styrene	100-42-5	E611C	90.1 µg/L	100 µg/L	90.1	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	84.4 µg/L	100 µg/L	84.4	60.0	140	----
		Toluene	108-88-3	E611C	91.0 µg/L	100 µg/L	91.0	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	88.1 µg/L	100 µg/L	88.1	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	91.2 µg/L	100 µg/L	91.2	60.0	140	----
		Trichloroethylene	79-01-6	E611C	82.7 µg/L	100 µg/L	82.7	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	93.2 µg/L	100 µg/L	93.2	50.0	150	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1689388) - continued										
VA24C5929-001	BCR WTP	Vinyl chloride	75-01-4	E611C	81.1 µg/L	100 µg/L	81.1	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	188 µg/L	200 µg/L	94.0	60.0	140	----
		Xylene, o-	95-47-6	E611C	89.0 µg/L	100 µg/L	89.0	60.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1684207)									
QC-1684207-001	RM	Oxidation-reduction potential [ORP]	----	E125	220 mV	100	95.0	105	----

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C5929**	Page	: 1 of 14
Amendment	: **1**		
Client	: **Frontier-Kemper Michels Joint Venture**	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 30-Sep-2024 13:00
PO	: ----	Issue Date	: 07-Oct-2024 15:31
C-O-C number	: 20-970465		
Sampler	: ----		
Site	: BCR		
Quote number	: WTP Discharge		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (lab preserved) BCR WTP	E562	30-Sep-2024	05-Oct-2024	28 days	5 days	✓	05-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) BCR WTP	E298	30-Sep-2024	01-Oct-2024	3 days	1 days	✓	01-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE BCR WTP	E235.Br-L	30-Sep-2024	03-Oct-2024	28 days	3 days	✓	03-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BCR WTP	E235.Cl	30-Sep-2024	03-Oct-2024	28 days	3 days	✓	03-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BCR WTP	E235.F	30-Sep-2024	03-Oct-2024	28 days	3 days	✓	03-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BCR WTP	E235.NO3-L	30-Sep-2024	03-Oct-2024	3 days	3 days	✓	03-Oct-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BCR WTP	E235.NO2-L	30-Sep-2024	03-Oct-2024	3 days	3 days	✓	03-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 BCR WTP	E235.SO4	30-Sep-2024	03-Oct-2024	28 days	3 days	✓	03-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (lab preserved) BCR WTP	E366	30-Sep-2024	03-Oct-2024	3 days	4 days	× EHT	04-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (lab preserved) BCR WTP	E372-U	30-Sep-2024	03-Oct-2024	3 days	4 days	× EHT	04-Oct-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE - dissolved (lab preserved) BCR WTP	E509	30-Sep-2024	02-Oct-2024	0 hrs	43 hrs	× UCP	02-Oct-2024	0 hrs	43 hrs	× UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) BCR WTP	E421	30-Sep-2024	01-Oct-2024	180 days	1 days	✓	01-Oct-2024	180 days	1 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Amber glass total (lab preserved) BCR WTP	EF001	30-Sep-2024	----	----	----		02-Oct-2024	----	2 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial (sodium bisulfate) BCR WTP	E680E	30-Sep-2024	04-Oct-2024	14 days	4 days	✓	04-Oct-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass vial (sodium bisulfate) BCR WTP	E601A	30-Sep-2024	04-Oct-2024	14 days	4 days	✓	04-Oct-2024	40 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) BCR WTP	E358-L	30-Sep-2024	04-Oct-2024	3 days	4 days	× EHT	04-Oct-2024	28 days	0 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 : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (lab preserved) BCR WTP	E355-L	30-Sep-2024	04-Oct-2024	3 days	4 days	× EHT	04-Oct-2024	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BCR WTP	E290	30-Sep-2024	01-Oct-2024	14 days	1 days	✓	01-Oct-2024	14 days	1 days	✓
Physical Tests : Conductivity in Water										
HDPE BCR WTP	E100	30-Sep-2024	01-Oct-2024	28 days	1 days	✓	01-Oct-2024	28 days	1 days	✓
Physical Tests : ORP by Electrode										
HDPE BCR WTP	E125	30-Sep-2024	----	----	----		01-Oct-2024	0.25 hrs	31 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE BCR WTP	E108	30-Sep-2024	01-Oct-2024	0.25 hrs	22 hrs	× EHTR-FM	01-Oct-2024	0.25 hrs	27 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE BCR WTP	E162	30-Sep-2024	----	----	----		01-Oct-2024	7 days	2 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BCR WTP	E160	30-Sep-2024	----	----	----		02-Oct-2024	7 days	2 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE BCR WTP	E121	30-Sep-2024	----	----	----		01-Oct-2024	3 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Glass vial (sodium bisulfate) BCR WTP	E641A	30-Sep-2024	04-Oct-2024	14 days	4 days	✓	07-Oct-2024	40 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*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
BCR WTP	E508	30-Sep-2024	02-Oct-2024	28 days	2 days	✓	02-Oct-2024	28 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
BCR WTP	E420	30-Sep-2024	01-Oct-2024	180 days	1 days	✓	01-Oct-2024	180 days	1 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
BCR WTP	E611C	30-Sep-2024	03-Oct-2024	14 days	4 days	✓	04-Oct-2024	14 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1682488	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	1683476	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1689196	1	1	100.0	5.0	✓
Chloride in Water by IC	E235.Cl	1689195	1	1	100.0	5.0	✓
Conductivity in Water	E100	1682486	1	5	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1684523	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1682732	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689486	1	6	16.6	5.0	✓
Fluoride in Water by IC	E235.F	1689194	1	1	100.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1694646	1	1	100.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1689197	1	1	100.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1689198	1	1	100.0	5.0	✓
ORP by Electrode	E125	1684207	1	9	11.1	5.0	✓
pH by Meter	E108	1682487	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1692544	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1689199	1	1	100.0	5.0	✓
TDS by Gravimetry	E162	1684429	1	3	33.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1686138	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1682613	1	6	16.6	5.0	✓
Total Nitrogen by Colourimetry	E366	1689264	1	1	100.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1689485	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689265	1	1	100.0	5.0	✓
TSS by Gravimetry	E160	1684449	1	3	33.3	5.0	✓
Turbidity by Nephelometry	E121	1682296	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1689388	1	1	100.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1682488	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	1683476	1	3	33.3	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1694647	1	1	100.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1689196	1	1	100.0	5.0	✓
Chloride in Water by IC	E235.Cl	1689195	1	1	100.0	5.0	✓
Conductivity in Water	E100	1682486	1	5	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1684523	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1682732	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689486	1	6	16.6	5.0	✓
Fluoride in Water by IC	E235.F	1689194	1	1	100.0	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							
Glycols (4 analytes) by GC-FID	E680E	1694646	1	1	100.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1689197	1	1	100.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1689198	1	1	100.0	5.0	✓
ORP by Electrode	E125	1684207	1	9	11.1	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1694648	1	1	100.0	5.0	✓
pH by Meter	E108	1682487	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1692544	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1689199	1	1	100.0	5.0	✓
TDS by Gravimetry	E162	1684429	1	3	33.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1686138	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1682613	1	6	16.6	5.0	✓
Total Nitrogen by Colourimetry	E366	1689264	1	1	100.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1689485	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689265	1	1	100.0	5.0	✓
TSS by Gravimetry	E160	1684449	1	3	33.3	5.0	✓
Turbidity by Nephelometry	E121	1682296	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1689388	1	1	100.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1682488	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	1683476	1	3	33.3	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1694647	1	1	100.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1689196	1	1	100.0	5.0	✓
Chloride in Water by IC	E235.Cl	1689195	1	1	100.0	5.0	✓
Conductivity in Water	E100	1682486	1	5	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1684523	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1682732	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689486	1	6	16.6	5.0	✓
Fluoride in Water by IC	E235.F	1689194	1	1	100.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1694646	1	1	100.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1689197	1	1	100.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1689198	1	1	100.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1694648	1	1	100.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1692544	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1689199	1	1	100.0	5.0	✓
TDS by Gravimetry	E162	1684429	1	3	33.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1686138	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1682613	1	6	16.6	5.0	✓
Total Nitrogen by Colourimetry	E366	1689264	1	1	100.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1689485	1	6	16.6	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*
Method Blanks (MB) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689265	1	1	100.0	5.0	✓
TSS by Gravimetry	E160	1684449	1	3	33.3	5.0	✓
Turbidity by Nephelometry	E121	1682296	1	6	16.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1689388	1	1	100.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1683476	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1689196	0	1	0.0	5.0	✗
Chloride in Water by IC	E235.Cl	1689195	0	1	0.0	5.0	✗
Dissolved Mercury in Water by CVAAS	E509	1684523	1	2	50.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1682732	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1689486	1	6	16.6	5.0	✓
Fluoride in Water by IC	E235.F	1689194	0	1	0.0	5.0	✗
Nitrate in Water by IC (Low Level)	E235.NO3-L	1689197	0	1	0.0	5.0	✗
Nitrite in Water by IC (Low Level)	E235.NO2-L	1689198	0	1	0.0	5.0	✗
Phenols (4AAP) in Water by Colorimetry	E562	1692544	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1689199	0	1	0.0	5.0	✗
Total Mercury in Water by CVAAS	E508	1686138	1	12	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1682613	1	6	16.6	5.0	✓
Total Nitrogen by Colourimetry	E366	1689264	0	1	0.0	5.0	✗
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1689485	1	6	16.6	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1689265	0	1	0.0	5.0	✗
VOCs (BC List) by Headspace GC-MS	E611C	1689388	1	1	100.0	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
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
ORP by Electrode	E125 ALS Environmental - Vancouver	Water	ASTM D1498 (mod)	Oxidation redution potential is reported as the oxidation-reduction potential of the platinum metal-reference electrode employed, measured in mV. For high accuracy test results, it is recommended that this analysis be conducted in the field.
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
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 CO_2. 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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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 (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 and Ionized Ammonia (Calculation) (Field Temperature and pH)	EC298A ALS Environmental - Vancouver	Water	CCME CWQG Ammonia	Un-ionized ammonia is calculated from test results for total ammonia, field temperature and pH, and is expressed in units of mg/L "as N".
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 Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
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	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	ALS Environmental - Vancouver			
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.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 970465

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page of

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	FRM	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	☐ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Sara Derakhshi Brad Clarke	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	416 891 2993 @ 587 585 3709	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:		Email 1 or Fax Sara.Derakhshi@michelscanada.com	☒ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:		Email 2 Brad.Clarke@michelscanada.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests
Postal Code:		Email 3	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Recipients	For all tests with rush TATs requested, please contact your AM to confirm availability.
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	EGP 150	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:	BCR	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	Physical Test	Total Metals	Dissolved Metals	Glycols	Organics	PAH, VPH, EPH	Hydrocarbons	Anions, Nutrients	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BCR WTP	30/09/24	10:00	Water		✓	✓	✓								

Environmental Division
Vancouver
Work Order Reference
VA24C5929
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

...tion by selecting from drop-down below
...OC only)

SAMPLE RECEIPT DETAILS (ALS use only)

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

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

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				1.4°C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
						M.C	Sep 30	1:20 pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2025 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**.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA24C6975**			
Client	:	**Frontier-Kemper Michels Joint Venture**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Sara Derakhshi	Account Manager	:	Thomas Chang
Address	:	404-850 Harbourside Drive North Vancouver British Columbia Canada V7P 0A3	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	:	+1 604 253 4188
Project	:	150 EGP	Date Samples Received	:	09-Oct-2024 19:45
PO	:	----	Date Analysis Commenced	:	10-Oct-2024
C-O-C number	:	20-969576	Issue Date	:	11-Oct-2024 16:42
Sampler	:	----			
Site	:	BC Rail			
Quote number	:	WTP Discharge			
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*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Erika Vanegas	Lab Assistant	Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Organics, Burnaby, British Columbia
Russell Zhang	Analyst	Metals, Burnaby, British Columbia
Thomas Chang	Account Manager	Administration, Burnaby, British Columbia

General Comments

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

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

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

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

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

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

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

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

Sample Comments

Sample	*Client Id*	*Comment*
VA24C6975-001	BCR WTP	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
VA24C6975-001	BCR WTP	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

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

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	BCR WTP	----	----	----	----
				Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6975-001	----	----	----	----
					Result	----	----	----	----
Field Tests									
pH, field	----	EF001/VA	0.10	pH units	7.30	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	15.7	----	----	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	2.0	mg/L	170	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	170	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	630	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	<0.60	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	<0.60	----	----	----	----
Oxidation-reduction potential [ORP]	----	E125/VA	0.10	mV	156	----	----	----	----
pH	----	E108/VA	0.10	pH units	7.91	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	389	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU	0.92	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0863	----	----	----	----
Ammonium (as NH4), field	14798-03-9	EC298A/VA	0.0010	mg/L	0.110	----	----	----	----
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	63.1	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Anions and Nutrients										
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.126	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.356	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	----	----	----	----
Nitrogen, total	7727-37-9	E366/VA	0.030	mg/L		1.15	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0093	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		50.2	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		4.14	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		4.97	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		<0.0030	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		0.00137	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00131	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00013	----	----	----	----
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		0.135	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000150 DLM	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000035	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00119	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		<0.010	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000117	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0037	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.0074	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00045	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.0403	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00072	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		3.05	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00359	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000365	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		5.07	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		129	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		18.7	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00080	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		<0.0010	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		0.00139	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00135	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00014	----	----	----	----
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		0.143	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000150 DLM	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		0.056	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000035	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Dissolved Metals										
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00114	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		<0.010	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000092	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0038	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		0.0079	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00044	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0412	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00145	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		3.23	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00352	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000444	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		5.10	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		136	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		18.4	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID				
					BCR WTP	----	----	----	----
					Client sampling date / time				
					09-Oct-2024 17:00	----	----	----	----
					VA24C6975-001	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	0.00081	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	<0.000010	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0024	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Laboratory	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Laboratory	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	----	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds [Fuels]										
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	----	----	----	----
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	%		84.2	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%		107	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
						VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		99.8	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		98.4	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BCR WTP	----	----	----	----
					Client sampling date / time	09-Oct-2024 17:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6975-001	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	----	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	----	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		98.9	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		97.0	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		99.2	----	----	----	----
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	%		86.6	----	----	----	----

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.

QUALITY CONTROL REPORT

Work Order	: **VA24C6975**	Page	: 1 of 23
Client	: Frontier-Kemper Michels Joint Venture	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 150 EGP	Date Samples Received	: 09-Oct-2024 19:45
PO	: ----	Date Analysis Commenced	: 09-Oct-2024
C-O-C number	: 20-969576	Issue Date	: 11-Oct-2024 16:42
Sampler	: ----		
Site	: BC Rail		
Quote number	: WTP Discharge		
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
- Reference Material (RM) 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*
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Erika Vanegas	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Vancouver Organics, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Edmonton Inorganics, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Vancouver Organics, Burnaby, British Columbia
Russell Zhang	Analyst	Vancouver Metals, Burnaby, British Columbia
Thomas Chang	Account Manager	Vancouver Administration, 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: 1700737)											
VA24C6975-001	BCR WTP	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1700738)											
VA24C6975-001	BCR WTP	Solids, total dissolved [TDS]	----	E162	20	mg/L	389	386	0.645%	20%	----
Physical Tests (QC Lot: 1700798)											
VA24C6987-002	Anonymous	pH	----	E108	0.10	pH units	7.22	7.26	0.552%	4%	----
Physical Tests (QC Lot: 1700799)											
VA24C6987-002	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	992	992	0.0302%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	992	992	0.0302%	20%	----
Physical Tests (QC Lot: 1700800)											
VA24C6987-002	Anonymous	Conductivity	----	E100	2.0	µS/cm	2260	2200	2.69%	10%	----
Physical Tests (QC Lot: 1701144)											
VA24C6837-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.90	0.76	0.14	Diff <2x LOR	----
Physical Tests (QC Lot: 1701145)											
VA24C6975-001	BCR WTP	Oxidation-reduction potential [ORP]	----	E125	0.10	mV	156	157	0.640%	10%	----
Anions and Nutrients (QC Lot: 1700746)											
VA24C6987-001	Anonymous	Nitrogen, total	7727-37-9	E366	3.00	mg/L	57.9	56.9	1.65%	20%	----
Anions and Nutrients (QC Lot: 1700747)											
VA24C6987-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.200	mg/L	2.26	2.17	4.23%	20%	----
Anions and Nutrients (QC Lot: 1700748)											
VA24C6987-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.500	mg/L	56.3	55.6	1.37%	20%	----
Anions and Nutrients (QC Lot: 1700801)											
VA24C6975-001	BCR WTP	Chloride	16887-00-6	E235.Cl	0.50	mg/L	63.1	63.6	0.696%	20%	----
Anions and Nutrients (QC Lot: 1700802)											
VA24C6975-001	BCR WTP	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1700803)											
VA24C6975-001	BCR WTP	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.126	0.124	0.002	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*
Anions and Nutrients (QC Lot: 1700804)											
VA24C6975-001	BCR WTP	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.356	0.359	0.976%	20%	----
Anions and Nutrients (QC Lot: 1700805)											
VA24C6975-001	BCR WTP	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: 1700806)											
VA24C6975-001	BCR WTP	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	50.2	50.5	0.716%	20%	----
Organic / Inorganic Carbon (QC Lot: 1700745)											
VA24C6975-001	BCR WTP	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.97	4.67	0.30	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1700749)											
VA24C6987-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	42.1	44.3	5.16%	20%	----
Total Metals (QC Lot: 1700780)											
VA24C6971-001	Anonymous	Aluminum, total	7429-90-5	E420	0.150	mg/L	<0.150	<0.150	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.0250	mg/L	99.1	102	2.56%	20%	----
		Iron, total	7439-89-6	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.00250	mg/L	<0.00250	<0.00250	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: 1700780) - continued											
VA24C6971-001	Anonymous	Silicon, total	7440-21-3	E420	5.00	mg/L	<5.00	<5.00	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E420	25.0	mg/L	<25.0	<25.0	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.150	mg/L	<0.150	<0.150	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
Total Metals (QC Lot: 1703281)											
VA24C6975-001	BCR WTP	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1700781)											
VA24C6975-001	BCR WTP	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	0.0010	0.00005	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00139	0.00138	1.09%	20%	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00135	0.00133	1.38%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00014	0.00014	0.0000010	Diff <2x LOR	----
		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	0.143	0.148	3.88%	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	0.056	0.055	0.0004	Diff <2x LOR	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000035	0.000037	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	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00114	0.00115	0.000004	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	0.000092	0.000090	0.000001	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0038	0.0038	0.00001	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1700781) - continued											
VA24C6975-001	BCR WTP	Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	0.0079	0.0067	0.0012	Diff <2x LOR	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00044	0.00046	0.00003	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0412	0.0408	1.16%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00145	0.00139	0.00005	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	3.23	3.23	0.0299%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00352	0.00354	0.569%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000444	0.000378	0.000066	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.10	5.12	0.441%	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	136	134	1.22%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	18.4	18.8	2.40%	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	0.00081	0.00079	0.00002	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0024	0.0022	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1703280)											
VA24C6370-011	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1705013)											
WT2430244-001	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1700855)											
VA24C6281-003	Anonymous	Benzene	71-43-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

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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: 1700855) - continued											
VA24C6281-003	Anonymous	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	----
		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: 1700854)											
VA24C5986-001	Anonymous	VHw (C6-C10)	----	E581.VH+F1	100	µg/L	9580	8830	8.1%	30%	----
Glycols (QC Lot: 1701855)											
VA24C6562-001	Anonymous	Diethylene glycol	111-46-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Ethylene glycol	107-21-1	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----

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*
Glycols (QC Lot: 1701855) - continued											
VA24C6562-001	Anonymous	Propylene glycol, 1,2-	57-55-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Triethylene glycol	112-27-6	E680E	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1700737)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1700738)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1700799)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1700800)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1701144)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 1700746)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1700747)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1700748)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1700801)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1700802)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1700803)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1700804)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1700805)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1700806)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Organic / Inorganic Carbon (QCLot: 1700745)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1700745) - continued						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1700749)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1700780)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1700780) - continued						
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	----
Total Metals (QCLot: 1703281)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1700781)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1700781) - continued						
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: 1703280)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 1705013)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 1700855)						
Benzene	71-43-2	E611C	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611C	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	<0.50	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611C	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611C	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611C	5	µg/L	<5.0	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1700855) - continued						
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611C	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	<0.20	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611C	0.4	µg/L	<0.40	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	<0.40	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 1700793)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1700854)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1700792)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1700792) - continued						
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----
Glycols (QCLot: 1701855)						
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: 1700737)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1700738)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1700798)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1700799)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	108	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1700800)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	102	90.0	110	----
Physical Tests (QCLot: 1701144)									
Turbidity	----	E121	0.1	NTU	200 NTU	96.0	85.0	115	----
Anions and Nutrients (QCLot: 1700746)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	97.8	75.0	125	----
Anions and Nutrients (QCLot: 1700747)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	93.7	80.0	120	----
Anions and Nutrients (QCLot: 1700748)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	96.6	85.0	115	----
Anions and Nutrients (QCLot: 1700801)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1700802)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	95.8	85.0	115	----
Anions and Nutrients (QCLot: 1700803)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1700804)									
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: 1700805)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1700806)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1700745)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	94.3	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1700749)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.1	80.0	120	----
Total Metals (QCLot: 1700780)									
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	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.2	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	105	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	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.3	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	95.9	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.9	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.3	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	102	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	104	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.4	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.1	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	96.1	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	97.0	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	112	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	88.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	92.9	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	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: 1700780) - continued									
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	97.5	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	95.0	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.1	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	96.8	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	99.3	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.8	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	97.6	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.2	80.0	120	----
Total Metals (QCLot: 1703281)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	102	80.0	120	----
Dissolved Metals (QCLot: 1700781)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	96.4	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.1	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	100.0	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.1	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.4	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	107	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.3	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	93.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.5	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	95.6	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	95.1	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.1	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.1	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.5	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.7	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	90.1	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	93.2	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	100	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: 1700781) - continued									
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	108	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.5	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	97.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	89.9	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	95.5	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.8	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.5	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	93.4	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.2	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	96.6	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	92.6	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	102	80.0	120	----
Aggregate Organics (QCLot: 1705013)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	108	85.0	115	----
Volatile Organic Compounds (QCLot: 1700855)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	119	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	118	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	108	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	119	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	120	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	118	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	122	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	102	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	116	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	114	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	122	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	118	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	114	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Volatile Organic Compounds (QCLot: 1700855) - continued									
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	119	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	117	70.0	130	----
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	122	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	126	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	128	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	129	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	123	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	109	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	119	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	120	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	103	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	118	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	119	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	123	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	117	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	123	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	116	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	105	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	123	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	121	70.0	130	----
Hydrocarbons (QCLot: 1700793)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	94.4	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	82.0	70.0	130	----
Hydrocarbons (QCLot: 1700854)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	105	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1700792)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	103	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	98.4	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	103	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	102	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	99.7	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	110	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: 1700792) - continued									
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	101	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	105	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	103	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	99.7	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	101	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	109	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	99.8	60.0	130	----
Glycols (QCLot: 1701855)									
Diethylene glycol	111-46-6	E680E	5	mg/L	25 mg/L	90.5	70.0	130	----
Ethylene glycol	107-21-1	E680E	5	mg/L	25 mg/L	91.3	70.0	130	----
Propylene glycol, 1,2-	57-55-6	E680E	5	mg/L	25 mg/L	88.5	70.0	130	----
Triethylene glycol	112-27-6	E680E	5	mg/L	25 mg/L	93.3	70.0	130	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1700746)										
VA24C6987-002	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1700747)										
VA24C6987-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	4.49 mg/L	5 mg/L	89.8	70.0	130	----
Anions and Nutrients (QCLot: 1700748)										
VA24C6987-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1700801)										
VA24C6987-001	Anonymous	Chloride	16887-00-6	E235.Cl	2030 mg/L	2000 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1700802)										
VA24C6987-001	Anonymous	Bromide	24959-67-9	E235.Br-L	9.88 mg/L	10 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 1700803)										
VA24C6987-001	Anonymous	Fluoride	16984-48-8	E235.F	20.8 mg/L	20 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1700804)										
VA24C6987-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	50.7 mg/L	50 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1700805)										
VA24C6987-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	10.2 mg/L	10 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1700806)										
VA24C6987-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	2030 mg/L	2000 mg/L	101	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1700749)										
VA24C6987-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 1700780)										
VA24C6975-001	BCR WTP	Aluminum, total	7429-90-5	E420	0.203 mg/L	0.2 mg/L	102	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		Barium, total	7440-39-3	E420	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00402 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	4.01 mg/L	4 mg/L	100	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1700780) - continued										
VA24C6975-001	BCR WTP	Iron, total	7439-89-6	E420	2.03 mg/L	2 mg/L	101	70.0	130	----
		Lead, total	7439-92-1	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		Magnesium, total	7439-95-4	E420	0.990 mg/L	1 mg/L	99.0	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.37 mg/L	10 mg/L	93.7	70.0	130	----
		Potassium, total	7440-09-7	E420	4.02 mg/L	4 mg/L	100	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Silicon, total	7440-21-3	E420	10.6 mg/L	10 mg/L	106	70.0	130	----
		Silver, total	7440-22-4	E420	0.00368 mg/L	0.004 mg/L	92.1	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		Sulfur, total	7704-34-9	E420	22.7 mg/L	20 mg/L	113	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00362 mg/L	0.004 mg/L	90.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Tin, total	7440-31-5	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		Zinc, total	7440-66-6	E420	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1703280)										
VA24C6370-023	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000978 mg/L	0 mg/L	97.8	70.0	130	----
Aggregate Organics (QCLot: 1705013)										
VA24C6975-001	BCR WTP	Phenols, total (4AAP)	----	E562	0.0231 mg/L	0.02 mg/L	115	75.0	125	----
Volatile Organic Compounds (QCLot: 1700855)										
VA24C6975-001	BCR WTP	Benzene	71-43-2	E611C	92.9 µg/L	100 µg/L	92.9	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	94.6 µg/L	100 µg/L	94.6	60.0	140	----
		Bromoform	75-25-2	E611C	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	91.9 µg/L	100 µg/L	91.9	60.0	140	----
		Chlorobenzene	108-90-7	E611C	99.6 µg/L	100 µg/L	99.6	60.0	140	----
		Chloroethane	75-00-3	E611C	86.9 µg/L	100 µg/L	86.9	50.0	150	----
		Chloroform	67-66-3	E611C	95.8 µg/L	100 µg/L	95.8	60.0	140	----
		Chloromethane	74-87-3	E611C	70.6 µg/L	100 µg/L	70.6	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	97.8 µg/L	100 µg/L	97.8	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	97.7 µg/L	100 µg/L	97.7	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: 1700855) - continued										
VA24C6975-001	BCR WTP	Dichloroethane, 1,1-	75-34-3	E611C	95.6 µg/L	100 µg/L	95.6	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	85.5 µg/L	100 µg/L	85.5	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	93.2 µg/L	100 µg/L	93.2	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Dichloromethane	75-09-2	E611C	95.5 µg/L	100 µg/L	95.5	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	99.6 µg/L	100 µg/L	99.6	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	109 µg/L	100 µg/L	109	60.0	140	----
		Ethylbenzene	100-41-4	E611C	101 µg/L	100 µg/L	101	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	99.7 µg/L	100 µg/L	99.7	60.0	140	----
		Styrene	100-42-5	E611C	99.6 µg/L	100 µg/L	99.6	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	99.9 µg/L	100 µg/L	99.9	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	91.2 µg/L	100 µg/L	91.2	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Toluene	108-88-3	E611C	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	98.1 µg/L	100 µg/L	98.1	60.0	140	----
		Trichloroethylene	79-01-6	E611C	96.3 µg/L	100 µg/L	96.3	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	85.2 µg/L	100 µg/L	85.2	50.0	150	----
		Vinyl chloride	75-01-4	E611C	74.0 µg/L	100 µg/L	74.0	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	202 µg/L	200 µg/L	101	60.0	140	----
		Xylene, o-	95-47-6	E611C	100 µg/L	100 µg/L	100	60.0	140	----
Hydrocarbons (QCLot: 1700854)										
VA24C6615-011	Anonymous	VHw (C6-C10)	----	E581.VH+F1	5830 µg/L	6310 µg/L	92.4	60.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1701145)									
QC-1701145-001	RM	Oxidation-reduction potential [ORP]	----	E125	220 mV	100	95.0	105	----

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C6975**	Page	: 1 of 14
Client	: **Frontier-Kemper Michels Joint Venture**	Laboratory	: ALS Environmental - Vancouver
Contact	: Sara Derakhshi	Account Manager	: Thomas Chang
Address	: 404-850 Harbourside Drive North Vancouver BC Canada V7P 0A3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 150 EGP	Date Samples Received	: 09-Oct-2024 19:45
PO	: ----	Issue Date	: 11-Oct-2024 16:42
C-O-C number	: 20-969576		
Sampler	: ----		
Site	: BC Rail		
Quote number	: WTP Discharge		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) BCR WTP	E562	09-Oct-2024	11-Oct-2024	28 days	2 days	✓	11-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BCR WTP	E298	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	10-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE BCR WTP	E235.Br-L	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	09-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BCR WTP	E235.Cl	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	09-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BCR WTP	E235.F	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	09-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BCR WTP	E235.NO3-L	09-Oct-2024	09-Oct-2024	3 days	0 days	✓	09-Oct-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BCR WTP	E235.NO2-L	09-Oct-2024	09-Oct-2024	3 days	0 days	✓	09-Oct-2024	3 days	0 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 BCR WTP	E235.SO4	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	09-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) BCR WTP	E366	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	10-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) BCR WTP	E372-U	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	10-Oct-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE - dissolved (lab preserved) BCR WTP	E509	09-Oct-2024	10-Oct-2024	0 hrs	26 hrs	× UCP	10-Oct-2024	0 hrs	26 hrs	× UCP
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) BCR WTP	E421	09-Oct-2024	10-Oct-2024	180 days	0 days	✓	10-Oct-2024	180 days	1 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
HDPE - dissolved (lab preserved) BCR WTP	EF001	09-Oct-2024	----	----	----		10-Oct-2024	----	1 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial (sodium bisulfate) BCR WTP	E680E	09-Oct-2024	10-Oct-2024	14 days	1 days	✓	10-Oct-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) BCR WTP	E601A	09-Oct-2024	10-Oct-2024	14 days	0 days	✓	10-Oct-2024	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) BCR WTP	E581.VH+F1	09-Oct-2024	10-Oct-2024	14 days	0 days	✓	10-Oct-2024	14 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times 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 (lab preserved) BCR WTP	E358-L	09-Oct-2024	09-Oct-2024	3 days	0 days	✓	09-Oct-2024	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BCR WTP	E355-L	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	09-Oct-2024	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BCR WTP	E290	09-Oct-2024	09-Oct-2024	14 days	0 days	✓	10-Oct-2024	14 days	1 days	✓
Physical Tests : Conductivity in Water										
HDPE BCR WTP	E100	09-Oct-2024	09-Oct-2024	28 days	0 days	✓	10-Oct-2024	28 days	1 days	✓
Physical Tests : ORP by Electrode										
HDPE BCR WTP	E125	09-Oct-2024	----	----	----		10-Oct-2024	0.25 hrs	14 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE BCR WTP	E108	09-Oct-2024	09-Oct-2024	0.25 hrs	6 hrs	× EHTR-FM	10-Oct-2024	0.25 hrs	14 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE BCR WTP	E162	09-Oct-2024	----	----	----		09-Oct-2024	7 days	0 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BCR WTP	E160	09-Oct-2024	----	----	----		09-Oct-2024	7 days	0 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE BCR WTP	E121	09-Oct-2024	----	----	----		10-Oct-2024	3 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) BCR WTP	E641A	09-Oct-2024	10-Oct-2024	14 days	0 days	✓	10-Oct-2024	40 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
HDPE - total (lab preserved) BCR WTP	E508	09-Oct-2024	10-Oct-2024	0 hrs	26 hrs	× UCP	10-Oct-2024	0 hrs	26 hrs	× UCP
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) BCR WTP	E420	09-Oct-2024	10-Oct-2024	180 days	1 days	✓	10-Oct-2024	180 days	1 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BCR WTP	E611C	09-Oct-2024	10-Oct-2024	14 days	0 days	✓	10-Oct-2024	14 days	1 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

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	1700799	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1700748	1	8	12.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1700802	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1700801	1	12	8.3	5.0	✓
Conductivity in Water	E100	1700800	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1703280	1	8	12.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1700781	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1700749	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1700803	1	11	9.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1701855	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1700804	1	11	9.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1700805	1	11	9.0	5.0	✓
ORP by Electrode	E125	1701145	1	1	100.0	5.0	✓
pH by Meter	E108	1700798	1	12	8.3	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1705013	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1700806	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1700738	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1703281	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1700780	1	2	50.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1700746	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1700745	1	1	100.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1700747	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1700737	1	7	14.2	5.0	✓
Turbidity by Nephelometry	E121	1701144	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1700854	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1700855	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1700799	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1700748	1	8	12.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1700793	1	12	8.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1700802	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1700801	1	12	8.3	5.0	✓
Conductivity in Water	E100	1700800	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1703280	1	8	12.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1700781	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1700749	1	7	14.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Fluoride in Water by IC	E235.F	1700803	1	11	9.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1701855	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1700804	1	11	9.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1700805	1	11	9.0	5.0	✓
ORP by Electrode	E125	1701145	1	1	100.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1700792	1	15	6.6	5.0	✓
pH by Meter	E108	1700798	1	12	8.3	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1705013	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1700806	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1700738	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1703281	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1700780	1	2	50.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1700746	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1700745	1	1	100.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1700747	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1700737	1	7	14.2	5.0	✓
Turbidity by Nephelometry	E121	1701144	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1700854	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1700855	1	10	10.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1700799	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1700748	1	8	12.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1700793	1	12	8.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1700802	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1700801	1	12	8.3	5.0	✓
Conductivity in Water	E100	1700800	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1703280	1	8	12.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1700781	1	1	100.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1700749	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1700803	1	11	9.0	5.0	✓
Glycols (4 analytes) by GC-FID	E680E	1701855	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1700804	1	11	9.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1700805	1	11	9.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1700792	1	15	6.6	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1705013	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1700806	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1700738	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1703281	1	1	100.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1700780	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*
Method Blanks (MB) - Continued							
Total Nitrogen by Colourimetry	E366	1700746	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1700745	1	1	100.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1700747	1	8	12.5	5.0	✓
TSS by Gravimetry	E160	1700737	1	7	14.2	5.0	✓
Turbidity by Nephelometry	E121	1701144	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1700854	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1700855	1	10	10.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1700748	1	8	12.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1700802	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1700801	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1703280	1	8	12.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1700781	0	1	0.0	5.0	✗
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1700749	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1700803	1	11	9.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1700804	1	11	9.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1700805	1	11	9.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1705013	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1700806	1	11	9.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1703281	0	1	0.0	5.0	✗
Total Metals in Water by CRC ICPMS	E420	1700780	1	2	50.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1700746	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1700745	0	1	0.0	5.0	✗
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1700747	1	8	12.5	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1700854	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1700855	1	10	10.0	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
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
ORP by Electrode	E125 ALS Environmental - Vancouver	Water	ASTM D1498 (mod)	Oxidation redution potential is reported as the oxidation-reduction potential of the platinum metal-reference electrode employed, measured in mV. For high accuracy test results, it is recommended that this analysis be conducted in the field.
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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)
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
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 CO_2. 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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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 (K3Fe(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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 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 and Ionized Ammonia (Calculation) (Field Temperature and pH)	EC298A ALS Environmental - Vancouver	Water	CCME CWQG Ammonia	Un-ionized ammonia is calculated from test results for total ammonia, field temperature and pH, and is expressed in units of mg/L "as N".
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 Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
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.
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.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 969576

Page of

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Canada Toll Free: 1 800 668 9878

Environmental Division Vancouver
Work Order Reference
VA24C6975

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	FKM	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	☐ Routine [R] if received by 3pm M-F -, no surcharges apply
Contact:	Sara Doraiswami	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	5148912993	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☑ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:		Email 1 or Fax Sara.Doraiswami@Michelscanada	☑ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:		Email 2 Brad.clarke@Michelscanada.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additiona may apply to rush requests on weekends, statutory holidays and non-routin
Postal Code:		Email 3	Date and Time Required for all E&P TATs:
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Recipients	For all tests with rush TATs requested, please conta
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Analysis Requ
Company:		Email 1 or Fax	Indicate Filtered (F), Preserved (P) or Filtered and Pr
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	150 FGP	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:	BC Rail	Location:	
ALS Lab Work Order # (ALS use only):	6975	ALS Contact:	Sampler:

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	physical test	Total metals	dissolved metals	organics	pH, uph, Ephh	VOC	Anions nutrients	Hydrocarbons	Glycols	phenols					SAMPLES ON HOLD	EXTENDED STORAGE REQU	SUSPECTED HAZARD (see n
	BCR WTP	~~09~~ 09,10,2024	17:00	water		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							

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

SAMPLE RECEIPT DETAILS (ALS use only)

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

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

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C				
				16				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date: 04 09	Time: 7:10 am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

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

White Paper Co. 604 951-3900

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:	College of Applied Biologists – Farshad Shafiei – RPBio 3781 – CAB		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					VA24C6846-001	VA24C6846-002					
	Date Sampled					08-Oct-2024	08-Oct-2024					
	Time Sampled					09:35	10:26					
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	7.55	7.67		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]	-	10.8	10.6		Guideline is species-dependent. Short-term daily temperature guideline is 19°C for streams with unknown fish distribution. Refer to footnote 4 for background temperature range for the Squamish River. Refer to BC Water Quality Guidelines for more information Hourly rate of change not to exceed 1°C. Calculation: US value +/- 1 = guideline range		Guideline for marine waters are based on natural ambient conditions. Max and min. 1°C change from natural condition. Natural temperature cycle characteristic of the site should not be altered in amplitude or frequency by human activities. Max rate of any human-induced temperature change not to exceed 0.5°C hourly. treams with unknown fish distribution. Refer to footnote 4 for background temperature range for the Squamish River. Calculation: US value +/- 1 = guideline range	
Conductivity (field)	µS/cm	-	-	-	-	47	41					
Turbidity (field)	NTU	Varies with background, see note Guideline = 67.5	Varies with background, see note Guideline = 101.9 5-week discrete sampling average = 95.2 (DS)	Varies with background, see note Guideline = 67.5	Varies with background, see note Guideline = 101.9 5-week discrete sampling average = 95.2 (DS)	59.5	66.9		Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 8 = DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.	Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters. Calculation: US value + 8 = DS guideline Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters. Calculation: US value + 5 = DS guideline Change from background of 10% when background is > 50 NTU at any time during high flows or in turbid waters. Calculation: US value + (US value*0.1) = DS guideline	Change from background of 2 NTU at any one time for 30 days in clear flows. Note that a rolling average of US values over a 30-day period is required to properly calculate this guideline. Guideline calculated in this spreadsheet using US concentration at the time of sampling.
Dissolved Oxygen (field)	mg/L	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	Varies with life stage, see note	10.85	10.46		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	17.6					
Total Dissolved Solids	mg/L	-	-	-	-	43	34					
Total Suspended Solids	mg/L	Varies with background, see note Guideline = 72.3	Varies with background, see note Guideline = 88.4 5-week discrete sampling average = 77.6 (DS)	Varies with background, see note Guideline = 72.3	Varies with background, see note Guideline = 88.4 5-week discrete sampling average = 77.6 (DS)	47.3	50.7		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.	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	-	-	-	-	0.97	0.89			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	12.6	10.9	The upstream and downstream locations have moderate sensitivity to acid inputs (i.e. medium buffering capacity).		Guideline is for alkalinity (as CaCO3) and categorizes the sensitivity of a water body to acid inputs. Alkalinity < 10 mg/L is considered highly sensitive to acid inputs; 10 - 20 mg/L is considered moderately sensitive to acid inputs; > 20 mg/L is considered low sensitivity.		
Total Sulfide (as S)	mg/L	-	-	-	-	< 0.0015	< 0.0015					
Total Sulfide (un-ionized as H_2S)	mg/L	-	0.002	-	-	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016					
Anions and Nutrients												
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. Guideline = 11.2	Varies with pH and temperature. See note. Guideline = 1.83	Varies with pH, temperature and salinity. See note. Guideline = 33	Varies with pH, temperature and salinity. See note. Guideline = 12	0.092	0.067		Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27D in BC WQG for guideline values.	Guideline for ammonia as N and is pH and temperature dependent. Refer to Table 27C in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27F in BC WQG for guideline values.	Guideline for ammonia as N. Guideline is pH, temperature and salinity dependent. Refer to Table 27E in BC WQG for guideline values.
Bromide	mg/L	-	-	-	-	< 0.050	< 0.050					
Chloride	mg/L	600	150	+/- 10% from BKG	+/- 10% from BKG	1.43	1.3				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 = 0.687	-	1.5	-	0.021	0.02		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	0.028	0.028					
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	-	-	-	-	0.13	0.124					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.071	0.063			Guideline is for lakes, refer to BCWQ guideline for nutrients and algae for more information. Guideline does not apply to site.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. Guideline = 128	-	-	4.66	4.09			Guidelines for hardness ranges below: Hardness 0 - 30: 128 Hardness 31 - 75: 218 Hardness 76 - 180: 309 Hardness 181 - 250: 429		
Total Metals												
Aluminum (Al)-Total	mg/L	-	Varies with pH, DOC, hardness Guideline = 0.037 5-week field average = 3.29 (US), 3.06 (DS)	-	-	*2.91*	*2.87*	**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	0.00035	0.00029					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.0356	0.0362			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	0.0000146	0.0000112					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	6.02	5.06					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.00013	0.000138					
Chromium (Cr) - Total	mg/L	-	-	-	-	0.00124	0.00126					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	0.00124	0.00126			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	-	-	0.00089	0.00101					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002 5-week field average = 0.0049 (US), 0.0048 (DS)	0.00508	0.00558	**Total Cu exceeds the short-term and 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	-	-	-	**1.74**	**1.84**	**Total Fe exceeds the short-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 and US1 has higher concentration than DS1. Therefore, the high total Cu concentration may be characteristic of the Squamish River and the local geology.				
Lead (Pb)-Total	mg/L	-	-	0.14	0.002 5-week field average = 0.00042 (US), 0.00039 (DS)	0.000348	0.000313					
Lithium (Li)-Total	mg/L	-	-	-	-	0.0021	0.0021					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.21	1.22					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.715	Varies with hardness Guideline = 0.768	-	-	0.0401	0.0437		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	-	-	0.0006	0.000576					
Nickel (Ni)-Total	mg/L	-	-	-	0.0083	0.00119	0.00118					Working guideline status
Phosphorus (P)-Total	mg/L	-	0.005 to 0.015	-	-	0.103	0.112			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	-	-	-	-	1.23	1.26					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00348	0.00375					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	0.000063	< 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	-	-	-	-	8.31	7.56					
Silver (Ag)-Total	mg/L	Varies with hardness, see note Guideline = 0.0001	Varies with hardness, see note Guideline = 0.0015	0.003	0.0015	0.000015	< 0.000010		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	-	-	-	-	2.53	2.35					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0528	0.047					
Sulfur (S)-Total	mg/L	-	-	-	-	1.46	1.11					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003	-	-	0.000016	0.000017			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	< 0.00020					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.123	0.140					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.000096	0.000106			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005 5-week field average = 0.005 (US), 0.005 (DS)	0.00561	0.00579					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	Guideline = 0.010 5-week field average = 0.00678 (US), 0.00782 (DS)	0.0066	0.0062					
Zirconium (Zr)-Total	mg/L	-	-	-	-	0.00031	0.00025					
Dissolved Metals												
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0606	0.0593					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00013	0.00015					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00581	0.00567					
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 = 0.000112	Varies with hardness, see note Guideline = 0.000063	-	-	< 0.0000050	< 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	-	-	4.85	4.31	The upstream and downstream locations have moderate sensitivity to acid inputs (i.e. medium buffering capacity).		Guideline categorizes the sensitivity of a water body to acid inputs (i.e. buffering capacity). Standard is 4 mg/L dissolved Ca for the most sensitive waterbodies,5 - 8 mg/L for waterbodies with moderate sensitivity to acid inputs. Waterbodies with dissolved calcium > 8mg/L are considered to have low sensitivity to acid inputs.		
Cesium (Cs)-Dissolved	mg/L	-	-	-	-	0.000017	0.000013					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050					
Chromium (Cr(III))-Dissolved	mg/L	-	-	-	-	-	-					
Chromium (Cr(VI))-Dissolved	mg/L	-	-	-	-	-	-					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0016	Guideline varies with other parameters, see note Guideline = 0.0002 5-week field average = 0.00051 (US), 0.00051 (DS)	-	-	*0.00068*	*0.00080*	**Dissolved Cu exceeds the 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	-	-	-	0.051	0.052					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline = 0.00115 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	-	-	-	-	0.528	0.477					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.0044	0.0042					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000589	0.00051					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0148	Guideline varies with other parameters, see note Guideline = 0.000847 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	-	-	-	-	0.679	0.67					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00106	0.00096					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.06	3.45					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	1.9	1.67					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0317	0.0267					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.26	1.53					
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	-	-	-	-	0.00169	0.00216					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000025	0.000024					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	0.000033	0.000037					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.010	Varies with pH, DOC, hardness Guideline = 0.0025 5-week field average = 0.0034 (US), 0.0017 (DS)	-	-	*0.00134*	0.00113	**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				10.8	10.6
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				59.50	66.90
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	17.6
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				0.97	0.89
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				12.6	10.9
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.43	1.3

BCR Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **VA24C6846**		
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Account Manager	:
Address	:	Address	:
Telephone	:	Telephone	:
Project	: 11964	Date Samples Received	: 08-Oct-2024 12:30
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 10-Oct-2024
C-O-C number	: ----	Issue Date	: 16-Oct-2024 16:34
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

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

General Comments

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

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

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

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

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

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

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

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

Qualifiers

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

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	SQU US 1	SQU DS 1	----	----	----
				Client sampling date / time	08-Oct-2024 09:35	08-Oct-2024 10:26	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6846-001	VA24C6846-002	----	----	----
					Result	Result	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	47.000	41.000	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.55	7.67	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	10.8	10.6	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	14.3	12.7	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	20.0	17.6	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	43	34	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	47.3	50.7	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	12.6	10.9	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0916	0.0674	----	----	----
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	1.43	1.30	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.021	<0.020	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0280	0.0280	----	----	----
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	0.130	0.124	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0710	0.0634	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	4.66	4.09	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	0.97	0.89	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		SQU US 1	SQU DS 1	----	----	----
			Client sampling date / time		08-Oct-2024 09:35	08-Oct-2024 10:26	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6846-001	VA24C6846-002	----	----	----
					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	2.91	2.87	----	----	----
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	0.00035	0.00029	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0356	0.0362	----	----	----
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	0.0000146	0.0000112	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	6.02	5.06	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000130	0.000138	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00124	0.00126	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00089	0.00101	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00508	0.00558	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	1.74	1.84	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000348	0.000313	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0021	0.0021	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	1.21	1.22	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	08-Oct-2024 09:35	08-Oct-2024 10:26	----	----	----
						VA24C6846-001	VA24C6846-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0401	0.0437	----	----	----
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		0.000600	0.000576	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00119	0.00118	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.103	0.112	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.23	1.26	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00348	0.00375	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000063	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		8.31	7.56	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		0.000015	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		2.53	2.35	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0528	0.0470	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.46	1.11	----	----	----
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		0.000016	0.000017	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00020 DLM	----	----	----
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		0.123	0.140	----	----	----
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		0.000096	0.000106	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00561	0.00579	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	08-Oct-2024 09:35	08-Oct-2024 10:26	----	----	----
						VA24C6846-001	VA24C6846-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0066	0.0062	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		0.00031	0.00025	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0606	0.0593	----	----	----
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		0.00013	0.00015	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00581	0.00567	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		4.85	4.31	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000017	0.000013	----	----	----
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		0.00068	0.00080	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.051	0.052	----	----	----
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		0.528	0.477	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00440	0.00420	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	08-Oct-2024 09:35	08-Oct-2024 10:26	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6846-001	VA24C6846-002	----	----	----
						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		0.000589	0.000510	----	----	----
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		0.679	0.670	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00106	0.00096	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		4.06	3.45	----	----	----
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		1.90	1.67	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0317	0.0267	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.26	1.53	----	----	----
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		0.00169	0.00216	----	----	----
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		0.000033	0.000037	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00134	0.00113	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		<0.0010	0.0021	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	SQU US 1	SQU DS 1	----	----	----
					Client sampling date / time	08-Oct-2024 09:35	08-Oct-2024 10:26	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6846-001	VA24C6846-002	----	----	----
						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		0.00124	0.00126	----	----	----

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	: **VA24C6846**	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	: 08-Oct-2024 12:30
PO	: 11964 - Task 20 - Phase 3C-4C	Issue Date	: 16-Oct-2024 16:33
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) SQU DS 1	E298	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	13-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SQU US 1	E298	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	13-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU DS 1	E235.Br-L	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SQU US 1	E235.Br-L	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU DS 1	E235.Cl	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SQU US 1	E235.Cl	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU DS 1	E235.F	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE SQU US 1	E235.F	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO3-L	08-Oct-2024	10-Oct-2024	3 days	2 days	✓	10-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO3-L	08-Oct-2024	10-Oct-2024	3 days	2 days	✓	10-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU DS 1	E235.NO2-L	08-Oct-2024	10-Oct-2024	3 days	2 days	✓	10-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SQU US 1	E235.NO2-L	08-Oct-2024	10-Oct-2024	3 days	2 days	✓	10-Oct-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU DS 1	E235.SO4	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SQU US 1	E235.SO4	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	10-Oct-2024	28 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU DS 1	E366	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	11-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) SQU US 1	E366	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	11-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)										
SQU DS 1	E372-U	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	11-Oct-2024	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SQU US 1	E372-U	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	11-Oct-2024	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU DS 1	E509	08-Oct-2024	16-Oct-2024	28 days	8 days	✓	16-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SQU US 1	E509	08-Oct-2024	16-Oct-2024	28 days	8 days	✓	16-Oct-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU DS 1	E421	08-Oct-2024	15-Oct-2024	180 days	7 days	✓	16-Oct-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SQU US 1	E421	08-Oct-2024	15-Oct-2024	180 days	7 days	✓	16-Oct-2024	180 days	8 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU DS 1	EF001	08-Oct-2024	----	----	----		16-Oct-2024	----	8 days	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
SQU US 1	EF001	08-Oct-2024	----	----	----		16-Oct-2024	----	8 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU DS 1	E358-L	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	11-Oct-2024	28 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
SQU US 1	E358-L	08-Oct-2024	10-Oct-2024	28 days	2 days	✓	11-Oct-2024	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU DS 1	E290	08-Oct-2024	10-Oct-2024	14 days	2 days	✓	10-Oct-2024	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SQU US 1	E290	08-Oct-2024	10-Oct-2024	14 days	2 days	✓	10-Oct-2024	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU DS 1	E162	08-Oct-2024	----	----	----		13-Oct-2024	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SQU US 1	E162	08-Oct-2024	----	----	----		13-Oct-2024	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU DS 1	E160	08-Oct-2024	----	----	----		13-Oct-2024	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
SQU US 1	E160	08-Oct-2024	----	----	----		13-Oct-2024	7 days	5 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU DS 1	E532	08-Oct-2024	----	----	----		10-Oct-2024	28 days	2 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SQU US 1	E532	08-Oct-2024	----	----	----		10-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
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU DS 1	E508	08-Oct-2024	12-Oct-2024	28 days	4 days	✓	12-Oct-2024	28 days	4 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
SQU US 1	E508	08-Oct-2024	12-Oct-2024	28 days	4 days	✓	12-Oct-2024	28 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU DS 1	E420	08-Oct-2024	15-Oct-2024	180 days	7 days	✓	16-Oct-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SQU US 1	E420	08-Oct-2024	15-Oct-2024	180 days	7 days	✓	16-Oct-2024	180 days	8 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU DS 1	E395	08-Oct-2024	----	----	----		10-Oct-2024	7 days	2 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SQU US 1	E395	08-Oct-2024	----	----	----		10-Oct-2024	7 days	2 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	1701717	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1703210	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1701724	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1701720	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1711205	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701927	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1703212	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	1701723	1	6	16.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1701721	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1701722	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1701719	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1707298	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1706629	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701856	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1703209	1	14	7.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1703206	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1701426	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1707292	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1701717	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1703210	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1701724	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1701720	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1711205	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701927	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1703212	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	1701723	1	6	16.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1701721	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1701722	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1701719	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1707298	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1706629	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701856	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1703209	1	14	7.1	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1703206	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1701426	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1707292	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1701717	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1703210	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1701724	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1701720	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1711205	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701927	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1703212	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	1701723	1	6	16.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1701721	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1701722	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1701719	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1707298	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1706629	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701856	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1703209	1	14	7.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1703206	1	19	5.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1701426	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1707292	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1703210	1	14	7.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1701724	1	2	50.0	5.0	✓
Chloride in Water by IC	E235.Cl	1701720	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1711205	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701927	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1703212	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	1701723	1	6	16.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1701721	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1701722	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1701719	1	7	14.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1706629	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701856	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1703209	1	14	7.1	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1703206	1	19	5.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1701426	1	20	5.0	5.0	✓

Methodology References and Summaries

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

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

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

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

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

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

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C6846**	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	: 08-Oct-2024 12:30
PO	: 11964 - Task 20 - Phase 3C-4C	Date Analysis Commenced	: 10-Oct-2024
C-O-C number	: ----	Issue Date	: 16-Oct-2024 16:34
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

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

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: 1701717)											
VA24C6885-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	125	126	0.559%	20%	----
Physical Tests (QC Lot: 1707292)											
FJ2403072-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1707298)											
FJ2403072-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	166	180	14	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1701719)											
VA24C6846-001	SQU US 1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.66	4.65	0.0429%	20%	----
Anions and Nutrients (QC Lot: 1701720)											
VA24C6846-001	SQU US 1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.43	1.44	0.008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1701721)											
VA24C6846-001	SQU US 1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0280	0.0270	0.0011	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1701722)											
VA24C6846-001	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: 1701723)											
VA24C6846-001	SQU US 1	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.021	0.021	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1701724)											
VA24C6846-001	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: 1703206)											
VA24C6763-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0058	0.0057	0.00006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1703209)											
VA24C6763-001	Anonymous	Nitrogen, total	7727-37-9	E366	1.50	mg/L	9.60	9.30	0.293	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1703210)											
VA24C6763-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.229	0.231	0.963%	20%	----
Organic / Inorganic Carbon (QC Lot: 1703212)											
VA24C6846-001	SQU US 1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.97	0.95	0.02	Diff <2x LOR	----
Total Sulfides (QC Lot: 1701426)											
TY2411287-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1701856)											
VA24C6837-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00050	mg/L	0.00124	0.00125	0.000009	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: 1701856) - continued											
VA24C6837-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00050	mg/L	0.00585	0.00574	1.85%	20%	----
		Barium, total	7440-39-3	E420	0.00050	mg/L	0.0138	0.0138	0.479%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.050	mg/L	0.610	0.622	1.81%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000900	mg/L	<0.0000850	<0.0000900	0.0000050	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.250	mg/L	167	168	0.541%	20%	----
		Cesium, total	7440-46-2	E420	0.000050	mg/L	0.000173	0.000175	0.000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00250	mg/L	0.0685	0.0688	0.453%	20%	----
		Iron, total	7439-89-6	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0050	mg/L	0.0165	0.0165	0.00005	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0250	mg/L	374	376	0.582%	20%	----
		Manganese, total	7439-96-5	E420	0.00050	mg/L	0.00103	0.00092	0.00010	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000250	mg/L	0.0810	0.0824	1.77%	20%	----
		Nickel, total	7440-02-0	E420	0.00250	mg/L	0.00358	0.00354	0.00005	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.250	mg/L	18.5	18.9	1.95%	20%	----
		Rubidium, total	7440-17-7	E420	0.00100	mg/L	0.00610	0.00610	0.0000003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000250	mg/L	0.178	0.181	1.73%	20%	----
		Silicon, total	7440-21-3	E420	0.50	mg/L	5.41	5.57	2.86%	20%	----
		Silver, total	7440-22-4	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.250	mg/L	903	916	1.48%	20%	----
		Strontium, total	7440-24-6	E420	0.00100	mg/L	5.10	5.28	3.53%	20%	----
		Sulfur, total	7704-34-9	E420	2.50	mg/L	1130	1160	2.44%	20%	----
		Tellurium, total	13494-80-9	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00150	mg/L	<0.00150	<0.00150	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000050	mg/L	0.00689	0.00686	0.463%	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: 1701856) - continued											
VA24C6837-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
Total Metals (QC Lot: 1706629)											
VA24C6612-015	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1701927)											
VA24C6763-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0019	0.0021	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00018	0.00019	0.000004	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00050	0.00049	0.00001	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0225	0.0229	2.09%	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	0.0000196	0.0000157	0.0000039	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	8.84	8.84	0.0209%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000148	0.000145	1.93%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<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	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	0.314	0.328	0.0138	Diff <2x LOR	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00027	0.00027	0.000002	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000050	0.000060	0.000010	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	0.000055	0.000005	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.989	0.957	3.31%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.299	0.310	0.011	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0542	0.0558	2.88%	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: 1701927) - continued											
VA24C6763-002	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	4.02	3.54	0.48	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0042	0.0044	0.0002	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1711205)											
VA24C6612-015	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1702038)											
KS2404126-001	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: 1701717)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1707292)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1707298)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1701719)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1701720)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1701721)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1701722)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1701723)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1701724)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1703206)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1703209)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1703210)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1703212)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1701426)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1701856)						
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: 1701856) - 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: 1706629)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1701927)						
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: 1701927) - 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: 1711205)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1702038)						
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: 1701717)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1707292)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	95.8	85.0	115	----
Physical Tests (QCLot: 1707298)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1701719)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1701720)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1701721)									
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: 1701722)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1701723)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1701724)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1703206)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	92.2	80.0	120	----
Anions and Nutrients (QCLot: 1703209)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1703210)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1703212)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.1	80.0	120	----
Total Sulfides (QCLot: 1701426)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	101	80.0	120	----
Total Metals (QCLot: 1701856)									

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: 1701856) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	99.7	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	98.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	100.0	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.8	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	90.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	96.5	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.2	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	100	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.2	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.4	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.0	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.0	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	98.2	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.7	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	104	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.6	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	96.7	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	94.3	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.7	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.6	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	94.3	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	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: 1701856) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.8	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.6	80.0	120	----
Total Metals (QCLot: 1706629)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	105	80.0	120	----
Dissolved Metals (QCLot: 1701927)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	96.8	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	102	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.3	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	98.2	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.1	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	95.1	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.2	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.2	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.2	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.9	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.1	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.6	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.7	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	98.8	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.2	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	97.4	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	95.7	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.5	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	81.0	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: 1701927) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.3	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	95.5	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.8	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	91.3	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.4	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.8	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	100	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.7	80.0	120	----
Speciated Metals (QCLot: 1702038)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	94.3	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1701719)										
VA24C6846-002	SQU DS 1	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1701720)										
VA24C6846-002	SQU DS 1	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1701721)										
VA24C6846-002	SQU DS 1	Nitrate (as N)	14797-55-8	E235.NO3-L	2.55 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1701722)										
VA24C6846-002	SQU DS 1	Nitrite (as N)	14797-65-0	E235.NO2-L	0.513 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1701723)										
VA24C6846-002	SQU DS 1	Fluoride	16984-48-8	E235.F	1.03 mg/L	1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1701724)										
VA24C6846-002	SQU DS 1	Bromide	24959-67-9	E235.Br-L	0.519 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1703206)										
VA24C6763-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0474 mg/L	0.05 mg/L	94.7	70.0	130	----
Anions and Nutrients (QCLot: 1703209)										
VA24C6763-002	Anonymous	Nitrogen, total	7727-37-9	E366	0.402 mg/L	0.4 mg/L	100	70.0	130	----
Anions and Nutrients (QCLot: 1703210)										
VA24C6763-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.101 mg/L	0.1 mg/L	101	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1703212)										
VA24C6846-002	SQU DS 1	Carbon, dissolved organic [DOC]	----	E358-L	5.10 mg/L	5 mg/L	102	70.0	130	----
Total Sulfides (QCLot: 1701426)										
TY2411287-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.220 mg/L	0.2 mg/L	110	75.0	125	----
Total Metals (QCLot: 1701856)										
VA24C6837-002	Anonymous	Aluminum, total	7429-90-5	E420	0.965 mg/L	1 mg/L	96.5	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0951 mg/L	0.1 mg/L	95.1	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Barium, total	7440-39-3	E420	0.0915 mg/L	0.1 mg/L	91.5	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.194 mg/L	0.2 mg/L	96.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0459 mg/L	0.05 mg/L	91.8	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0485 mg/L	0.05 mg/L	97.0	70.0	130	----
		Chromium, total	7440-47-3	E420	0.191 mg/L	0.2 mg/L	95.7	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1701856) - continued										
VA24C6837-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0957 mg/L	0.1 mg/L	95.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0877 mg/L	0.1 mg/L	87.7	70.0	130	----
		Iron, total	7439-89-6	E420	9.50 mg/L	10 mg/L	95.0	70.0	130	----
		Lead, total	7439-92-1	E420	0.0901 mg/L	0.1 mg/L	90.1	70.0	130	----
		Lithium, total	7439-93-2	E420	0.514 mg/L	0.5 mg/L	103	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0962 mg/L	0.1 mg/L	96.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0925 mg/L	0.1 mg/L	92.5	70.0	130	----
		Nickel, total	7440-02-0	E420	0.186 mg/L	0.2 mg/L	93.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	51.0 mg/L	50 mg/L	102	70.0	130	----
		Potassium, total	7440-09-7	E420	20.8 mg/L	20 mg/L	104	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0962 mg/L	0.1 mg/L	96.2	70.0	130	----
		Selenium, total	7782-49-2	E420	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		Silicon, total	7440-21-3	E420	48.2 mg/L	50 mg/L	96.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.190 mg/L	0.2 mg/L	95.3	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0178 mg/L	0.02 mg/L	89.1	70.0	130	----
		Thorium, total	7440-29-1	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Tin, total	7440-31-5	E420	0.0933 mg/L	0.1 mg/L	93.3	70.0	130	----
		Titanium, total	7440-32-6	E420	0.190 mg/L	0.2 mg/L	95.1	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0921 mg/L	0.1 mg/L	92.1	70.0	130	----
		Uranium, total	7440-61-1	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.491 mg/L	0.5 mg/L	98.3	70.0	130	----
		Zinc, total	7440-66-6	E420	1.96 mg/L	2 mg/L	98.1	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.204 mg/L	0.2 mg/L	102	70.0	130	----
Total Metals (QCLot: 1706629)										
VA24C6612-016	Anonymous	Mercury, total	7439-97-6	E508	0.0000972 mg/L	0 mg/L	97.2	70.0	130	----
Dissolved Metals (QCLot: 1701927)										
VA24C6763-003	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0414 mg/L	0.04 mg/L	104	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00947 mg/L	0.01 mg/L	94.7	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00400 mg/L	0.004 mg/L	100	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	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1701927) - continued										
VA24C6763-003	Anonymous	Copper, dissolved	7440-50-8	E421	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	97.9	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	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	0.945 mg/L	1 mg/L	94.5	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.47 mg/L	10 mg/L	94.7	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.99 mg/L	4 mg/L	99.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.79 mg/L	10 mg/L	97.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	2.06 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	20.8 mg/L	20 mg/L	104	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0406 mg/L	0.04 mg/L	102	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00398 mg/L	0.004 mg/L	99.6	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0968 mg/L	0.1 mg/L	96.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.404 mg/L	0.4 mg/L	101	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0374 mg/L	0.04 mg/L	93.5	70.0	130	----
Dissolved Metals (QCLot: 1711205)										
VA24C6612-016	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000948 mg/L	0 mg/L	94.8	70.0	130	----
Speciated Metals (QCLot: 1702038)										
KS2404126-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 17 -

Page 1 of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Triton Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:		Quality Control (QC) Report with Report ☑ ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:		☑ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E1 - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] ☐
	inal report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:		Email 1 or Fax	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:		Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	
Invoice To	Same as Report To ☐ YES ☑ NO		
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice D	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA23-TRIT100-012	AFE/Cost Center:	PO#
Job #:	11964	Major/Minor Code:	Routing Code:
PO / AFE:	11964 - Task 20 - Phase 3C-4C	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	C6846	ALS Contact:	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further details	NUMBER OF CONTAINERS
						F					P	P			F/P							
	SQU US 1	08-Oct-24	09:35	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.55 cond: 47 µS/cm temp: 10.8 °C																					
	SQU DS 1	08-Oct-24	10:26	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.67 cond: 41 µS/cm temp: 10.6 °C																					

Environmental Division
Vancouver
Work Order Reference
VA24C6846
Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ ☑ NO	
Are samples for human consumption/ use? ☐ ☑ NO	Triton Project # 11964

SAMPLE

Frozen ☐
Ice Packs ☐ Ice Cubes ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				10 °C			

SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: / Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	08 Oct 24 / 12:11				SS	08/10/24	12:30

R ...ONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — SCPT 2017 FRONT

Fa... 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

Squamish River Upstream Sonde 2024-10-07 to 2024-10-13

Time	Date	Turbidity (NTU)	pH (pH)	ORP (mV)	DO (mg/L)	Temperature (C)	Specific Conductivity (µS/cm)	Salinity (psu)
12:00:00 AM	10/7/2024	39.85094	6.930442	312.6698	10.75741	10.54047	52.20678	0.023395
12:15:00 AM	10/7/2024	42.93875	6.929334	312.6603	10.74504	10.54938	52.16748	0.023376
12:30:00 AM	10/7/2024	37.78476	6.931519	312.5911	10.75529	10.55334	51.84279	0.023219
12:45:00 AM	10/7/2024	33.97517	6.93025	312.4457	10.74726	10.55881	51.95912	0.023276
1:00:00 AM	10/7/2024	31.79073	6.937974	312.1334	10.76535	10.5578	51.72289	0.023162
1:15:00 AM	10/7/2024	42.60735	6.942902	311.9188	10.74936	10.55963	51.88977	0.023242
1:30:00 AM	10/7/2024	43.43361	6.940647	312.5959	10.76681	10.54904	51.516	0.023062
1:45:00 AM	10/7/2024	33.82573	6.943661	312.8987	10.78165	10.54019	51.04818	0.022836
2:00:00 AM	10/7/2024	38.37177	6.942877	313.1252	10.77698	10.53043	51.06556	0.022844
2:15:00 AM	10/7/2024	30.31885	6.943048	312.5649	10.76678	10.51624	51.19477	0.022905
2:30:00 AM	10/7/2024	26.08909	6.945185	311.6637	10.78872	10.49255	50.77781	0.022703
2:45:00 AM	10/7/2024	29.26342	6.941123	312.1691	10.77733	10.47821	50.88839	0.022756
3:00:00 AM	10/7/2024	34.81813	6.932886	313.1395	10.78332	10.45129	50.45531	0.022546
3:15:00 AM	10/7/2024	37.23964	6.931935	313.4781	10.79304	10.43289	50.52404	0.022579
3:30:00 AM	10/7/2024	30.95182	6.941196	313.0203	10.79177	10.41727	50.62021	0.022624
3:45:00 AM	10/7/2024	35.99641	6.932774	313.4256	10.80467	10.39413	50.1354	0.02239
4:00:00 AM	10/7/2024	31.0397	6.939405	313.3088	10.81255	10.3815	49.8626	0.022258
4:15:00 AM	10/7/2024	31.52661	6.933687	312.9011	10.80816	10.37003	49.96137	0.022305
4:30:00 AM	10/7/2024	36.22403	6.934097	312.5196	10.80495	10.35413	50.02492	0.022335
4:45:00 AM	10/7/2024	26.92408	6.928154	311.8091	10.81262	10.3407	50.03284	0.022338
5:00:00 AM	10/7/2024	39.98364	6.929419	312.553	10.81477	10.32993	49.88078	0.022264
5:15:00 AM	10/7/2024	33.90981	6.929313	312.2717	10.82002	10.31161	49.72216	0.022187
5:30:00 AM	10/7/2024	35.26718	6.924659	313.6378	10.81444	10.29691	49.59303	0.022124
5:45:00 AM	10/7/2024	39.37922	6.923761	313.1705	10.81495	10.28616	49.73049	0.02219
6:00:00 AM	10/7/2024	34.99683	6.923006	313.664	10.8272	10.27438	49.59991	0.022127
6:15:00 AM	10/7/2024	37.98957	6.922779	313.3994	10.82118	10.26126	49.523	0.022089
6:30:00 AM	10/7/2024	38.8657	6.922068	312.193	10.81961	10.24936	49.51237	0.022083
6:45:00 AM	10/7/2024	38.17502	6.919367	311.2417	10.83001	10.23727	49.7317	0.022189
7:00:00 AM	10/7/2024	32.85019	6.921968	311.926	10.82793	10.2222	49.70921	0.022177
7:15:00 AM	10/7/2024	33.38386	6.918801	311.771	10.82975	10.21564	49.68496	0.022165
7:30:00 AM	10/7/2024	41.48563	6.92075	313.9334	10.82668	10.20163	49.47509	0.022063
7:45:00 AM	10/7/2024	42.60498	6.925183	314.7894	10.83923	10.19446	49.49876	0.022075
8:00:00 AM	10/7/2024	43.26033	6.937263	314.6964	10.8582	10.18085	49.38969	0.022021
8:15:00 AM	10/7/2024	46.4072	6.949361	314.4866	10.86233	10.16888	49.16591	0.021913
8:30:00 AM	10/7/2024	46.31313	6.959352	314.2052	10.88609	10.1561	48.84929	0.02176
8:45:00 AM	10/7/2024	70.34558	6.962208	314.0908	10.89872	10.15231	48.97113	0.021819
9:00:00 AM	10/7/2024	43.2569	6.965658	312.4862	10.90195	10.1514	49.54484	0.022095
9:15:00 AM	10/7/2024	54.68274	6.965613	311.5135	10.9125	10.15155	49.94876	0.02229
9:30:00 AM	10/7/2024	46.83839	6.972262	311.8997	10.92999	10.14935	50.17334	0.022398
9:45:00 AM	10/7/2024	56.03256	6.976467	311.4157	10.92807	10.16574	50.59677	0.022603
10:00:00 AM	10/7/2024	70.7401	6.981045	311.2178	10.93705	10.18256	51.07855	0.022836
10:15:00 AM	10/7/2024	63.19906	6.990477	310.9079	10.95301	10.20639	51.45836	0.02302
10:30:00 AM	10/7/2024	48.63172	6.996272	309.5179	10.95045	10.24884	52.89131	0.023712

10:45:00 AM	10/7/2024	52.1431	7.001238	309.115	10.95925	10.27621	53.08739	0.023808
11:00:00 AM	10/7/2024	57.56384	7.004812	308.8885	10.96606	10.30023	52.94187	0.023739
11:15:00 AM	10/7/2024	57.07002	7.007337	309.0387	10.97527	10.3512	53.51494	0.024017
11:30:00 AM	10/7/2024	77.18118	7.011214	309.1317	10.96312	10.43542	54.99569	0.024735
11:45:00 AM	10/7/2024	47.08855	7.012654	309.4488	10.95848	10.51276	54.90699	0.024696
12:00:00 PM	10/7/2024	54.78864	7.016277	309.8946	10.97118	10.59958	54.54617	0.024525
12:15:00 PM	10/7/2024	54.15014	7.019072	310.2975	10.97433	10.6933	54.28692	0.024404
12:30:00 PM	10/7/2024	56.99912	7.020935	309.2342	10.9683	10.75931	55.06587	0.024783
12:45:00 PM	10/7/2024	53.45771	7.020371	309.8303	10.95685	10.78775	54.46315	0.024493
1:00:00 PM	10/7/2024	51.98882	7.021222	310.0234	10.9569	10.79297	54.01753	0.024279
1:15:00 PM	10/7/2024	45.63006	7.02067	310.5503	10.9451	10.82343	53.25679	0.023913
1:30:00 PM	10/7/2024	54.90939	7.013222	311.3228	10.95015	10.87039	53.20268	0.023888
1:45:00 PM	10/7/2024	45.18787	7.013519	311.523	10.94727	10.91171	52.57965	0.023589
2:00:00 PM	10/7/2024	36.80629	7.00739	311.4586	10.9452	10.94461	52.56999	0.023586
2:15:00 PM	10/7/2024	40.28425	7.001973	311.0152	10.92817	10.95038	52.76377	0.02368
2:30:00 PM	10/7/2024	38.50731	7.00206	310.3548	10.92545	10.93634	52.61335	0.023607
2:45:00 PM	10/7/2024	47.32092	6.999937	310.2809	10.91749	10.93689	53.02285	0.023804
3:00:00 PM	10/7/2024	30.02043	6.993925	310.3405	10.91317	10.93451	52.45076	0.023528
3:15:00 PM	10/7/2024	45.28872	6.987522	310.9866	10.89973	10.93002	52.06339	0.023341
3:30:00 PM	10/7/2024	39.49719	6.983391	311.039	10.88621	10.92358	51.56763	0.023101
3:45:00 PM	10/7/2024	40.41124	6.976281	310.629	10.86152	10.91824	51.49266	0.023065
4:00:00 PM	10/7/2024	34.10028	6.971589	310.8387	10.84797	10.90131	50.97699	0.022815
4:15:00 PM	10/7/2024	49.00975	6.969049	310.8936	10.83999	10.88751	50.50021	0.022585
4:30:00 PM	10/7/2024	49.7933	6.962462	310.8817	10.82045	10.8811	50.56572	0.022616
4:45:00 PM	10/7/2024	33.88253	6.959412	310.7601	10.78057	10.88699	50.5164	0.022593
5:00:00 PM	10/8/2024	38.89174	6.954526	310.5002	10.77203	10.89957	50.58471	0.022626
5:15:00 PM	10/8/2024	32.94526	6.955545	310.9246	10.77736	10.91611	49.56499	0.022135
5:30:00 PM	10/8/2024	43.55191	6.95173	312.1382	10.73751	10.93906	50.10651	0.022397
5:45:00 PM	10/8/2024	31.1945	6.954618	312.5053	10.72238	10.96616	50.32281	0.022502
6:00:00 PM	10/8/2024	29.46208	6.952876	311.2059	10.71174	10.98633	50.63476	0.022653
6:15:00 PM	10/8/2024	31.9116	6.956594	310.8626	10.70589	11.00333	50.57103	0.022623
6:30:00 PM	10/8/2024	31.55431	6.960123	309.9113	10.6966	11.00766	50.71687	0.022694
6:45:00 PM	10/8/2024	32.47741	6.959905	309.8231	10.68163	11.00812	51.03872	0.022849
7:00:00 PM	10/8/2024	35.06377	6.957755	309.2676	10.64993	11.01321	51.79489	0.023214
7:15:00 PM	10/8/2024	30.80804	6.9573	307.8323	10.62122	11.03214	53.23559	0.023911
7:30:00 PM	10/8/2024	30.93182	6.952783	308.6167	10.61391	11.02612	53.73248	0.02415
7:45:00 PM	10/8/2024	31.1365	6.951385	308.5094	10.60154	11.01501	54.04894	0.024303
8:00:00 PM	10/8/2024	26.67668	6.954431	308.4808	10.58685	10.99261	54.83032	0.024679
8:15:00 PM	10/8/2024	27.64635	6.961236	307.899	10.56198	10.98163	55.88748	0.025189
8:30:00 PM	10/8/2024	30.19961	6.964108	306.9621	10.57824	10.96509	55.8384	0.025165
8:45:00 PM	10/8/2024	28.65783	6.970172	307.1409	10.57949	10.95288	55.3844	0.024945
9:00:00 PM	10/8/2024	28.34134	6.971169	306.8572	10.56475	10.94846	55.98742	0.025236
9:15:00 PM	10/8/2024	32.58184	6.967764	307.1194	10.57165	10.93878	55.71918	0.025106
9:30:00 PM	10/8/2024	25.02939	6.967656	307.4771	10.56744	10.92078	55.42278	0.024962
9:45:00 PM	10/8/2024	20.00335	6.963625	308.1566	10.55921	10.91046	55.3496	0.024926
10:00:00 PM	10/8/2024	27.51929	6.964402	308.1113	10.57322	10.89548	54.88781	0.024703
10:15:00 PM	10/8/2024	35.40576	6.960675	308.6167	10.56963	10.88736	54.87838	0.024698

10:30:00 PM	10/8/2024	34.9871	6.961459	308.4093	10.59522	10.87189	54.47246	0.024501
10:45:00 PM	10/8/2024	27.80905	6.959325	308.972	10.59704	10.85083	54.3156	0.024425
11:00:00 PM	10/8/2024	27.16518	6.962564	309.0292	10.60733	10.83246	54.40976	0.024469
11:15:00 PM	10/8/2024	28.16849	6.965802	309.3177	10.63017	10.81149	53.8811	0.024213
11:30:00 PM	10/8/2024	28.49061	6.968491	310.7529	10.63194	10.79605	53.87811	0.024211
11:45:00 PM	10/8/2024	25.76485	6.966355	311.5278	10.63896	10.78345	53.38028	0.023971
12:00:00 AM	10/8/2024	30.5612	6.965423	311.7543	10.64003	10.77515	53.04365	0.023808
12:15:00 AM	10/8/2024	29.33859	6.965042	311.3394	10.63729	10.77512	52.96219	0.023769
12:30:00 AM	10/8/2024	30.28984	6.968677	310.9055	10.64068	10.77826	52.76631	0.023674
12:45:00 AM	10/8/2024	27.10336	6.971368	310.3333	10.63959	10.78494	52.63181	0.02361
1:00:00 AM	10/8/2024	29.15129	6.9693	310.8292	10.62997	10.79568	52.79263	0.023688
1:15:00 AM	10/8/2024	26.23364	6.975006	310.9437	10.64446	10.8045	52.51722	0.023555
1:30:00 AM	10/8/2024	24.55209	6.975416	311.7758	10.64234	10.80814	52.47432	0.023534
1:45:00 AM	10/8/2024	36.07643	6.977766	312.0165	10.6467	10.81226	52.32157	0.023461
2:00:00 AM	10/8/2024	30.80197	6.978575	311.7638	10.65619	10.81467	52.25964	0.023431
2:15:00 AM	10/8/2024	19.38765	6.982563	312.1978	10.66117	10.81403	51.68057	0.023152
2:30:00 AM	10/8/2024	32.1881	6.985249	311.7519	10.67158	10.80713	51.69399	0.023158
2:45:00 AM	10/8/2024	28.4523	6.990695	311.771	10.66282	10.8107	51.44976	0.02304
3:00:00 AM	10/8/2024	24.03413	6.992421	312.1834	10.68157	10.80298	51.03994	0.022842
3:15:00 AM	10/8/2024	25.05459	6.992589	313.397	10.69171	10.79474	50.50444	0.022583
3:30:00 AM	10/8/2024	27.35715	6.99418	314.2124	10.70163	10.79031	50.26921	0.02247
3:45:00 AM	10/8/2024	25.45753	6.997507	314.5271	10.70365	10.78024	50.09678	0.022386
4:00:00 AM	10/8/2024	26.68203	7.001169	314.446	10.71765	10.7677	49.81045	0.022247
4:15:00 AM	10/8/2024	26.78577	7.003943	314.3411	10.72485	10.74133	49.61143	0.02215
4:30:00 AM	10/8/2024	27.94901	7.000203	314.4937	10.7219	10.70081	48.95319	0.021831
4:45:00 AM	10/8/2024	31.1187	6.998094	314.8585	10.7459	10.65048	48.65705	0.021687
5:00:00 AM	10/8/2024	20.19894	6.995536	315.1088	10.75872	10.59351	48.15979	0.021445
5:15:00 AM	10/8/2024	40.66613	6.990891	315.3854	10.75479	10.53989	47.78626	0.021263
5:30:00 AM	10/8/2024	27.59025	6.989283	314.9777	10.77261	10.48987	47.18023	0.020968
5:45:00 AM	10/8/2024	42.04753	6.986624	315.9814	10.78902	10.45316	47.01091	0.020885
6:00:00 AM	10/8/2024	39.5046	6.98393	315.6024	10.78515	10.42694	47.0603	0.020908
6:15:00 AM	10/8/2024	45.83284	6.979547	316.0005	10.79315	10.40594	47.17585	0.020963
6:30:00 AM	10/8/2024	40.10349	6.980127	314.9157	10.78571	10.39288	47.5817	0.021158
6:45:00 AM	10/8/2024	51.03612	6.981822	315.1017	10.79515	10.38458	47.57176	0.021153
7:00:00 AM	10/8/2024	34.9582	6.975763	315.3425	10.80683	10.37613	47.13037	0.02094
7:15:00 AM	10/8/2024	37.89315	6.976777	314.9801	10.79267	10.37076	47.24706	0.020996
7:30:00 AM	10/8/2024	42.79863	6.972782	314.9253	10.78846	10.36597	47.36225	0.021052
7:45:00 AM	10/8/2024	34.77732	6.973001	314.787	10.79343	10.35989	47.2298	0.020987
8:00:00 AM	10/8/2024	57.85221	6.970733	314.8799	10.79318	10.3558	46.94022	0.020848
8:15:00 AM	10/8/2024	47.79033	6.973561	314.5652	10.79228	10.35931	47.00105	0.020877
8:30:00 AM	10/8/2024	44.1046	6.979209	314.1599	10.80571	10.36139	47.08929	0.02092
8:45:00 AM	10/8/2024	56.86968	6.982895	314.5533	10.81448	10.36148	47.02951	0.020891
9:00:00 AM	10/8/2024	61.91637	6.989522	314.7441	10.81883	10.36041	47.07572	0.020913
9:15:00 AM	10/8/2024	48.01854	6.998362	314.7131	10.84483	10.35052	47.46868	0.021102
9:30:00 AM	10/8/2024	54.28737	7.001719	314.5939	10.84938	10.35547	48.16884	0.02144
9:45:00 AM	10/8/2024	72.57806	7.00946	314.7774	10.85349	10.35645	47.75657	0.021241
10:00:00 AM	10/8/2024	52.44582	7.01125	314.1504	10.85134	10.37515	48.67412	0.021684

10:15:00 AM	10/8/2024	64.35944	7.012307	313.3422	10.87391	10.3808	47.79482	0.021261
10:30:00 AM	10/8/2024	74.95621	7.011688	313.1681	10.89551	10.37976	46.7951	0.020779
10:45:00 AM	10/8/2024	76.00546	7.011905	312.1119	10.87454	10.40421	47.71785	0.021224
11:00:00 AM	10/8/2024	49.86876	7.014997	311.3013	10.87659	10.41815	47.77691	0.021253
11:15:00 AM	10/8/2024	52.21087	7.020393	310.8387	10.89433	10.4447	47.94852	0.021337
11:30:00 AM	10/8/2024	64.34073	7.023515	311.5731	10.9133	10.45663	47.01345	0.020887
11:45:00 AM	10/8/2024	77.8521	7.030094	311.3585	10.91896	10.47781	46.94547	0.020855
12:00:00 PM	10/8/2024	64.03046	7.036231	311.9546	10.95247	10.49469	46.20876	0.0205
12:15:00 PM	10/8/2024	67.45443	7.036513	312.2645	10.9558	10.52026	46.90495	0.020837
12:30:00 PM	10/8/2024	70.28827	7.038729	311.0152	10.95358	10.54962	46.8803	0.020826
12:45:00 PM	10/8/2024	58.5953	7.041759	313.1013	10.99668	10.55634	45.18002	0.020006
1:00:00 PM	10/8/2024	63.87515	7.046474	313.7809	10.99929	10.59381	44.76672	0.019809
1:15:00 PM	10/8/2024	55.83311	7.045388	314.0479	11.00758	10.61746	45.02771	0.019935
1:30:00 PM	10/8/2024	69.43321	7.03958	314.5771	11.00344	10.62888	45.10315	0.019972
1:45:00 PM	10/8/2024	70.04518	7.041971	315.0755	11.00842	10.66602	44.63977	0.01975
2:00:00 PM	10/8/2024	78.2396	7.039885	315.7764	11.02005	10.70245	43.78312	0.019338
2:15:00 PM	10/8/2024	68.92354	7.039353	315.7669	11.025	10.72311	43.54436	0.019224
2:30:00 PM	10/8/2024	70.59573	7.036526	315.5714	11.01835	10.73904	43.29595	0.019104
2:45:00 PM	10/8/2024	77.03564	7.031322	316.3939	11.02322	10.74716	42.56865	0.018754
3:00:00 PM	10/8/2024	72.80646	7.024689	316.7396	10.9988	10.75192	41.95137	0.018457
3:15:00 PM	10/8/2024	73.26595	7.016152	316.9733	11.02367	10.75656	41.40235	0.018192
3:30:00 PM	10/8/2024	75.21573	7.008162	316.959	11.00129	10.74493	40.68496	0.017846
3:45:00 PM	10/8/2024	76.69868	6.998086	316.4321	10.99549	10.7507	41.09532	0.018044
4:00:00 PM	10/8/2024	79.17918	6.98979	316.4225	10.97476	10.75348	40.85749	0.017929
4:15:00 PM	10/8/2024	95.13382	6.987088	317.0829	10.96555	10.74756	40.27377	0.017648
4:30:00 PM	10/8/2024	95.99866	6.981662	317.0353	10.98004	10.72867	40.21837	0.017621
4:45:00 PM	10/8/2024	99.24065	6.976227	317.7481	10.95993	10.72144	40.16845	0.017597
5:00:00 PM	10/9/2024	116.854	6.970071	318.9879	10.96874	10.68362	39.68621	0.017363
5:15:00 PM	10/9/2024	117.2862	6.970591	317.865	10.93754	10.68005	40.82417	0.017911
5:30:00 PM	10/9/2024	108.2111	6.967378	319.0428	10.94304	10.63791	39.82306	0.017428
5:45:00 PM	10/9/2024	139.2198	6.964386	319.8152	10.93723	10.61469	40.49255	0.017749
6:00:00 PM	10/9/2024	119.737	6.962796	319.6746	10.93655	10.59384	40.19264	0.017604
6:15:00 PM	10/9/2024	144.4467	6.962129	319.1357	10.92109	10.60153	40.73583	0.017866
6:30:00 PM	10/9/2024	147.721	6.962451	318.7447	10.91841	10.6026	40.37807	0.017694
6:45:00 PM	10/9/2024	128.3906	6.958403	318.9092	10.90889	10.60434	40.71682	0.017857
7:00:00 PM	10/9/2024	134.1576	6.959844	318.9998	10.92493	10.60425	40.34175	0.017677
7:15:00 PM	10/9/2024	150.5051	6.956017	318.6255	10.90741	10.60812	40.21624	0.017616
7:30:00 PM	10/9/2024	136.2926	6.955567	318.7209	10.89153	10.61258	40.03384	0.017528
7:45:00 PM	10/9/2024	123.279	6.950157	319.1381	10.90348	10.60074	39.34448	0.017196
8:00:00 PM	10/9/2024	134.3254	6.949536	319.4528	10.89912	10.59418	39.44076	0.017242
8:15:00 PM	10/9/2024	132.6395	6.94423	318.6756	10.88136	10.59787	40.40905	0.017709
8:30:00 PM	10/9/2024	129.8356	6.945903	317.9079	10.87425	10.5936	39.62993	0.017333
8:45:00 PM	10/9/2024	135.3205	6.943583	318.4109	10.87448	10.58182	39.53686	0.017288
9:00:00 PM	10/9/2024	105.2115	6.940117	318.5754	10.86919	10.57581	39.76143	0.017396
9:15:00 PM	10/9/2024	130.7124	6.938616	318.0271	10.87341	10.56577	39.99676	0.017509
9:30:00 PM	10/9/2024	113.0339	6.934587	317.9698	10.86843	10.56046	39.94311	0.017483
9:45:00 PM	10/9/2024	106.1646	6.935655	317.8864	10.86545	10.55151	39.7581	0.017394

10:00:00 PM	10/9/2024	135.0419	6.931729	318.4681	10.87455	10.53375	39.61695	0.017325
10:15:00 PM	10/9/2024	110.2256	6.932698	318.0819	10.86212	10.52847	39.94884	0.017485
10:30:00 PM	10/9/2024	117.7745	6.932073	318.7161	10.8676	10.51938	40.18144	0.017597
10:45:00 PM	10/9/2024	118.464	6.932402	319.1691	10.85886	10.5144	40.64058	0.017818
11:00:00 PM	10/9/2024	124.0204	6.930673	319.8057	10.85251	10.51389	40.8185	0.017903
11:15:00 PM	10/9/2024	124.6096	6.925337	320.4899	10.86216	10.49692	40.04651	0.017531
11:30:00 PM	10/9/2024	104.5427	6.927137	320.4136	10.84783	10.49832	39.99477	0.017506
11:45:00 PM	10/9/2024	120.6902	6.924619	320.8738	10.85083	10.49109	40.16722	0.017589
12:00:00 AM	10/9/2024	102.9068	6.920788	322.0063	10.86797	10.47263	39.20752	0.017126
12:15:00 AM	10/9/2024	102.0872	6.921368	321.0765	10.8491	10.47632	39.94124	0.01748
12:30:00 AM	10/9/2024	103.6923	6.922696	320.4804	10.83729	10.47531	40.03949	0.017527
12:45:00 AM	10/9/2024	107.11	6.915728	321.3673	10.86133	10.45129	39.52639	0.017279
1:00:00 AM	10/9/2024	120.0669	6.914793	321.7297	10.86413	10.42883	39.08845	0.017068
1:15:00 AM	10/9/2024	110.308	6.914143	321.7869	10.85383	10.4129	39.27963	0.017159
1:30:00 AM	10/9/2024	127.0314	6.911265	321.6248	10.85178	10.40698	39.88398	0.01745
1:45:00 AM	10/9/2024	101.5051	6.908854	322.3401	10.8475	10.39264	39.84082	0.017429
2:00:00 AM	10/9/2024	96.31852	6.911267	321.6987	10.8441	10.38712	40.28206	0.017641
2:15:00 AM	10/9/2024	112.5772	6.908286	321.7655	10.83984	10.37396	39.84506	0.01743
2:30:00 AM	10/9/2024	112.5497	6.910974	320.8976	10.8393	10.36713	40.07135	0.017539
2:45:00 AM	10/9/2024	87.57257	6.910331	320.8476	10.83672	10.35913	40.19144	0.017597
3:00:00 AM	10/9/2024	122.6153	6.908208	320.5972	10.83868	10.35086	39.96003	0.017485
3:15:00 AM	10/9/2024	112.9177	6.908649	320.6688	10.84614	10.33835	39.92017	0.017465
3:30:00 AM	10/9/2024	136.0999	6.903251	321.0717	10.84256	10.32245	40.14764	0.017574
3:45:00 AM	10/9/2024	79.48561	6.902389	321.0049	10.8398	10.31775	40.11098	0.017557
4:00:00 AM	10/9/2024	115.2501	6.901116	320.8881	10.84667	10.30923	39.79033	0.017402
4:15:00 AM	10/9/2024	98.91216	6.898795	320.5638	10.82471	10.31146	40.49401	0.017741
4:30:00 AM	10/9/2024	93.16801	6.899603	320.6664	10.84025	10.29709	40.52363	0.017755
4:45:00 AM	10/9/2024	84.13806	6.895554	320.5138	10.82958	10.2901	40.79752	0.017886
5:00:00 AM	10/9/2024	124.0243	6.89562	320.3803	10.83087	10.28281	40.36743	0.017679
5:15:00 AM	10/9/2024	98.38567	6.895161	320.6425	10.83478	10.27667	40.70799	0.017843
5:30:00 AM	10/9/2024	91.12494	6.894023	320.8404	10.8456	10.2677	40.60515	0.017793
5:45:00 AM	10/9/2024	98.64069	6.894335	321.9514	10.84372	10.25534	40.55419	0.017768
6:00:00 AM	10/9/2024	91.27837	6.896423	321.6248	10.84828	10.2489	40.96121	0.017964
6:15:00 AM	10/9/2024	95.72761	6.897716	321.4102	10.85402	10.24188	40.93244	0.01795
6:30:00 AM	10/9/2024	106.5461	6.894897	320.8166	10.84691	10.24039	41.09663	0.018029
6:45:00 AM	10/9/2024	127.2704	6.894444	320.9501	10.83611	10.23672	41.2205	0.018088
7:00:00 AM	10/9/2024	98.41919	6.896358	320.8547	10.84506	10.22495	41.2752	0.018114
7:15:00 AM	10/9/2024	114.922	6.896847	320.9429	10.84787	10.21774	41.54177	0.018242
7:30:00 AM	10/9/2024	81.89635	6.894679	320.3373	10.84577	10.2153	41.69251	0.018315
7:45:00 AM	10/9/2024	143.1121	6.893627	320.5591	10.85039	10.20621	41.95457	0.018441
8:00:00 AM	10/9/2024	123.4273	6.89499	320.149	10.8466	10.19446	42.19948	0.018558
8:15:00 AM	10/9/2024	107.2195	6.894882	320.1657	10.85327	10.18182	42.29235	0.018602
8:30:00 AM	10/9/2024	92.61868	6.896049	319.2836	10.86519	10.17181	42.25869	0.018586
8:45:00 AM	10/9/2024	89.82241	6.89834	319.4838	10.86652	10.15759	42.77544	0.018834
9:00:00 AM	10/9/2024	109.3627	6.901315	319.1786	10.86954	10.1431	42.80165	0.018846
9:15:00 AM	10/9/2024	97.00291	6.905888	319.3599	10.88912	10.13229	43.01986	0.018951
9:30:00 AM	10/9/2024	69.71558	6.913096	319.5291	10.90167	10.13522	42.85961	0.018874

9:45:00 AM	10/9/2024	84.9968	6.921206	319.6412	10.91864	10.14038	43.13725	0.019008
10:00:00 AM	10/9/2024	109.37	6.927032	319.2168	10.94768	10.15344	42.88381	0.018886
10:15:00 AM	10/9/2024	90.66779	6.93502	318.6756	10.94911	10.18329	43.25087	0.019064
10:30:00 AM	10/9/2024	87.80119	6.945649	317.021	10.97195	10.23483	43.65861	0.019262
10:45:00 AM	10/9/2024	86.87827	6.951174	317.3118	10.98706	10.27878	43.20329	0.019044
11:00:00 AM	10/9/2024	100.96	6.957076	315.6906	10.97979	10.32288	44.51897	0.01968
11:15:00 AM	10/9/2024	84.29723	6.966639	314.8132	11.00939	10.34357	43.37852	0.019131
11:30:00 AM	10/9/2024	95.397	6.970481	314.1289	11.01949	10.36957	44.70247	0.01977
11:45:00 AM	10/9/2024	104.2968	6.978469	313.9048	11.0085	10.40161	44.9171	0.019874
12:00:00 PM	10/9/2024	92.07978	6.981384	312.8915	11.00444	10.43274	45.80946	0.020306
12:15:00 PM	10/9/2024	111.1313	6.9891	312.3766	11.02245	10.43243	45.98673	0.020391
12:30:00 PM	10/9/2024	102.7507	6.993748	311.7877	11.01512	10.41943	46.30807	0.020545
12:45:00 PM	10/9/2024	90.1185	7.000546	311.9188	11.00266	10.42926	46.66611	0.020718
1:00:00 PM	10/9/2024	127.0418	6.99787	311.6899	11.01817	10.44913	47.46621	0.021105
1:15:00 PM	10/9/2024	117.346	7.003292	311.3323	11.00966	10.48514	48.02672	0.021376
1:30:00 PM	10/9/2024	94.79214	7.008291	312.5435	11.025	10.48788	46.58908	0.020683
1:45:00 PM	10/9/2024	116.5543	7.008259	313.4542	11.02749	10.53973	47.19671	0.020978
2:00:00 PM	10/9/2024	155.609	7.004672	313.2635	11.02739	10.62183	48.03539	0.021386
2:15:00 PM	10/9/2024	120.6474	7.001555	313.5472	11.01971	10.71756	48.01567	0.02138
2:30:00 PM	10/9/2024	121.4598	6.994148	312.9416	10.99358	10.8035	48.43817	0.021587
2:45:00 PM	10/9/2024	118.4154	6.985816	314.6702	10.98503	10.8588	47.96232	0.021359
3:00:00 PM	10/9/2024	151.7334	6.986013	313.2921	10.98727	10.85693	47.15001	0.020967
3:15:00 PM	10/9/2024	122.9965	6.982539	313.9907	10.98361	10.8461	47.06029	0.020923
3:30:00 PM	10/9/2024	131.2086	6.985033	314.9777	10.97578	10.81573	47.57409	0.02117
3:45:00 PM	10/9/2024	92.88889	6.982095	314.8585	10.97927	10.77802	47.37675	0.021074
4:00:00 PM	10/9/2024	103.7293	6.982153	313.1228	10.96194	10.74924	47.27435	0.021023
4:15:00 PM	10/9/2024	158.2115	6.975283	312.7962	10.96571	10.72781	47.26233	0.021017
4:30:00 PM	10/9/2024	135.2256	6.970271	311.163	10.95451	10.6955	47.4423	0.021102
4:45:00 PM	10/9/2024	130.0494	6.96699	311.6303	10.94027	10.66061	47.85728	0.021301
5:00:00 PM	10/10/2024	101.7924	6.965428	311.6589	10.94162	10.61295	47.74081	0.021243
5:15:00 PM	10/10/2024	92.1857	6.960893	311.9808	10.91757	10.56021	48.15257	0.02144
5:30:00 PM	10/10/2024	118.3254	6.95521	312.4171	10.89937	10.51596	48.3872	0.021551
5:45:00 PM	10/10/2024	96.11439	6.95236	313.087	10.88901	10.46356	48.38926	0.02155
6:00:00 PM	10/10/2024	77.95843	6.955879	313.1204	10.91348	10.39908	47.55055	0.021144
6:15:00 PM	10/10/2024	121.3858	6.949973	313.4423	10.89852	10.35526	48.00404	0.021361
6:30:00 PM	10/10/2024	73.56246	6.947502	313.0465	10.8858	10.31406	47.88366	0.021301
6:45:00 PM	10/10/2024	96.37525	6.946183	312.801	10.88486	10.27515	47.72087	0.021221
7:00:00 PM	10/10/2024	103.9607	6.949903	312.4505	10.88774	10.24512	47.98698	0.021348
7:15:00 PM	10/10/2024	87.30135	6.951131	312.5673	10.88511	10.21439	48.07734	0.02139
7:30:00 PM	10/10/2024	117.2789	6.945019	313.2778	10.87873	10.18958	48.01415	0.021359
7:45:00 PM	10/10/2024	80.20354	6.948092	313.2349	10.87432	10.17984	48.95747	0.021813
8:00:00 PM	10/10/2024	93.76372	6.945596	312.975	10.86125	10.16824	49.0126	0.021839
8:15:00 PM	10/10/2024	98.98559	6.94757	312.1071	10.84312	10.16953	50.06657	0.022347
8:30:00 PM	10/10/2024	79.29668	6.946857	311.6255	10.85739	10.15775	49.96891	0.0223
8:45:00 PM	10/10/2024	96.79342	6.94806	311.6446	10.852	10.15674	49.88787	0.022261
9:00:00 PM	10/10/2024	85.99823	6.946881	311.7137	10.85315	10.15619	50.2396	0.02243
9:15:00 PM	10/10/2024	90.26608	6.948682	311.1702	10.83401	10.16336	50.93561	0.022766

9:30:00 PM	10/10/2024	82.31145	6.947498	310.9699	10.83853	10.16586	50.97197	0.022783
9:45:00 PM	10/10/2024	144.6703	6.941708	312.1334	10.83497	10.15332	51.21152	0.022898
10:00:00 PM	10/10/2024	58.67619	6.944038	311.7495	10.83593	10.14221	51.24847	0.022916
10:15:00 PM	10/10/2024	82.49026	6.943522	311.9021	10.82511	10.13144	51.51786	0.023045
10:30:00 PM	10/10/2024	83.12872	6.948731	311.3967	10.82532	10.10681	51.46199	0.023017
10:45:00 PM	10/10/2024	73.3342	6.943925	312.9988	10.83504	10.07681	51.95618	0.023254
11:00:00 PM	10/10/2024	117.9324	6.943494	312.7199	10.82998	10.05203	52.0443	0.023295
11:15:00 PM	10/10/2024	85.36716	6.931583	313.881	10.8244	10.01755	51.85143	0.023201
11:30:00 PM	10/10/2024	108.6974	6.930581	314.3912	10.83659	9.988342	51.71538	0.023134
11:45:00 PM	10/10/2024	73.71915	6.919636	316.0673	10.86321	9.951416	51.17293	0.022871
12:00:00 AM	10/10/2024	111.7249	6.922211	316.0864	10.86516	9.921356	51.51328	0.023034
12:15:00 AM	10/10/2024	106.2902	6.919161	317.0233	10.88075	9.875824	50.84387	0.022709
12:30:00 AM	10/10/2024	78.42795	6.921814	316.4034	10.89301	9.832153	50.58529	0.022583
12:45:00 AM	10/10/2024	96.23174	6.917262	316.8708	10.89029	9.798859	50.57942	0.022578
1:00:00 AM	10/10/2024	66.74512	6.920856	317.4549	10.91287	9.754852	50.38998	0.022485
1:15:00 AM	10/10/2024	120.7159	6.916102	317.8817	10.93152	9.726318	50.17143	0.022379
1:30:00 AM	10/10/2024	77.63245	6.924469	317.9627	10.93504	9.70105	50.26324	0.022422
1:45:00 AM	10/10/2024	117.6778	6.918274	318.9903	10.94434	9.672363	49.80497	0.0222
2:00:00 AM	10/10/2024	88.11105	6.923383	318.7519	10.95877	9.643494	49.58374	0.022092
2:15:00 AM	10/10/2024	73.24628	6.918269	318.9021	10.96488	9.621887	49.56374	0.022081
2:30:00 AM	10/10/2024	95.26767	6.929669	317.2355	10.97536	9.607025	49.43519	0.022019
2:45:00 AM	10/10/2024	91.34292	6.926361	318.2059	10.98473	9.59259	49.44603	0.022024
3:00:00 AM	10/10/2024	72.16855	6.9311	317.7362	10.99469	9.588257	49.31467	0.02196
3:15:00 AM	10/10/2024	96.20826	6.921774	318.4729	11.00007	9.578278	49.14571	0.021878
3:30:00 AM	10/10/2024	108.6519	6.925262	318.9736	11.00546	9.55835	48.9641	0.02179
3:45:00 AM	10/10/2024	84.15055	6.925203	318.7972	11.01252	9.548157	48.90345	0.02176
4:00:00 AM	10/10/2024	107.9953	6.930092	318.4634	11.01411	9.534058	49.14084	0.021874
4:15:00 AM	10/10/2024	81.83082	6.927189	318.5683	11.01267	9.517975	49.16521	0.021885
4:30:00 AM	10/10/2024	127.0631	6.927515	318.0557	11.01823	9.501984	49.18101	0.021892
4:45:00 AM	10/10/2024	108.5529	6.931312	318.492	11.03218	9.484253	48.93864	0.021775
5:00:00 AM	10/10/2024	99.23618	6.930929	318.399	11.06498	9.464569	48.72617	0.021671
5:15:00 AM	10/10/2024	105.8194	6.925635	318.6231	11.05412	9.449097	48.83705	0.021724
5:30:00 AM	10/10/2024	86.71297	6.932572	317.7076	11.06632	9.434662	48.91994	0.021763
5:45:00 AM	10/10/2024	96.23855	6.932058	318.2178	11.07119	9.415192	48.7611	0.021686
6:00:00 AM	10/10/2024	114.7028	6.927856	317.8101	11.07995	9.397827	48.79353	0.021701
6:15:00 AM	10/10/2024	109.6623	6.931742	317.8817	11.08088	9.379883	48.87277	0.021738
6:30:00 AM	10/10/2024	137.1543	6.93423	317.2212	11.09347	9.358856	48.87249	0.021737
6:45:00 AM	10/10/2024	108.7766	6.92949	317.8006	11.09329	9.337494	48.71539	0.02166
7:00:00 AM	10/10/2024	128.5264	6.92469	317.7839	11.09619	9.317352	49.09432	0.021842
7:15:00 AM	10/10/2024	103.7318	6.93625	317.6552	11.10544	9.28717	48.68158	0.021642
7:30:00 AM	10/10/2024	92.96055	6.929515	318.5206	11.11542	9.259949	48.77721	0.021687
7:45:00 AM	10/10/2024	90.70383	6.934321	317.9913	11.11135	9.240326	49.07094	0.021827
8:00:00 AM	10/10/2024	138.7394	6.938722	317.4096	11.13659	9.213898	49.29172	0.021932
8:15:00 AM	10/10/2024	116.1942	6.935879	317.7982	11.13019	9.193695	49.04467	0.021812
8:30:00 AM	10/10/2024	127.9528	6.935508	317.1044	11.15534	9.176056	49.00558	0.021793
8:45:00 AM	10/10/2024	84.3966	6.933158	317.2093	11.15738	9.168243	49.32531	0.021946
9:00:00 AM	10/10/2024	97.00059	6.944068	316.4893	11.1928	9.167297	49.28864	0.021928

9:15:00 AM	10/10/2024	97.7087	6.944311	316.5226	11.19987	9.165253	49.4991	0.022029
9:30:00 AM	10/10/2024	84.68318	6.943948	315.6882	11.21037	9.172363	49.97167	0.022257
9:45:00 AM	10/10/2024	105.5984	6.950222	315.8003	11.23045	9.179596	49.68304	0.022119
10:00:00 AM	10/10/2024	101.7523	6.956874	315.5261	11.22283	9.192749	49.75725	0.022155
10:15:00 AM	10/10/2024	91.2586	6.964331	315.4283	11.25022	9.21167	49.74795	0.022151
10:30:00 AM	10/10/2024	90.05886	6.976002	314.9634	11.27828	9.230408	49.15221	0.021866
10:45:00 AM	10/10/2024	86.18668	6.98732	315.3377	11.29356	9.269318	49.14028	0.021862
11:00:00 AM	10/10/2024	92.43332	6.996657	314.5247	11.3132	9.320648	49.41109	0.021994
11:15:00 AM	10/10/2024	104.6426	7.00934	314.8251	11.34124	9.375427	48.7415	0.021675
11:30:00 AM	10/10/2024	104.1045	7.020552	315.1875	11.36425	9.43161	48.32139	0.021475
11:45:00 AM	10/10/2024	91.11669	7.029371	315.0421	11.36593	9.490967	48.33834	0.021486
12:00:00 PM	10/10/2024	117.0292	7.03366	315.2614	11.37121	9.543488	47.71936	0.02119
12:15:00 PM	10/10/2024	93.17582	7.043439	316.0291	11.39137	9.59259	47.47939	0.021077
12:30:00 PM	10/10/2024	100.7333	7.045926	314.6916	11.37757	9.645905	47.84489	0.021255
12:45:00 PM	10/10/2024	110.0934	7.04825	314.6082	11.37983	9.690582	47.76363	0.021218
1:00:00 PM	10/10/2024	82.85397	7.050135	314.4675	11.38241	9.736084	47.9451	0.021307
1:15:00 PM	10/10/2024	106.8194	7.054616	313.7046	11.36301	9.805817	49.54316	0.02208
1:30:00 PM	10/10/2024	91.19415	7.053955	313.5663	11.35451	9.849213	49.26786	0.021949
1:45:00 PM	10/10/2024	102.6542	7.055738	313.2349	11.36801	9.889343	49.43029	0.022029
2:00:00 PM	10/10/2024	102.3318	7.05319	312.7795	11.34942	9.922546	49.47898	0.022054
2:15:00 PM	10/10/2024	102.3971	7.057238	312.2478	11.34048	9.959503	49.95572	0.022285
2:30:00 PM	10/10/2024	82.85996	7.062501	311.523	11.36388	9.987427	50.01417	0.022314
2:45:00 PM	10/10/2024	96.92329	7.06142	312.3336	11.34259	10.02078	50.56605	0.022582
3:00:00 PM	10/10/2024	90.18232	7.062749	312.3074	11.33206	10.05173	50.47278	0.022538
3:15:00 PM	10/10/2024	99.90105	7.063365	313.0799	11.32322	10.09216	50.43213	0.02252
3:30:00 PM	10/10/2024	87.32593	7.066063	314.4532	11.29523	10.14255	51.06833	0.022829
3:45:00 PM	10/10/2024	87.35137	7.07351	315.0421	11.28617	10.19513	51.74118	0.023155
4:00:00 PM	10/10/2024	78.43743	7.077287	315.1613	11.27167	10.2374	52.13044	0.023345
4:15:00 PM	10/10/2024	89.24577	7.080986	315.2209	11.23949	10.26776	52.75021	0.023645
4:30:00 PM	10/10/2024	85.78629	7.07855	314.2744	11.2293	10.28607	53.61483	0.024063
4:45:00 PM	10/10/2024	77.03591	7.081102	314.8204	11.21296	10.263	53.54744	0.024029
5:00:00 PM	10/11/2024	62.91313	7.077926	314.5891	11.20649	10.22476	53.77758	0.024138
5:15:00 PM	10/11/2024	65.3417	7.075601	315.0707	11.19961	10.18076	53.24976	0.023882
5:30:00 PM	10/11/2024	69.90192	7.073455	315.1804	11.18878	10.12231	53.04018	0.023778
5:45:00 PM	10/11/2024	81.54625	7.066132	314.5915	11.17721	10.06973	53.07756	0.023794
6:00:00 PM	10/11/2024	56.58853	7.060156	313.7832	11.16265	10.02307	52.90923	0.023711
6:15:00 PM	10/11/2024	63.97699	7.053621	313.8357	11.15685	9.979187	52.52509	0.023524
6:30:00 PM	10/11/2024	67.8392	7.048288	312.8987	11.13658	9.948151	52.75895	0.023635
6:45:00 PM	10/11/2024	68.09525	7.040763	313.4232	11.1269	9.918854	52.82545	0.023666
7:00:00 PM	10/11/2024	56.5276	7.037553	313.2849	11.10357	9.884888	52.57401	0.023543
7:15:00 PM	10/11/2024	68.08677	7.030871	313.0275	11.09283	9.855682	53.35182	0.023916
7:30:00 PM	10/11/2024	68.48041	7.030615	313.2802	11.08077	9.825592	53.06687	0.023778
7:45:00 PM	10/11/2024	59.36837	7.024923	313.1038	11.06582	9.822937	53.32833	0.023903
8:00:00 PM	10/11/2024	59.019	7.023127	313.0942	11.07242	9.796265	53.22755	0.023854
8:15:00 PM	10/11/2024	56.71297	7.019497	313.1657	11.05992	9.783813	53.20078	0.02384
8:30:00 PM	10/11/2024	70.91528	7.016928	311.7137	11.05514	9.771362	53.68935	0.024075
8:45:00 PM	10/11/2024	62.87362	7.014602	312.348	11.04664	9.756958	53.78469	0.02412

9:00:00 PM	10/11/2024	55.91068	7.012294	311.4897	11.04102	9.75235	53.82677	0.02414
9:15:00 PM	10/11/2024	49.8101	7.013232	311.7042	11.02786	9.732758	54.18044	0.02431
9:30:00 PM	10/11/2024	56.16527	7.008726	311.6566	11.03357	9.716431	54.1483	0.024293
9:45:00 PM	10/11/2024	66.00787	7.007752	312.0857	11.02506	9.702423	54.10095	0.02427
10:00:00 PM	10/11/2024	82.08837	7.011505	311.3132	11.03305	9.668335	54.52401	0.024472
10:15:00 PM	10/11/2024	56.64962	7.009971	311.976	11.03403	9.646545	54.45382	0.024437
10:30:00 PM	10/11/2024	48.31263	7.010786	311.3752	11.02217	9.637756	54.62543	0.024519
10:45:00 PM	10/11/2024	47.25168	7.009323	312.0261	11.02939	9.614075	54.79702	0.024601
11:00:00 PM	10/11/2024	86.25858	7.009927	311.442	11.01912	9.599701	55.32745	0.024855
11:15:00 PM	10/11/2024	48.24908	7.010121	312.0833	11.02248	9.58429	54.91418	0.024655
11:30:00 PM	10/11/2024	51.63582	7.008074	312.2836	11.02469	9.565491	55.1176	0.024752
11:45:00 PM	10/11/2024	64.83186	7.007102	312.6984	11.01972	9.548492	54.5944	0.0245
12:00:00 AM	10/11/2024	54.403	6.999239	313.1609	11.02749	9.534668	54.48756	0.024448
12:15:00 AM	10/11/2024	58.58057	6.999431	313.1848	11.03646	9.519409	54.51373	0.024459
12:30:00 AM	10/11/2024	71.14892	6.992126	312.6937	11.00871	9.513458	54.65845	0.024529
12:45:00 AM	10/11/2024	59.73112	6.998248	313.3732	11.02233	9.493988	54.26947	0.024341
1:00:00 AM	10/11/2024	54.72558	6.993205	313.7308	11.03105	9.46521	53.89657	0.02416
1:15:00 AM	10/11/2024	49.18873	6.988395	313.9001	11.02066	9.446167	54.03651	0.024226
1:30:00 AM	10/11/2024	56.9112	6.988163	313.8452	11.02185	9.430756	54.19514	0.024302
1:45:00 AM	10/11/2024	53.03119	6.984871	314.9062	11.03969	9.401428	53.79184	0.024106
2:00:00 AM	10/11/2024	52.30795	6.982633	314.4723	11.02914	9.378204	53.99289	0.024202
2:15:00 AM	10/11/2024	50.76511	6.977398	315.3902	11.02918	9.350616	53.83858	0.024126
2:30:00 AM	10/11/2024	51.63864	6.984244	314.3125	11.05097	9.320099	53.71374	0.024064
2:45:00 AM	10/11/2024	65.28641	6.983176	314.9443	11.05346	9.295441	53.65399	0.024034
3:00:00 AM	10/11/2024	41.77261	6.987503	314.4985	11.07127	9.274048	53.26858	0.023848
3:15:00 AM	10/11/2024	47.57924	6.985889	314.8442	11.06842	9.24884	53.43512	0.023927
3:30:00 AM	10/11/2024	55.64487	6.982718	315.0397	11.06185	9.219788	53.42761	0.023922
3:45:00 AM	10/11/2024	39.25582	6.987282	315.5165	11.07157	9.196808	53.35804	0.023887
4:00:00 AM	10/11/2024	50.69223	6.98875	315.4426	11.07721	9.167633	53.15847	0.02379
4:15:00 AM	10/11/2024	42.80031	6.98781	315.5142	11.08374	9.140137	53.2232	0.023819
4:30:00 AM	10/11/2024	37.3501	6.985589	314.7703	11.09422	9.118439	53.39128	0.023899
4:45:00 AM	10/11/2024	39.75356	6.988465	315.2567	11.09774	9.094696	53.14013	0.023777
5:00:00 AM	10/11/2024	39.34737	6.986762	314.9825	11.10361	9.07251	53.49047	0.023944
5:15:00 AM	10/11/2024	49.59386	6.995315	314.9229	11.12287	9.056213	53.15184	0.023781
5:30:00 AM	10/11/2024	62.65984	6.989339	315.364	11.11832	9.026642	53.35831	0.023878
5:45:00 AM	10/11/2024	52.85926	6.988507	315.2733	11.12053	9.005859	53.5934	0.02399
6:00:00 AM	10/11/2024	59.57509	6.991262	315.0111	11.1386	8.981781	53.38897	0.023891
6:15:00 AM	10/11/2024	56.51583	6.983965	315.4855	11.13451	8.968842	53.27166	0.023834
6:30:00 AM	10/11/2024	43.1294	6.990339	314.4579	11.13795	8.953156	53.31939	0.023856
6:45:00 AM	10/11/2024	64.52984	6.987073	314.6201	11.13615	8.935577	53.62471	0.024002
7:00:00 AM	10/11/2024	44.80664	6.986639	314.8513	11.1466	8.91394	53.58617	0.023982
7:15:00 AM	10/11/2024	42.53054	6.986823	315.0254	11.13438	8.901947	53.59638	0.023986
7:30:00 AM	10/11/2024	35.54576	6.986507	315.2042	11.14758	8.889191	53.61684	0.023995
7:45:00 AM	10/11/2024	54.13881	6.987344	315.4951	11.14972	8.873535	53.79718	0.024081
8:00:00 AM	10/11/2024	48.6734	6.989164	314.7369	11.16594	8.86319	53.96688	0.024162
8:15:00 AM	10/11/2024	47.57155	6.987562	315.352	11.1643	8.853729	53.84651	0.024104
8:30:00 AM	10/11/2024	55.05471	6.989324	314.0217	11.1639	8.855621	54.10874	0.02423

8:45:00 AM	10/11/2024	57.37523	6.988496	314.8847	11.19667	8.859558	54.05687	0.024205
9:00:00 AM	10/11/2024	50.62242	6.99029	314.1909	11.19569	8.873138	54.21391	0.024281
9:15:00 AM	10/11/2024	47.13791	6.994539	314.1099	11.20824	8.882172	54.25031	0.024299
9:30:00 AM	10/11/2024	46.47194	7.001469	313.2969	11.2273	8.899872	54.83121	0.02458
9:45:00 AM	10/11/2024	48.877	7.005445	313.5687	11.25703	8.912598	54.70514	0.02452
10:00:00 AM	10/11/2024	38.17311	7.012302	312.6078	11.27127	8.938507	54.76557	0.02455
10:15:00 AM	10/11/2024	52.8555	7.015057	310.4454	11.27147	8.971588	54.69508	0.024518
10:30:00 AM	10/11/2024	67.27399	7.02351	308.1995	11.29633	9.001343	54.8556	0.024597
10:45:00 AM	10/11/2024	62.37854	7.022693	308.5285	11.31147	9.028595	54.91321	0.024626
11:00:00 AM	10/11/2024	58.72122	7.028828	308.2233	11.30907	9.053162	54.94783	0.024644
11:15:00 AM	10/11/2024	63.43845	7.036304	308.4188	11.32446	9.073425	54.85242	0.024599
11:30:00 AM	10/11/2024	55.20061	7.047317	307.5152	11.32711	9.12738	54.84372	0.024598
11:45:00 AM	10/11/2024	49.23981	7.058107	308.724	11.33509	9.193329	54.50397	0.024438
12:00:00 PM	10/11/2024	52.42564	7.066798	308.9266	11.34503	9.282593	54.18246	0.024288
12:15:00 PM	10/11/2024	56.79175	7.075392	310.648	11.36683	9.367096	54.28233	0.02434
12:30:00 PM	10/11/2024	55.86283	7.083512	310.7982	11.37032	9.443665	54.39097	0.024397
12:45:00 PM	10/11/2024	47.86377	7.093352	312.646	11.37579	9.493652	54.18481	0.0243
1:00:00 PM	10/11/2024	64.19429	7.09619	312.9273	11.35765	9.526764	54.34942	0.024381
1:15:00 PM	10/11/2024	52.75105	7.10533	313.695	11.39151	9.559082	53.73736	0.024088
1:30:00 PM	10/11/2024	61.56667	7.109489	312.4648	11.37365	9.598114	54.25688	0.02434
1:45:00 PM	10/11/2024	55.61567	7.112659	311.8878	11.38768	9.641632	54.80144	0.024604
2:00:00 PM	10/11/2024	44.27288	7.116558	310.0854	11.37101	9.686371	55.79725	0.025086
2:15:00 PM	10/11/2024	50.18665	7.119802	310.4311	11.3698	9.719391	55.34971	0.024872
2:30:00 PM	10/11/2024	50.94604	7.12346	309.6419	11.37017	9.745239	56.26658	0.025315
2:45:00 PM	10/11/2024	46.03579	7.130285	308.8932	11.37548	9.789825	56.61995	0.025487
3:00:00 PM	10/11/2024	40.52718	7.132482	308.395	11.36882	9.833557	57.52847	0.025927
3:15:00 PM	10/11/2024	50.19282	7.131889	308.8361	11.34582	9.868347	58.26444	0.026283
3:30:00 PM	10/11/2024	44.00234	7.136343	308.9028	11.34066	9.868622	57.87759	0.026097
3:45:00 PM	10/11/2024	53.48839	7.135111	310.083	11.3427	9.85257	57.80642	0.026062
4:00:00 PM	10/11/2024	42.56876	7.13183	310.1283	11.32047	9.84256	58.28009	0.026289
4:15:00 PM	10/11/2024	48.13338	7.133726	310.4072	11.30716	9.832764	58.36464	0.02633
4:30:00 PM	10/11/2024	46.59879	7.158359	313.5829	11.28769	9.824371	58.80513	0.026541
4:45:00 PM	10/11/2024	38.95473	7.126541	310.3524	11.27689	9.817169	59.07051	0.026669
5:00:00 PM	10/12/2024	43.58429	7.120455	309.9495	11.25868	9.807281	58.87659	0.026575
5:15:00 PM	10/12/2024	42.56668	7.113303	311.3657	11.24164	9.786865	59.40009	0.026826
5:30:00 PM	10/12/2024	46.4785	7.102755	311.1749	11.2077	9.777069	59.6228	0.026933
5:45:00 PM	10/12/2024	41.95956	7.093214	312.3503	11.19178	9.759827	59.14301	0.026701
6:00:00 PM	10/12/2024	44.58223	7.084502	311.38	11.18491	9.746643	59.12621	0.026692
6:15:00 PM	10/12/2024	40.6761	7.072498	311.8139	11.15698	9.731934	59.06887	0.026663
6:30:00 PM	10/12/2024	37.75667	7.066081	310.9079	11.14441	9.707611	58.46952	0.026374
6:45:00 PM	10/12/2024	42.54174	7.05243	311.4753	11.12865	9.689423	58.48745	0.026381
7:00:00 PM	10/12/2024	37.47334	7.038981	311.2131	11.09319	9.671844	58.56483	0.026418
7:15:00 PM	10/12/2024	38.68568	7.028543	312.1787	11.08794	9.66272	58.31762	0.026298
7:30:00 PM	10/12/2024	35.29052	7.022398	312.4243	11.06518	9.650726	58.08178	0.026184
7:45:00 PM	10/12/2024	46.41727	7.01004	312.8605	11.05212	9.642059	58.75702	0.026508
8:00:00 PM	10/12/2024	35.64397	6.992658	312.6221	11.01342	9.647858	58.87636	0.026566
8:15:00 PM	10/12/2024	34.42665	6.993622	312.8105	11.01921	9.648743	58.92331	0.026589

8:30:00 PM	10/12/2024	38.53698	6.990366	311.9355	11.00427	9.642151	59.28304	0.026762
8:45:00 PM	10/12/2024	34.66253	6.976549	312.5697	10.96665	9.639893	59.78557	0.027004
9:00:00 PM	10/12/2024	31.98243	6.978502	311.7352	10.97533	9.642761	59.52008	0.026876
9:15:00 PM	10/12/2024	35.42749	6.9751	311.5302	10.97055	9.640198	59.62133	0.026924
9:30:00 PM	10/12/2024	30.0548	6.970128	311.0867	10.96393	9.634674	59.8789	0.027048
9:45:00 PM	10/12/2024	37.15048	6.965389	311.4205	10.94545	9.636108	60.07472	0.027142
10:00:00 PM	10/12/2024	34.21159	6.968891	310.6671	10.9457	9.621063	59.8573	0.027037
10:15:00 PM	10/12/2024	32.95495	6.969283	310.6624	10.94119	9.609283	60.168	0.027186
10:30:00 PM	10/12/2024	42.91391	6.967053	310.3023	10.94597	9.60498	60.18477	0.027194
10:45:00 PM	10/12/2024	39.89328	6.964405	310.9604	10.93865	9.594727	60.0714	0.027139
11:00:00 PM	10/12/2024	31.58528	6.96627	310.4025	10.92938	9.600616	60.43303	0.027313
11:15:00 PM	10/12/2024	31.05516	6.963792	310.5765	10.92527	9.590332	60.52193	0.027355
11:30:00 PM	10/12/2024	33.97062	6.962434	309.9352	10.91698	9.59024	60.93469	0.027554
11:45:00 PM	10/12/2024	65.97769	6.964211	309.4917	10.93025	9.582397	60.89917	0.027536
12:00:00 AM	10/12/2024	30.46118	6.963363	308.786	10.9088	9.573883	61.20057	0.027681
12:15:00 AM	10/12/2024	27.84659	6.957415	308.6501	10.89668	9.562561	61.81955	0.027978
12:30:00 AM	10/12/2024	29.66234	6.956293	308.0826	10.91044	9.555267	61.87169	0.028003
12:45:00 AM	10/12/2024	28.00086	6.952573	308.5547	10.88427	9.542755	61.92377	0.028027
1:00:00 AM	10/12/2024	25.40009	6.946939	307.9968	10.86112	9.541534	62.28437	0.028201
1:15:00 AM	10/12/2024	26.52479	6.944724	308.4331	10.86191	9.527771	62.29904	0.028207
1:30:00 AM	10/12/2024	25.91763	6.93857	309.1007	10.87297	9.513092	61.72741	0.027931
1:45:00 AM	10/12/2024	31.45563	6.93281	309.9423	10.86683	9.514557	62.15355	0.028136
2:00:00 AM	10/12/2024	26.55659	6.927815	310.1902	10.85188	9.527161	61.96753	0.028047
2:15:00 AM	10/12/2024	24.64064	6.912326	311.3943	10.84489	9.519806	62.10349	0.028112
2:30:00 AM	10/12/2024	26.6542	6.908333	311.1249	10.83968	9.528137	61.67729	0.027908
2:45:00 AM	10/12/2024	30.29859	6.906253	312.46	10.84231	9.513824	61.46782	0.027806
3:00:00 AM	10/12/2024	24.49655	6.897079	312.7771	10.84087	9.484894	61.14375	0.027648
3:15:00 AM	10/12/2024	31.88184	6.87435	314.2672	10.8145	9.458282	61.59819	0.027866
3:30:00 AM	10/12/2024	34.92218	6.869259	315.476	10.818	9.434662	61.37033	0.027755
3:45:00 AM	10/12/2024	30.33501	6.865866	315.9123	10.84349	9.408417	61.04437	0.027596
4:00:00 AM	10/12/2024	36.37139	6.889489	314.5223	10.85252	9.37851	60.86213	0.027507
4:15:00 AM	10/12/2024	28.20726	6.851334	316.6133	10.82502	9.344543	61.22329	0.027679
4:30:00 AM	10/12/2024	35.67559	6.860559	315.9075	10.85844	9.307678	60.91204	0.027527
4:45:00 AM	10/12/2024	33.18882	6.852737	317.2236	10.87113	9.255737	60.38172	0.027269
5:00:00 AM	10/12/2024	33.59645	6.824928	318.43	10.84572	9.214539	60.63725	0.027389
5:15:00 AM	10/12/2024	26.89947	6.848684	317.2761	10.85556	9.176208	60.5851	0.027362
5:30:00 AM	10/12/2024	37.63604	6.814863	319.2383	10.86241	9.13504	60.35887	0.02725
5:45:00 AM	10/12/2024	39.19241	6.823752	320.9716	10.90107	9.089081	59.99023	0.027071
6:00:00 AM	10/12/2024	37.13622	6.773357	322.5022	10.86253	9.059021	60.72582	0.027422
6:15:00 AM	10/12/2024	30.89137	6.832737	320.7379	10.91249	9.017059	59.96524	0.027054
6:30:00 AM	10/12/2024	33.35303	6.816469	320.6378	10.92526	8.974518	59.83004	0.026987
6:45:00 AM	10/12/2024	31.17207	6.778423	322.7144	10.89682	8.948364	60.00838	0.027071
7:00:00 AM	10/12/2024	29.92848	6.822422	320.5758	10.9299	8.912933	59.83295	0.026984
7:15:00 AM	10/12/2024	32.08553	6.776037	322.476	10.88676	8.890045	60.06246	0.027093
7:30:00 AM	10/12/2024	29.65509	6.75052	324.0877	10.85581	8.860138	60.51617	0.027309
7:45:00 AM	10/12/2024	31.69486	6.822937	321.2386	10.96124	8.829834	59.7027	0.026917
8:00:00 AM	10/12/2024	33.92161	6.772585	323.556	10.88265	8.805542	59.80524	0.026965

8:15:00 AM	10/12/2024	34.98655	6.794279	322.5117	10.9451	8.784943	59.94237	0.027029
8:30:00 AM	10/12/2024	29.95313	6.790658	321.9467	10.97274	8.767334	59.63492	0.02688
8:45:00 AM	10/12/2024	26.44594	6.711604	324.9627	10.87804	8.772705	61.06554	0.027568
9:00:00 AM	10/12/2024	28.09062	6.829213	320.7236	11.03713	8.747711	59.63144	0.026877
9:15:00 AM	10/12/2024	28.43203	6.753243	323.8231	10.93345	8.775696	60.45937	0.027277
9:30:00 AM	10/12/2024	31.2886	6.793455	323.1912	11.02902	8.789978	60.14472	0.027127
9:45:00 AM	10/12/2024	28.6217	6.699881	325.9211	10.92864	8.829376	60.98928	0.027535
10:00:00 AM	10/12/2024	29.59203	6.773057	322.7883	11.02659	8.860962	60.44203	0.027274
10:15:00 AM	10/12/2024	24.76852	6.767225	323.6681	11.01465	8.907135	60.52559	0.027317
10:30:00 AM	10/12/2024	29.54249	6.786494	321.0288	11.05324	8.967316	60.38642	0.027254
10:45:00 AM	10/12/2024	25.53572	6.789865	321.3936	11.06446	9.033783	60.76376	0.027439
11:00:00 AM	10/12/2024	27.58073	6.76507	322.3186	11.04452	9.104919	61.25334	0.027679
11:15:00 AM	10/12/2024	32.16943	6.817286	320.0393	11.09544	9.181274	60.89655	0.027512
11:30:00 AM	10/12/2024	25.13878	6.77579	322.0564	11.05253	9.263092	61.77348	0.027938
11:45:00 AM	10/12/2024	26.59423	6.8299	320.0799	11.11544	9.347229	61.54772	0.027835
12:00:00 PM	10/12/2024	36.67733	6.950386	319.0475	11.1814	9.434784	60.50377	0.027338
12:15:00 PM	10/12/2024	46.95036	6.944615	312.0809	11.18572	9.506927	60.52361	0.027351
12:30:00 PM	10/12/2024	37.84794	6.985856	310.9818	11.22854	9.570343	59.16088	0.026699
12:45:00 PM	10/12/2024	37.62064	7.004542	313.7284	11.24441	9.629272	58.32244	0.026299
1:00:00 PM	10/12/2024	27.42438	7.01852	315.6262	11.27115	9.70108	58.30886	0.026296
1:15:00 PM	10/12/2024	32.39865	7.026784	316.2771	11.24582	9.776672	58.21971	0.026257
1:30:00 PM	10/12/2024	36.72209	7.021631	314.7059	11.22363	9.860168	59.55382	0.026904
1:45:00 PM	10/12/2024	36.04826	7.012798	312.0809	11.10901	9.984528	63.67522	0.028895
2:00:00 PM	10/12/2024	29.14955	7.024269	310.896	11.14511	10.05527	62.12558	0.028153
2:15:00 PM	10/12/2024	32.01072	7.026447	309.8899	11.096	10.15341	64.76118	0.029428
2:30:00 PM	10/12/2024	32.86888	7.044379	309.692	11.16983	10.18134	62.16609	0.028179
2:45:00 PM	10/12/2024	40.70758	7.064722	312.1906	11.2257	10.1958	60.36678	0.027313
3:00:00 PM	10/12/2024	30.2562	7.080723	312.4314	11.26342	10.22214	59.94595	0.027111
3:15:00 PM	10/12/2024	34.27176	7.091245	312.2001	11.26182	10.27325	60.53415	0.027398
3:30:00 PM	10/12/2024	36.27879	7.096745	309.8231	11.2162	10.36877	63.47735	0.028821
3:45:00 PM	10/12/2024	32.14223	7.101069	309.1031	11.2071	10.39841	64.57462	0.029351
4:00:00 PM	10/12/2024	34.25103	7.103741	307.7226	11.15409	10.42258	66.00526	0.030042
4:15:00 PM	10/12/2024	33.73046	7.104761	308.271	11.1571	10.4332	66.51351	0.030288
4:30:00 PM	10/12/2024	33.55974	7.097514	307.3936	11.04135	10.49286	72.21801	0.03304
4:45:00 PM	10/12/2024	39.55631	7.095595	307.7894	10.98421	10.46115	73.9834	0.033888
5:00:00 PM	10/13/2024	38.3314	7.082762	307.7202	10.944	10.37943	73.94604	0.033865
5:15:00 PM	10/13/2024	37.55942	7.086657	308.4594	10.99035	10.27658	71.52277	0.032692
5:30:00 PM	10/13/2024	34.79806	7.077647	308.1518	10.93834	10.21814	72.80745	0.033307
5:45:00 PM	10/13/2024	34.48477	7.070202	308.8003	10.88284	10.13528	73.72875	0.033745
6:00:00 PM	10/13/2024	39.61436	7.058486	308.755	10.85649	10.03214	72.68394	0.033236
6:15:00 PM	10/13/2024	31.12342	7.042309	310.4859	10.84685	9.939606	71.16216	0.032497
6:30:00 PM	10/13/2024	37.01468	7.037259	310.2451	10.93236	9.799561	67.42211	0.030689
6:45:00 PM	10/13/2024	29.64036	7.018354	311.2178	10.91161	9.733887	66.15997	0.030077
7:00:00 PM	10/13/2024	33.86156	7.006304	310.7076	10.90126	9.686096	65.69118	0.029849
7:15:00 PM	10/13/2024	32.49326	6.98682	310.8817	10.87994	9.646179	65.55544	0.029781
7:30:00 PM	10/13/2024	32.16756	6.972851	310.6313	10.87756	9.598267	64.36317	0.029204
7:45:00 PM	10/13/2024	31.7623	6.954907	311.3514	10.85458	9.570923	64.15099	0.029101

8:00:00 PM	10/13/2024	32.19717	6.934387	311.3824	10.84536	9.545135	63.99501	0.029024
8:15:00 PM	10/13/2024	28.13466	6.925957	311.9951	10.83014	9.515137	63.39577	0.028734
8:30:00 PM	10/13/2024	39.3317	6.922735	312.4099	10.84605	9.494812	63.35451	0.028713
8:45:00 PM	10/13/2024	30.0779	6.916608	313.8286	10.82361	9.472595	63.55255	0.028807
9:00:00 PM	10/13/2024	25.30062	6.904089	314.4579	10.83241	9.445618	63.11576	0.028595
9:15:00 PM	10/13/2024	32.57136	6.899693	315.1756	10.8112	9.42688	63.113	0.028593
9:30:00 PM	10/13/2024	27.39808	6.890051	315.8622	10.81955	9.414825	63.28028	0.028672
9:45:00 PM	10/13/2024	27.16938	6.878257	316.4488	10.8057	9.407318	63.52791	0.028791
10:00:00 PM	10/13/2024	30.94345	6.868591	316.9494	10.80392	9.396698	63.44664	0.028751
10:15:00 PM	10/13/2024	29.48582	6.913053	315.6858	10.86365	9.389679	62.97499	0.028524
10:30:00 PM	10/13/2024	28.77187	6.914604	314.2935	10.86641	9.385468	62.94226	0.028508
10:45:00 PM	10/13/2024	27.80399	6.907186	314.8943	10.83766	9.392365	63.01192	0.028542
11:00:00 PM	10/13/2024	28.95099	6.908554	314.7202	10.83098	9.383392	62.93488	0.028504
11:15:00 PM	10/13/2024	29.84904	6.924652	313.552	10.86639	9.379059	62.98807	0.02853
11:30:00 PM	10/13/2024	32.76847	6.912001	313.8762	10.86423	9.377563	62.59684	0.028341
11:45:00 PM	10/13/2024	34.28572	6.929822	313.1609	10.8786	9.369019	62.69749	0.028389
12:00:00 AM	10/13/2024	27.44119	6.936959	312.5196	10.88237	9.363953	62.90709	0.02849
12:15:00 AM	10/13/2024	26.20242	6.93451	312.0404	10.87778	9.374023	62.8559	0.028466
12:30:00 AM	10/13/2024	27.76789	6.929219	311.1129	10.85956	9.360138	62.83977	0.028457
12:45:00 AM	10/13/2024	34.60828	6.946844	311.8687	10.90088	9.362823	62.06934	0.028087
1:00:00 AM	10/13/2024	23.32932	6.951036	311.8878	10.91543	9.341583	61.7753	0.027944
1:15:00 AM	10/13/2024	31.62587	6.951465	311.1654	10.89183	9.349823	62.41964	0.028254
1:30:00 AM	10/13/2024	29.18548	6.951399	310.474	10.88856	9.342865	62.86388	0.028468
1:45:00 AM	10/13/2024	29.84784	6.949389	310.6933	10.87947	9.352081	62.72675	0.028402
2:00:00 AM	10/13/2024	33.80291	6.94452	310.7219	10.87911	9.348541	62.80118	0.028438
2:15:00 AM	10/13/2024	26.32799	6.94222	310.679	10.86122	9.356384	63.31467	0.028685
2:30:00 AM	10/13/2024	28.7325	6.939406	309.4988	10.84942	9.379791	63.45021	0.028752
2:45:00 AM	10/13/2024	32.52721	6.931907	310.4144	10.86026	9.357727	63.5495	0.028798
3:00:00 AM	10/13/2024	29.57139	6.934054	310.2928	10.85266	9.359924	62.91502	0.028493
3:15:00 AM	10/13/2024	32.36642	6.936991	310.946	10.8528	9.350647	62.95525	0.028512
3:30:00 AM	10/13/2024	25.00941	6.929343	311.8663	10.8407	9.355927	63.44246	0.028747
3:45:00 AM	10/13/2024	25.07566	6.908982	314.4341	10.83531	9.352051	62.80836	0.028441
4:00:00 AM	10/13/2024	25.51167	6.886679	315.9529	10.81601	9.333252	62.78844	0.028431
4:15:00 AM	10/13/2024	25.68119	6.869877	316.9041	10.80663	9.321838	62.76726	0.02842
4:30:00 AM	10/13/2024	24.36492	6.87045	315.9028	10.82257	9.30365	62.4588	0.02827
4:45:00 AM	10/13/2024	27.60967	6.870433	317.5121	10.82044	9.287445	61.82298	0.027964
5:00:00 AM	10/13/2024	29.07635	6.883196	316.5918	10.82752	9.275696	62.154	0.028122
5:15:00 AM	10/13/2024	26.35757	6.878247	317.1998	10.84151	9.256989	61.92432	0.028011
5:30:00 AM	10/13/2024	32.01253	6.87484	317.7887	10.8545	9.249756	61.78352	0.027942
5:45:00 AM	10/13/2024	26.97546	6.87855	318.0557	10.84372	9.233948	61.7871	0.027943
6:00:00 AM	10/13/2024	30.14129	6.885668	317.04	10.83383	9.213196	62.38411	0.028229
6:15:00 AM	10/13/2024	30.3467	6.886756	317.4573	10.85613	9.191681	61.79498	0.027944
6:30:00 AM	10/13/2024	28.41535	6.881228	316.8254	10.85954	9.177185	61.59636	0.027848
6:45:00 AM	10/13/2024	31.19019	6.878145	317.6599	10.85664	9.15564	61.45342	0.027778
7:00:00 AM	10/13/2024	27.97027	6.872517	318.3752	10.87006	9.127808	61.32101	0.027713
7:15:00 AM	10/13/2024	26.14837	6.880363	318.3347	10.87628	9.106903	61.29469	0.027699
7:30:00 AM	10/13/2024	28.14543	6.906279	321.4007	10.89421	9.087738	61.62106	0.027854

7:45:00 AM	10/13/2024	35.44818	6.879116	315.9123	10.91234	9.062164	61.32996	0.027713
8:00:00 AM	10/13/2024	35.15799	6.909193	318.8997	10.9122	9.046875	61.43131	0.027761
8:15:00 AM	10/13/2024	35.73435	6.872507	314.7727	10.92172	9.017212	61.38134	0.027735
8:30:00 AM	10/13/2024	36.11555	6.874404	314.1194	10.93858	8.998566	61.16686	0.027631
8:45:00 AM	10/13/2024	36.48959	6.876406	315.4569	10.94294	8.987091	61.09023	0.027593
9:00:00 AM	10/13/2024	39.51273	6.876741	315.4736	10.95228	8.967529	61.41401	0.027748
9:15:00 AM	10/13/2024	43.43503	6.853222	317.2021	10.95742	8.973907	61.36036	0.027722
9:30:00 AM	10/13/2024	44.83405	6.868936	316.5608	10.99663	8.976868	61.38623	0.027735
9:45:00 AM	10/13/2024	44.04161	6.854562	317.4286	11.01354	8.995453	61.50249	0.027792
10:00:00 AM	10/13/2024	49.61868	6.869036	316.6133	11.03253	9.018707	61.46707	0.027776
10:15:00 AM	10/13/2024	51.29158	6.840101	317.9055	11.0141	9.051697	61.87166	0.027973
10:30:00 AM	10/13/2024	49.46263	6.872447	315.8503	11.06064	9.089691	61.51303	0.027803
10:45:00 AM	10/13/2024	46.51831	6.869557	316.2103	11.05521	9.146362	61.78508	0.027937
11:00:00 AM	10/13/2024	50.43988	6.857873	316.2151	11.06816	9.208008	61.94504	0.028018
11:15:00 AM	10/13/2024	56.71952	6.870063	316.1769	11.07216	9.283752	62.29601	0.028191
11:30:00 AM	10/13/2024	50.98328	6.871165	315.6	11.08203	9.372375	62.27717	0.028187
11:45:00 AM	10/13/2024	60.27813	6.865034	317.1831	11.07489	9.45285	62.44223	0.028271
12:00:00 PM	10/13/2024	68.30006	6.893011	315.7979	11.09681	9.532318	62.32106	0.028218
12:15:00 PM	10/13/2024	55.96505	6.899775	315.6167	11.08853	9.591431	62.59235	0.028352
12:30:00 PM	10/13/2024	59.97397	6.914823	313.8571	11.12263	9.644836	62.16582	0.02815
12:45:00 PM	10/13/2024	50.10934	6.956082	312.0237	11.1319	9.706085	62.29202	0.028214
1:00:00 PM	10/13/2024	65.16743	6.977735	311.6446	11.16731	9.729218	61.3853	0.027779
1:15:00 PM	10/13/2024	54.37153	6.991616	311.0104	11.1816	9.763	60.66716	0.027435
1:30:00 PM	10/13/2024	60.83663	7.014564	312.4195	11.22454	9.781525	59.03035	0.026648
1:45:00 PM	10/13/2024	59.73397	7.027137	316.1293	11.24655	9.803314	58.07798	0.02619
2:00:00 PM	10/13/2024	57.2688	7.038515	316.9447	11.24777	9.855621	58.349	0.026323
2:15:00 PM	10/13/2024	57.86899	7.040956	315.2328	11.22977	9.925598	59.52121	0.026892
2:30:00 PM	10/13/2024	57.60228	7.033117	311.3704	11.14019	10.02628	63.20475	0.028671
2:45:00 PM	10/13/2024	58.73625	7.045053	310.0258	11.13546	10.08301	62.97226	0.028562
3:00:00 PM	10/13/2024	55.78539	7.051169	309.2843	11.15575	10.10715	63.0927	0.028622
3:15:00 PM	10/13/2024	56.89846	7.064646	309.1555	11.16584	10.12979	62.13738	0.028163
3:30:00 PM	10/13/2024	58.67919	7.078025	311.1249	11.23733	10.09872	60.05916	0.02716
3:45:00 PM	10/13/2024	54.11038	7.088246	313.9096	11.26705	10.08804	59.36314	0.026824
4:00:00 PM	10/13/2024	52.12437	7.100921	313.2039	11.2758	10.09409	59.91978	0.027092
4:15:00 PM	10/13/2024	66.77913	7.113239	309.6967	11.24269	10.15506	63.63668	0.028886
4:30:00 PM	10/13/2024	63.25893	7.122307	306.8381	11.19075	10.2041	67.06813	0.030542
4:45:00 PM	10/13/2024	63.59982	7.123102	307.1004	11.13638	10.2236	69.08842	0.031516
5:00:00 PM	10/14/2024	57.17156	7.12659	307.3197	11.13917	10.17722	68.51842	0.031239
5:15:00 PM	10/14/2024	66.33536	7.124827	308.302	11.07298	10.18939	72.62914	0.033219
5:30:00 PM	10/14/2024	58.14807	7.116154	308.3187	10.98013	10.21518	76.94084	0.035296
5:45:00 PM	10/14/2024	56.2695	7.100947	309.0316	10.88766	10.21951	78.67047	0.036129
6:00:00 PM	10/14/2024	54.27005	7.098314	309.2986	10.94363	10.11423	73.54791	0.033657
6:15:00 PM	10/14/2024	55.78651	7.088229	310.8864	10.89321	10.07556	74.83762	0.034275
6:30:00 PM	10/14/2024	46.96312	7.07398	309.5275	10.83896	10.04294	75.74709	0.03471
6:45:00 PM	10/14/2024	57.63094	7.064618	310.2141	10.81701	9.992523	73.57958	0.033664
7:00:00 PM	10/14/2024	47.84454	7.051369	310.679	10.83204	9.912048	69.68458	0.031784
7:15:00 PM	10/14/2024	50.16885	7.033852	311.0986	10.84707	9.855194	67.74215	0.030846

7:30:00 PM	10/14/2024	46.75887	7.015922	310.8698	10.84299	9.825684	66.27902	0.03014
7:45:00 PM	10/14/2024	49.37964	7.001363	310.8626	10.81884	9.800446	66.06505	0.030035
8:00:00 PM	10/14/2024	41.24614	6.984454	310.8626	10.79302	9.792572	65.04533	0.029544
8:15:00 PM	10/14/2024	44.84671	6.967259	312.2645	10.79481	9.769989	64.22342	0.029147
8:30:00 PM	10/14/2024	46.70514	6.959113	312.0666	10.80968	9.747223	63.24633	0.028675
8:45:00 PM	10/14/2024	44.35051	6.938767	313.8548	10.79966	9.727448	62.88194	0.028499
9:00:00 PM	10/14/2024	43.83379	6.892994	315.6167	10.76529	9.715942	62.71846	0.02842
9:15:00 PM	10/14/2024	46.43595	6.875684	317.1974	10.73485	9.705109	63.29588	0.028697
9:30:00 PM	10/14/2024	47.10498	6.889482	316.4416	10.7655	9.694275	63.1947	0.028648
9:45:00 PM	10/14/2024	42.40087	6.868362	318.5325	10.74859	9.688965	62.94038	0.028525
10:00:00 PM	10/14/2024	45.97977	6.875878	317.5073	10.7464	9.703461	62.93127	0.028521
10:15:00 PM	10/14/2024	38.07871	6.877189	318.1582	10.74821	9.701019	63.0515	0.028579
10:30:00 PM	10/14/2024	41.67819	6.881744	316.3343	10.76396	9.708862	63.08431	0.028595
10:45:00 PM	10/14/2024	31.07935	6.8756	317.288	10.73443	9.719269	62.99316	0.028552
11:00:00 PM	10/14/2024	30.98948	6.87748	316.3939	10.7491	9.729919	62.63371	0.02838
11:15:00 PM	10/14/2024	26.50615	6.866245	317.4191	10.73717	9.725647	62.69401	0.028408
11:30:00 PM	10/14/2024	28.51196	6.889098	320.6521	10.72834	9.742615	62.7524	0.028437
11:45:00 PM	10/14/2024	32.72779	6.879536	316.9828	10.75166	9.743042	62.39444	0.028265
12:00:00 AM	10/14/2024	27.88056	6.877255	315.6548	10.74343	9.756378	62.54062	0.028336
12:15:00 AM	10/14/2024	27.5118	6.902362	315.383	10.76844	9.75882	62.51517	0.028324

Squamish River DS Sonde 2024-10-07 to 2024-10-13

Time	Date	Turbidity (NTU)	pH (pH)	ORP (mV)	DO (mg/L)	Temperature (C)	Specific Conductivity (µS/cm)	Salinity (psu)
12:00:00 AM	10/7/2024	26.18649	7.384091	523.8863	10.32579	9.551094	32.10865	0.015777
12:15:00 AM	10/7/2024	25.95942	7.239053	532.6243	10.34079	9.564903	31.84213	0.015632
12:30:00 AM	10/7/2024	27.45971	7.255676	531.4418	10.3341	9.566166	31.82539	0.015622
12:45:00 AM	10/7/2024	31.76433	7.362879	525.8604	10.34101	9.572937	31.4522	0.015419
1:00:00 AM	10/7/2024	30.24991	7.351873	526.9285	10.34651	9.567845	31.49865	0.015444
1:15:00 AM	10/7/2024	24.38656	7.387703	525.1714	10.33383	9.562497	31.58002	0.015489
1:30:00 AM	10/7/2024	29.90228	7.35742	527.2646	10.35461	9.553911	31.30284	0.015338
1:45:00 AM	10/7/2024	28.90376	7.335965	528.4496	10.36206	9.537358	31.18892	0.015277
2:00:00 AM	10/7/2024	25.85034	7.282436	531.9543	10.35438	9.520053	31.16296	0.015263
2:15:00 AM	10/7/2024	29.49058	7.295413	531.1127	10.36399	9.501395	31.19226	0.015279
2:30:00 AM	10/7/2024	28.83437	7.378372	526.6805	10.36775	9.480163	31.02862	0.015191
2:45:00 AM	10/7/2024	29.19366	7.244772	534.9918	10.37048	9.455835	31.0347	0.015195
3:00:00 AM	10/7/2024	26.36696	7.298566	531.2939	10.38352	9.440103	30.55176	0.014932
3:15:00 AM	10/7/2024	28.89775	7.364205	528.0848	10.38031	9.409854	30.76209	0.015047
3:30:00 AM	10/7/2024	27.48371	7.286129	532.2476	10.39464	9.389515	30.70138	0.015015
3:45:00 AM	10/7/2024	25.13608	7.355392	528.7047	10.38515	9.372252	30.34651	0.014822
4:00:00 AM	10/7/2024	28.48833	7.374422	528.0181	10.38949	9.351161	30.407	0.014855
4:15:00 AM	10/7/2024	26.49317	7.304306	532.3406	10.39612	9.335111	30.27893	0.014786
4:30:00 AM	10/7/2024	24.32161	7.285199	533.1179	10.40668	9.315277	30.47564	0.014894
4:45:00 AM	10/7/2024	24.54271	7.286777	533.156	10.39941	9.301528	30.29845	0.014797
5:00:00 AM	10/7/2024	26.23414	7.385201	527.7678	10.40299	9.28674	30.13444	0.014708
5:15:00 AM	10/7/2024	29.4257	7.280227	533.845	10.40202	9.267901	30.38031	0.014843
5:30:00 AM	10/7/2024	29.90922	7.363334	529.2006	10.41753	9.249381	30.19282	0.014741
5:45:00 AM	10/7/2024	27.58249	7.378475	528.6022	10.41798	9.236383	30.18714	0.014738
6:00:00 AM	10/7/2024	23.79613	7.230174	537.0613	10.4229	9.224079	30.04165	0.014659
6:15:00 AM	10/7/2024	25.18221	7.320975	531.7493	10.40919	9.209578	29.97947	0.014626
6:30:00 AM	10/7/2024	25.96044	7.278026	534.5293	10.42302	9.195138	30.00059	0.014638
6:45:00 AM	10/7/2024	30.24436	7.353289	529.656	10.42629	9.182091	30.08621	0.014685
7:00:00 AM	10/7/2024	27.77888	7.222492	537.5524	10.42234	9.170353	29.91356	0.014591
7:15:00 AM	10/7/2024	27.18748	7.286561	533.4946	10.42516	9.157428	30.18704	0.01474
7:30:00 AM	10/7/2024	24.22579	7.347801	530.6407	10.43156	9.147047	30.14444	0.014717
7:45:00 AM	10/7/2024	34.18154	7.329431	531.9377	10.43147	9.138364	30.27854	0.01479
8:00:00 AM	10/7/2024	292.2066	7.346522	531.1771	10.45006	9.123822	30.16051	0.014726
8:15:00 AM	10/7/2024	34.40163	7.225204	538.077	10.45212	9.115811	30.19295	0.014744
8:30:00 AM	10/7/2024	32.08075	7.277365	534.7582	10.46189	9.104994	30.03006	0.014656
8:45:00 AM	10/7/2024	33.60882	7.241788	536.377	10.46715	9.097487	30.13591	0.014714
9:00:00 AM	10/7/2024	31.29926	7.401712	527.7773	10.47172	9.097124	30.32873	0.014819
9:15:00 AM	10/7/2024	44.85592	7.30155	532.4789	10.47136	9.09545	30.63639	0.014986
9:30:00 AM	10/7/2024	46.96783	7.288402	533.5995	10.48341	9.099765	30.4785	0.0149
9:45:00 AM	10/7/2024	45.02576	7.293895	533.5732	10.48747	9.100363	31.11953	0.015249
10:00:00 AM	10/7/2024	470.5155	7.316104	532.8103	10.49281	9.11723	31.05186	0.015212
10:15:00 AM	10/7/2024	46.77203	7.418677	526.578	10.50322	9.138905	31.47405	0.015442

10:30:00 AM	10/7/2024	61.84219	7.278443	535.0466	10.51761	9.161769	32.05034	0.015755
10:45:00 AM	10/7/2024	51.49762	7.392987	527.5555	10.5225	9.192801	32.30672	0.015894
11:00:00 AM	10/7/2024	48.17012	7.363546	528.3948	10.50841	9.218855	32.41684	0.015954
11:15:00 AM	10/7/2024	64.8253	7.302417	530.2377	10.52315	9.254546	32.69572	0.016105
11:30:00 AM	10/7/2024	49.3601	7.352042	528.1396	10.51636	9.32085	32.72514	0.016119
11:45:00 AM	10/7/2024	50.3979	7.46442	520.0859	10.51144	9.38956	34.76275	0.017229
12:00:00 PM	10/7/2024	61.02702	7.389496	523.8672	10.52403	9.464185	33.38282	0.016474
12:15:00 PM	10/7/2024	51.26856	7.305847	528.9312	10.51482	9.563342	33.18175	0.016362
12:30:00 PM	10/7/2024	47.68055	7.396811	522.5201	10.52068	9.622046	33.41834	0.016489
12:45:00 PM	10/7/2024	53.03658	7.414931	520.8942	10.51728	9.66029	33.15249	0.016343
1:00:00 PM	10/7/2024	47.03338	7.380489	522.327	10.50827	9.676938	33.23698	0.016389
1:15:00 PM	10/7/2024	38.03856	7.416178	519.9023	10.50168	9.698373	32.45237	0.015961
1:30:00 PM	10/7/2024	39.53194	7.321363	524.6564	10.49865	9.73978	32.27215	0.015861
1:45:00 PM	10/7/2024	48.4421	7.450029	516.9626	10.49943	9.780573	31.84586	0.015628
2:00:00 PM	10/7/2024	35.01873	7.275064	526.938	10.50022	9.815915	31.90553	0.01566
2:15:00 PM	10/7/2024	42.33929	7.407712	519.1227	10.49038	9.826355	31.97634	0.015698
2:30:00 PM	10/7/2024	27.56355	7.434023	517.6302	10.47709	9.822099	32.17635	0.015807
2:45:00 PM	10/7/2024	33.09684	7.394989	520.0311	10.47232	9.821183	31.88739	0.01565
3:00:00 PM	10/7/2024	38.24147	7.391013	520.6628	10.46316	9.830449	31.86733	0.015639
3:15:00 PM	10/7/2024	28.10682	7.382667	521.2041	10.45887	9.830079	31.5521	0.015467
3:30:00 PM	10/7/2024	35.02516	7.395903	520.6009	10.44396	9.830337	30.9108	0.015118
3:45:00 PM	10/7/2024	25.89501	7.371836	522.11	10.4286	9.828629	31.08151	0.015211
4:00:00 PM	10/7/2024	39.79059	7.325314	525.1833	10.42486	9.816328	30.6882	0.014997
4:15:00 PM	10/7/2024	35.80652	7.353148	523.7527	10.41468	9.80722	30.62193	0.014961
4:30:00 PM	10/7/2024	39.02485	7.412294	520.7344	10.39886	9.807664	30.72107	0.015015
4:45:00 PM	10/7/2024	32.89188	7.331803	525.4408	10.37432	9.81808	30.64861	0.014975
5:00:00 PM	10/8/2024	24.80765	7.338355	525.2906	10.34963	9.836753	30.64322	0.014972
5:15:00 PM	10/8/2024	29.19467	7.360919	524.0174	10.34681	9.857784	30.47921	0.014882
5:30:00 PM	10/8/2024	51.06325	7.261414	529.4534	10.31966	9.889352	30.58449	0.014939
5:45:00 PM	10/8/2024	31.39829	7.383924	522.7919	10.29981	9.920393	30.97571	0.015151
6:00:00 PM	10/8/2024	27.54021	7.330372	526.4684	10.28944	9.947248	31.38357	0.015372
6:15:00 PM	10/8/2024	54.40973	7.391565	523.059	10.26621	9.96793	31.54835	0.015461
6:30:00 PM	10/8/2024	26.46873	7.391633	523.5549	10.26647	9.978533	31.50163	0.015436
6:45:00 PM	10/8/2024	27.21593	7.376537	523.1448	10.25706	9.987592	31.72543	0.015557
7:00:00 PM	10/8/2024	24.49757	7.376062	524.6731	10.23227	9.995447	32.38377	0.015916
7:15:00 PM	10/8/2024	30.94459	7.29398	528.8359	10.21897	10.00864	33.11277	0.016312
7:30:00 PM	10/8/2024	22.48931	7.286815	529.5892	10.21034	10.0114	33.68897	0.016626
7:45:00 PM	10/8/2024	25.502	7.336201	527.1264	10.20108	10.00058	33.94516	0.016766
8:00:00 PM	10/8/2024	22.9452	7.252593	531.189	10.19316	9.984406	34.20942	0.016911
8:15:00 PM	10/8/2024	14.71569	7.415417	522.1912	10.1848	9.96488	34.41584	0.017024
8:30:00 PM	10/8/2024	28.10562	7.344689	525.7841	10.1748	9.954432	34.64788	0.017151
8:45:00 PM	10/8/2024	27.93679	7.250108	530.9816	10.17104	9.942083	34.73777	0.0172
9:00:00 PM	10/8/2024	23.82379	7.304396	527.6533	10.17072	9.929335	34.52817	0.017086
9:15:00 PM	10/8/2024	17.2291	7.361042	524.6277	10.17541	9.920498	34.2022	0.016909
9:30:00 PM	10/8/2024	20.53907	7.352758	524.9711	10.17045	9.907407	34.09623	0.016851
9:45:00 PM	10/8/2024	24.85438	7.363568	524.201	10.1644	9.892504	33.96078	0.016778
10:00:00 PM	10/8/2024	23.85243	7.310389	527.6176	10.18578	9.887021	33.09165	0.016304

10:15:00 PM	10/8/2024	24.44918	7.39273	522.8468	10.17521	9.865975	33.58321	0.016573
10:30:00 PM	10/8/2024	17.70745	7.386046	523.779	10.18515	9.854125	33.24128	0.016387
10:45:00 PM	10/8/2024	26.84475	7.257298	531.8733	10.20337	9.834657	33.29002	0.016414
11:00:00 PM	10/8/2024	20.76787	7.290699	529.1768	10.22005	9.820658	33.02319	0.016269
11:15:00 PM	10/8/2024	22.96969	7.297253	529.4081	10.20873	9.803457	32.97733	0.016244
11:30:00 PM	10/8/2024	23.58714	7.400845	524.5133	10.23795	9.7962	32.24721	0.015846
11:45:00 PM	10/8/2024	27.37924	7.33486	528.4878	10.24361	9.769104	32.68949	0.016088
12:00:00 AM	10/8/2024	26.40021	7.357805	527.1097	10.23735	9.763287	32.3834	0.015921
12:15:00 AM	10/8/2024	28.86353	7.382509	525.8533	10.24127	9.765895	32.18864	0.015815
12:30:00 AM	10/8/2024	29.26568	7.295272	531.4608	10.23901	9.766842	31.98176	0.015703
12:45:00 AM	10/8/2024	29.47489	7.3252	530.295	10.23572	9.773446	32.10652	0.01577
1:00:00 AM	10/8/2024	20.35168	7.262616	532.6815	10.24004	9.787659	32.18264	0.015811
1:15:00 AM	10/8/2024	27.36979	7.341321	529.2722	10.2334	9.793857	32.35852	0.015907
1:30:00 AM	10/8/2024	21.49593	7.327651	530.5167	10.24347	9.801375	32.33442	0.015894
1:45:00 AM	10/8/2024	25.22444	7.380591	527.5889	10.2357	9.808146	32.30085	0.015875
2:00:00 AM	10/8/2024	29.25556	7.336617	530.1353	10.24754	9.811597	32.16291	0.0158
2:15:00 AM	10/8/2024	18.16984	7.392014	527.0001	10.24696	9.809451	32.02679	0.015726
2:30:00 AM	10/8/2024	19.82329	7.380558	528.1611	10.25573	9.802665	32.00864	0.015716
2:45:00 AM	10/8/2024	19.62879	7.302521	532.5289	10.25925	9.804798	31.94629	0.015682
3:00:00 AM	10/8/2024	27.49174	7.452649	524.0413	10.26415	9.801726	31.46712	0.015421
3:15:00 AM	10/8/2024	25.24807	7.305114	531.2916	10.27696	9.786678	31.41753	0.015395
3:30:00 AM	10/8/2024	34.20004	7.416392	524.8566	10.27653	9.775427	31.27648	0.015318
3:45:00 AM	10/8/2024	20.4001	7.42458	523.6837	10.29264	9.770288	30.80495	0.015062
4:00:00 AM	10/8/2024	30.30686	7.332016	529.4772	10.30207	9.751019	30.64924	0.014977
4:15:00 AM	10/8/2024	21.35518	7.404134	524.0508	10.31687	9.714175	30.57808	0.01494
4:30:00 AM	10/8/2024	21.52397	7.38412	524.4824	10.32176	9.673923	30.14676	0.014706
4:45:00 AM	10/8/2024	27.08108	7.390671	522.5893	10.32302	9.608695	29.72794	0.014479
5:00:00 AM	10/8/2024	28.75068	7.289118	526.8499	10.34459	9.54419	29.09185	0.014135
5:15:00 AM	10/8/2024	41.19828	7.445277	516.7361	10.36268	9.475023	28.85485	0.014008
5:30:00 AM	10/8/2024	38.6829	7.344617	521.1445	10.37619	9.410225	28.43408	0.013781
5:45:00 AM	10/8/2024	38.56829	7.320564	523.9626	10.38701	9.367829	27.92603	0.013505
6:00:00 AM	10/8/2024	43.65138	7.417686	517.8328	10.38915	9.33575	28.11089	0.013607
6:15:00 AM	10/8/2024	41.37468	7.248761	528.5831	10.39045	9.308415	28.05189	0.013575
6:30:00 AM	10/8/2024	38.86895	7.379411	521.3137	10.3998	9.289401	28.1204	0.013613
6:45:00 AM	10/8/2024	24.28753	7.380273	522.4438	10.39922	9.277273	27.97504	0.013534
7:00:00 AM	10/8/2024	44.79342	7.276678	527.9633	10.40219	9.26832	27.90058	0.013494
7:15:00 AM	10/8/2024	42.85134	7.322302	526.6114	10.40511	9.262247	27.99955	0.013548
7:30:00 AM	10/8/2024	42.75145	7.249575	531.8375	10.40746	9.254835	27.73382	0.013403
7:45:00 AM	10/8/2024	47.77369	7.177856	535.347	10.39878	9.250798	27.79548	0.013437
8:00:00 AM	10/8/2024	38.51761	7.283461	531.9472	10.40768	9.24628	27.65256	0.013359
8:15:00 AM	10/8/2024	41.1668	7.359999	528.1802	10.39874	9.2479	27.84533	0.013464
8:30:00 AM	10/8/2024	48.46457	7.297107	531.8566	10.40971	9.244528	27.60668	0.013335
8:45:00 AM	10/8/2024	51.82853	7.311895	531.2272	10.41696	9.240954	27.31793	0.013178
9:00:00 AM	10/8/2024	53.31755	7.387802	527.2885	10.42481	9.242249	27.64501	0.013355
9:15:00 AM	10/8/2024	50.65784	7.284355	532.6768	10.43488	9.240134	28.04356	0.013572
9:30:00 AM	10/8/2024	58.77649	7.337246	529.7109	10.4409	9.236637	28.07943	0.013592
9:45:00 AM	10/8/2024	56.16684	7.265644	534.3576	10.44252	9.238376	28.00564	0.013552

10:00:00 AM	10/8/2024	58.90368	7.393075	527.0286	10.45673	9.246753	28.44791	0.013792
10:15:00 AM	10/8/2024	0	7.728676	521.7072	10.58805	9.30946	0.069043	0
10:30:00 AM	10/8/2024	62.18148	7.47009	509.4047	10.46243	9.264421	27.56013	0.013309
10:45:00 AM	10/8/2024	58.38762	7.480524	506.9133	10.46394	9.263903	27.40253	0.013223
11:00:00 AM	10/8/2024	41.81956	7.46225	510.9807	10.46221	9.279265	27.82356	0.013452
11:15:00 AM	10/8/2024	67.97068	7.456779	513.5246	10.47726	9.29188	27.66114	0.013363
11:30:00 AM	10/8/2024	79.76856	7.415619	518.4503	10.48201	9.307301	27.37618	0.013208
11:45:00 AM	10/8/2024	90.86391	7.433062	519.2681	10.48913	9.332423	27.63637	0.013349
12:00:00 PM	10/8/2024	69.92776	7.483296	518.2644	10.51729	9.341233	26.96191	0.012982
12:15:00 PM	10/8/2024	61.68068	7.463037	520.8751	10.52642	9.359851	27.0274	0.013017
12:30:00 PM	10/8/2024	49.47626	7.455909	522.1434	10.52544	9.379711	27.26007	0.013143
12:45:00 PM	10/8/2024	80.724	7.482189	521.4544	10.53571	9.392927	26.59229	0.01278
1:00:00 PM	10/8/2024	69.5349	7.443238	524.4585	10.55251	9.432499	26.4988	0.012729
1:15:00 PM	10/8/2024	76.89251	7.366554	529.1196	10.5581	9.450778	26.23042	0.012583
1:30:00 PM	10/8/2024	56.7879	7.406467	526.5995	10.56469	9.462066	26.28267	0.012611
1:45:00 PM	10/8/2024	75.6269	7.394902	527.577	10.57127	9.48958	26.03942	0.012478
2:00:00 PM	10/8/2024	55.13496	7.480453	522.2841	10.58304	9.534508	25.91098	0.012408
2:15:00 PM	10/8/2024	59.1919	7.443421	523.5406	10.57503	9.549197	25.4189	0.012141
2:30:00 PM	10/8/2024	69.80478	7.292171	532.7793	10.58176	9.568015	25.23609	0.012041
2:45:00 PM	10/8/2024	90.34147	7.433082	524.5587	10.58352	9.575336	24.94205	0.011882
3:00:00 PM	10/8/2024	80.12052	7.437509	523.6383	10.57533	9.577096	24.2868	0.011527
3:15:00 PM	10/8/2024	85.10067	7.482832	521.6428	10.56778	9.594978	25.49732	0.012182
3:30:00 PM	10/8/2024	56.46195	7.478161	522.0386	10.56828	9.588302	24.92349	0.011872
3:45:00 PM	10/8/2024	87.42175	7.375098	527.6486	10.56033	9.583963	24.50802	0.011647
4:00:00 PM	10/8/2024	98.23831	7.453128	523.2092	10.54122	9.596762	24.44211	0.011611
4:15:00 PM	10/8/2024	89.70924	7.394197	526.8427	10.55252	9.59302	23.93426	0.011336
4:30:00 PM	10/8/2024	85.7287	7.445251	524.2678	10.53649	9.589855	24.02001	0.011383
4:45:00 PM	10/8/2024	99.21525	7.444647	525.293	10.52466	9.572834	23.87343	0.011304
5:00:00 PM	10/9/2024	105.1541	7.294721	534.6509	10.53474	9.551681	23.84985	0.011291
5:15:00 PM	10/9/2024	127.6848	7.376309	530.4094	10.5251	9.534233	24.10638	0.01143
5:30:00 PM	10/9/2024	145.1902	7.41313	529.0719	10.51788	9.519081	24.36829	0.011573
5:45:00 PM	10/9/2024	120.9174	7.413343	529.2173	10.51217	9.491176	24.20564	0.011485
6:00:00 PM	10/9/2024	145.6033	7.394586	530.6454	10.51392	9.475529	23.78173	0.011256
6:15:00 PM	10/9/2024	170.1318	7.386052	531.2653	10.51433	9.4808	23.34597	0.01102
6:30:00 PM	10/9/2024	146.1075	7.410895	530.4237	10.50926	9.491199	23.16535	0.010923
6:45:00 PM	10/9/2024	143.6907	7.406957	530.8099	10.49129	9.499437	23.01655	0.010842
7:00:00 PM	10/9/2024	131.3245	7.413059	531.1747	10.48768	9.510693	23.21095	0.010947
7:15:00 PM	10/9/2024	110.0916	7.417263	530.934	10.49351	9.520969	22.87666	0.010766
7:30:00 PM	10/9/2024	162.6766	7.364882	534.5174	10.47941	9.528186	22.59739	0.010615
7:45:00 PM	10/9/2024	124.6993	7.406825	532.436	10.47074	9.530159	22.84597	0.010749
8:00:00 PM	10/9/2024	104.7904	7.386197	533.9047	10.47809	9.525229	22.52837	0.010578
8:15:00 PM	10/9/2024	111.676	7.404936	533.1321	10.46154	9.523517	22.4688	0.010546
8:30:00 PM	10/9/2024	102.0008	7.371471	535.5306	10.4553	9.524349	22.67534	0.010657
8:45:00 PM	10/9/2024	130.2581	7.259354	542.5759	10.4611	9.518488	22.28821	0.010449
9:00:00 PM	10/9/2024	144.4641	7.388793	535.8453	10.44485	9.510384	22.53672	0.010583
9:15:00 PM	10/9/2024	104.2066	7.387126	535.7619	10.45976	9.496511	22.49626	0.010561
9:30:00 PM	10/9/2024	148.5092	7.317332	539.9748	10.45562	9.488688	22.59964	0.010617

9:45:00 PM	10/9/2024	127.7206	7.381875	536.6965	10.44173	9.480049	23.00935	0.010839
10:00:00 PM	10/9/2024	133.3043	7.257387	544.2758	10.4454	9.461391	22.70682	0.010676
10:15:00 PM	10/9/2024	103.8381	7.39428	536.4987	10.45219	9.454446	22.87288	0.010765
10:30:00 PM	10/9/2024	128.7667	7.386026	537.097	10.44897	9.441377	22.89313	0.010777
10:45:00 PM	10/9/2024	113.6482	7.401706	536.1791	10.45059	9.42883	22.7217	0.010684
11:00:00 PM	10/9/2024	132.7053	7.33413	540.4063	10.44251	9.422905	22.76196	0.010706
11:15:00 PM	10/9/2024	139.4475	7.331862	540.733	10.44797	9.414334	22.55309	0.010594
11:30:00 PM	10/9/2024	148.3961	7.337907	540.5947	10.44186	9.407772	22.72009	0.010684
11:45:00 PM	10/9/2024	144.4394	7.368738	538.7112	10.44462	9.39922	22.60857	0.010624
12:00:00 AM	10/9/2024	130.0914	7.307413	542.4996	10.44413	9.384801	22.24635	0.010429
12:15:00 AM	10/9/2024	120.8169	7.358968	539.6625	10.43852	9.381169	22.47492	0.010552
12:30:00 AM	10/9/2024	120.4754	7.340236	540.8951	10.44808	9.371063	22.35428	0.010487
12:45:00 AM	10/9/2024	106.011	7.243388	545.2057	10.43246	9.361261	22.46769	0.010549
1:00:00 AM	10/9/2024	131.1548	7.343825	541.5936	10.44969	9.339453	22.26672	0.01044
1:15:00 AM	10/9/2024	105.0568	7.36314	540.9141	10.43879	9.327283	22.42503	0.010526
1:30:00 AM	10/9/2024	137.6222	7.287271	545.3392	10.44326	9.313128	22.43705	0.010533
1:45:00 AM	10/9/2024	155.5881	7.344592	541.9632	10.43618	9.302559	22.3416	0.010482
2:00:00 AM	10/9/2024	106.6741	7.340213	542.4973	10.43754	9.292561	22.40256	0.010515
2:15:00 AM	10/9/2024	99.83971	7.334646	542.4591	10.43689	9.286914	22.40985	0.010519
2:30:00 AM	10/9/2024	117.6457	7.282323	545.4155	10.44137	9.281643	22.60109	0.010622
2:45:00 AM	10/9/2024	125.9754	7.316335	543.4581	10.44263	9.271863	22.53438	0.010586
3:00:00 AM	10/9/2024	161.8545	7.32462	543.2888	10.44322	9.266099	22.51259	0.010575
3:15:00 AM	10/9/2024	89.56893	7.233945	548.7319	10.43377	9.256713	22.55875	0.0106
3:30:00 AM	10/9/2024	102.6411	7.258626	547.4969	10.4326	9.243694	22.41528	0.010522
3:45:00 AM	10/9/2024	87.0531	7.334582	543.3603	10.43602	9.238842	22.45988	0.010547
4:00:00 AM	10/9/2024	97.84958	7.281527	546.6577	10.44807	9.238195	22.32836	0.010476
4:15:00 AM	10/9/2024	100.4756	7.356132	542.3566	10.43252	9.234117	22.61597	0.010631
4:30:00 AM	10/9/2024	98.86201	7.305118	545.4012	10.43494	9.221619	22.54759	0.010594
4:45:00 AM	10/9/2024	93.91611	7.323875	544.159	10.42754	9.220881	22.6319	0.01064
5:00:00 AM	10/9/2024	88.91326	7.33955	543.551	10.42643	9.218798	22.86006	0.010763
5:15:00 AM	10/9/2024	95.42147	7.345682	543.2387	10.43155	9.214507	22.57051	0.010607
5:30:00 AM	10/9/2024	86.07031	7.366262	542.4949	10.43242	9.209725	22.85574	0.010761
5:45:00 AM	10/9/2024	91.27108	7.325165	544.6549	10.42092	9.203423	22.86086	0.010764
6:00:00 AM	10/9/2024	111.2884	7.333539	544.4499	10.42824	9.196549	22.95721	0.010816
6:15:00 AM	10/9/2024	76.02001	7.316725	545.4727	10.43071	9.195566	22.93032	0.010802
6:30:00 AM	10/9/2024	117.7801	7.343174	544.1733	10.43242	9.194364	23.06892	0.010876
6:45:00 AM	10/9/2024	92.356	7.282891	547.9475	10.43748	9.189679	23.28519	0.010993
7:00:00 AM	10/9/2024	131.39	7.319527	545.8256	10.42754	9.184839	23.28711	0.010995
7:15:00 AM	10/9/2024	79.12724	7.370362	543.079	10.43754	9.178943	23.35644	0.011032
7:30:00 AM	10/9/2024	106.1228	7.346577	544.3164	10.44122	9.177662	23.31496	0.01101
7:45:00 AM	10/9/2024	96.56923	7.296017	546.9008	10.43415	9.164699	23.71441	0.011226
8:00:00 AM	10/9/2024	106.9879	7.323235	545.3058	10.42969	9.159542	23.81591	0.011281
8:15:00 AM	10/9/2024	105.8734	7.242671	549.6903	10.43967	9.145939	23.98262	0.011371
8:30:00 AM	10/9/2024	104.5779	7.310419	546.1284	10.43918	9.135451	24.16706	0.011471
8:45:00 AM	10/9/2024	86.39011	7.351853	543.4676	10.4571	9.11915	24.15136	0.011463
9:00:00 AM	10/9/2024	86.75805	7.365391	542.3804	10.4566	9.10892	24.17817	0.011478
9:15:00 AM	10/9/2024	156.7782	7.333712	544.1304	10.45735	9.096439	24.30146	0.011545

9:30:00 AM	10/9/2024	107.8403	7.33583	543.9564	10.47855	9.091971	24.41061	0.011604
9:45:00 AM	10/9/2024	80.75758	7.326196	544.1328	10.49239	9.090475	24.53411	0.011671
10:00:00 AM	10/9/2024	121.9158	7.359189	542.285	10.49728	9.101598	24.5349	0.011671
10:15:00 AM	10/9/2024	107.8437	7.279674	546.4598	10.50549	9.119414	24.4934	0.011648
10:30:00 AM	10/9/2024	114.4937	7.392199	539.8675	10.53575	9.155255	24.70713	0.011763
10:45:00 AM	10/9/2024	99.94522	7.290407	545.8923	10.52717	9.193316	24.87417	0.011853
11:00:00 AM	10/9/2024	75.44943	7.39927	539.4097	10.53747	9.228494	24.99768	0.011919
11:15:00 AM	10/9/2024	114.4573	7.35217	542.0585	10.5443	9.258167	25.39939	0.012136
11:30:00 AM	10/9/2024	95.4578	7.364682	541.8273	10.53791	9.281394	25.44633	0.012161
11:45:00 AM	10/9/2024	102.5964	7.382897	541.062	10.54811	9.302171	25.64355	0.012268
12:00:00 PM	10/9/2024	118.8624	7.434627	537.9291	10.55337	9.330658	26.24082	0.012591
12:15:00 PM	10/9/2024	112.9679	7.43028	538.2009	10.55349	9.329046	26.4267	0.012692
12:30:00 PM	10/9/2024	101.851	7.454409	536.8873	10.56875	9.319715	26.587	0.012779
12:45:00 PM	10/9/2024	132.6875	7.435747	537.9387	10.55797	9.317674	26.97229	0.012988
1:00:00 PM	10/9/2024	135.4792	7.44743	537.016	10.56243	9.326045	27.34137	0.013189
1:15:00 PM	10/9/2024	153.1337	7.369695	540.7711	10.55393	9.349918	27.49625	0.013272
1:30:00 PM	10/9/2024	134.5531	7.423715	537.6716	10.55871	9.367256	27.58693	0.013321
1:45:00 PM	10/9/2024	113.161	7.447244	535.9646	10.56407	9.385421	27.16711	0.013093
2:00:00 PM	10/9/2024	148.5528	7.436574	536.0027	10.56935	9.454957	27.59519	0.013324
2:15:00 PM	10/9/2024	160.0691	7.42307	536.203	10.56765	9.530627	27.74574	0.013404
2:30:00 PM	10/9/2024	155.984	7.402689	536.8062	10.54938	9.612632	27.84587	0.013456
2:45:00 PM	10/9/2024	153.3108	7.431142	534.6175	10.546	9.677329	28.00295	0.01354
3:00:00 PM	10/9/2024	108.7606	7.399316	535.8192	10.53129	9.693656	27.62227	0.013333
3:15:00 PM	10/9/2024	133.3891	7.39586	535.9193	10.52807	9.692126	27.94509	0.013508
3:30:00 PM	10/9/2024	119.0648	7.430758	533.5756	10.52374	9.654579	27.51407	0.013275
3:45:00 PM	10/9/2024	182.2893	7.416153	534.4769	10.52074	9.634383	27.66196	0.013356
4:00:00 PM	10/9/2024	133.7129	7.425083	534.1216	10.51245	9.616756	27.68815	0.01337
4:15:00 PM	10/9/2024	150.22	7.394704	535.3494	10.52384	9.592019	27.76518	0.013413
4:30:00 PM	10/9/2024	114.022	7.446422	532.7388	10.51744	9.57074	27.7787	0.013421
4:45:00 PM	10/9/2024	100.973	7.38707	535.5164	10.50977	9.534445	27.9241	0.013501
5:00:00 PM	10/10/2024	157.1875	7.406361	534.3362	10.51341	9.502841	28.00367	0.013544
5:15:00 PM	10/10/2024	113.5181	7.394481	534.7916	10.49736	9.46152	28.10237	0.013599
5:30:00 PM	10/10/2024	87.24915	7.408603	534.205	10.4938	9.418932	28.07785	0.013587
5:45:00 PM	10/10/2024	100.5881	7.17228	547.7949	10.48976	9.36614	27.81061	0.013443
6:00:00 PM	10/10/2024	100.281	7.40562	534.1693	10.48098	9.328369	28.05706	0.013577
6:15:00 PM	10/10/2024	126.4878	7.369582	535.9479	10.49617	9.281417	28.00554	0.013551
6:30:00 PM	10/10/2024	144.4512	7.3611	537.0518	10.47501	9.245487	28.34033	0.013733
6:45:00 PM	10/10/2024	110.9378	7.359917	537.1519	10.46786	9.215667	28.21286	0.013665
7:00:00 PM	10/10/2024	72.41116	7.338916	538.6587	10.47755	9.187501	28.16441	0.013639
7:15:00 PM	10/10/2024	120.362	7.375879	536.4891	10.47645	9.161904	28.17492	0.013645
7:30:00 PM	10/10/2024	111.3687	7.359127	537.6884	10.46859	9.146036	28.1278	0.01362
7:45:00 PM	10/10/2024	110.2943	7.40584	535.0371	10.45669	9.132655	28.50583	0.013826
8:00:00 PM	10/10/2024	118.3345	7.386619	536.222	10.45345	9.128922	28.86348	0.01402
8:15:00 PM	10/10/2024	103.636	7.391811	536.1768	10.44035	9.132551	29.31839	0.014268
8:30:00 PM	10/10/2024	116.6921	7.321707	540.2632	10.45154	9.131156	29.25397	0.014233
8:45:00 PM	10/10/2024	77.0975	7.387971	536.7013	10.44668	9.128701	29.55346	0.014396
9:00:00 PM	10/10/2024	106.1016	7.388676	536.8491	10.44149	9.137739	29.30305	0.014259

9:15:00 PM	10/10/2024	102.9664	7.389389	536.6059	10.43647	9.14167	29.68901	0.014469
9:30:00 PM	10/10/2024	91.43211	7.412914	535.4281	10.41737	9.149012	29.90285	0.014586
9:45:00 PM	10/10/2024	91.61797	7.384897	536.8992	10.43263	9.149766	29.88136	0.014574
10:00:00 PM	10/10/2024	96.11776	7.412802	535.1205	10.42081	9.139274	30.19506	0.014745
10:15:00 PM	10/10/2024	130.1473	7.396922	535.7739	10.41881	9.134237	29.99543	0.014636
10:30:00 PM	10/10/2024	80.11016	7.359353	537.8505	10.42242	9.10549	30.64394	0.01499
10:45:00 PM	10/10/2024	102.9287	7.390741	535.7166	10.43244	9.085284	30.29627	0.014801
11:00:00 PM	10/10/2024	85.12629	7.382069	536.1052	10.42948	9.061897	30.42398	0.014871
11:15:00 PM	10/10/2024	88.46516	7.360272	536.9802	10.44561	9.022003	30.21573	0.014759
11:30:00 PM	10/10/2024	116.3369	7.322937	538.4561	10.44887	8.993731	30.17526	0.014738
11:45:00 PM	10/10/2024	92.22742	7.372459	534.7224	10.45095	8.955059	30.34995	0.014834
12:00:00 AM	10/10/2024	87.21317	7.360505	535.0109	10.46956	8.91618	30.11927	0.014709
12:15:00 AM	10/10/2024	110.3885	7.334346	536.3604	10.48402	8.869781	30.136	0.014719
12:30:00 AM	10/10/2024	107.9808	7.244175	540.6829	10.50281	8.820254	29.99872	0.014645
12:45:00 AM	10/10/2024	130.5329	7.308724	536.7418	10.49489	8.791252	29.73442	0.014502
1:00:00 AM	10/10/2024	91.77235	7.323719	536.0552	10.51405	8.744791	29.49516	0.014373
1:15:00 AM	10/10/2024	74.18281	7.388386	531.9162	10.5149	8.710911	29.54445	0.014401
1:30:00 AM	10/10/2024	78.26831	7.328926	534.7009	10.5379	8.677194	29.65807	0.014463
1:45:00 AM	10/10/2024	117.0242	7.33752	534.3862	10.54786	8.643938	29.44306	0.014347
2:00:00 AM	10/10/2024	93.79865	7.332012	534.5579	10.56305	8.614752	29.20914	0.01422
2:15:00 AM	10/10/2024	99.6346	7.258462	539.1427	10.57744	8.586962	29.28325	0.014261
2:30:00 AM	10/10/2024	95.63809	7.307935	536.2054	10.56602	8.570408	29.39851	0.014324
2:45:00 AM	10/10/2024	101.7245	7.369568	532.5289	10.58428	8.552547	29.20403	0.014219
3:00:00 AM	10/10/2024	100.1516	7.343712	533.7592	10.58786	8.540003	29.28013	0.01426
3:15:00 AM	10/10/2024	100.783	7.389678	531.2057	10.59146	8.52751	29.2397	0.014239
3:30:00 AM	10/10/2024	110.0239	7.297807	536.8491	10.60894	8.505454	29.24558	0.014242
3:45:00 AM	10/10/2024	115.9375	7.355044	533.516	10.59977	8.490887	29.0212	0.01412
4:00:00 AM	10/10/2024	110.4026	7.330415	534.6485	10.61575	8.475255	29.01536	0.014118
4:15:00 AM	10/10/2024	101.9529	7.307612	536.4772	10.62819	8.452266	29.20441	0.014221
4:30:00 AM	10/10/2024	117.1004	7.327926	535.5569	10.63101	8.434498	29.01244	0.014117
4:45:00 AM	10/10/2024	103.3519	7.25021	540.1345	10.65273	8.414979	29.04629	0.014136
5:00:00 AM	10/10/2024	103.3222	7.312978	536.6488	10.65651	8.394807	28.88455	0.014048
5:15:00 AM	10/10/2024	107.3666	7.36033	533.6185	10.66296	8.376599	29.01237	0.014118
5:30:00 AM	10/10/2024	83.04651	7.390519	532.2166	10.66618	8.362467	29.16621	0.014202
5:45:00 AM	10/10/2024	103.8496	7.304487	536.6298	10.67641	8.339441	28.79433	0.014
6:00:00 AM	10/10/2024	93.78259	7.389438	531.8972	10.68825	8.320632	28.93569	0.014078
6:15:00 AM	10/10/2024	140.9415	7.385064	532.1094	10.68824	8.29852	29.10389	0.01417
6:30:00 AM	10/10/2024	111.048	7.368816	532.908	10.69458	8.278877	28.94996	0.014086
6:45:00 AM	10/10/2024	90.02602	7.311114	536.6536	10.69854	8.256901	28.9858	0.014106
7:00:00 AM	10/10/2024	102.1155	7.36655	533.7473	10.71117	8.233543	28.85173	0.014034
7:15:00 AM	10/10/2024	114.1053	7.326901	535.9145	10.71291	8.209249	29.26826	0.014261
7:30:00 AM	10/10/2024	102.7609	7.364207	533.3586	10.71821	8.181828	28.97563	0.014102
7:45:00 AM	10/10/2024	75.8294	7.379545	532.2	10.73401	8.160104	29.14047	0.014193
8:00:00 AM	10/10/2024	101.0113	7.15919	543.2458	10.74929	8.135043	29.19879	0.014225
8:15:00 AM	10/10/2024	102.7095	7.325026	535.1158	10.74617	8.117561	29.14591	0.014196
8:30:00 AM	10/10/2024	104.1629	7.361735	532.7388	10.75321	8.100246	29.15266	0.0142
8:45:00 AM	10/10/2024	132.4482	7.3771	531.4633	10.76379	8.092051	29.12584	0.014186

9:00:00 AM	10/10/2024	89.12199	7.379478	531.2939	10.77674	8.09064	29.21447	0.014234
9:15:00 AM	10/10/2024	105.4588	7.168597	543.4223	10.79094	8.086869	29.2683	0.014264
9:30:00 AM	10/10/2024	92.02611	7.206727	540.9451	10.80062	8.088537	29.55921	0.014422
9:45:00 AM	10/10/2024	125.8536	7.420906	528.309	10.81367	8.097391	29.59536	0.014442
10:00:00 AM	10/10/2024	98.34995	7.384243	530.376	10.81904	8.109481	29.53824	0.01441
10:15:00 AM	10/10/2024	90.5629	7.380361	530.6979	10.83429	8.124912	29.31443	0.014288
10:30:00 AM	10/10/2024	95.22619	7.379142	530.8362	10.83476	8.146193	29.36164	0.014313
10:45:00 AM	10/10/2024	128.2619	7.378968	531.2916	10.83827	8.17801	29.11071	0.014176
11:00:00 AM	10/10/2024	75.72424	7.437622	528.5974	10.85434	8.220516	29.32716	0.014293
11:15:00 AM	10/10/2024	124.4287	7.435292	529.2889	10.87165	8.270374	29.12667	0.014183
11:30:00 AM	10/10/2024	112.4108	7.454486	528.8573	10.87571	8.323383	29.00474	0.014115
11:45:00 AM	10/10/2024	72.27697	7.445964	529.7156	10.89294	8.375103	28.94485	0.014081
12:00:00 PM	10/10/2024	83.92178	7.453503	529.9683	10.8874	8.425778	28.8988	0.014055
12:15:00 PM	10/10/2024	89.02653	7.450707	530.407	10.90451	8.474842	28.52587	0.013851
12:30:00 PM	10/10/2024	95.34686	7.446641	531.1151	10.90696	8.524341	28.45897	0.013814
12:45:00 PM	10/10/2024	124.1176	7.461097	530.7289	10.90414	8.563961	28.57932	0.013878
1:00:00 PM	10/10/2024	122.8337	7.457347	531.2653	10.89749	8.602248	28.52236	0.013847
1:15:00 PM	10/10/2024	104.4712	7.424663	533.2347	10.90151	8.653797	28.91448	0.014059
1:30:00 PM	10/10/2024	103.4438	7.479141	530.6025	10.87849	8.7003	29.05821	0.014136
1:45:00 PM	10/10/2024	120.4751	7.434675	533.1846	10.87271	8.742212	29.31414	0.014274
2:00:00 PM	10/10/2024	70.94849	7.475668	531.1556	10.86462	8.771819	29.24422	0.014236
2:15:00 PM	10/10/2024	99.70029	7.44752	532.5838	10.86957	8.802871	29.29667	0.014264
2:30:00 PM	10/10/2024	115.2058	7.453127	532.61	10.8666	8.838963	29.67729	0.01447
2:45:00 PM	10/10/2024	98.5765	7.457057	532.262	10.85555	8.86561	29.52364	0.014386
3:00:00 PM	10/10/2024	101.9374	7.476408	531.1032	10.86385	8.900295	29.7784	0.014524
3:15:00 PM	10/10/2024	114.5936	7.495269	529.8348	10.84476	8.94663	29.83309	0.014552
3:30:00 PM	10/10/2024	101.9072	7.476213	531.1628	10.82583	9.008576	30.0088	0.014647
3:45:00 PM	10/10/2024	102.0727	7.496744	529.9302	10.80201	9.083719	30.98059	0.015174
4:00:00 PM	10/10/2024	108.2392	7.446124	532.92	10.78995	9.150683	31.47577	0.015442
4:15:00 PM	10/10/2024	91.26324	7.507754	528.8693	10.76225	9.205029	32.06557	0.015762
4:30:00 PM	10/10/2024	88.43217	7.49603	529.3914	10.74254	9.238867	32.83598	0.016182
4:45:00 PM	10/10/2024	71.15155	7.499238	528.9956	10.72972	9.240035	33.11806	0.016335
5:00:00 PM	10/11/2024	89.57584	7.518911	527.9895	10.71673	9.224501	32.99994	0.016271
5:15:00 PM	10/11/2024	67.47657	7.487246	529.9946	10.71356	9.19226	32.88094	0.016207
5:30:00 PM	10/11/2024	54.02817	7.517131	528.576	10.72122	9.140698	32.77181	0.016149
5:45:00 PM	10/11/2024	69.00933	7.520627	528.5593	10.69716	9.104007	32.35792	0.015924
6:00:00 PM	10/11/2024	101.6855	7.466087	531.6754	10.68726	9.068415	32.30619	0.015897
6:15:00 PM	10/11/2024	83.14989	7.460829	531.9067	10.68399	9.029904	32.1935	0.015836
6:30:00 PM	10/11/2024	72.20029	7.510302	529.2483	10.67594	9.000813	32.14132	0.015809
6:45:00 PM	10/11/2024	72.93842	7.49544	530.2997	10.67278	8.990499	32.14822	0.015813
7:00:00 PM	10/11/2024	91.35033	7.435625	534.0095	10.65437	8.959142	32.23134	0.015859
7:15:00 PM	10/11/2024	78.68163	7.457261	532.8222	10.64558	8.942526	32.31601	0.015905
7:30:00 PM	10/11/2024	77.83321	7.415008	535.3423	10.63717	8.92164	32.30454	0.0159
7:45:00 PM	10/11/2024	101.8003	7.432287	534.1192	10.63939	8.906681	32.48095	0.015996
8:00:00 PM	10/11/2024	77.58923	7.481825	531.3178	10.60996	8.898739	32.50021	0.016007
8:15:00 PM	10/11/2024	61.39786	7.456733	532.7626	10.60523	8.881698	32.80387	0.016173
8:30:00 PM	10/11/2024	72.10751	7.48926	531.0842	10.59554	8.880684	32.81274	0.016178

8:45:00 PM	10/11/2024	67.67519	7.472256	532.0021	10.58454	8.881406	32.66574	0.016098
9:00:00 PM	10/11/2024	73.27049	7.467926	532.4479	10.59123	8.866253	32.86669	0.016208
9:15:00 PM	10/11/2024	69.8656	7.438935	533.8188	10.58648	8.876656	32.78884	0.016165
9:30:00 PM	10/11/2024	67.36269	7.427915	534.8202	10.58539	8.839085	33.07183	0.01632
9:45:00 PM	10/11/2024	51.32135	7.458112	533.0201	10.58918	8.818386	33.1847	0.016382
10:00:00 PM	10/11/2024	68.42393	7.425091	534.6414	10.57405	8.80698	33.38368	0.016491
10:15:00 PM	10/11/2024	66.73871	7.431693	534.2957	10.56993	8.779896	33.3043	0.016448
10:30:00 PM	10/11/2024	67.44398	7.410007	535.6022	10.58248	8.767957	33.31842	0.016456
10:45:00 PM	10/11/2024	85.17749	7.453124	533.1536	10.5837	8.742776	33.39733	0.0165
11:00:00 PM	10/11/2024	73.49307	7.426489	534.5007	10.57924	8.727962	33.74194	0.016689
11:15:00 PM	10/11/2024	56.5031	7.37288	537.6502	10.57708	8.722485	33.47825	0.016545
11:30:00 PM	10/11/2024	55.50334	7.421455	534.8321	10.56684	8.700601	33.69903	0.016666
11:45:00 PM	10/11/2024	71.15375	7.438066	533.6019	10.57474	8.688621	33.7035	0.016669
12:00:00 AM	10/11/2024	72.21261	7.401357	535.5712	10.57789	8.669643	33.49892	0.016557
12:15:00 AM	10/11/2024	62.79092	7.420815	534.2718	10.57545	8.651764	33.61612	0.016622
12:30:00 AM	10/11/2024	42.28584	7.435446	533.1631	10.56981	8.635266	33.68991	0.016662
12:45:00 AM	10/11/2024	57.19265	7.437813	532.6982	10.58398	8.611769	33.50954	0.016565
1:00:00 AM	10/11/2024	69.78261	7.417077	533.8235	10.587	8.580122	33.46656	0.016542
1:15:00 AM	10/11/2024	53.43148	7.410629	533.9022	10.59271	8.561199	33.35474	0.016481
1:30:00 AM	10/11/2024	49.21493	7.411252	533.6614	10.59029	8.541828	33.5005	0.016561
1:45:00 AM	10/11/2024	48.58331	7.382703	535.0395	10.58612	8.518507	33.27324	0.016438
2:00:00 AM	10/11/2024	73.44843	7.328907	537.8028	10.59881	8.494307	33.23259	0.016416
2:15:00 AM	10/11/2024	51.50626	7.264475	541.1192	10.60773	8.466735	33.11717	0.016354
2:30:00 AM	10/11/2024	53.66256	7.369609	535.1015	10.60786	8.435651	33.09761	0.016344
2:45:00 AM	10/11/2024	42.90611	7.424679	531.642	10.61692	8.409981	33.11818	0.016356
3:00:00 AM	10/11/2024	75.28177	7.438172	530.7838	10.6171	8.372695	33.1739	0.016387
3:15:00 AM	10/11/2024	87.76401	7.401437	532.6935	10.62486	8.344596	33.17224	0.016387
3:30:00 AM	10/11/2024	49.94283	7.420506	531.7064	10.63246	8.31848	32.99413	0.01629
3:45:00 AM	10/11/2024	63.41722	7.448812	530.028	10.63742	8.295828	33.05486	0.016324
4:00:00 AM	10/11/2024	65.64842	7.446344	530.3999	10.63633	8.276568	32.93457	0.016259
4:15:00 AM	10/11/2024	46.22371	7.433796	531.2081	10.64613	8.22691	33.18946	0.016399
4:30:00 AM	10/11/2024	41.78601	7.370328	534.6985	10.65295	8.200404	33.14785	0.016377
4:45:00 AM	10/11/2024	51.39536	7.418181	531.9663	10.64925	8.182656	33.1321	0.016369
5:00:00 AM	10/11/2024	51.87146	7.320443	536.5582	10.6748	8.153325	33.18903	0.016401
5:15:00 AM	10/11/2024	50.71017	7.380852	534.2217	10.67558	8.136724	33.06202	0.016332
5:30:00 AM	10/11/2024	76.26351	7.376331	534.4983	10.6867	8.096339	33.24825	0.016434
5:45:00 AM	10/11/2024	71.06892	7.363917	535.2589	10.68756	8.087118	33.15096	0.016381
6:00:00 AM	10/11/2024	69.47838	7.376843	534.7057	10.69627	8.065142	33.08308	0.016345
6:15:00 AM	10/11/2024	48.37983	7.393213	533.6519	10.69571	8.03968	33.22749	0.016424
6:30:00 AM	10/11/2024	47.88194	7.424033	532.0784	10.70228	8.026122	33.1389	0.016376
6:45:00 AM	10/11/2024	48.68739	7.402877	533.1107	10.70868	8.017267	33.13832	0.016376
7:00:00 AM	10/11/2024	45.59552	7.419803	532.1666	10.70681	7.992103	33.21934	0.016421
7:15:00 AM	10/11/2024	57.01231	7.400147	533.0964	10.71308	7.971856	33.28334	0.016456
7:30:00 AM	10/11/2024	68.18443	7.384645	533.6209	10.71098	7.953118	33.43572	0.01654
7:45:00 AM	10/11/2024	49.09726	7.343285	535.514	10.70884	7.942782	33.44685	0.016546
8:00:00 AM	10/11/2024	60.37999	7.420917	531.2439	10.71454	7.933537	33.65536	0.01666
8:15:00 AM	10/11/2024	42.48996	7.344491	535.1778	10.72159	7.929183	33.45208	0.016549

8:30:00 AM	10/11/2024	55.1031	7.403589	531.6873	10.73023	7.91444	33.78812	0.016733
8:45:00 AM	10/11/2024	54.19025	7.443514	529.1911	10.74234	7.921241	33.6733	0.01667
9:00:00 AM	10/11/2024	65.08138	7.437644	529.687	10.74308	7.929719	33.68913	0.016679
9:15:00 AM	10/11/2024	49.10121	7.359762	533.4778	10.75749	7.934599	33.83848	0.01676
9:30:00 AM	10/11/2024	39.63498	7.363434	533.9285	10.766	7.94886	34.00041	0.016848
9:45:00 AM	10/11/2024	58.9465	7.43018	529.6751	10.78855	7.97785	33.83838	0.016759
10:00:00 AM	10/11/2024	44.99223	7.459737	527.7057	10.79338	7.98747	34.01951	0.016858
10:15:00 AM	10/11/2024	42.73063	7.372672	532.4526	10.80864	8.016637	33.98611	0.016839
10:30:00 AM	10/11/2024	64.41161	7.417723	529.8873	10.81815	8.045516	34.00056	0.016846
10:45:00 AM	10/11/2024	56.45444	7.443404	528.2469	10.81927	8.060947	34.21357	0.016962
11:00:00 AM	10/11/2024	63.30934	7.4594	527.3529	10.82679	8.083205	34.30125	0.01701
11:15:00 AM	10/11/2024	40.92708	7.44778	527.9966	10.84277	8.10678	34.0374	0.016865
11:30:00 AM	10/11/2024	50.47072	7.494494	525.6196	10.83567	8.141504	34.28158	0.016997
11:45:00 AM	10/11/2024	48.87863	7.449495	528.998	10.83951	8.194178	34.1522	0.016926
12:00:00 PM	10/11/2024	72.28493	7.490161	526.7878	10.85941	8.259331	34.13506	0.016915
12:15:00 PM	10/11/2024	62.64587	7.507548	526.2109	10.85761	8.343403	34.02214	0.016851
12:30:00 PM	10/11/2024	57.22215	7.485074	528.0944	10.86726	8.42072	33.97221	0.016822
12:45:00 PM	10/11/2024	69.8068	7.525009	526.6353	10.85984	8.470812	33.97942	0.016825
1:00:00 PM	10/11/2024	51.62218	7.535998	526.9261	10.86289	8.503117	34.04293	0.016858
1:15:00 PM	10/11/2024	52.4606	7.523356	528.2446	10.86712	8.534996	34.14586	0.016914
1:30:00 PM	10/11/2024	52.60014	7.501592	529.6226	10.85977	8.5787	35.22548	0.017502
1:45:00 PM	10/11/2024	57.85965	7.569429	526.1656	10.83807	8.61482	35.70614	0.017764
2:00:00 PM	10/11/2024	51.40113	7.51588	529.6536	10.84709	8.655669	35.84459	0.017839
2:15:00 PM	10/11/2024	43.80501	7.471415	532.1832	10.84299	8.690107	35.92556	0.017882
2:30:00 PM	10/11/2024	51.1512	7.552746	527.9084	10.83859	8.737871	37.48119	0.018731
2:45:00 PM	10/11/2024	38.84761	7.543289	529.1005	10.8308	8.768757	37.93361	0.018977
3:00:00 PM	10/11/2024	36.2622	7.555352	529.3103	10.83937	8.786873	36.53996	0.018215
3:15:00 PM	10/11/2024	47.37611	7.534131	530.9125	10.8407	8.819899	36.63102	0.018264
3:30:00 PM	10/11/2024	38.95082	7.566081	529.0624	10.82195	8.834823	36.62751	0.018262
3:45:00 PM	10/11/2024	50.37046	7.560818	529.2245	10.8293	8.823284	36.27736	0.018071
4:00:00 PM	10/11/2024	44.26532	7.542409	529.9469	10.81164	8.826525	36.77424	0.018342
4:15:00 PM	10/11/2024	43.12977	7.541048	529.8301	10.81063	8.829917	36.81199	0.018362
4:30:00 PM	10/11/2024	41.05346	7.556681	528.9456	10.79939	8.819123	36.95825	0.018443
4:45:00 PM	10/11/2024	32.76925	7.504348	531.5085	10.79385	8.820235	36.70997	0.018307
5:00:00 PM	10/12/2024	37.79243	7.548101	528.8549	10.77353	8.814978	36.64017	0.018269
5:15:00 PM	10/12/2024	47.63838	7.49804	531.4656	10.7584	8.800138	36.77798	0.018345
5:30:00 PM	10/12/2024	37.31915	7.51627	530.295	10.73717	8.802692	37.06396	0.018501
5:45:00 PM	10/12/2024	35.82724	7.550586	528.2398	10.72129	8.80014	36.82169	0.018369
6:00:00 PM	10/12/2024	50.03548	7.528051	529.0266	10.70145	8.792458	36.97934	0.018455
6:15:00 PM	10/12/2024	34.87909	7.487709	531.2606	10.68946	8.781594	36.82629	0.018372
6:30:00 PM	10/12/2024	36.36155	7.490137	530.922	10.67671	8.772588	36.64976	0.018275
6:45:00 PM	10/12/2024	31.92008	7.503807	529.7109	10.66885	8.749055	36.75563	0.018334
7:00:00 PM	10/12/2024	38.04892	7.477334	530.8887	10.651	8.739518	36.61665	0.018258
7:15:00 PM	10/12/2024	38.90919	7.482157	530.0542	10.62422	8.740689	36.51485	0.018202
7:30:00 PM	10/12/2024	30.95934	7.494226	529.11	10.60987	8.735883	36.69829	0.018303
7:45:00 PM	10/12/2024	38.51914	7.477482	529.5892	10.60524	8.728396	36.62273	0.018262
8:00:00 PM	10/12/2024	26.86213	7.40316	533.4755	10.58268	8.735634	36.74242	0.018327

8:15:00 PM	10/12/2024	35.68558	7.445609	530.4881	10.5812	8.732558	36.91558	0.018422
8:30:00 PM	10/12/2024	35.53378	7.432765	530.6884	10.56581	8.745976	36.98888	0.018461
8:45:00 PM	10/12/2024	33.04089	7.371271	533.938	10.54966	8.752054	37.03578	0.018487
9:00:00 PM	10/12/2024	29.84691	7.410382	531.2916	10.54216	8.744188	37.39602	0.018684
9:15:00 PM	10/12/2024	33.97691	7.396665	531.9043	10.53401	8.748766	37.34321	0.018655
9:30:00 PM	10/12/2024	33.1165	7.412051	530.6383	10.52446	8.759152	37.33832	0.018652
9:45:00 PM	10/12/2024	23.82604	7.403342	530.7003	10.52413	8.75415	37.44806	0.018712
10:00:00 PM	10/12/2024	28.04165	7.416564	529.3676	10.52185	8.7422	37.70255	0.018851
10:15:00 PM	10/12/2024	29.64644	7.400013	529.563	10.51395	8.745388	37.61145	0.018802
10:30:00 PM	10/12/2024	28.27246	7.438566	527.3052	10.50845	8.743217	37.7367	0.01887
10:45:00 PM	10/12/2024	28.72899	7.414927	528.7167	10.50066	8.73324	37.8799	0.018949
11:00:00 PM	10/12/2024	26.36042	7.416373	528.5045	10.49815	8.72902	37.99311	0.019011
11:15:00 PM	10/12/2024	28.82679	7.400562	528.9813	10.49963	8.745875	37.81879	0.018915
11:30:00 PM	10/12/2024	30.5715	7.33468	532.4717	10.48976	8.711178	38.47889	0.019277
11:45:00 PM	10/12/2024	30.43676	7.361706	530.5167	10.48025	8.723562	38.54097	0.01931
12:00:00 AM	10/12/2024	24.15476	7.405985	527.4888	10.47403	8.715061	38.65037	0.01937
12:15:00 AM	10/12/2024	27.52627	7.298275	533.3062	10.4675	8.71891	38.81881	0.019462
12:30:00 AM	10/12/2024	26.4983	7.37683	528.0109	10.45356	8.683142	39.23906	0.019693
12:45:00 AM	10/12/2024	23.88181	7.347668	529.2698	10.43982	8.683525	39.30418	0.019729
1:00:00 AM	10/12/2024	22.95243	7.300976	531.2987	10.43701	8.689528	39.40125	0.019781
1:15:00 AM	10/12/2024	27.7725	7.353567	527.9442	10.42154	8.672052	39.6256	0.019905
1:30:00 AM	10/12/2024	21.04254	7.383042	525.5934	10.41643	8.660959	39.59193	0.019886
1:45:00 AM	10/12/2024	19.82815	7.364838	526.0082	10.41645	8.663247	39.45803	0.019813
2:00:00 AM	10/12/2024	21.24852	7.348608	526.5303	10.40962	8.645825	39.68248	0.019936
2:15:00 AM	10/12/2024	27.0132	7.366717	524.9711	10.39544	8.651617	39.73654	0.019966
2:30:00 AM	10/12/2024	26.86234	7.354134	524.8566	10.39044	8.660076	39.3802	0.019771
2:45:00 AM	10/12/2024	32.02432	7.305787	527.3076	10.39257	8.631082	39.5057	0.01984
3:00:00 AM	10/12/2024	24.87515	7.261181	529.1267	10.39626	8.618397	39.14388	0.019643
3:15:00 AM	10/12/2024	20.92668	7.319179	524.9044	10.38772	8.585418	39.21619	0.019683
3:30:00 AM	10/12/2024	30.43444	7.355424	522.3914	10.40133	8.553525	39.10017	0.019621
3:45:00 AM	10/12/2024	27.47536	7.338111	523.2783	10.40207	8.516969	38.91811	0.019522
4:00:00 AM	10/12/2024	32.38422	7.333504	523.2068	10.4171	8.477194	39.02347	0.019581
4:15:00 AM	10/12/2024	24.78317	7.32089	523.4333	10.42627	8.437431	38.67214	0.01939
4:30:00 AM	10/12/2024	29.42628	7.307651	524.0818	10.43141	8.385695	38.87382	0.019501
4:45:00 AM	10/12/2024	28.27336	7.296748	524.5085	10.42768	8.325296	38.702	0.019409
5:00:00 AM	10/12/2024	26.4516	7.340423	522.1744	10.43463	8.275086	38.40207	0.019246
5:15:00 AM	10/12/2024	31.41527	7.239125	527.248	10.45639	8.225524	38.40464	0.019249
5:30:00 AM	10/12/2024	25.0472	7.216492	528.4282	10.47976	8.171959	38.11148	0.01909
5:45:00 AM	10/12/2024	21.4247	7.325142	522.2913	10.48013	8.126493	38.14714	0.019111
6:00:00 AM	10/12/2024	19.53778	7.261146	526.2609	10.46918	8.086979	37.92683	0.018991
6:15:00 AM	10/12/2024	24.9197	7.305866	523.5262	10.50458	8.039295	37.91092	0.018984
6:30:00 AM	10/12/2024	27.67319	7.28895	524.282	10.49067	7.993737	37.73801	0.01889
6:45:00 AM	10/12/2024	27.92676	7.254032	526.0464	10.51799	7.951865	37.79776	0.018924
7:00:00 AM	10/12/2024	25.25857	7.317381	522.4057	10.50011	7.923286	37.69622	0.018869
7:15:00 AM	10/12/2024	36.10286	7.274436	524.7684	10.55965	7.881409	37.74347	0.018896
7:30:00 AM	10/12/2024	29.51132	7.258043	525.5886	10.56352	7.848573	37.60462	0.018821
7:45:00 AM	10/12/2024	28.67408	7.308472	522.7443	10.58387	7.816312	37.62741	0.018834

8:00:00 AM	10/12/2024	29.12467	7.312965	522.4033	10.58469	7.787206	37.57684	0.018807
8:15:00 AM	10/12/2024	29.40711	7.315248	522.606	10.58548	7.761285	37.58505	0.018812
8:30:00 AM	10/12/2024	36.72886	7.25306	526.0678	10.60721	7.739744	37.59635	0.018819
8:45:00 AM	10/12/2024	28.69021	7.320684	522.3771	10.61944	7.726962	37.50082	0.018767
9:00:00 AM	10/12/2024	24.19197	7.191332	529.656	10.62664	7.716376	37.71971	0.018887
9:15:00 AM	10/12/2024	31.35624	7.335347	521.4425	10.64752	7.71869	37.58557	0.018814
9:30:00 AM	10/12/2024	26.46346	7.327949	522.0648	10.651	7.72546	37.70578	0.018879
9:45:00 AM	10/12/2024	30.76047	7.281415	524.6397	10.6582	7.751061	37.61929	0.018831
10:00:00 AM	10/12/2024	30.94449	7.358757	520.6557	10.67626	7.772645	37.85116	0.018958
10:15:00 AM	10/12/2024	22.57075	7.328649	522.4891	10.70116	7.807621	37.94558	0.019008
10:30:00 AM	10/12/2024	23.05302	7.283162	525.0903	10.70544	7.858871	37.84976	0.018955
10:45:00 AM	10/12/2024	32.13622	7.346342	521.0276	10.72406	7.910188	38.00022	0.019036
11:00:00 AM	10/12/2024	32.77951	7.314013	522.7156	10.72112	7.969645	37.93321	0.018998
11:15:00 AM	10/12/2024	28.22101	7.361911	520.5389	10.72724	8.035376	38.15248	0.019116
11:30:00 AM	10/12/2024	23.067	7.360206	520.5818	10.72618	8.102226	38.36833	0.019232
11:45:00 AM	10/12/2024	22.24629	7.358066	520.7678	10.72414	8.176675	38.3806	0.019237
12:00:00 PM	10/12/2024	23.55031	7.343713	521.688	10.73113	8.255358	38.28474	0.019183
12:15:00 PM	10/12/2024	42.48751	7.369046	520.5961	10.72674	8.325863	38.24366	0.019158
12:30:00 PM	10/12/2024	31.37717	7.387595	520.8107	10.75481	8.390881	37.97896	0.019012
12:45:00 PM	10/12/2024	31.85768	7.416685	519.6567	10.75656	8.454905	37.80583	0.018916
1:00:00 PM	10/12/2024	25.12819	7.428104	520.0358	10.77147	8.517011	37.47282	0.018732
1:15:00 PM	10/12/2024	29.60988	7.439759	520.2242	10.77236	8.587498	37.51209	0.018751
1:30:00 PM	10/12/2024	24.23717	7.483458	518.6434	10.7594	8.654224	37.65525	0.018828
1:45:00 PM	10/12/2024	28.52804	7.458952	521.3567	10.7324	8.724854	38.29662	0.019177
2:00:00 PM	10/12/2024	25.04128	7.502139	519.9882	10.67121	8.824904	39.92485	0.020064
2:15:00 PM	10/12/2024	40.745	7.483778	522.0147	10.67426	8.894466	39.81775	0.020003
2:30:00 PM	10/12/2024	28.61555	7.499218	522.0481	10.63189	8.960299	40.50677	0.020378
2:45:00 PM	10/12/2024	20.19087	7.49906	522.7633	10.67292	8.998974	39.95732	0.020077
3:00:00 PM	10/12/2024	20.99224	7.482258	524.0413	10.72385	9.031796	38.86073	0.019476
3:15:00 PM	10/12/2024	25.96093	7.483593	523.512	10.72407	9.064152	38.83456	0.019461
3:30:00 PM	10/12/2024	27.64843	7.507656	523.5859	10.72396	9.123852	39.22141	0.019671
3:45:00 PM	10/12/2024	23.82365	7.537148	522.8396	10.7101	9.188755	40.37243	0.020298
4:00:00 PM	10/12/2024	31.31052	7.517483	524.4609	10.6842	9.220303	41.05553	0.02067
4:15:00 PM	10/12/2024	36.62922	7.513374	524.8113	10.67244	9.24799	41.78176	0.021067
4:30:00 PM	10/12/2024	37.69094	7.491581	526.1393	10.66855	9.268986	42.52558	0.021473
4:45:00 PM	10/12/2024	31.41036	7.496006	525.7007	10.59644	9.273983	44.69744	0.02266
5:00:00 PM	10/13/2024	26.28902	7.510052	524.5825	10.54532	9.239979	45.58403	0.023146
5:15:00 PM	10/13/2024	33.77794	7.508164	524.4061	10.51673	9.167237	45.51007	0.023107
5:30:00 PM	10/13/2024	25.07304	7.526025	523.5549	10.54657	9.087949	44.6337	0.022631
5:45:00 PM	10/13/2024	25.5677	7.466711	526.2872	10.52979	9.002816	45.0353	0.022853
6:00:00 PM	10/13/2024	31.36356	7.476941	525.1428	10.50206	8.933152	45.22676	0.02296
6:15:00 PM	10/13/2024	29.49787	7.464371	525.4885	10.48469	8.843449	44.5547	0.022595
6:30:00 PM	10/13/2024	32.80568	7.465245	524.7184	10.51159	8.756291	43.39822	0.021965
6:45:00 PM	10/13/2024	30.85789	7.454449	524.201	10.51856	8.686065	41.89053	0.021143
7:00:00 PM	10/13/2024	30.66229	7.457094	522.8348	10.50547	8.650083	41.26593	0.020802
7:15:00 PM	10/13/2024	25.92342	7.424424	523.8863	10.48078	8.618533	40.8502	0.020576
7:30:00 PM	10/13/2024	30.32017	7.381205	525.3907	10.47951	8.586788	40.35152	0.020304

7:45:00 PM	10/13/2024	24.16043	7.411767	522.9469	10.46714	8.564496	40.38694	0.020324
8:00:00 PM	10/13/2024	24.37782	7.403842	522.8873	10.44343	8.541637	40.2939	0.020274
8:15:00 PM	10/13/2024	27.42757	7.341745	525.9391	10.4467	8.522505	40.3883	0.020326
8:30:00 PM	10/13/2024	19.80261	7.398313	522.2913	10.44557	8.502229	40.08921	0.020163
8:45:00 PM	10/13/2024	26.15619	7.350271	524.8662	10.43714	8.48144	40.41019	0.020339
9:00:00 PM	10/13/2024	30.44635	7.336437	525.6577	10.44923	8.46978	40.01114	0.020121
9:15:00 PM	10/13/2024	28.32038	7.366494	523.388	10.43495	8.451638	40.34609	0.020305
9:30:00 PM	10/13/2024	38.33029	7.3408	524.9115	10.44681	8.437207	40.16659	0.020207
9:45:00 PM	10/13/2024	23.88909	7.368556	523.2068	10.44268	8.43099	40.10865	0.020175
10:00:00 PM	10/13/2024	26.21978	7.37503	522.5416	10.43314	8.436494	39.87689	0.020048
10:15:00 PM	10/13/2024	22.73978	7.366321	522.5178	10.45438	8.424505	39.84825	0.020033
10:30:00 PM	10/13/2024	18.86762	7.374548	521.5856	10.4576	8.41816	40.04021	0.020138
10:45:00 PM	10/13/2024	21.41028	7.336358	523.7551	10.43462	8.43293	40.02697	0.020131
11:00:00 PM	10/13/2024	25.42175	7.201181	531.6635	10.43664	8.430262	39.85858	0.020039
11:15:00 PM	10/13/2024	26.42296	7.265863	527.6104	10.44609	8.436367	39.79777	0.020005
11:30:00 PM	10/13/2024	26.35938	7.332394	524.1033	10.44545	8.419146	40.03707	0.020137
11:45:00 PM	10/13/2024	23.95678	7.373344	521.9193	10.4384	8.430686	39.78616	0.019999
12:00:00 AM	10/13/2024	22.56319	7.314079	525.4479	10.44818	8.429987	39.87914	0.02005
12:15:00 AM	10/13/2024	24.83766	7.346057	523.7742	10.44174	8.434618	39.8809	0.020051
12:30:00 AM	10/13/2024	28.12631	7.37532	522.3723	10.44121	8.440677	39.92954	0.020077
12:45:00 AM	10/13/2024	25.65095	7.32273	525.6553	10.45028	8.422744	39.87552	0.020048
1:00:00 AM	10/13/2024	19.77693	7.373225	522.6799	10.44579	8.425037	39.7113	0.019958
1:15:00 AM	10/13/2024	21.64528	7.398621	521.6118	10.44755	8.412098	39.70303	0.019954
1:30:00 AM	10/13/2024	18.8786	7.385456	522.2913	10.44702	8.433172	39.8287	0.020022
1:45:00 AM	10/13/2024	27.0637	7.37585	523.438	10.4361	8.426178	40.0662	0.020152
2:00:00 AM	10/13/2024	21.91166	7.309381	526.5327	10.43716	8.426427	40.03474	0.020135
2:15:00 AM	10/13/2024	28.44028	7.381821	522.7443	10.43204	8.427529	40.10495	0.020173
2:30:00 AM	10/13/2024	22.85217	7.386125	522.8348	10.39572	8.43917	40.32076	0.020291
2:45:00 AM	10/13/2024	25.66785	7.381715	522.687	10.4038	8.442152	40.23643	0.020245
3:00:00 AM	10/13/2024	23.20425	7.360011	523.8911	10.41838	8.422613	40.41832	0.020345
3:15:00 AM	10/13/2024	24.67216	7.341055	524.5729	10.41584	8.436472	39.88348	0.020052
3:30:00 AM	10/13/2024	28.81071	7.295679	526.9428	10.42133	8.40573	40.32915	0.020297
3:45:00 AM	10/13/2024	22.32676	7.333874	523.8029	10.39434	8.421369	40.29076	0.020275
4:00:00 AM	10/13/2024	24.144	7.341684	522.997	10.3428	8.409869	39.75805	0.019984
4:15:00 AM	10/13/2024	24.2269	7.359212	521.3495	10.41809	8.388036	40.00378	0.020119
4:30:00 AM	10/13/2024	29.29906	7.347538	521.6499	10.42505	8.37275	39.59814	0.019898
4:45:00 AM	10/13/2024	22.23379	7.369598	520.279	10.42329	8.354344	39.52134	0.019856
5:00:00 AM	10/13/2024	27.20762	7.362125	521.2756	10.42264	8.335324	39.45257	0.019819
5:15:00 AM	10/13/2024	18.25955	7.350955	521.6833	10.44315	8.322677	39.5124	0.019852
5:30:00 AM	10/13/2024	28.55623	7.286314	525.3764	10.45087	8.296491	39.44172	0.019814
5:45:00 AM	10/13/2024	25.05012	7.339517	521.8931	10.44154	8.28709	39.30005	0.019737
6:00:00 AM	10/13/2024	23.41769	7.282667	524.9091	10.44824	8.260146	39.52459	0.019861
6:15:00 AM	10/13/2024	25.10338	7.362815	520.7201	10.45369	8.236393	39.53576	0.019867
6:30:00 AM	10/13/2024	20.90507	7.350636	521.483	10.45005	8.21426	39.51125	0.019854
6:45:00 AM	10/13/2024	28.04415	7.30861	524.1557	10.46835	8.189776	39.34159	0.019762
7:00:00 AM	10/13/2024	22.58438	7.330173	522.6251	10.46476	8.171273	39.16988	0.019669
7:15:00 AM	10/13/2024	23.43273	7.299633	524.4585	10.49337	8.144441	39.04759	0.019603

7:30:00 AM	10/13/2024	27.52898	7.350722	521.5736	10.50017	8.12084	39.061	0.019611
7:45:00 AM	10/13/2024	47.73171	7.355855	521.1611	10.50331	8.089586	39.14628	0.019658
8:00:00 AM	10/13/2024	24.47432	7.354692	521.9527	10.51709	8.072061	38.88005	0.019513
8:15:00 AM	10/13/2024	23.02686	7.359861	521.9813	10.51641	8.045559	38.8866	0.019517
8:30:00 AM	10/13/2024	29.12987	7.37313	521.6809	10.52633	8.022164	38.65324	0.01939
8:45:00 AM	10/13/2024	31.56013	7.253059	528.6689	10.5441	7.989652	39.18213	0.01968
9:00:00 AM	10/13/2024	32.21722	7.358172	522.8277	10.55101	7.978832	39.04578	0.019606
9:15:00 AM	10/13/2024	36.4234	7.360186	523.0804	10.57247	7.964933	38.85292	0.019501
9:30:00 AM	10/13/2024	34.81508	7.341223	524.3774	10.59301	7.961471	38.82872	0.019488
9:45:00 AM	10/13/2024	39.22574	7.350427	524.1581	10.60384	7.964268	38.93209	0.019544
10:00:00 AM	10/13/2024	40.56229	7.330935	525.9629	10.62493	7.975641	38.87968	0.019515
10:15:00 AM	10/13/2024	39.013	7.353062	524.4132	10.64176	7.992488	38.81929	0.019482
10:30:00 AM	10/13/2024	36.13429	7.352723	524.8615	10.65279	8.023119	38.832	0.019488
10:45:00 AM	10/13/2024	38.54858	7.313302	527.3362	10.66176	8.064075	38.98907	0.019573
11:00:00 AM	10/13/2024	52.53257	7.270619	529.7228	10.67886	8.112745	39.18955	0.019681
11:15:00 AM	10/13/2024	44.9746	7.379442	523.9077	10.69631	8.172749	39.50668	0.019853
11:30:00 AM	10/13/2024	44.82482	7.330156	526.8546	10.68886	8.249652	39.0995	0.019628
11:45:00 AM	10/13/2024	45.14426	7.380545	524.1199	10.69902	8.315901	39.32294	0.019749
12:00:00 PM	10/13/2024	54.40792	7.328925	527.3481	10.70548	8.382299	39.25156	0.019708
12:15:00 PM	10/13/2024	46.94771	7.365234	525.3502	10.70227	8.443699	39.42007	0.019798
12:30:00 PM	10/13/2024	50.52788	7.360424	525.6292	10.69569	8.490601	39.29677	0.01973
12:45:00 PM	10/13/2024	55.84763	7.400324	523.3403	10.69982	8.543835	39.00192	0.019567
1:00:00 PM	10/13/2024	50.45265	7.39628	523.7838	10.69598	8.584923	39.25001	0.019702
1:15:00 PM	10/13/2024	44.56589	7.445383	521.433	10.705	8.616524	39.02696	0.019579
1:30:00 PM	10/13/2024	46.86835	7.481468	520.2385	10.70663	8.654302	38.61547	0.019353
1:45:00 PM	10/13/2024	48.73764	7.475287	522.0671	10.73188	8.678514	38.07324	0.019056
2:00:00 PM	10/13/2024	48.61731	7.433032	525.3192	10.75816	8.712476	37.73307	0.018869
2:15:00 PM	10/13/2024	39.08401	7.479916	523.4047	10.75603	8.762813	37.94734	0.018985
2:30:00 PM	10/13/2024	47.30931	7.488955	523.9816	10.73826	8.816632	38.53097	0.019302
2:45:00 PM	10/13/2024	40.61185	7.478239	525.7913	10.68416	8.894	40.11675	0.020167
3:00:00 PM	10/13/2024	47.47284	7.503451	525.5743	10.66432	8.93562	40.29951	0.020266
3:15:00 PM	10/13/2024	44.20579	7.503617	526.4302	10.66086	8.959198	40.14642	0.020181
3:30:00 PM	10/13/2024	41.62729	7.515069	526.4636	10.66798	8.984808	39.9824	0.020091
3:45:00 PM	10/13/2024	40.51571	7.523124	527.4816	10.71045	8.973546	38.93757	0.01952
4:00:00 PM	10/13/2024	47.41483	7.526748	527.9418	10.72832	8.979467	38.57449	0.019321
4:15:00 PM	10/13/2024	45.21257	7.518597	528.6213	10.73772	8.996455	39.18629	0.019655
4:30:00 PM	10/13/2024	42.25359	7.53515	528.123	10.71218	9.027401	40.33517	0.020282
4:45:00 PM	10/13/2024	47.25674	7.555183	527.9656	10.69162	9.069867	42.28714	0.021348
5:00:00 PM	10/14/2024	51.72857	7.54762	529.0528	10.65574	9.068922	43.07718	0.02178
5:15:00 PM	10/14/2024	42.52051	7.543063	529.3747	10.65939	9.044433	43.34336	0.021927
5:30:00 PM	10/14/2024	42.08249	7.527862	530.295	10.59612	9.056979	45.42032	0.023062
5:45:00 PM	10/14/2024	40.29653	7.542348	528.731	10.55061	9.062996	46.96951	0.023909
6:00:00 PM	10/14/2024	50.77075	7.525682	529.7299	10.49197	9.047962	47.29279	0.024086
6:15:00 PM	10/14/2024	35.01275	7.503848	530.3474	10.5177	8.971317	45.22296	0.022957
6:30:00 PM	10/14/2024	40.91876	7.464228	532.2571	10.48231	8.948579	46.21452	0.0235
6:45:00 PM	10/14/2024	37.49947	7.504499	529.4009	10.46486	8.918153	45.95603	0.023359
7:00:00 PM	10/14/2024	40.08819	7.476621	530.5	10.43809	8.876421	44.75011	0.022701

7:15:00 PM	10/14/2024	44.64341	7.42472	532.7912	10.45708	8.826526	43.02614	0.02176
7:30:00 PM	10/14/2024	38.39712	7.364722	535.719	10.45257	8.805179	41.95384	0.021174
7:45:00 PM	10/14/2024	41.20462	7.42427	531.654	10.43215	8.791267	41.25217	0.020791
8:00:00 PM	10/14/2024	37.93255	7.400505	532.7888	10.41004	8.7833	41.01692	0.020662
8:15:00 PM	10/14/2024	43.23882	7.411473	531.6206	10.40394	8.777146	40.44268	0.020348
8:30:00 PM	10/14/2024	40.99834	7.365288	534.1216	10.39853	8.763824	40.34703	0.020296
8:45:00 PM	10/14/2024	31.98545	7.355495	534.3958	10.40824	8.746385	39.93583	0.020072
9:00:00 PM	10/14/2024	36.58684	7.377285	532.7364	10.39849	8.748754	39.53362	0.019852
9:15:00 PM	10/14/2024	29.53318	7.345734	533.6567	10.39684	8.736299	39.90582	0.020056
9:30:00 PM	10/14/2024	36.38137	7.34552	533.001	10.38718	8.738694	39.82164	0.02001
9:45:00 PM	10/14/2024	34.40864	7.371458	531.1509	10.38362	8.740057	39.7983	0.019997
10:00:00 PM	10/14/2024	35.83158	7.380758	530.2163	10.36591	8.746173	39.90979	0.020058
10:15:00 PM	10/14/2024	32.18104	7.365429	530.6121	10.37763	8.75398	39.87406	0.020038
10:30:00 PM	10/14/2024	34.61296	7.367141	530.4833	10.37931	8.770155	39.63935	0.019909
10:45:00 PM	10/14/2024	32.00455	7.318339	533.0558	10.36404	8.78316	39.72539	0.019956
11:00:00 PM	10/14/2024	39.63945	7.373585	529.7418	10.35785	8.790825	39.83126	0.020014
11:15:00 PM	10/14/2024	30.04393	7.372463	529.3437	10.35692	8.806074	39.77944	0.019985
11:30:00 PM	10/14/2024	30.07738	7.338728	530.9435	10.35958	8.818499	39.63383	0.019905
11:45:00 PM	10/14/2024	29.60027	7.332367	531.3226	10.36057	8.830335	39.51637	0.01984
12:00:00 AM	10/14/2024	30.16316	7.342763	530.965	10.35209	8.837847	39.69954	0.01994
12:15:00 AM	10/14/2024	28.59001	7.370578	529.6202	10.36178	8.851627	39.52036	0.019842

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-8-Chycoski-8E99D

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	10/08/2024	**Location:**	BC Rail Site
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.725353 -123.165023
Temperature(c):	Low 8 High 14	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 10:26:00 **Flow Volume (visual):** moderate

Notes:

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

Samples Collected - Parameters

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

Logger Maintenance

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

Describe Logger Maintenance

Cleaned sonde and removed battery and telemetry as it was replaced by Vulink.

Photos

Photo: 1

Location: SQU DS 1

Description: US view

Photo: 2

Location: SQU DS 1

Description: Across view

Photos

Photo: 3

Location: SQU DS 1

Description: DS view

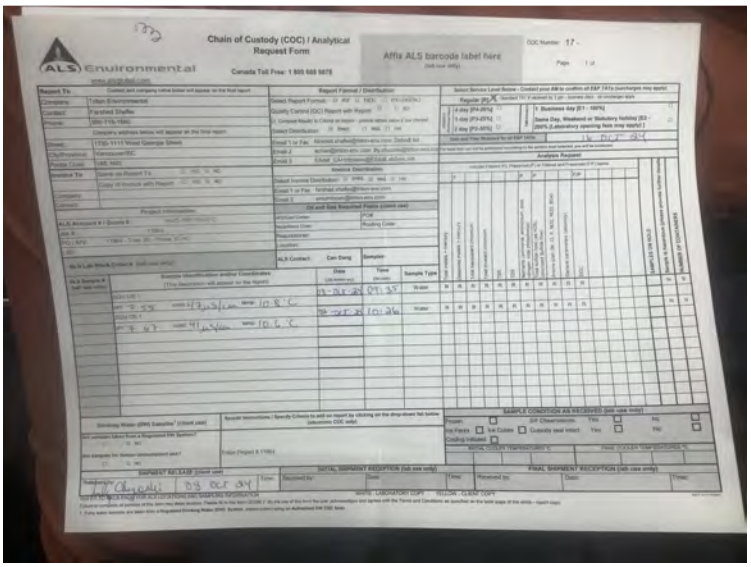

Photo: 4

Location: SQU DS 1

Description: Lab COC

Sign Off

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

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-8-Chycoski-52F97

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	10/08/2024	**Location:**	BC Rail Site
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.726866 -123.163912
Temperature(c):	Low 8 High 17	**Permit:**	AE 111824
Weather Conditions:	Light Rain	**Ground Conditions:**	Wet

Observations

Time: 09:35:00 **Flow Volume (visual):** moderate

Notes:

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

Samples Collected - Parameters

Total Metals + Mercury	Yes	**General Parameters (Alkalinity)**	Yes	**Other Sample:**	
Dissolved Metals + Mercury	Yes	**Total Sulfide, Unionized Sulfide**	Yes		
TSS	Yes	**Anions**	Yes		
TDS	Yes	**Total Trivalent Chromium**	Yes	**QA Samples:**	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

Removed battery and telemetry unit that was replaced by Vulink.

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

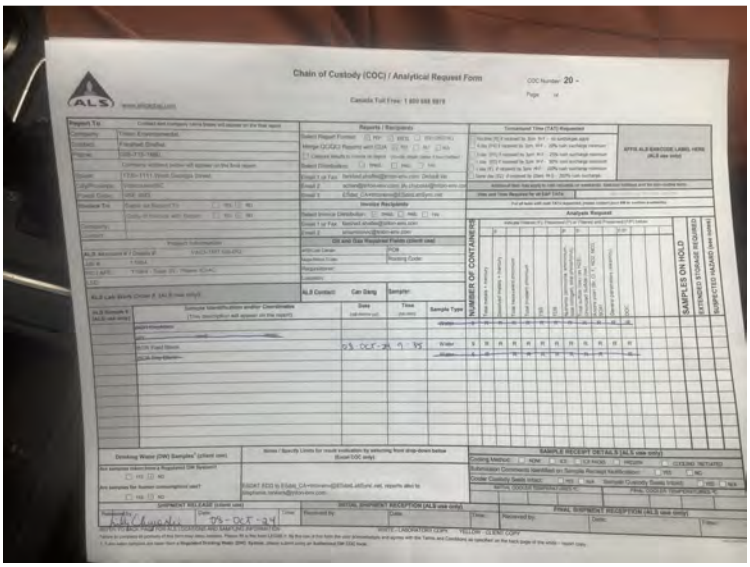

Photo: 4

Location: SQU US 1

Description: QAQC lab COC

Photos

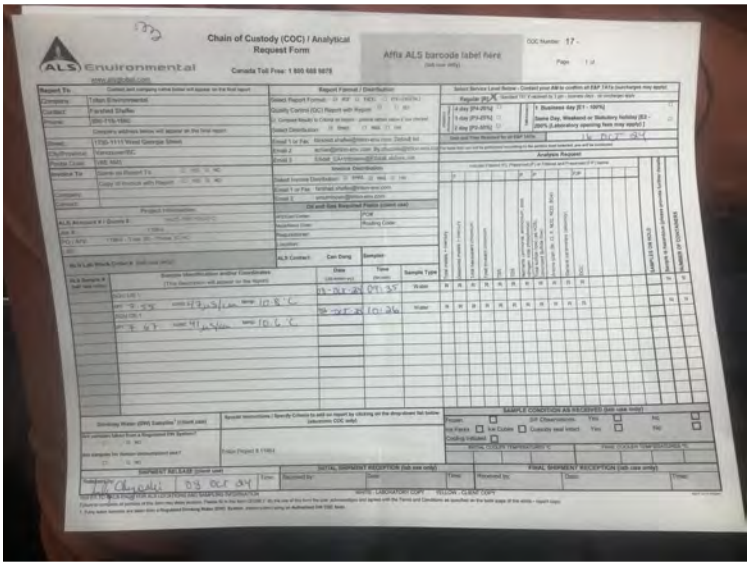

Photo: 5

Location: SQU US 1

Description: Weekly sample 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					VA24C6663-001					
	Date Sampled					07-Oct-2024					
	Time Sampled					11:45					
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	7.01		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	-	14.4		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	-	-	-	-	158	Water treatment process has been increasing the Conductivity 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.				
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 = 69.9 (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 = 69.9 (EOP)	**26.7**	**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	-		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	-	-	-	-	61.3					
Total Dissolved Solids	mg/L	-	-	-	-	93					
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 = 54.4 (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 = 54.4 (EOP)	**34.3**	**TSS 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 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	-	-	-	-	0.54			Long-term (30-day) median within 20% of background median [3]		
Total Phenols	mg/L	0.05	-	-	-	-		Interim guideline		Interim guideline	
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	62.7	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	0.0053		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	2.62				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	-	0.214		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	0.0172					
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	-	-	0.0011		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.		
Sulfate (as SO_4)	mg/L	-	Varies with hardness. See note. US1 (background) guideline = 218	-	-	5.72			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 = **1.969** (EOP), 0.087 (US), 0.082 (DS)	-	-	***0.935***	**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	-	-	0.00042					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00154					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.0207			Working guideline status		
Beryllium (Be)-Total	mg/L	-	0.00013	-	0.100	< 0.00010			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.00005					
Boron (B)-Total	mg/L	-	1.2	-	1.2	0.018					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	< 0.000020					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	22.6					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000107					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	-	0.0025	-	0.0015	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002 5-week discrete sampling averages = **0.0026** (EOP), 0.0012 (US), 0.0009 (DS)	**0.00171**	**Total copper exceeds long-term BCWG for MAL.**				
Iron (Fe)-Total	mg/L	1	-	-	-	< 0.010					
Lead (Pb)-Total	mg/L			0.14	0.002	< 0.000050					
Lithium (Li)-Total	mg/L	-	-	-	-	0.0036					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.06					
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 = 0.0431 (EOP), 0.0060 (US), 0.014 (DS)	-	-	0.00773		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	-	-	0.0193					
Nickel (Ni)-Total	mg/L	-		-	0.008	< 0.00050					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	-	-	-	-	1.73					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00424					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	0.000089			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	7.6					
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	-	-	-	-	4.2					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.051					
Sulfur (S)-Total	mg/L	-	-	-	-	1.88					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week discrete sampling averages = **0.00004** (EOP), 0.000010 (US), **0.000048** (DS)	-	-	***0.000023***	**Total thallium exceeds long-term BCWG for FAL.**		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	-	-	-	-	< 0.00020					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.0288					
Tungsten (W)-Total	mg/L	-	-	-	-	0.00047					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.00485			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005	0.00108					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.010 5-week discrete sampling averages = **0.0199** (EOP), 0.0033 (US), 0.0042 (DS)	***0.0181***	**Total zinc exceeds long-term BCWG for MAL.**				
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020					
Dissolved Metals											
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.009					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	0.00035					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00092					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.00931					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	0.017					
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 = 0.000015 (EOP), 0.0000094 (US), 0.000014 (DS)	-	-	< 0.0000200		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guiedeline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	-	Categorical, see note	-	-	22.2	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	-	-	-	-	0.000031					
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)	-	-	< 0.00020		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	-	-	-	-	0.0036					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.06					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00773					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.0193					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with pH, temperature, DOC, and hardness US1 (background) guideline: 0.0096	Guideline varies with pH, temperature, DOC, and hardness US1 (background) guideline: 0.0011 5-week discrete sampling averages = 0.00050 (EOP), 0.00095 (US), 0.00066 (DS)	-	-	< 0.00050					
Phosphorus (P)-Dissolved	mg/L	-	-	-	-	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	1.53					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00318					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	0.000084					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	5.98					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	3.82					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0462					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	1.87					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	0.00001					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	0.00039					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.000752					
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 = **0.0096** (EOP), 0.0015 (US), 0.0027 (DS)	-	-	**0.011**	**Dissolved zinc exceeds both short-term and long-term BCWG for FAL.**	Guideline varies with DOC and hardness. Guideline is calculated using the following formula: Guideline = (EXP((0.833 * (LN(hardness))) + (0.24 * (LN(DOC))) + 0.526)/2/1000) If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.	Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated using the following formula: Guideline = (EXP((0.974 * (LN(hardness))) - (0.815 * pH) + (0.398 * (LN(DOC))) + 4.625)/2/1000) Guideline only applies to water with pH between 6.5 and 8.13, DOC between 0.3 and 22.9 mg/L, anmd hardness between 23.4 and 399 mg/L. If hardness or DOC is below the hardness or DOC range, the minimum hardness or DOC will be applied in the calculation.		
Zirconium (Zr)-Dissolved	mg/L	-	-	-	-	< 0.00020					
Volatile Organic Compounds											
Chlorobenzene	µg/L	-	-	-	-	< 0.50					
Chloromethane	µg/L	-	-	-	-	< 5.0					
Dichlorobenzene, 1,2-	µg/L	-	0.7	-	42	< 0.50			Working guideline status		Working guideline status
Dichlorobenzene, 1,3-	µg/L	-	150	-	-	< 0.50			Working guideline status		
Dichlorobenzene, 1,4-	µg/L	-	26	-	-	< 0.50			Working guideline status		
Dichloropropane, 1,2-	µg/L	-	-	-	-	< 0.50					
Dichloropropylene, cis+trans-1,3-	µg/L	-	-	-	-	< 0.75					
Dichloropropylene, cis-1,3-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethane, 1,1,1,2-	µg/L	-	-	-	-	< 0.50					
Tetrachloroethane, 1,1,2,2-	µg/L	-	-	-	-	<0.20					
Trichloroethane, 1,1,2-	µg/L	-	-	-	-	< 0.50					
Trichlorofluoromethane	µg/L	-	-	-	-	< 0.50					
Carbon tetrachloride	µg/L	-	-	-	-	< 0.50					
Chloroethane	µg/L	-	-	-	-	< 0.50					
Dichloroethane, 1,1-	µg/L	-	-	-	-	< 0.50					
Dichloroethane, 1,2-	µg/L	-	100	-	-	< 0.50			Working guideline status		
Dichloroethylene, 1,1-	µg/L	-	-	-	-	< 0.50					
Dichloroethylene, cis-1,2-	µg/L	-	-	-	-	< 0.50					
Dichloroethylene, trans-1,2-	µg/L	-	-	-	-	< 0.50					
Dichloromethane	µg/L	-	98.1	-	-	< 1.0			Working guideline status		
Dichloropropylene, trans-1,3-	µg/L	-		-	-	< 0.50					
Tetrachloroethylene	µg/L	-	110	-	-	< 0.50			Working guideline status		
Trichloroethane, 1,1,1-	µg/L	-	-	-	-	< 0.50					
Trichloroethylene	µg/L	-	21	-	-	< 0.50			Working guideline status		
Vinyl chloride	µg/L	-	-	-	-	< 0.40					
Benzene	µg/L	-	40	-	110	< 0.50			Interim guideline status		Interim guideline status
Ethylbenzene	µg/L	-	200	-	250	< 0.50			Interim guideline status		Interim guideline status
Methyl-tert-butyl ether [MTBE]	µg/L	3400	-	440	-	< 0.50					
Styrene	µg/L	-	72	-	-	< 0.50			Working guideline status		
Toluene	µg/L	-	0.5	-	-	< 0.40					
Xylene, m+p-	µg/L	-	-	-	-	< 0.40					
Xylene, o-	µg/L	-	-	-	-	< 0.30					
Xylenes, total	µg/L	-	30	-	-	< 0.50					
Bromodichloromethane	µg/L	-	-	-	-	< 0.50					
Bromoform	µg/L	-	-	-	-	< 0.50					
Chloroform	µg/L	-	1.8	-	-	< 0.50			Working guideline status		
Dibromochloromethane	µg/L	-	-	-	-	< 0.50					
Hydrocarbons											
EPH (C10-C19)	µg/L	-	-	-	-	< 250					
EPH (C19-C32)	µg/L	-	-	-	-	< 250					
VHw (C6-C10)	µg/L	-	-	-	-	< 100					
VPHw	µg/L	-	-	-	-	< 100					
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	µg/L	-	6	-	6	< 0.010					
Acenaphthylene	µg/L	-	-	-	-	< 0.010					
Acridine	µg/L	-	-	-	-	< 0.010					
Anthracene	µg/L	0.1	4	-	-	< 0.010					
Benz(a)anthracene	µg/L	0.1	0.1	-	-	< 0.010					
Benzo(a)pyrene	µg/L	-	0.01	-	0.01	< 0.0050					
Benzo(b+j)fluoranthene	µg/L	-	-	-	-	< 0.010					
Benzo(b+j+k)fluoranthene	µg/L	-	-	-	-	< 0.015					
Benzo(g,h,i)perylene	µg/L	-	-	-	-	< 0.010					
Benzo(k)fluoranthene	µg/L	-	-	-	-	< 0.010					
Chrysene	µg/L	-	-	-	0.1	< 0.010					
Dibenz(a,h)anthracene	µg/L	-	-	-	-	< 0.0050					
Fluoranthene	µg/L	0.2	4	-	-	< 0.010		Guideline is for phototoxic effects			
Fluorene	µg/L	-	12	-	-	< 0.010					
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	-	-	< 0.010					
Methylnaphthalene, 1-	µg/L	-	-	-	1	0.016					Guideline is for total methylated napthalene and is presented here for reference.
Methylnaphthalene, 2-	µg/L	-	-	-	1	0.016					Guideline is for total methylated napthalene and is presented here for reference.
Naphthalene	µg/L	-	1	-	1	< 0.050					
Phenanthrene	µg/L	-	0.3	-	-	< 0.020					
Pyrene	µg/L	0.02	-	-	-	< 0.010					
Quinoline	µg/L	-	3.4	-	-	< 0.050		Working guideline status			
Glycols											
Ethylene glycol	mg/L	-	192	-	-	< 5.0					
Propylene glycol, 1,2-	mg/L	-	500	-	-	< 5.0					
Applied Guideline:		**British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Freshwater Aquatic Life** **British Columbia Approved and Working Water Quality Guidelines (NOV 2023) - BCAWWQG - Marine Aquatic Life**									
Color Key:	**Exceeds both FAL and MAL Guidelines**	**Exceeds FAL Short term Guideline**	***Exceeds FAL Long term Guideline***	**Exceeds MAL Short term Guideline**	***Exceeds MAL Long term Guideline***						
Color Key:		**Exceeds FAL Short and Long-Term Guideline**		**Exceeds MAL Short and Long-term Guidelines**							

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

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

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

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

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

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

Parameters Used to Calculate Guidelines

Analyte	Units	Measurement method	Values: WLNG EOP	Values: WLNG US 24-Sep-2024
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations	7.01	7.34
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations	14.4	15.8
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations	26.70	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	61.3	10.5
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations	0.54	1.63
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations	62.7	10.6
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations	2.62	0.77
Total Suspended Solids	mg/L	Laboratory tested total suspended solids tested at the lab used in guideline calculations	34.3	< 3.0

RESULTS OF RAINBOW TROUT LC50 MULTI-CONCENTRATION

Client : 4800 Triton Environmental Consultants Ltd., Vancouver Job Number: C480331

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

Test Result:

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

Sample Name : WLNG EOP

Description:	Cloudy white, translucent			Sample Number:	CXH199-01
Sample Collected:	Oct 07, 2024 11:45 AM	Sampling Method :	Grab	Site Collection:	N/A
Sample Collected By:	N/A	Volume Received:	4 x ECO10	Avg Temp Arrival:	17 °C Storage: 2-6°C
Sample Received:	Oct 07, 2024 05:18 PM	pH:	7.5	Dissolved Oxygen:	10.5 mg/L
Analysis Start :	Oct 09, 2024 12:50 PM	Temperature :	14 °C	Sample Conductance:	144 µS/cm

Concentration	Temperature (°C)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (mg/L)	pH	pH	Conductivity (uS/cm)	Mortality (#)	Mortality (%)	Atypical Behaviour (#)
% vol/vol	Initial	96 hrs	Initial	96 hrs	Initial	96 hrs	Initial	96 hrs	96 hrs	96 hrs
0	15	15	10.2	10.0	7.6	7.5	57	0	0	0
6.25	15	15	10.3	10.1	7.7	7.9	63	0	0	0
12.5	15	15	10.4	9.9	7.7	7.8	68	0	0	0
25	15	15	10.3	10.0	7.6	7.8	78	0	0	0
50	15	15	10.4	10.0	7.5	7.7	100	0	0	0
100	14	15	10.4	10.0	7.6	7.8	144	0	0	0

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

Culture/Control/Dilution Water Burnaby Municipal Dechlorinated Water

Hardness: 21 mg/L $CaCO_3$ Other parameters available on request.

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

Organisms per Vessel :	10	Test Temperature :	15 ± 1 °C	Solution Depth :	>15 cm
Total # of Organisms Used :	60	Pre-aeration Time :	120 min.	Rate of Aeration	6.5±1 mL/ (min*L)
Test Volume :	18 L	Vessel Volume :	20L	Test pH Adjusted:	No
Loading Density :	0.2 g/L	Photoperiod :	16:8 (light: dark)		

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

Culture Temperature :	15 ± 2 °C	Weight (Mean) +- SD :	0.4 ± 0.1 g	Length (Mean) +- SD :	3.68 ± 0.32 cm
Culture Water Renewal :	≥ 1L/min/kg fish	Weight (Range) :	0.2 – 0.7 g	Length (Range) :	3.20 – 4.20 cm
Culture Photoperiod :	16:8 (light: dark)			% Mortality within 7 days :	0%
Feeding rate and frequency :	daily: 1-5% biomass of trout.			Acclimation Time:	>14 days

Reference chemical: Zinc Test Date: Sep 18, 2024

Test Endpoint 96 hrs LC50 (95% confidence interval) : 0.23 (0.17, 0.30)mg/L Statistical Method : Probit

Historical Mean LC50 (warning limits) : 0.18 (0.11, 0.30) mg/L Concentration : 0,0.04,0.08,0.16,0.32,0.64 mg/L

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

Method Deviations : None.

Note: The results contained in this report refer only to the testing of the sample submitted. Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation, including the toxicity parameters reported herein. The conductivity, dissolved oxygen and pH data contained within the toxicity report are provided for information purposes and are not individually accredited parameters. This report may not be reproduced, except in its entirety, without the written approval of the laboratory.

Analyst : Melanie Mazziotti, Ryan Colman, Yihui (Phyllis) Fang

Verified By : Kimberly Tamaki, Scientist, Ecotoxicology Date: Oct 22, 2024 02:36 PM

Woodfibre Site Sample Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	:	**VA24C6663**		
Client	:	**Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:		Account Manager	:
Address	:		Address	:
Telephone	:		Telephone	:
Project	:	11964	Date Samples Received	: 07-Oct-2024 17:50
PO	:	11964-Tsak 40-Phase 3C-4C	Date Analysis Commenced	: 08-Oct-2024
C-O-C number	:	----	Issue Date	: 09-Oct-2024 16:22
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
- 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*
	Lab Assistant	Metals, Burnaby, British Columbia
	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
	Lab Analyst	Metals, Burnaby, British Columbia
	Lab Assistant	Inorganics, Burnaby, British Columbia
	Account Manager Assistant	Administration, Burnaby, British Columbia
	Team Leader - Organics	Organics, Burnaby, British Columbia
	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

Unit	*Description*
mg/L	milligrams per litre
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
pH units	pH units
°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).
RRV	Reported result verified by repeat analysis.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
				Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6663-001	VA24C6663-002	----	----	----
					Result	Result	----	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	158.00	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units	7.01	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C	14.4	----	----	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	59.8	<0.60	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	61.3	<0.60	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	93	12	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	34.3	<3.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	62.7	<2.0	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0053	<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	2.62	<0.50	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.214	<0.020	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0172	<0.0050	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0011	<0.0010	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	5.72	<0.30	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	0.54	<0.50	----	----	----
Total Sulfides									
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L	<0.0015	<0.0015	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
						VA24C6663-001	VA24C6663-002	----	----	----
						Result	Result	----	----	----
Total Sulfides										
Sulfide, un-ionized (as H2S), from total	7783-06-4	EC395/VA	0.0015	mg/L		<0.0015	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.935	<0.0030	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		0.00042	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00154	<0.00010	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0207	<0.00010	----	----	----
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		0.018	<0.010	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000200 DLM	<0.0000050	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		22.6	<0.050	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000107	<0.000010	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00016	<0.00010	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00171	<0.00050	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.550	<0.010	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000377	<0.000050	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0040	<0.0010	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		1.19	<0.0050	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0172	<0.00010	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
						VA24C6663-001	VA24C6663-002	----	----	----
						Result	Result	----	----	----
Total Metals										
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		0.0201	<0.000050	----	----	----
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		1.73	<0.050	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00424	<0.00020	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000089	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		7.60	<0.10	----	----	----
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		4.20	<0.050	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0510	<0.00020	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.88	<0.50	----	----	----
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		0.000023	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00020 DLM	<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		0.0288	<0.00030	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00047	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.00485	<0.000010	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00108	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0181	<0.0030	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time: 07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
					VA24C6663-001	VA24C6663-002	----	----	----
					Result	Result	----	----	----
Total Metals									
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	0.0090	<0.0010	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	0.00035	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00092	<0.00010	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00931	<0.00010	----	----	----
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	0.017	<0.010	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000200 DLM	<0.0000050	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	22.2	<0.050	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	0.000031	<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	<0.00020	<0.00020	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	<0.010	<0.010	----	----	----
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	0.0036	<0.0010	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	1.06	<0.0050	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00773	<0.00010	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
						VA24C6663-001	VA24C6663-002	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.0193	<0.000050	----	----	----
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		1.53	<0.050	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00318	<0.00020	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000084	<0.000050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		5.98	<0.050	----	----	----
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		3.82	<0.050	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0462	<0.00020	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.87	<0.50	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		0.00039	<0.00010	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000752	<0.000010	----	----	----
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		0.0110	<0.0010	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		WLNG EOP	WLNG EOP Field Blank	----	----	----
			Client sampling date / time		07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6663-001	VA24C6663-002	----	----	----
					Result	Result	----	----	----
Dissolved Metals									
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/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----
Chromium, trivalent [Cr III], total	16065-83-1	EC535/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----
Volatile Organic Compounds									
Chlorobenzene	108-90-7	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Chloromethane	74-87-3	E611C/VA	5.0	µg/L	<5.0	<5.0	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L	<0.75	<0.75	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L	<0.20	<0.20	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Volatile Organic Compounds [Drycleaning]									
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6663-001	VA24C6663-002	----	----	----
						Result	Result	----	----	----
Volatile Organic Compounds [Drycleaning]										
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	<1.0	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	<0.40	----	----	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	<0.40	----	----	----
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	<0.40	----	----	----
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	<0.30	----	----	----
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	<0.50	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID: WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time: 07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
					VA24C6663-001	VA24C6663-002	----	----	----
					Result	Result	----	----	----
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Bromoform	75-25-2	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Chloroform	67-66-3	E611C/VA	0.50	µg/L	<0.50	0.70 RRV	----	----	----
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L	<0.50	<0.50	----	----	----
Hydrocarbons									
EPH (C10-C19)	----	E601A/VA	250	µg/L	<250	<250	----	----	----
EPH (C19-C32)	----	E601A/VA	250	µg/L	<250	<250	----	----	----
VHw (C6-C10)	----	E581.VH+F1/VA	100	µg/L	<100	<100	----	----	----
HEPHw	----	EC600A/VA	250	µg/L	<250	<250	----	----	----
LEPHw	----	EC600A/VA	250	µg/L	<250	<250	----	----	----
VPHw	----	EC580A/VA	100	µg/L	<100	<100	----	----	----
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%	75.2	80.3	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/VA	1.0	%	104	114	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%	90.4	91.7	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%	110	111	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L	<0.010	<0.010	----	----	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L	<0.010	<0.010	----	----	----
Acridine	260-94-6	E641A/VA	0.010	µg/L	<0.010	<0.010	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
						VA24C6663-001	VA24C6663-002	----	----	----
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons										
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		0.016	<0.010	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		0.016	<0.010	----	----	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	----	----	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		113	106	----	----	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		99.4	103	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	WLNG EOP	WLNG EOP Field Blank	----	----	----
					Client sampling date / time	07-Oct-2024 11:45	07-Oct-2024 11:45	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		VA24C6663-001	VA24C6663-002	----	----	----
						Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		110	107	----	----	----
Glycols										
Diethylene glycol	111-46-6	E680E/VA	5.0	mg/L		<5.0	<5.0	----	----	----
Ethylene glycol	107-21-1	E680E/VA	5.0	mg/L		<5.0	<5.0	----	----	----
Propylene glycol, 1,2-	57-55-6	E680E/VA	5.0	mg/L		<5.0	<5.0	----	----	----
Triethylene glycol	112-27-6	E680E/VA	5.0	mg/L		<5.0	<5.0	----	----	----
Glycols, total (EG+DEG+PG)	----	E680E/VA	10	mg/L		<10	<10	----	----	----
Glycols Surrogates										
Propanediol, 1,3-	504-63-2	E680E/VA	1.0	%		92.6	91.2	----	----	----

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

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

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA24C6663**	Page	: 1 of 16
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact		Account Manager	
Address		Address	
Telephone	: ----	Telephone	
Project	: 11964	Date Samples Received	: 07-Oct-2024 17:50
PO	: 11964-Tsak 40-Phase 3C-4C	Issue Date	: 09-Oct-2024 16:22
C-O-C number	: ----		
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- 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 EOP	E298	07-Oct-2024	07-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG EOP Field Blank	E298	07-Oct-2024	07-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP	E235.Br-L	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG EOP Field Blank	E235.Br-L	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP	E235.Cl	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WLNG EOP Field Blank	E235.Cl	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WLNG EOP	E235.F	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 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 EOP Field Blank	E235.F	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG EOP	E235.NO3-L	07-Oct-2024	07-Oct-2024	3 days	0 days	✓	07-Oct-2024	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG EOP Field Blank	E235.NO3-L	07-Oct-2024	07-Oct-2024	3 days	0 days	✓	07-Oct-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG EOP	E235.NO2-L	07-Oct-2024	07-Oct-2024	3 days	0 days	✓	07-Oct-2024	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG EOP Field Blank	E235.NO2-L	07-Oct-2024	07-Oct-2024	3 days	0 days	✓	07-Oct-2024	3 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG EOP	E235.SO4	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG EOP Field Blank	E235.SO4	07-Oct-2024	07-Oct-2024	28 days	0 days	✓	07-Oct-2024	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG EOP	E509	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG EOP Field Blank	E509	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG EOP	E421	07-Oct-2024	08-Oct-2024	180 days	1 days	✓	08-Oct-2024	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG EOP Field Blank	E421	07-Oct-2024	08-Oct-2024	180 days	1 days	✓	08-Oct-2024	180 days	1 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved)										
WLNG EOP	EF001	07-Oct-2024	----	----	----		08-Oct-2024	----	1 days	
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
WLNG EOP	E680E	07-Oct-2024	08-Oct-2024	7 days	1 days	✓	08-Oct-2024	40 days	0 days	✓
Glycols : Glycols (4 analytes) by GC-FID										
Glass vial										
WLNG EOP Field Blank	E680E	07-Oct-2024	08-Oct-2024	7 days	1 days	✓	08-Oct-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP	E601A	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	40 days	0 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP Field Blank	E601A	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	40 days	0 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WLNG EOP	E581.VH+F1	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	14 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WLNG EOP Field Blank	E581.VH+F1	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	14 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WLNG EOP	E358-L	07-Oct-2024	07-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WLNG EOP Field Blank	E358-L	07-Oct-2024	07-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG EOP	E290	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	07-Oct-2024	14 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG EOP Field Blank	E290	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	07-Oct-2024	14 days	0 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WLNG EOP	E162	07-Oct-2024	----	----	----		07-Oct-2024	7 days	0 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WLNG EOP Field Blank	E162	07-Oct-2024	----	----	----		07-Oct-2024	7 days	0 days	✓
Physical Tests : TSS by Gravimetry										
HDPE WLNG EOP	E160	07-Oct-2024	----	----	----		07-Oct-2024	7 days	0 days	✓
Physical Tests : TSS by Gravimetry										
HDPE WLNG EOP Field Blank	E160	07-Oct-2024	----	----	----		07-Oct-2024	7 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) WLNG EOP	E641A	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	40 days	0 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
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
WLNG EOP Field Blank	E641A	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	40 days	0 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG EOP	E532	07-Oct-2024	----	----	----		07-Oct-2024	28 days	0 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG EOP Field Blank	E532	07-Oct-2024	----	----	----		07-Oct-2024	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG EOP	E508	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG EOP Field Blank	E508	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG EOP	E420	07-Oct-2024	08-Oct-2024	180 days	1 days	✓	08-Oct-2024	180 days	1 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG EOP Field Blank	E420	07-Oct-2024	08-Oct-2024	180 days	1 days	✓	08-Oct-2024	180 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG EOP	E395	07-Oct-2024	----	----	----		08-Oct-2024	7 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG EOP Field Blank	E395	07-Oct-2024	----	----	----		08-Oct-2024	7 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP	E611C	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	14 days	1 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WLNG EOP Field Blank	E611C	07-Oct-2024	07-Oct-2024	14 days	0 days	✓	08-Oct-2024	14 days	1 days	✓

Legend & Qualifier Definitions

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1695554	1	3	33.3	5.0	✓
Ammonia by Fluorescence	E298	1695660	1	8	12.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1695558	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1695557	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1698107	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1696366	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1695661	1	8	12.5	5.0	✓
Fluoride in Water by IC	E235.F	1695555	1	7	14.2	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	1695560	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1695559	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1695556	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1695574	1	5	20.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1695684	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	1698106	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1695551	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1696213	1	5	20.0	5.0	✓
TSS by Gravimetry	E160	1695573	1	5	20.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1695643	1	10	10.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1695645	1	5	20.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1695554	1	3	33.3	5.0	✓
Ammonia by Fluorescence	E298	1695660	1	8	12.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1695544	1	8	12.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1695558	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1695557	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1698107	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1696366	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1695661	1	8	12.5	5.0	✓
Fluoride in Water by IC	E235.F	1695555	1	7	14.2	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	1695560	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1695559	1	7	14.2	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1695545	1	8	12.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1695556	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1695574	1	5	20.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Hexavalent Chromium (Cr VI) by IC	E532	1695684	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	1698106	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1695551	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1696213	1	5	20.0	5.0	✓
TSS by Gravimetry	E160	1695573	1	5	20.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1695643	1	10	10.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1695645	1	5	20.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1695554	1	3	33.3	5.0	✓
Ammonia by Fluorescence	E298	1695660	1	8	12.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	1695544	1	8	12.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1695558	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1695557	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1698107	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1696366	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1695661	1	8	12.5	5.0	✓
Fluoride in Water by IC	E235.F	1695555	1	7	14.2	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	1695560	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1695559	1	7	14.2	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1695545	1	8	12.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1695556	1	7	14.2	5.0	✓
TDS by Gravimetry	E162	1695574	1	5	20.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1695684	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	1698106	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1695551	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1696213	1	5	20.0	5.0	✓
TSS by Gravimetry	E160	1695573	1	5	20.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1695643	1	10	10.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1695645	1	5	20.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1695660	1	8	12.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1695558	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	1695557	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1698107	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1696366	1	4	25.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1695661	1	8	12.5	5.0	✓
Fluoride in Water by IC	E235.F	1695555	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1695560	1	7	14.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Nitrite in Water by IC (Low Level)	E235.NO2-L	1695559	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1695556	1	7	14.2	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1695684	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	1698106	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1695551	1	3	33.3	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1696213	1	5	20.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1695643	1	10	10.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1695645	1	5	20.0	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 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.
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 CaCO3), 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.
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 $CaCO_3$ 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. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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
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.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
Glycols Extraction and Derivatization (BC Only)	EP680E ALS Environmental - Vancouver	Water	EPA 8015D (mod)	Aqueous sample is derivatized and extracted with orgaic solvent.

QUALITY CONTROL REPORT

Work Order	: **VA24C6663**	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	: 07-Oct-2024 17:50
PO	: 11964-Tsak 40-Phase 3C-4C	Date Analysis Commenced	: 07-Oct-2024
C-O-C number	: ----	Issue Date	: 09-Oct-2024 16:22
Sampler	: ----		
Site	: Water Analysis		
Quote number	: VA23-TRIT100-012 _V2		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
	Team Leader - Organics	Vancouver Organics, Burnaby, British Columbia
	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1695554)											
VA24C6664-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	67.3	67.0	0.447%	20%	----
Physical Tests (QC Lot: 1695573)											
VA24C6663-001	WLNG EOP	Solids, total suspended [TSS]	----	E160	3.0	mg/L	34.3	33.9	1.17%	20%	----
Physical Tests (QC Lot: 1695574)											
VA24C6663-001	WLNG EOP	Solids, total dissolved [TDS]	----	E162	13	mg/L	93	91	2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1695555)											
VA24C6625-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.021	0.021	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1695556)											
VA24C6625-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.54	5.55	0.113%	20%	----
Anions and Nutrients (QC Lot: 1695557)											
VA24C6625-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.24	1.23	0.005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1695558)											
VA24C6625-001	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: 1695559)											
VA24C6625-001	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: 1695560)											
VA24C6625-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0577	0.0579	0.351%	20%	----
Anions and Nutrients (QC Lot: 1695660)											
VA24C6663-001	WLNG EOP	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0053	0.0059	0.0007	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1695661)											
VA24C6663-001	WLNG EOP	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.54	0.51	0.03	Diff <2x LOR	----
Total Sulfides (QC Lot: 1696213)											
VA24C6663-001	WLNG EOP	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1695551)											
VA24C6663-001	WLNG EOP	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.935	0.936	0.108%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00042	0.00040	0.00002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00154	0.00150	2.60%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0207	0.0199	3.74%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

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: 1695551) - continued											
VA24C6663-001	WLNG EOP	Boron, total	7440-42-8	E420	0.010	mg/L	0.018	0.019	0.0008	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000200	mg/L	<0.0000200	<0.0000200	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	22.6	23.8	5.55%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000107	0.000105	1.90%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00016	0.00016	0.000004	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00171	0.00153	0.00018	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.550	0.573	4.10%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000377	0.000360	0.000018	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0040	0.0042	0.0002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	1.19	1.21	1.38%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0172	0.0181	5.00%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0201	0.0194	3.60%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.73	1.74	0.989%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00424	0.00410	3.32%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000089	0.000079	0.000010	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	7.60	7.62	0.257%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	4.20	4.08	2.99%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0510	0.0488	4.41%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	1.88	1.79	0.09	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	0.000023	0.000021	0.000002	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00020	mg/L	<0.00020	<0.00020	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	0.0288	0.0285	1.22%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00047	0.00046	0.00002	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00485	0.00477	1.71%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00108	0.00112	0.00004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0181	0.0180	0.0001	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: 1698106)											

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: 1698106) - continued											
VA24C6663-001	WLNG EOP	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1696366)											
VA24C6663-001	WLNG EOP	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0090	0.0088	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00035	0.00035	0.000004	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00092	0.00090	0.00002	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00931	0.00896	3.83%	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	0.017	0.017	0.00004	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000200	mg/L	<0.0000200	<0.0000200	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	22.2	22.2	0.115%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000031	0.000030	0.0000009	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	0.0036	0.0036	0.00001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.06	1.05	0.366%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00773	0.00764	1.18%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0193	0.0192	0.706%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.53	1.54	0.0889%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00318	0.00333	4.60%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000084	0.000057	0.000028	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.98	5.92	0.890%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	3.82	3.88	1.74%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0462	0.0462	0.0491%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.87	1.89	0.02	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000012	0.000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1696366) - continued											
VA24C6663-001	WLNG EOP	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	0.00039	0.00039	0.000004	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000752	0.000741	1.44%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0110	0.0111	1.39%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1698107)											
VA24C6663-001	WLNG EOP	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1695684)											
VA24C6601-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00150	mg/L	<0.00150	<0.00150	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1695645)											
VA24C6663-001	WLNG EOP	Benzene	71-43-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611C	5.0	µg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		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	----

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: 1695645) - continued											
VA24C6663-001	WLNG EOP	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: 1695643)											
VA24C5643-008	Anonymous	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: 1695554)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1695573)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1695574)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1695555)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1695556)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1695557)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1695558)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1695559)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1695560)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1695660)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1695661)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1696213)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1695551)						
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1695551) - continued						
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	----
Total Metals (QCLot: 1698106)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1696366)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1696366) - continued						
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	----
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1696366) - continued						
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: 1698107)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1695684)						
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1695645)						
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	----
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1695645) - continued						
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: 1695544)						
EPH (C10-C19)	----	E601A	250	µg/L	<250	----
EPH (C19-C32)	----	E601A	250	µg/L	<250	----
Hydrocarbons (QCLot: 1695643)						
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1695545)						
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	----
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)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Glycols (QCLot: 1696696) - continued						
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: 1695554)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 1695573)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1695574)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	110	85.0	115	----
Anions and Nutrients (QCLot: 1695555)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1695556)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1695557)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1695558)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	99.1	85.0	115	----
Anions and Nutrients (QCLot: 1695559)									
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: 1695560)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1695660)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.2	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1695661)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Total Sulfides (QCLot: 1696213)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	102	80.0	120	----
Total Metals (QCLot: 1695551)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	103	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	112	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1695551) - continued									
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	110	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	108	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	105	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	108	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	103	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	107	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	107	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	106	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	98.2	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	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	97.8	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	106	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	108	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	106	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	104	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	114	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Total Metals (QCLot: 1698106)									

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: 1698106) - continued									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	96.0	80.0	120	----
Dissolved Metals (QCLot: 1696366)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	110	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	109	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	111	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	109	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	112	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	105	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	98.8	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	108	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	103	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	108	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	106	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	104	80.0	120	----

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: 1696366) - continued									
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	112	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	100	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	105	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	103	80.0	120	----
Speciated Metals (QCLot: 1695684)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Volatile Organic Compounds (QCLot: 1695645)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	106	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	91.1	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	113	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	92.7	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	79.4	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	108	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	77.7	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	89.1	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	88.8	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	92.3	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	93.4	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	96.5	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	105	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	103	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	83.4	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	129	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	86.1	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: 1695645) - continued									
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	95.8	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	78.9	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	85.6	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	85.7	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	115	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	90.3	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	106	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	84.5	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	90.8	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	84.2	70.0	130	----
Hydrocarbons (QCLot: 1695544)									
EPH (C10-C19)	----	E601A	250	µg/L	6490 µg/L	123	70.0	130	----
EPH (C19-C32)	----	E601A	250	µg/L	3360 µg/L	128	70.0	130	----
Hydrocarbons (QCLot: 1695643)									
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	90.7	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1695545)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	99.2	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	109	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	130	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	116	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	122	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	117	50.0	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: 1695545) - continued									
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	116	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	111	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	----

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: 1695555)										
VA24C6625-002	Anonymous	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1695556)										
VA24C6625-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1695557)										
VA24C6625-002	Anonymous	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1695558)										
VA24C6625-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.489 mg/L	0.5 mg/L	97.8	75.0	125	----
Anions and Nutrients (QCLot: 1695559)										
VA24C6625-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.502 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1695560)										
VA24C6625-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1695660)										
VA24C6663-002	WLNG EOP Field Blank	Ammonia, total (as N)	7664-41-7	E298	0.0954 mg/L	0.1 mg/L	95.4	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1695661)										
VA24C6663-002	WLNG EOP Field Blank	Carbon, dissolved organic [DOC]	----	E358-L	5.04 mg/L	5 mg/L	101	70.0	130	----
Total Sulfides (QCLot: 1696213)										
VA24C6663-002	WLNG EOP Field Blank	Sulfide, total (as S)	18496-25-8	E395	0.190 mg/L	0.2 mg/L	94.8	75.0	125	----
Total Metals (QCLot: 1695551)										
VA24C6663-002	WLNG EOP Field Blank	Aluminum, total	7429-90-5	E420	0.194 mg/L	0.2 mg/L	97.2	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	0.0200 mg/L	0.02 mg/L	100.0	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00990 mg/L	0.01 mg/L	99.0	70.0	130	----
		Boron, total	7440-42-8	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00392 mg/L	0.004 mg/L	98.0	70.0	130	----
		Calcium, total	7440-70-2	E420	4.10 mg/L	4 mg/L	103	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	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Copper, total	7440-50-8	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Iron, total	7439-89-6	E420	1.99 mg/L	2 mg/L	99.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0984 mg/L	0.1 mg/L	98.4	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: 1695551) - continued										
VA24C6663-002	WLNG EOP Field Blank	Magnesium, total	7439-95-4	E420	0.999 mg/L	1 mg/L	99.9	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.19 mg/L	10 mg/L	91.9	70.0	130	----
		Potassium, total	7440-09-7	E420	3.83 mg/L	4 mg/L	95.9	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	9.68 mg/L	10 mg/L	96.8	70.0	130	----
		Silver, total	7440-22-4	E420	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	----
		Sodium, total	7440-23-5	E420	1.99 mg/L	2 mg/L	99.4	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.8 mg/L	20 mg/L	98.8	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Tin, total	7440-31-5	E420	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00396 mg/L	0.004 mg/L	99.0	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0989 mg/L	0.1 mg/L	98.9	70.0	130	----
		Zinc, total	7440-66-6	E420	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
Total Metals (QCLot: 1698106)										
VA24C6663-002	WLNG EOP Field Blank	Mercury, total	7439-97-6	E508	0.0000981 mg/L	0 mg/L	98.1	70.0	130	----
Dissolved Metals (QCLot: 1696366)										
VA24C6663-002	WLNG EOP Field Blank	Aluminum, dissolved	7429-90-5	E421	0.203 mg/L	0.2 mg/L	102	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00966 mg/L	0.01 mg/L	96.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.0	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00398 mg/L	0.004 mg/L	99.4	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	3.97 mg/L	4 mg/L	99.3	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00985 mg/L	0.01 mg/L	98.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0196 mg/L	0.02 mg/L	98.3	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.97 mg/L	2 mg/L	98.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	0.995 mg/L	1 mg/L	99.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1696366) - continued										
VA24C6663-002	WLNG EOP Field Blank	Manganese, dissolved	7439-96-5	E421	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.93 mg/L	10 mg/L	99.3	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.89 mg/L	4 mg/L	97.3	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.42 mg/L	10 mg/L	94.2	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	1.93 mg/L	2 mg/L	96.5	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	20.0 mg/L	20 mg/L	100	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0398 mg/L	0.04 mg/L	99.6	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00383 mg/L	0.004 mg/L	95.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1698107)										
VA24C6663-002	WLNG EOP Field Blank	Mercury, dissolved	7439-97-6	E509	0.0000998 mg/L	0 mg/L	99.8	70.0	130	----
Speciated Metals (QCLot: 1695684)										
VA24C6601-002	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.754 mg/L	0.75 mg/L	100	70.0	130	----
Volatile Organic Compounds (QCLot: 1695645)										
VA24C6663-001	WLNG EOP	Benzene	71-43-2	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	109 µg/L	100 µg/L	109	60.0	140	----
		Bromoform	75-25-2	E611C	91.5 µg/L	100 µg/L	91.5	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	118 µg/L	100 µg/L	118	60.0	140	----
		Chlorobenzene	108-90-7	E611C	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Chloroethane	75-00-3	E611C	77.0 µg/L	100 µg/L	77.0	50.0	150	----
		Chloroform	67-66-3	E611C	109 µg/L	100 µg/L	109	60.0	140	----
		Chloromethane	74-87-3	E611C	70.8 µg/L	100 µg/L	70.8	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	91.3 µg/L	100 µg/L	91.3	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	90.8 µg/L	100 µg/L	90.8	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	91.9 µg/L	100 µg/L	91.9	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	93.5 µg/L	100 µg/L	93.5	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	109 µg/L	100 µg/L	109	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	95.9 µg/L	100 µg/L	95.9	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	102 µg/L	100 µg/L	102	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: 1695645) - continued										
VA24C6663-001	WLNG EOP	Dichloroethylene, trans-1,2-	156-60-5	E611C	99.4 µg/L	100 µg/L	99.4	60.0	140	----
		Dichloromethane	75-09-2	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	101 µg/L	100 µg/L	101	60.0	140	----
		Ethylbenzene	100-41-4	E611C	84.6 µg/L	100 µg/L	84.6	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	133 µg/L	100 µg/L	133	60.0	140	----
		Styrene	100-42-5	E611C	88.8 µg/L	100 µg/L	88.8	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	101 µg/L	100 µg/L	101	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	79.9 µg/L	100 µg/L	79.9	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	85.7 µg/L	100 µg/L	85.7	60.0	140	----
		Toluene	108-88-3	E611C	85.4 µg/L	100 µg/L	85.4	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	117 µg/L	100 µg/L	117	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	90.2 µg/L	100 µg/L	90.2	60.0	140	----
		Trichloroethylene	79-01-6	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	103 µg/L	100 µg/L	103	50.0	150	----
		Vinyl chloride	75-01-4	E611C	79.1 µg/L	100 µg/L	79.1	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	185 µg/L	200 µg/L	92.4	60.0	140	----
		Xylene, o-	95-47-6	E611C	86.5 µg/L	100 µg/L	86.5	60.0	140	----
Hydrocarbons (QCLot: 1695643)										
VA24C5643-009	Anonymous	VHw (C6-C10)	----	E581.VH+F1	5330 µg/L	6310 µg/L	84.5	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page of

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

1 day TAT please

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

Turnaround Time (TAT) Requested

☐ ~~Routine [R] if received by 3pm M-F~~ no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☒ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: ~~07-Oct-24~~

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 40 - Phase 3C-4C
LSD:	

ALS Lab Work Order # (ALS use only):

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) (P)	VOC/VPH (P)	EPH, PAH, LEPH/HEPH (P)	DOC (F/P)	Glycols	General parameters (alkalinity)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	WLNG EOP [redacted]	07-Oct-24	11:45	Water	15	R	R	R	R	R	R	R	R	R	R	R	R			
	pH: 7.01 cond: 158 µS/cm temp: 14.4 °C																			
	WLNG EOP Field Blank	07-Oct-24	~~11:30~~	Water	15	R	R	R	R	R	R	R	R	R	R	R	R			
	~~WLNG EOP Trip Blank~~		11:45	~~Water~~	~~12~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			

Environmental Division
Vancouver
Work Order Reference
VA24C6663

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 dr (Excel COC only)

ESDAT EDD to ESdat_CA+tritonenv@ESdatLabSync.net, reports also to stephanie.renkers@triton-env.com

SAMPLE RECEIPT DETAILS (ALS use only)

☐ ONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

dentified on Sample Receipt Notification: ☐ YES ☐ NO

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

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

EASE (client use)

Date: 07-Oct-24 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received Date: 7-Oct Time: 5:50pm

ONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

elay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

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

Woodfibre Site WTP Discharge Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-7-Chycoski-D2D9D

Project Component:	Tunnel	**Site Name:**	WLNG Treatment Discharge
Inspection Date:	10/07/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669551 -123.249004
Temperature(c):	Low 14 High 20	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 11:45:00 **Flow Volume (visual):** N/A

Notes: Emergency discharge due to high water levels in tunnel resulting in safety issues. Turbidity exceedance is known by FEI. New sample location upstream of culvert.

Odour Detected?:	No	**Notes:**	
Unusual Colour?	Yes	**Notes:**	Visibly turbid, light grey colour.
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**	Yes		
DOC	Yes	**EPH, PAH, LEPH/HEPH**	Yes		
		Trout LC50	Yes		

Logger Maintenance

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

Describe Logger Maintenance

Photos

Photo: 1

Location: WLNG EOP

Description: US view

Photo: 2

Location: WLNG EOP

Description: Across view

Photos

Photo: 3

Location: WLNG EOP

Description: DS view

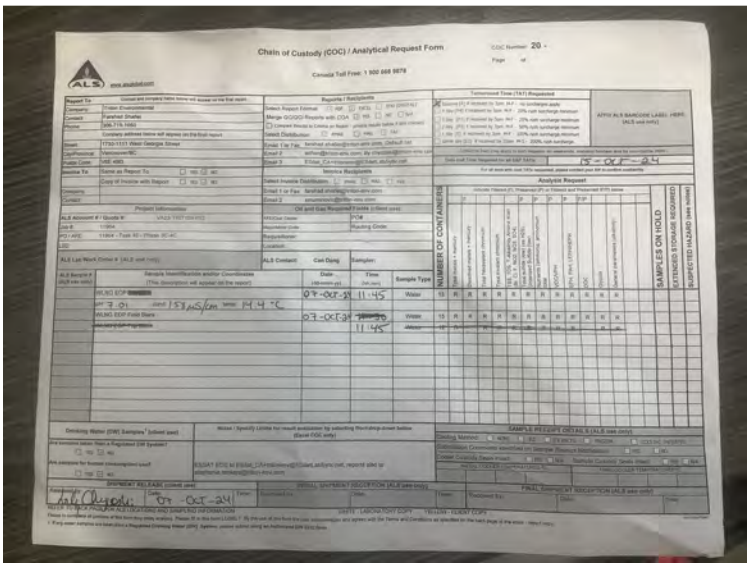

Photo: 4

Location: WLNG EOP

Description: Lab COC

Sign Off

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

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Table of Contents:

Appendices:

1. Executive Summary and Field Notes:

The discharged water consistently remained within regulatory guidelines. Due to an issue with the turbidity probe at the WTPNTUs were recorded as elevated for extended periods and FKM had to rely on a YSI to monitor NTU levels both at the WTP and in the receiving environment. The YSI log and daily notes were provided to FEI. The WTP PH probe was not functioning from October 10th to October 16th so FKM monitored PH level by YSI. Other key parameters, including temperature, salinity, conductivity, and oxidation-reduction potential (ORP), were monitored throughout the discharge process and remained within the prescribed limits. No visible sheen was observed on top of the WTP tanks and discharged water. All relevant parameters were measured using YSI and WTP probes. The total discharge volume up to October 7th was 11,120 m³.

Daily Volume Summary:

Table 1: Discharge Volumes Daily Summary

Date	Location	Volume (m3)	Comments
October 7	WoodFibre (WF)	438	None
October 8	WF	354	None
October 9	WF	330	None
October 10	WF	325	None
October 11	WF	260	None
October 12	WF	202	None
October 13	WF	217	None
	Total	2,126	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)
10/7/2024	0:00:00	7.3	0.374	28.9	11,120	13.4	114
10/7/2024	0:15:00	6.9	0.370	32.5	11,126	13.3	256
10/7/2024	0:30:00	7.3	0.374	33.3	11,131	13.3	257
10/7/2024	0:45:00	6.9	0.367	33.8	11,137	13.3	256
10/7/2024	1:00:00	7.2	0.355	36.3	11,142	13.3	256
10/7/2024	1:15:00	7	0.359	47.9	11,148	13.2	256
10/7/2024	1:30:00	7.1	0.363	54.4	11,153	13.2	256
10/7/2024	1:45:00	7.1	0.370	54.3	11,159	13.2	114
10/7/2024	3:30:00	6.9	0.382	73.9	11,163	13.1	261
10/7/2024	4:15:00	7	0.367	58.4	11,172	13.1	264
10/7/2024	4:30:00	7.3	0.370	49.1	11,177	13.1	261
10/7/2024	4:45:00	6.8	0.370	49.1	11,183	13.1	263
10/7/2024	5:00:00	7.1	0.370	45.6	11,188	13.2	264
10/7/2024	5:15:00	7.3	0.393	43.1	11,194	13.2	261
10/7/2024	5:30:00	6.8	0.386	46.6	11,200	13.2	266
10/7/2024	5:45:00	7.1	0.397	42.4	11,206	13.2	266
10/7/2024	6:00:00	7.3	0.386	48.7	11,212	13.2	266
10/7/2024	6:15:00	6.9	0.389	47.5	11,218	13.2	266
10/7/2024	6:30:00	7.2	0.386	35.5	11,224	13.2	266
10/7/2024	6:45:00	7.2	0.397	40.5	11,229	13.2	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	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/7/2024	7:00:00	6.9	0.389	37	11,235	13.2	266
10/7/2024	7:15:00	7.2	0.374	35.8	11,241	13.2	266
10/7/2024	7:30:00	7.2	0.374	38.9	11,247	13.2	263
10/7/2024	7:45:00	6.9	0.393	40.9	11,253	13.3	264
10/7/2024	8:00:00	7.2	0.393	37.4	11,258	13.3	266
10/7/2024	8:15:00	7.3	0.389	35.6	11,264	13.3	264
10/7/2024	8:30:00	6.9	0.393	25.1	11,270	13.3	263
10/7/2024	8:45:00	7.1	0.382	27.5	11,276	13.3	266
10/7/2024	9:00:00	7.3	0.386	27.4	11,282	13.3	266
10/7/2024	9:15:00	6.9	0.386	29.3	11,287	13.4	262
10/7/2024	9:30:00	7.1	0.382	32.8	11,293	13.5	266
10/7/2024	9:45:00	7.3	0.382	38.9	11,299	13.5	266
10/7/2024	10:00:00	6.9	0.389	34.7	11,304	13.6	260
10/7/2024	10:15:00	7	0.378	35.1	11,310	13.6	264
10/7/2024	10:30:00	7.3	0.386	22.2	11,316	13.6	264
10/7/2024	11:45:00	7.3	0.359	27.5	11,318	13.6	262
10/7/2024	12:00:00	6.9	0.370	27.4	11,324	13.8	262
10/7/2024	12:15:00	7	0.363	32.5	11,329	13.9	266
10/7/2024	12:30:00	7.4	0.370	36	11,335	14	267
10/7/2024	12:45:00	6.9	0.370	32.8	11,340	14.1	266
10/7/2024	13:00:00	7.1	0.382	32.8	11,346	14.2	269
10/7/2024	13:15:00	7.4	0.378	20.4	11,351	14.4	268
10/7/2024	13:30:00	7	0.374	18	11,357	14.7	266
10/7/2024	13:45:00	7	0.367	25.4	11,362	14.6	266
10/7/2024	14:00:00	7.3	0.386	20	11,368	14.7	268

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/7/2024	14:15:00	6.9	0.370	22.7	11,373	14.7	267
10/7/2024	14:30:00	7	0.386	29	11,379	14.7	270
10/7/2024	14:45:00	7.3	0.382	28.3	11,385	14.7	270
10/7/2024	15:00:00	7	0.374	36.1	11,390	14.7	268
10/7/2024	15:15:00	7	0.367	41.2	11,396	14.6	270
10/7/2024	15:30:00	7.3	0.363	38.9	11,401	14.6	269
10/7/2024	15:45:00	7	0.378	42.6	11,407	14.6	268
10/7/2024	16:00:00	7	0.386	47.3	11,412	14.5	272
10/7/2024	16:15:00	7.3	0.382	45.6	11,418	14.5	272
10/7/2024	16:30:00	7	0.382	41.1	11,424	14.4	268
10/7/2024	16:45:00	7	0.382	41	11,429	14.4	269
10/7/2024	17:00:00	7.3	0.389	35.2	11,435	14.4	271
10/7/2024	17:15:00	7.1	0.412	55.3	11,440	14.7	269
10/7/2024	18:45:00	7.2	0.416	61.1	11,440	13.9	269
10/7/2024	19:00:00	7	0.423	54.9	11,446	14	269
10/7/2024	19:15:00	7	0.438	62.9	11,453	14	273
10/7/2024	19:30:00	7.3	0.431	53.5	11,459	14.2	273
10/7/2024	19:45:00	6.9	0.435	40	11,465	14.2	271
10/7/2024	20:00:00	7.1	0.431	43	11,472	14.2	274
10/7/2024	20:15:00	7.3	0.423	40.6	11,478	14.2	274
10/7/2024	20:30:00	6.9	0.423	28.5	11,484	14.2	271
10/7/2024	20:45:00	7.1	0.427	36.6	11,490	14.2	276
10/7/2024	21:00:00	7.3	0.427	31	11,497	14.2	274
10/7/2024	21:15:00	6.9	0.427	27.8	11,503	14.2	272
10/7/2024	21:30:00	7.1	0.435	26.9	11,509	14.2	279

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/7/2024	21:45:00	7.3	0.423	26.3	11,515	14.2	276
10/7/2024	22:00:00	6.9	0.420	26.6	11,522	14.3	274
10/7/2024	22:15:00	7.1	0.408	24.3	11,528	14.2	277
10/7/2024	22:30:00	7.3	0.416	29	11,534	14.2	276
10/7/2024	22:45:00	6.9	0.420	35.5	11,540	14.2	273
10/7/2024	23:00:00	7.1	0.416	56.6	11,546	14.2	276
10/7/2024	23:15:00	7.3	0.423	52.3	11,552	14.1	272
10/7/2024	23:30:00	6.9	0.416	55.7	11,558	14.1	273
10/8/2024	0:45:00	7	0.450	139.8	11,565	13.7	271
10/8/2024	4:00:00	7.1	0.423	99.8	11,577	13.5	289
10/8/2024	4:15:00	7.3	0.442	87.5	11,579	13.5	289
10/8/2024	4:45:00	7.3	0.420	66.5	11,588	13.5	294
10/8/2024	5:00:00	7	0.416	58.1	11,594	13.6	296
10/8/2024	5:15:00	7.1	0.416	52.2	11,600	13.5	299
10/8/2024	5:30:00	7.3	0.412	44.4	11,607	13.5	299
10/8/2024	5:45:00	6.9	0.412	36.2	11,613	13.6	302
10/8/2024	6:00:00	7.2	0.401	38.3	11,619	13.5	302
10/8/2024	6:15:00	7	0.404	37.7	11,625	13.5	304
10/8/2024	6:30:00	7.1	0.401	37	11,631	13.5	305
10/8/2024	6:45:00	7.3	0.386	34.4	11,637	13.5	304
10/8/2024	7:00:00	6.9	0.397	35.7	11,643	13.5	309
10/8/2024	7:15:00	7.2	0.397	36.8	11,649	13.4	309
10/8/2024	7:30:00	7.1	0.382	39.3	11,655	13.4	305
10/8/2024	7:45:00	7	0.393	36.3	11,661	13.4	309
10/8/2024	8:00:00	7.4	0.382	37.8	11,667	13.4	307

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/8/2024	8:15:00	6.9	0.378	38.7	11,673	13.4	307
10/8/2024	8:30:00	7.2	0.374	39.8	11,678	13.3	305
10/8/2024	8:45:00	7.2	0.378	42.4	11,684	13.3	302
10/8/2024	9:00:00	7	0.363	47.7	11,689	13.3	305
10/8/2024	9:15:00	7.3	0.363	46	11,695	13.3	301
10/8/2024	9:30:00	6.9	0.374	47.5	11,700	13.3	299
10/8/2024	9:45:00	7.1	0.370	52.3	11,706	13.3	294
10/8/2024	10:00:00	7.3	0.363	56.6	11,707	13.2	289
10/8/2024	10:15:00	6.9	0.344	60.5	11,709	13.2	286
10/8/2024	11:00:00	7	0.363	59.6	11,718	13.2	276
10/8/2024	11:45:00	7.1	0.370	57	11,727	13.3	270
10/8/2024	12:00:00	7.3	0.367	52	11,729	13.3	268
10/8/2024	14:15:00	7.5	0.382	52.7	11,736	13.9	272
10/8/2024	14:30:00	7.5	0.378	51.8	11,741	14	275
10/8/2024	14:45:00	7.5	0.382	76.1	11,747	14.1	280
10/8/2024	16:00:00	7.6	0.355	105.1	11,752	14.3	285
10/8/2024	16:15:00	7.6	0.359	94.8	11,755	14.4	286
10/8/2024	16:45:00	7.6	0.359	74.8	11,761	14.4	288
10/8/2024	17:00:00	7.6	0.355	73	11,767	14.5	289
10/8/2024	17:15:00	7.6	0.363	69.7	11,772	14.5	293
10/8/2024	17:30:00	7.6	0.355	76.5	11,777	14.5	293
10/8/2024	17:45:00	7.6	0.378	71.3	11,783	14.5	291
10/8/2024	18:00:00	7.6	0.363	72.1	11,788	14.5	291
10/8/2024	18:15:00	7.6	0.370	49	11,794	14.9	291
10/8/2024	18:30:00	7.6	0.389	40.5	11,799	15.2	293

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/8/2024	18:45:00	7.6	0.382	39.3	11,805	15.5	294
10/8/2024	19:00:00	7.6	0.378	38.7	11,811	15.7	294
10/8/2024	19:15:00	7.6	0.374	36.7	11,816	15.9	293
10/8/2024	19:30:00	7.6	0.370	35.5	11,821	16.1	294
10/8/2024	19:45:00	7.6	0.370	36.7	11,827	16.3	296
10/8/2024	20:00:00	7.6	0.359	37.8	11,832	16.4	296
10/8/2024	20:15:00	7.6	0.367	35.4	11,838	16.6	296
10/8/2024	20:30:00	7.6	0.359	34.9	11,843	16.7	296
10/8/2024	20:45:00	7.6	0.352	36.6	11,849	16.8	296
10/8/2024	21:00:00	7.6	0.340	36.1	11,854	16.9	296
10/8/2024	21:15:00	7.6	0.355	37.1	11,859	17	298
10/8/2024	21:30:00	7.6	0.352	36.4	11,865	17.1	298
10/8/2024	21:45:00	7.7	0.352	36.2	11,870	17.1	299
10/8/2024	22:00:00	7.7	0.344	36.9	11,876	17.2	299
10/8/2024	22:15:00	7.7	0.340	36.2	11,881	17.2	299
10/8/2024	22:30:00	7.7	0.340	35.7	11,887	17.3	299
10/8/2024	22:45:00	7.7	0.344	34.6	11,892	17.3	299
10/8/2024	23:00:00	7.7	0.340	32.9	11,897	17.4	299
10/8/2024	23:15:00	7.7	0.336	35.4	11,902	17.4	299
10/8/2024	23:30:00	7.7	0.329	33.6	11,907	17.4	299
10/8/2024	23:45:00	7.7	0.325	33.4	11,912	17.4	299
10/9/2024	0:00:00	7.7	0.325	32.6	11,917	17.4	301
10/9/2024	0:15:00	7.7	0.325	32	11,922	17.4	301
10/9/2024	0:30:00	7.7	0.318	32.7	11,926	17.4	301
10/9/2024	0:45:00	7.7	0.000	29.2	11,927	17.4	301

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/9/2024	1:00:00	7.7	0.000	30	11,927	17.4	300
10/9/2024	1:15:00	7.6	0.000	29.5	11,927	17.4	301
10/9/2024	1:30:00	7.6	0.000	25.6	11,927	17.4	301
10/9/2024	1:45:00	7.6	0.000	26.7	11,927	17.4	301
10/9/2024	2:00:00	7.5	0.000	26.8	11,927	17.4	300
10/9/2024	2:15:00	7.5	0.348	22.9	11,930	17.3	300
10/9/2024	2:30:00	7.5	0.344	26	11,936	17.4	301
10/9/2024	2:45:00	7.5	0.348	21.4	11,941	17.4	301
10/9/2024	3:00:00	7.5	0.348	21.3	11,947	17.3	300
10/9/2024	3:15:00	7.5	0.348	20.8	11,952	17.3	300
10/9/2024	3:30:00	7.5	0.344	19.5	11,958	17.4	301
10/9/2024	3:45:00	7.5	0.344	19.5	11,963	17.4	301
10/9/2024	4:00:00	7.4	0.340	19.6	11,968	17.4	300
10/9/2024	4:15:00	7.4	0.336	17.5	11,973	17.4	300
10/9/2024	4:30:00	7.4	0.336	16.7	11,978	17.4	301
10/9/2024	4:45:00	7.4	0.000	16.1	11,980	17.4	301
10/9/2024	5:00:00	7.4	0.000	16.5	11,980	17.4	301
10/9/2024	5:15:00	7.4	0.000	17.1	11,980	17.3	304
10/9/2024	5:30:00	7.4	0.000	17.2	11,980	17.3	304
10/9/2024	5:45:00	7.4	0.000	16.2	11,980	17.3	304
10/9/2024	6:00:00	7.4	0.336	15.3	11,984	17.3	304
10/9/2024	6:15:00	7.4	0.352	16	11,989	17.3	304
10/9/2024	6:30:00	7.4	0.333	15.4	11,994	17.3	304
10/9/2024	6:45:00	7.4	0.333	15.6	11,999	17.3	304
10/9/2024	7:00:00	7.4	0.000	14.8	12,003	17.3	304

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/9/2024	7:15:00	7.4	0.000	15.2	12,003	17.4	304
10/9/2024	7:30:00	7.4	0.000	15.5	12,003	17.4	304
10/9/2024	7:45:00	7.4	0.333	13.2	12,004	17.3	304
10/9/2024	8:00:00	7.4	0.336	13.1	12,009	17.4	304
10/9/2024	8:15:00	7.4	0.336	11.9	12,014	17.4	304
10/9/2024	8:30:00	7.4	0.329	14.2	12,019	17.4	304
10/9/2024	8:45:00	7.4	0.329	13.5	12,024	17.5	304
10/9/2024	9:00:00	7.4	0.321	12.1	12,028	17.5	304
10/9/2024	9:15:00	7.4	0.329	12.8	12,033	17.5	304
10/9/2024	9:30:00	7.4	0.321	12.6	12,038	17.6	305
10/9/2024	9:45:00	7.4	0.310	13.5	12,043	17.6	305
10/9/2024	10:00:00	7.5	0.310	12.6	12,047	17.7	306
10/9/2024	10:15:00	7.6	0.306	12.5	12,052	17.8	305
10/9/2024	10:30:00	7.6	0.310	12.1	12,057	17.8	304
10/9/2024	10:45:00	7.6	0.302	11.8	12,062	17.8	304
10/9/2024	11:00:00	7.6	0.306	11.6	12,066	17.8	304
10/9/2024	11:15:00	7.6	0.000	11.9	12,070	17.9	304
10/9/2024	11:30:00	7.6	0.000	10.8	12,070	18	304
10/9/2024	13:45:00	7.7	0.348	60.9	12,072	16.5	114
10/9/2024	14:00:00	7.7	0.344	60.4	12,078	16.4	114
10/9/2024	14:15:00	7.8	0.344	36	12,083	16.4	114
10/9/2024	14:30:00	7.8	0.359	18.7	12,089	16.4	114
10/9/2024	14:45:00	7.8	0.370	20.4	12,094	16.5	114
10/9/2024	15:45:00	7.8	0.412	23.2	12,101	16.6	117
10/9/2024	16:00:00	7.8	0.401	28.2	12,107	16.6	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/9/2024	16:15:00	7.8	0.404	29.5	12,113	16.5	114
10/9/2024	17:30:00	7.7	0.352	62.9	12,123	16.1	114
10/9/2024	17:45:00	7.7	0.386	47.5	12,129	15.9	114
10/9/2024	18:00:00	7.7	0.374	76	12,134	16	114
10/9/2024	19:15:00	7.7	0.363	108.8	12,138	16.2	114
10/9/2024	19:30:00	7.6	0.374	101.5	12,143	16.1	114
10/9/2024	19:45:00	7.6	0.370	96.6	12,149	15.9	114
10/9/2024	20:00:00	7.6	0.367	85.7	12,154	15.8	114
10/9/2024	20:15:00	7.6	0.363	79.6	12,159	15.8	114
10/9/2024	20:30:00	7.6	0.352	74.4	12,165	15.6	114
10/9/2024	20:45:00	7.6	0.352	86.9	12,170	15.6	113
10/9/2024	21:00:00	7.6	0.352	78.8	12,175	15.6	114
10/9/2024	21:15:00	7.5	0.340	81.5	12,179	15.5	114
10/9/2024	21:30:00	7.5	0.333	69.2	12,184	15.6	114
10/9/2024	21:45:00	7.5	0.000	63.4	12,189	15.9	114
10/9/2024	22:00:00	7.5	0.374	88.1	12,193	15.9	114
10/9/2024	22:15:00	7.5	0.359	64.1	12,199	15.7	114
10/9/2024	22:30:00	7.5	0.370	64.1	12,204	15.6	114
10/9/2024	22:45:00	7.5	0.363	71	12,209	15.5	113
10/9/2024	23:00:00	7.4	0.363	54.4	12,215	15.4	114
10/9/2024	23:15:00	7.4	0.378	54.6	12,220	15.3	113
10/9/2024	23:30:00	7.4	0.382	48.4	12,226	15.3	113
10/9/2024	23:45:00	7.4	0.378	37.7	12,232	15.2	114
10/10/2024	0:00:00	7.4	0.378	55.2	12,237	15.2	113
10/10/2024	0:15:00	7.4	0.378	49.9	12,243	15.1	114

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/10/2024	0:30:00	7.4	0.374	47.2	12,248	15.3	114
10/10/2024	0:45:00	7.3	0.378	50.8	12,254	15.5	114
10/10/2024	1:00:00	7.3	0.374	53.5	12,259	15.2	113
10/10/2024	1:15:00	7.3	0.367	57.9	12,264	15.3	114
10/10/2024	1:30:00	7.3	0.000	45.3	12,268	15.4	114
10/10/2024	1:45:00	7.4	0.382	130.8	12,272	15.4	114
10/10/2024	2:00:00	7.4	0.370	90.8	12,278	15.4	113
10/10/2024	2:15:00	7.3	0.355	131.5	12,283	15.4	114
10/10/2024	3:30:00	7.3	0.987	384.7	12,290	15.5	113
10/10/2024	4:00:00	7.2	0.499	53.7	12,299	15.1	114
10/10/2024	4:15:00	7.2	0.000	20.8	12,302	15	113
10/10/2024	4:30:00	7.2	0.344	32.3	12,307	15.1	113
10/10/2024	4:45:00	7.2	0.329	18.3	12,312	15.3	113
10/10/2024	5:00:00	7.2	0.314	10.7	12,317	15.4	114
10/10/2024	5:15:00	7.2	0.601	16	12,321	15.5	114
10/10/2024	5:30:00	7.2	0.473	19.2	12,326	14.8	114
10/10/2024	5:45:00	7.2	0.518	6.7	12,334	14.8	114
10/10/2024	6:00:00	7.2	0.537	1.3	12,342	15.1	114
10/10/2024	6:30:00	7.1	0.548	4	12,351	15.2	114
10/10/2024	6:45:00	7.1	0.522	4	12,361	15.3	114
10/10/2024	9:45:00	7	0.442	18.6	12,368	14.9	113
10/10/2024	10:00:00	6.9	0.423	18.7	12,373	15	114
10/10/2024	10:30:00	6.9	0.457	15.4	12,378	15.1	114
10/10/2024	10:45:00	6.9	0.465	18.4	12,385	15.1	114
10/10/2024	11:00:00	6.9	0.438	21.9	12,390	15.2	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/10/2024	11:15:00	6.9	0.431	20.8	12,397	15.4	114
10/10/2024	11:30:00	6.9	0.412	25.6	12,403	15.5	114
10/10/2024	11:45:00	6.8	0.408	33.6	12,410	15.6	114
10/10/2024	16:15:00	6.6	0.408	123.6	12,416	17.4	116
10/10/2024	17:30:00	6.6	0.469	70.8	12,423	16.7	114
10/10/2024	17:45:00	6.6	0.480	64.1	12,430	16.5	114
10/10/2024	18:00:00	6.6	0.465	39.3	12,435	16.3	114
10/10/2024	18:45:00	6.6	0.386	34	12,447	16.1	114
10/10/2024	19:00:00	6.5	0.389	28	12,452	16	114
10/10/2024	19:15:00	6.5	0.488	23.4	12,458	16	114
10/10/2024	19:30:00	6.5	0.488	20.1	12,465	15.9	114
10/10/2024	19:45:00	6.5	0.465	18.4	12,472	15.7	114
10/10/2024	20:00:00	6.5	0.469	11.9	12,478	15.7	113
10/10/2024	20:15:00	6.5	0.480	11.3	12,485	15.7	114
10/10/2024	20:30:00	6.4	0.465	11.9	12,492	15.7	114
10/10/2024	20:45:00	6.4	0.442	13	12,498	15.6	113
10/10/2024	21:00:00	6.4	0.416	16.6	12,504	15.6	114
10/10/2024	21:15:00	6.4	0.404	20	12,510	15.6	113
10/10/2024	21:30:00	6.4	0.393	25.2	12,516	15.5	113
10/10/2024	21:45:00	6.4	0.374	28.5	12,522	15.4	113
10/10/2024	22:00:00	6.3	0.359	35.6	12,526	15.5	113
10/10/2024	22:15:00	6.3	0.363	39.3	12,532	15.4	114
10/10/2024	22:30:00	6.3	0.446	40	12,545	15.4	113
10/10/2024	22:45:00	6.3	0.457	20.9	12,551	15.3	114
10/10/2024	23:00:00	6.3	0.386	38	12,555	15.2	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/10/2024	23:15:00	6.3	0.427	39.7	12,562	15.2	114
10/11/2024	0:15:00	-0.4	0.401	48.5	12,569	16	115
10/11/2024	0:30:00	-0.4	0.382	51.2	12,575	16.1	114
10/11/2024	0:45:00	-0.4	0.363	48.7	12,581	15.8	114
10/11/2024	1:00:00	-0.4	0.359	57.6	12,585	15.6	113
10/11/2024	1:15:00	-0.4	0.412	39.4	12,591	15.4	113
10/11/2024	2:15:00	-0.4	0.382	73	12,600	15.5	113
10/11/2024	2:45:00	-0.4	0.393	119.6	12,605	15.3	113
10/11/2024	3:15:00	-0.4	0.367	99.1	12,611	15.6	114
10/11/2024	3:30:00	-0.4	0.370	141.7	12,613	15.4	113
10/11/2024	3:45:00	-0.4	0.363	149.3	12,615	15.3	113
10/11/2024	4:15:00	-0.4	0.382	136.7	12,621	15.1	114
10/11/2024	4:30:00	-0.4	0.367	136.7	12,623	15.3	114
10/11/2024	5:30:00	-0.4	0.389	136	12,633	15.3	114
10/11/2024	5:45:00	-0.4	0.363	151.7	12,635	15.5	114
10/11/2024	7:30:00	-0.4	0.276	114	12,640	15.6	114
10/11/2024	7:45:00	-0.4	0.272	126.6	12,641	15.6	114
10/11/2024	8:15:00	-0.4	0.276	96.5	12,646	15.5	114
10/11/2024	9:30:00	-0.4	0.280	76.2	12,650	15.3	114
10/11/2024	9:45:00	-0.4	0.272	80.6	12,654	15.1	113
10/11/2024	10:00:00	-0.4	0.276	65.1	12,657	15.2	113
10/11/2024	10:15:00	-0.4	0.280	69.3	12,661	15.1	113
10/11/2024	12:00:00	-0.4	1.459	53.3	12,671	12.4	263
10/11/2024	12:15:00	-0.4	1.561	30.4	12,694	12.3	263
10/11/2024	12:30:00	-0.4	1.191	37	12,706	12.5	263

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/11/2024	12:45:00	-0.4	0.677	61.7	12,722	12.7	263
10/11/2024	13:15:00	-0.4	0.000	6.1	12,728	12.9	261
10/11/2024	13:30:00	-0.4	0.000	5.2	12,728	13.3	263
10/11/2024	13:45:00	-0.4	0.000	6.2	12,728	13.6	263
10/11/2024	14:00:00	-0.4	0.348	8.7	12,728	13.8	258
10/11/2024	14:15:00	-0.4	0.386	7.4	12,734	12.9	258
10/11/2024	14:30:00	-0.4	0.480	6.9	12,741	12.9	262
10/11/2024	14:45:00	-0.4	0.480	6.9	12,748	13	262
10/11/2024	15:00:00	-0.4	0.465	11.9	12,753	13.1	263
10/11/2024	15:15:00	-0.4	0.446	17.5	12,760	13.1	265
10/11/2024	15:30:00	-0.4	0.427	21.7	12,767	13.1	263
10/11/2024	18:30:00	-0.4	0.446	16	12,773	15.5	262
10/11/2024	18:45:00	-0.4	0.408	15.2	12,779	15.8	262
10/11/2024	19:00:00	-0.4	0.389	18.1	12,783	16	264
10/11/2024	19:15:00	-0.4	0.370	17.5	12,789	16.3	262
10/11/2024	19:30:00	-0.4	0.355	16.7	12,794	16.4	264
10/11/2024	19:45:00	-0.4	0.333	16.6	12,800	16.6	266
10/11/2024	20:00:00	-0.4	0.000	0	12,800	16.8	266
10/11/2024	20:15:00	-0.4	0.000	0	12,800	16.8	266
10/11/2024	20:30:00	-0.4	0.000	0	12,800	16.8	266
10/11/2024	20:45:00	-0.4	0.321	13.5	12,802	16.8	265
10/11/2024	21:00:00	-0.4	0.306	13	12,805	16.9	266
10/11/2024	21:15:00	-0.4	0.295	13.2	12,810	17	266
10/11/2024	21:30:00	-0.4	0.280	12	12,814	17.2	267
10/11/2024	21:45:00	-0.4	0.000	0	12,815	17.2	267

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/11/2024	22:00:00	-0.4	0.000	0	12,815	17.2	269
10/11/2024	22:15:00	-0.4	0.000	0	12,815	17.1	266
10/11/2024	22:30:00	-0.4	0.000	5.4	12,815	17	268
10/11/2024	22:45:00	-0.4	0.321	8.4	12,816	17.1	269
10/11/2024	23:00:00	-0.4	0.318	7.5	12,821	17.2	269
10/11/2024	23:15:00	-0.4	0.321	7.2	12,826	17.2	271
10/11/2024	23:30:00	-0.4	0.000	0	12,829	17.3	270
10/11/2024	23:45:00	-0.4	0.000	0	12,829	17.2	270
10/12/2024	0:00:00	-0.4	0.000	0	12,829	17.1	270
10/12/2024	0:15:00	-0.4	0.000	131.1	12,829	17	269
10/12/2024	0:30:00	-0.4	0.302	6.4	12,832	17	270
10/12/2024	0:45:00	-0.4	0.287	5.5	12,837	17.1	270
10/12/2024	1:00:00	-0.4	0.000	81.2	12,842	17.1	267
10/12/2024	1:15:00	-0.4	0.000	0	12,842	17.1	268
10/12/2024	1:30:00	-0.4	0.000	0	12,842	17	270
10/12/2024	1:45:00	-0.4	0.000	0	12,842	17	270
10/12/2024	2:00:00	-0.4	0.318	4.8	12,844	16.9	269
10/12/2024	2:15:00	-0.4	0.291	4.7	12,849	17	270
10/12/2024	2:30:00	-0.4	0.306	4	12,854	17	271
10/12/2024	2:45:00	-0.4	0.000	0	12,855	17	270
10/12/2024	3:00:00	-0.4	0.000	0	12,855	16.9	266
10/12/2024	3:15:00	-0.4	0.000	0	12,855	16.9	268
10/12/2024	3:30:00	-0.4	0.314	2.9	12,856	16.9	269
10/12/2024	3:45:00	-0.4	0.325	3.6	12,861	16.8	269
10/12/2024	4:00:00	-0.4	0.302	3	12,866	16.8	271

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/12/2024	4:15:00	-0.4	0.000	3.8	12,869	17.2	267
10/12/2024	4:30:00	-0.4	0.000	2.7	12,869	17.1	269
10/12/2024	4:45:00	-0.4	0.000	2	12,869	17	267
10/12/2024	5:00:00	-0.4	0.000	2.7	12,869	16.9	267
10/12/2024	5:15:00	-0.4	0.318	2.9	12,873	16.7	271
10/12/2024	5:30:00	-0.4	0.336	1.9	12,878	16.6	271
10/12/2024	5:45:00	-0.4	0.000	1.8	12,880	16.6	270
10/12/2024	6:00:00	-0.4	0.000	2	12,880	16.4	269
10/12/2024	6:15:00	-0.4	0.000	1.8	12,880	16.3	269
10/12/2024	6:30:00	-0.4	0.318	1.9	12,881	16.2	271
10/12/2024	6:45:00	-0.4	0.318	1.8	12,886	16.1	271
10/12/2024	7:00:00	-0.4	0.318	1.6	12,891	16.1	271
10/12/2024	7:15:00	-0.4	0.000	1.3	12,893	16.1	270
10/12/2024	7:30:00	-0.4	0.000	1.1	12,893	16	267
10/12/2024	7:45:00	-0.4	0.000	1.1	12,893	15.9	267
10/12/2024	8:00:00	-0.4	0.318	1.1	12,894	15.7	269
10/12/2024	8:15:00	-0.4	0.321	1.3	12,899	15.7	270
10/12/2024	8:30:00	-0.4	0.314	0.8	12,903	15.7	270
10/12/2024	8:45:00	-0.4	0.000	1	12,905	15.7	269
10/12/2024	9:00:00	-0.4	0.000	2	12,905	15.6	270
10/12/2024	9:15:00	-0.4	0.000	0.9	12,905	15.6	271
10/12/2024	9:30:00	-0.4	0.318	0.7	12,907	15.5	267
10/12/2024	9:45:00	-0.4	0.318	0.6	12,911	15.6	267
10/12/2024	10:00:00	-0.4	0.000	0.6	12,914	15.7	267
10/12/2024	10:15:00	-0.4	0.000	1	12,914	15.8	269

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/12/2024	10:30:00	-0.4	0.000	0.3	12,914	15.8	269
10/12/2024	10:45:00	-0.4	0.310	0.4	12,918	15.9	269
10/12/2024	11:00:00	-0.4	0.321	0.6	12,923	16.1	269
10/12/2024	11:15:00	-0.4	0.000	0.1	12,927	16.2	267
10/12/2024	11:30:00	-0.4	0.000	0	12,927	16.4	268
10/12/2024	11:45:00	-0.4	0.000	0.2	12,927	16.5	269
10/12/2024	12:00:00	-0.4	0.000	0	12,927	16.7	269
10/12/2024	12:15:00	-0.4	0.325	0	12,930	16.8	268
10/12/2024	12:30:00	-0.4	0.336	1.1	12,935	13.8	115
10/12/2024	12:45:00	-0.4	0.000	0	12,936	13.8	116
10/12/2024	13:00:00	-0.4	0.000	0	12,936	14.3	116
10/12/2024	13:15:00	-0.4	0.310	2.3	12,936	13.4	116
10/12/2024	13:30:00	-0.4	0.321	2.2	12,941	13.1	114
10/12/2024	13:45:00	-0.4	0.333	2.4	12,946	13.1	114
10/12/2024	14:00:00	-0.4	0.000	0	12,948	13.4	114
10/12/2024	14:15:00	-0.4	0.000	0	12,948	14	115
10/12/2024	14:30:00	-0.4	0.000	0	12,948	14.5	116
10/12/2024	14:45:00	-0.4	0.000	0	12,948	15	252
10/12/2024	15:00:00	-0.4	0.314	2	12,951	13.5	116
10/12/2024	15:15:00	-0.4	0.314	1.2	12,956	13.5	116
10/12/2024	15:30:00	-0.4	0.329	1.3	12,961	13.5	117
10/12/2024	15:45:00	-0.4	0.000	0	12,964	13.7	116
10/12/2024	16:00:00	-0.4	0.000	0	12,964	14.5	117
10/12/2024	16:15:00	-0.4	0.000	0	12,964	14.9	116
10/12/2024	16:30:00	-0.4	0.000	0	12,964	15.2	253

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/12/2024	16:45:00	-0.4	0.352	8.9	12,966	13.8	114
10/12/2024	17:00:00	-0.4	0.336	9.9	12,971	13.6	114
10/12/2024	17:15:00	-0.4	0.329	12.3	12,976	13.5	114
10/12/2024	17:30:00	-0.4	0.000	4	12,978	13.7	114
10/12/2024	17:45:00	-0.4	0.000	3.4	12,978	14	113
10/12/2024	18:00:00	-0.4	0.284	9.3	12,978	14.3	113
10/12/2024	18:15:00	-0.4	0.344	11.6	12,984	13.3	113
10/12/2024	18:30:00	-0.4	0.000	4.4	12,989	13.2	113
10/12/2024	19:00:00	-0.4	0.000	3.2	12,989	13.8	112
10/12/2024	19:15:00	-0.4	0.329	6	12,993	13	112
10/12/2024	19:30:00	-0.4	0.000	1.8	12,994	13.3	113
10/12/2024	19:45:00	-0.4	0.310	5.6	12,994	13.6	113
10/12/2024	20:00:00	-0.4	0.325	3.6	13,000	12.9	113
10/12/2024	20:15:00	-0.4	0.321	3.9	13,005	12.9	113
10/12/2024	20:30:00	-0.4	0.000	0.9	13,006	13.1	113
10/12/2024	20:45:00	-0.4	0.000	0.3	13,006	13.4	113
10/12/2024	21:00:00	-0.4	0.000	0.7	13,006	13.7	113
10/12/2024	21:15:00	-0.4	0.318	2.5	13,011	12.8	113
10/12/2024	21:30:00	-0.4	0.318	2.4	13,015	12.7	113
10/12/2024	21:45:00	-0.4	0.000	0.4	13,017	12.9	113
10/12/2024	22:00:00	-0.4	0.000	0	13,017	13.2	112
10/12/2024	22:15:00	-0.4	0.000	0	13,017	13.5	113
10/12/2024	22:30:00	-0.4	0.336	1.4	13,020	12.6	113
10/12/2024	22:45:00	-0.4	0.325	1.7	13,025	12.6	113
10/12/2024	23:00:00	-0.4	0.000	0.2	13,028	12.7	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/12/2024	23:15:00	-0.4	0.000	0	13,028	13	112
10/12/2024	23:30:00	-0.4	0.000	0	13,028	13.2	112
10/12/2024	23:45:00	-0.4	0.310	0.8	13,031	12.5	112
10/13/2024	0:00:00	-0.4	0.306	0.9	13,036	12.4	113
10/13/2024	0:15:00	-0.4	0.000	0	13,040	12.4	111
10/13/2024	0:30:00	-0.4	0.000	0	13,040	12.8	111
10/13/2024	0:45:00	-0.4	0.000	0	13,040	13	112
10/13/2024	1:00:00	-0.4	0.000	0	13,040	13.2	112
10/13/2024	1:15:00	-0.4	0.318	0.8	13,043	12.3	111
10/13/2024	1:30:00	-0.4	0.321	1.2	13,048	12.3	111
10/13/2024	1:45:00	-0.4	0.299	0.8	13,053	12.2	112
10/13/2024	2:00:00	-0.4	0.000	0	13,054	12.4	111
10/13/2024	2:15:00	-0.4	0.000	0	13,054	12.7	111
10/13/2024	2:30:00	-0.4	0.000	0	13,054	12.9	111
10/13/2024	2:45:00	-0.4	0.287	0.3	13,058	12.1	111
10/13/2024	3:00:00	-0.4	0.302	0.2	13,063	12.1	111
10/13/2024	3:15:00	-0.4	0.000	0	13,065	12.2	111
10/13/2024	3:30:00	-0.4	0.000	0	13,065	12.5	111
10/13/2024	3:45:00	-0.4	0.000	0	13,065	12.7	111
10/13/2024	4:00:00	-0.4	0.310	0.1	13,068	12	111
10/13/2024	4:15:00	-0.4	0.325	0.1	13,073	12	112
10/13/2024	4:30:00	-0.4	0.000	0	13,077	12	111
10/13/2024	4:45:00	-0.4	0.000	0	13,077	12.3	111
10/13/2024	5:00:00	-0.4	0.000	0	13,077	12.5	111
10/13/2024	5:15:00	-0.4	0.302	0.4	13,078	12.3	111

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/13/2024	5:30:00	-0.4	0.310	0	13,083	11.9	111
10/13/2024	5:45:00	-0.4	0.299	0	13,087	11.9	112
10/13/2024	6:00:00	-0.4	0.000	0	13,088	12.1	112
10/13/2024	6:15:00	-0.4	0.000	0	13,088	12.4	111
10/13/2024	6:30:00	-0.4	0.000	0	13,088	12.6	112
10/13/2024	6:45:00	-0.4	0.306	0	13,092	11.8	111
10/13/2024	7:00:00	-0.4	0.295	0	13,097	11.8	111
10/13/2024	7:15:00	-0.4	0.000	0	13,101	11.9	111
10/13/2024	7:30:00	-0.4	0.000	0	13,101	12.2	111
10/13/2024	7:45:00	-0.4	0.000	0	13,101	12.4	110
10/13/2024	8:00:00	-0.4	0.000	0	13,101	12.7	111
10/13/2024	8:15:00	-0.4	0.318	0	13,105	11.8	111
10/13/2024	8:30:00	-0.4	0.321	0	13,110	11.8	112
10/13/2024	8:45:00	-0.4	0.000	0	13,113	11.9	111
10/13/2024	9:00:00	-0.4	0.000	0	13,113	12.1	111
10/13/2024	9:15:00	-0.4	0.000	0	13,113	12.5	111
10/13/2024	9:30:00	-0.4	0.325	0	13,116	11.8	111
10/13/2024	9:45:00	-0.4	0.310	0	13,120	11.8	111
10/13/2024	10:00:00	-0.4	0.000	0	13,125	11.9	111
10/13/2024	10:15:00	-0.4	0.000	0	13,125	12.2	111
10/13/2024	10:30:00	-0.4	0.000	0	13,125	12.4	111
10/13/2024	10:45:00	-0.4	0.000	0	13,125	12.6	111
10/13/2024	11:00:00	-0.4	0.302	0.2	13,127	12.1	111
10/13/2024	11:15:00	-0.4	0.314	0.4	13,132	12	111
10/13/2024	11:30:00	-0.4	0.321	1.4	13,136	12	111

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/13/2024	11:45:00	-0.4	0.000	0	13,139	12.2	111
10/13/2024	12:00:00	-0.4	0.000	0	13,139	12.6	111
10/13/2024	12:15:00	-0.4	0.000	0	13,139	12.9	112
10/13/2024	12:30:00	-0.4	0.318	0	13,141	12.8	111
10/13/2024	12:45:00	-0.4	0.340	0	13,146	13.2	113
10/13/2024	13:00:00	-0.4	0.306	0.4	13,151	12.6	113
10/13/2024	13:15:00	-0.4	0.000	0	13,151	12.9	113
10/13/2024	13:30:00	-0.4	0.000	0	13,151	13.5	113
10/13/2024	13:45:00	-0.4	0.318	0.6	13,152	13.1	113
10/13/2024	14:00:00	-0.4	0.355	0.4	13,157	12.9	113
10/13/2024	14:15:00	-0.4	0.318	1	13,162	12.9	113
10/13/2024	14:30:00	-0.4	0.000	0	13,163	13.2	113
10/13/2024	14:45:00	-0.4	0.000	0	13,163	13.6	113
10/13/2024	15:00:00	-0.4	0.000	0	13,163	14	113
10/13/2024	15:15:00	-0.4	0.329	0.4	13,167	13.2	114
10/13/2024	15:30:00	-0.4	0.314	0	13,172	13.2	113
10/13/2024	15:45:00	-0.4	0.000	0	13,173	13.5	113
10/13/2024	16:00:00	-0.4	0.000	0	13,173	13.8	113
10/13/2024	16:15:00	-0.4	0.000	0	13,173	14.1	113
10/13/2024	16:30:00	-0.4	0.321	0	13,178	13.2	114
10/13/2024	16:45:00	-0.4	0.333	0	13,183	13.2	113
10/13/2024	17:00:00	-0.4	0.000	0	13,185	13.4	113
10/13/2024	17:15:00	-0.4	0.000	0	13,185	13.7	113
10/13/2024	17:30:00	-0.4	0.000	0	13,185	13.9	113
10/13/2024	17:45:00	-0.4	0.321	0	13,188	13.2	113

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Temperature (°C)	Discharge Conductivity (µS/cm)
10/13/2024	18:00:00	-0.4	0.336	0	13,193	13.1	113
10/13/2024	18:15:00	-0.4	0.000	0	13,197	13.1	113
10/13/2024	18:30:00	-0.4	0.000	0	13,197	13.4	112
10/13/2024	18:45:00	-0.4	0.000	0	13,197	13.6	112
10/13/2024	19:00:00	-0.4	0.344	0	13,199	13.1	112
10/13/2024	19:15:00	-0.4	0.348	0	13,204	12.9	112
10/13/2024	19:30:00	-0.4	0.333	0	13,208	12.9	112
10/13/2024	19:45:00	-0.4	0.000	0	13,209	13.1	111
10/13/2024	20:00:00	-0.4	0.000	0	13,209	13.3	111
10/13/2024	20:15:00	-0.4	0.000	0	13,209	13.5	112
10/13/2024	20:30:00	-0.4	0.325	0	13,214	12.8	112
10/13/2024	20:45:00	-0.4	0.336	0	13,218	12.7	111
10/13/2024	21:00:00	-0.4	0.000	0	13,221	12.8	111
10/13/2024	21:15:00	-0.4	0.000	0	13,221	13	112
10/13/2024	21:30:00	-0.4	0.333	0	13,224	12.7	112
10/13/2024	21:45:00	-0.4	0.340	0.7	13,229	12.7	111
10/13/2024	22:00:00	-0.4	0.314	2	13,234	12.7	111
10/13/2024	22:15:00	-0.4	0.000	0.2	13,235	12.8	111
10/13/2024	22:30:00	-0.4	0.000	0	13,235	13	111
10/13/2024	22:45:00	-0.4	0.325	3.4	13,240	12.6	111
10/13/2024	23:00:00	-0.4	0.000	3.1	13,244	12.6	111
10/13/2024	23:15:00	-0.4	0.000	2.6	13,244	12.8	112
10/13/2024	23:30:00	-0.4	0.000	2.7	13,244	13	111
10/13/2024	23:45:00	-0.4	0.333	6.5	13,248	12.5	111

Table 3. In-Situ Parameters

Date	Time	Temperature °C	DO mg/L	Conductivity SPC-uS/cm	SAL-ppt	pH	ORP mV	NTU	Visible Sheen
10/7/2024	09:41:51PM	12.1	11.03	136.9	0.06	7.89	86.2	5.64	No
10/8/2024	10:24:39PM	12.3	10.94	146.2	0.07	7.85	115	5.45	No
10/9/2024	00:09:31AM	12.8	10.77	144.4	0.07	7.91	83.6	7.06	No
10/10/2024	00:04:15AM	12	11.15	135.3	0.06	7.91	79.9	9.16	No
10/11/2024	02:51:53PM	12.4	11.12	131.3	0.06	8.04	72.9	4.77	No
10/12/2024	00:01:50AM	12	10.77	161.4	0.08	7.79	95.9	5.47	No
10/13/2024	02:34:41PM	12.6	11.07	138.1	0.07	7.95	91.4	5.11	No

3. Calibration Log:

Table 4. Calibration Log

Date	Unit	pH	Conductivity/Temp.	Salinity	NTU
10/7/2024	YSI	✓	✓	✓	✓
10/8/2024	WTP	✓	✓	N/A	✓

APPENDIX A: WTP Data Log

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	0:00:00	7.3	0.374	28.9	11,120	Open	13.4	114
10/7/2024	0:15:00	6.9	0.370	32.5	11,126	Open	13.3	256
10/7/2024	0:30:00	7.3	0.374	33.3	11,131	Open	13.3	257
10/7/2024	0:45:00	6.9	0.367	33.8	11,137	Open	13.3	256
10/7/2024	1:00:00	7.2	0.355	36.3	11,142	Open	13.3	256
10/7/2024	1:15:00	7	0.359	47.9	11,148	Open	13.2	256
10/7/2024	1:30:00	7.1	0.363	54.4	11,153	Open	13.2	256
10/7/2024	1:45:00	7.1	0.370	54.3	11,159	Open	13.2	114
10/7/2024	2:00:00	7	0.197	129.7	11,162	Closed	13.2	258
10/7/2024	2:15:00	7.3	0.359	185.5	11,162	Closed	13	114
10/7/2024	2:30:00	6.9	0.363	146.8	11,162	Closed	13	259
10/7/2024	2:45:00	7.4	0.367	133.1	11,162	Closed	13	113
10/7/2024	3:00:00	6.9	0.359	90	11,162	Closed	13	262
10/7/2024	3:15:00	7.3	0.363	72.3	11,162	Closed	13	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	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	3:30:00	6.9	0.382	73.9	11,163	Open	13.1	261
10/7/2024	3:45:00	7.1	0.352	57.6	11,166	Closed	13.1	264
10/7/2024	4:00:00	7.1	0.348	61.1	11,169	Closed	13.1	261
10/7/2024	4:15:00	7	0.367	58.4	11,172	Open	13.1	264
10/7/2024	4:30:00	7.3	0.370	49.1	11,177	Open	13.1	261
10/7/2024	4:45:00	6.8	0.370	49.1	11,183	Open	13.1	263
10/7/2024	5:00:00	7.1	0.370	45.6	11,188	Open	13.2	264
10/7/2024	5:15:00	7.3	0.393	43.1	11,194	Open	13.2	261
10/7/2024	5:30:00	6.8	0.386	46.6	11,200	Open	13.2	266
10/7/2024	5:45:00	7.1	0.397	42.4	11,206	Open	13.2	266
10/7/2024	6:00:00	7.3	0.386	48.7	11,212	Open	13.2	266
10/7/2024	6:15:00	6.9	0.389	47.5	11,218	Open	13.2	266
10/7/2024	6:30:00	7.2	0.386	35.5	11,224	Open	13.2	266
10/7/2024	6:45:00	7.2	0.397	40.5	11,229	Open	13.2	262
10/7/2024	7:00:00	6.9	0.389	37	11,235	Open	13.2	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	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	7:15:00	7.2	0.374	35.8	11,241	Open	13.2	266
10/7/2024	7:30:00	7.2	0.374	38.9	11,247	Open	13.2	263
10/7/2024	7:45:00	6.9	0.393	40.9	11,253	Open	13.3	264
10/7/2024	8:00:00	7.2	0.393	37.4	11,258	Open	13.3	266
10/7/2024	8:15:00	7.3	0.389	35.6	11,264	Open	13.3	264
10/7/2024	8:30:00	6.9	0.393	25.1	11,270	Open	13.3	263
10/7/2024	8:45:00	7.1	0.382	27.5	11,276	Open	13.3	266
10/7/2024	9:00:00	7.3	0.386	27.4	11,282	Open	13.3	266
10/7/2024	9:15:00	6.9	0.386	29.3	11,287	Open	13.4	262
10/7/2024	9:30:00	7.1	0.382	32.8	11,293	Open	13.5	266
10/7/2024	9:45:00	7.3	0.382	38.9	11,299	Open	13.5	266
10/7/2024	10:00:00	6.9	0.389	34.7	11,304	Open	13.6	260
10/7/2024	10:15:00	7	0.378	35.1	11,310	Open	13.6	264
10/7/2024	10:30:00	7.3	0.386	22.2	11,316	Open	13.6	264
10/7/2024	10:45:00	6.9	0.363	27.3	11,318	Closed	13.5	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	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	11:00:00	7.1	0.367	26	11,318	Closed	13.5	263
10/7/2024	11:15:00	7.2	0.367	24.9	11,318	Closed	13.5	259
10/7/2024	11:30:00	6.9	0.367	30.2	11,318	Closed	13.5	264
10/7/2024	11:45:00	7.3	0.359	27.5	11,318	Open	13.6	262
10/7/2024	12:00:00	6.9	0.370	27.4	11,324	Open	13.8	262
10/7/2024	12:15:00	7	0.363	32.5	11,329	Open	13.9	266
10/7/2024	12:30:00	7.4	0.370	36	11,335	Open	14	267
10/7/2024	12:45:00	6.9	0.370	32.8	11,340	Open	14.1	266
10/7/2024	13:00:00	7.1	0.382	32.8	11,346	Open	14.2	269
10/7/2024	13:15:00	7.4	0.378	20.4	11,351	Open	14.4	268
10/7/2024	13:30:00	7	0.374	18	11,357	Open	14.7	266
10/7/2024	13:45:00	7	0.367	25.4	11,362	Open	14.6	266
10/7/2024	14:00:00	7.3	0.386	20	11,368	Open	14.7	268
10/7/2024	14:15:00	6.9	0.370	22.7	11,373	Open	14.7	267
10/7/2024	14:30:00	7	0.386	29	11,379	Open	14.7	270

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	14:45:00	7.3	0.382	28.3	11,385	Open	14.7	270
10/7/2024	15:00:00	7	0.374	36.1	11,390	Open	14.7	268
10/7/2024	15:15:00	7	0.367	41.2	11,396	Open	14.6	270
10/7/2024	15:30:00	7.3	0.363	38.9	11,401	Open	14.6	269
10/7/2024	15:45:00	7	0.378	42.6	11,407	Open	14.6	268
10/7/2024	16:00:00	7	0.386	47.3	11,412	Open	14.5	272
10/7/2024	16:15:00	7.3	0.382	45.6	11,418	Open	14.5	272
10/7/2024	16:30:00	7	0.382	41.1	11,424	Open	14.4	268
10/7/2024	16:45:00	7	0.382	41	11,429	Open	14.4	269
10/7/2024	17:00:00	7.3	0.389	35.2	11,435	Open	14.4	271
10/7/2024	17:15:00	7.1	0.412	55.3	11,440	Open	14.7	269
10/7/2024	17:30:00	7.1	0.401	72.4	11,440	Closed	14	269
10/7/2024	17:45:00	7.2	0.397	52.9	11,440	Closed	13.9	266
10/7/2024	18:00:00	7	0.393	63.9	11,440	Closed	13.9	269
10/7/2024	18:15:00	7.4	0.404	117.7	11,440	Closed	13.9	268

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	18:30:00	6.9	0.412	78.7	11,440	Closed	13.9	271
10/7/2024	18:45:00	7.2	0.416	61.1	11,440	Open	13.9	269
10/7/2024	19:00:00	7	0.423	54.9	11,446	Open	14	269
10/7/2024	19:15:00	7	0.438	62.9	11,453	Open	14	273
10/7/2024	19:30:00	7.3	0.431	53.5	11,459	Open	14.2	273
10/7/2024	19:45:00	6.9	0.435	40	11,465	Open	14.2	271
10/7/2024	20:00:00	7.1	0.431	43	11,472	Open	14.2	274
10/7/2024	20:15:00	7.3	0.423	40.6	11,478	Open	14.2	274
10/7/2024	20:30:00	6.9	0.423	28.5	11,484	Open	14.2	271
10/7/2024	20:45:00	7.1	0.427	36.6	11,490	Open	14.2	276
10/7/2024	21:00:00	7.3	0.427	31	11,497	Open	14.2	274
10/7/2024	21:15:00	6.9	0.427	27.8	11,503	Open	14.2	272
10/7/2024	21:30:00	7.1	0.435	26.9	11,509	Open	14.2	279
10/7/2024	21:45:00	7.3	0.423	26.3	11,515	Open	14.2	276
10/7/2024	22:00:00	6.9	0.420	26.6	11,522	Open	14.3	274

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/7/2024	22:15:00	7.1	0.408	24.3	11,528	Open	14.2	277
10/7/2024	22:30:00	7.3	0.416	29	11,534	Open	14.2	276
10/7/2024	22:45:00	6.9	0.420	35.5	11,540	Open	14.2	273
10/7/2024	23:00:00	7.1	0.416	56.6	11,546	Open	14.2	276
10/7/2024	23:15:00	7.3	0.423	52.3	11,552	Open	14.1	272
10/7/2024	23:30:00	6.9	0.416	55.7	11,558	Open	14.1	273
10/7/2024	23:45:00	7.2	0.389	79.4	11,559	Closed	13.8	272
10/8/2024	0:00:00	7.3	0.442	120.6	11,559	Closed	13.7	269
10/8/2024	0:15:00	6.9	0.446	118.2	11,559	Closed	13.7	273
10/8/2024	0:30:00	7.3	0.435	129.7	11,563	Closed	13.7	273
10/8/2024	0:45:00	7	0.450	139.8	11,565	Open	13.7	271
10/8/2024	1:00:00	7.1	0.431	223.2	11,568	Closed	13.6	273
10/8/2024	1:15:00	7.2	0.378	263.9	11,568	Closed	13.5	269
10/8/2024	1:30:00	7	0.363	227.7	11,568	Closed	13.4	272
10/8/2024	1:45:00	7.3	0.352	235.1	11,568	Closed	13.3	269

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/8/2024	2:00:00	6.9	0.355	227.8	11,568	Closed	13.3	272
10/8/2024	2:15:00	7.2	0.416	205.8	11,570	Closed	13.4	269
10/8/2024	2:30:00	7.1	0.420	191.9	11,570	Closed	13.4	269
10/8/2024	2:45:00	7	0.423	188.4	11,570	Closed	13.4	273
10/8/2024	3:00:00	7.3	0.318	152.9	11,570	Closed	13.3	272
10/8/2024	3:15:00	6.9	0.333	126.6	11,570	Closed	13.3	279
10/8/2024	3:30:00	7.2	0.344	126.9	11,570	Closed	13.4	279
10/8/2024	3:45:00	7	0.457	124	11,575	Closed	13.5	281
10/8/2024	4:00:00	7.1	0.423	99.8	11,577	Open	13.5	289
10/8/2024	4:15:00	7.3	0.442	87.5	11,579	Open	13.5	289
10/8/2024	4:30:00	6.9	0.412	79.4	11,584	Closed	13.5	294
10/8/2024	4:45:00	7.3	0.420	66.5	11,588	Open	13.5	294
10/8/2024	5:00:00	7	0.416	58.1	11,594	Open	13.6	296
10/8/2024	5:15:00	7.1	0.416	52.2	11,600	Open	13.5	299
10/8/2024	5:30:00	7.3	0.412	44.4	11,607	Open	13.5	299

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/8/2024	5:45:00	6.9	0.412	36.2	11,613	Open	13.6	302
10/8/2024	6:00:00	7.2	0.401	38.3	11,619	Open	13.5	302
10/8/2024	6:15:00	7	0.404	37.7	11,625	Open	13.5	304
10/8/2024	6:30:00	7.1	0.401	37	11,631	Open	13.5	305
10/8/2024	6:45:00	7.3	0.386	34.4	11,637	Open	13.5	304
10/8/2024	7:00:00	6.9	0.397	35.7	11,643	Open	13.5	309
10/8/2024	7:15:00	7.2	0.397	36.8	11,649	Open	13.4	309
10/8/2024	7:30:00	7.1	0.382	39.3	11,655	Open	13.4	305
10/8/2024	7:45:00	7	0.393	36.3	11,661	Open	13.4	309
10/8/2024	8:00:00	7.4	0.382	37.8	11,667	Open	13.4	307
10/8/2024	8:15:00	6.9	0.378	38.7	11,673	Open	13.4	307
10/8/2024	8:30:00	7.2	0.374	39.8	11,678	Open	13.3	305
10/8/2024	8:45:00	7.2	0.378	42.4	11,684	Open	13.3	302
10/8/2024	9:00:00	7	0.363	47.7	11,689	Open	13.3	305
10/8/2024	9:15:00	7.3	0.363	46	11,695	Open	13.3	301

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/8/2024	9:30:00	6.9	0.374	47.5	11,700	Open	13.3	299
10/8/2024	9:45:00	7.1	0.370	52.3	11,706	Open	13.3	294
10/8/2024	10:00:00	7.3	0.363	56.6	11,707	Open	13.2	289
10/8/2024	10:15:00	6.9	0.344	60.5	11,709	Open	13.2	286
10/8/2024	10:30:00	7.2	0.340	65.9	11,713	Closed	13.2	279
10/8/2024	10:45:00	7.1	0.355	64.9	11,716	Closed	13.2	276
10/8/2024	11:00:00	7	0.363	59.6	11,718	Open	13.2	276
10/8/2024	11:15:00	7.3	0.359	63.2	11,720	Closed	13.2	269
10/8/2024	11:30:00	6.9	0.348	62.4	11,724	Closed	13.3	269
10/8/2024	11:45:00	7.1	0.370	57	11,727	Open	13.3	270
10/8/2024	12:00:00	7.3	0.367	52	11,729	Open	13.3	268
10/8/2024	12:15:00	6.9	0.359	56.1	11,731	Closed	13.4	268
10/8/2024	12:30:00	7.2	0.344	50.6	11,731	Closed	13.4	268
10/8/2024	12:45:00	7.2	0.367	54.6	11,731	Closed	13.5	266
10/8/2024	13:00:00	7	0.367	61.2	11,731	Closed	13.5	268

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/8/2024	13:15:00	7.3	0.370	47	11,731	Closed	13.6	268
10/8/2024	13:30:00	6.9	0.363	43.8	11,731	Closed	13.6	268
10/8/2024	13:45:00	7.1	0.367	42.1	11,731	Closed	13.7	267
10/8/2024	14:00:00	7.3	0.287	47.3	11,731	Closed	13.8	268
10/8/2024	14:15:00	7.5	0.382	52.7	11,736	Open	13.9	272
10/8/2024	14:30:00	7.5	0.378	51.8	11,741	Open	14	275
10/8/2024	14:45:00	7.5	0.382	76.1	11,747	Open	14.1	280
10/8/2024	15:00:00	7.6	0.352	82.2	11,748	Closed	14.2	285
10/8/2024	15:15:00	7.6	0.359	97.4	11,748	Closed	14.1	282
10/8/2024	15:30:00	7.6	0.348	88	11,748	Closed	14.2	280
10/8/2024	15:45:00	7.6	0.340	95.3	11,748	Closed	14.2	281
10/8/2024	16:00:00	7.6	0.355	105.1	11,752	Open	14.3	285
10/8/2024	16:15:00	7.6	0.359	94.8	11,755	Open	14.4	286
10/8/2024	16:30:00	7.6	0.355	95.4	11,759	Closed	14.4	288
10/8/2024	16:45:00	7.6	0.359	74.8	11,761	Open	14.4	288

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/8/2024	17:00:00	7.6	0.355	73	11,767	Open	14.5	289
10/8/2024	17:15:00	7.6	0.363	69.7	11,772	Open	14.5	293
10/8/2024	17:30:00	7.6	0.355	76.5	11,777	Open	14.5	293
10/8/2024	17:45:00	7.6	0.378	71.3	11,783	Open	14.5	291
10/8/2024	18:00:00	7.6	0.363	72.1	11,788	Open	14.5	291
10/8/2024	18:15:00	7.6	0.370	49	11,794	Open	14.9	291
10/8/2024	18:30:00	7.6	0.389	40.5	11,799	Open	15.2	293
10/8/2024	18:45:00	7.6	0.382	39.3	11,805	Open	15.5	294
10/8/2024	19:00:00	7.6	0.378	38.7	11,811	Open	15.7	294
10/8/2024	19:15:00	7.6	0.374	36.7	11,816	Open	15.9	293
10/8/2024	19:30:00	7.6	0.370	35.5	11,821	Open	16.1	294
10/8/2024	19:45:00	7.6	0.370	36.7	11,827	Open	16.3	296
10/8/2024	20:00:00	7.6	0.359	37.8	11,832	Open	16.4	296
10/8/2024	20:15:00	7.6	0.367	35.4	11,838	Open	16.6	296
10/8/2024	20:30:00	7.6	0.359	34.9	11,843	Open	16.7	296

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/8/2024	20:45:00	7.6	0.352	36.6	11,849	Open	16.8	296
10/8/2024	21:00:00	7.6	0.340	36.1	11,854	Open	16.9	296
10/8/2024	21:15:00	7.6	0.355	37.1	11,859	Open	17	298
10/8/2024	21:30:00	7.6	0.352	36.4	11,865	Open	17.1	298
10/8/2024	21:45:00	7.7	0.352	36.2	11,870	Open	17.1	299
10/8/2024	22:00:00	7.7	0.344	36.9	11,876	Open	17.2	299
10/8/2024	22:15:00	7.7	0.340	36.2	11,881	Open	17.2	299
10/8/2024	22:30:00	7.7	0.340	35.7	11,887	Open	17.3	299
10/8/2024	22:45:00	7.7	0.344	34.6	11,892	Open	17.3	299
10/8/2024	23:00:00	7.7	0.340	32.9	11,897	Open	17.4	299
10/8/2024	23:15:00	7.7	0.336	35.4	11,902	Open	17.4	299
10/8/2024	23:30:00	7.7	0.329	33.6	11,907	Open	17.4	299
10/8/2024	23:45:00	7.7	0.325	33.4	11,912	Open	17.4	299
10/9/2024	0:00:00	7.7	0.325	32.6	11,917	Open	17.4	301
10/9/2024	0:15:00	7.7	0.325	32	11,922	Open	17.4	301

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	0:30:00	7.7	0.318	32.7	11,926	Open	17.4	301
10/9/2024	0:45:00	7.7	0.000	29.2	11,927	Open	17.4	301
10/9/2024	1:00:00	7.7	0.000	30	11,927	Open	17.4	300
10/9/2024	1:15:00	7.6	0.000	29.5	11,927	Open	17.4	301
10/9/2024	1:30:00	7.6	0.000	25.6	11,927	Open	17.4	301
10/9/2024	1:45:00	7.6	0.000	26.7	11,927	Open	17.4	301
10/9/2024	2:00:00	7.5	0.000	26.8	11,927	Open	17.4	300
10/9/2024	2:15:00	7.5	0.348	22.9	11,930	Open	17.3	300
10/9/2024	2:30:00	7.5	0.344	26	11,936	Open	17.4	301
10/9/2024	2:45:00	7.5	0.348	21.4	11,941	Open	17.4	301
10/9/2024	3:00:00	7.5	0.348	21.3	11,947	Open	17.3	300
10/9/2024	3:15:00	7.5	0.348	20.8	11,952	Open	17.3	300
10/9/2024	3:30:00	7.5	0.344	19.5	11,958	Open	17.4	301
10/9/2024	3:45:00	7.5	0.344	19.5	11,963	Open	17.4	301
10/9/2024	4:00:00	7.4	0.340	19.6	11,968	Open	17.4	300

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	4:15:00	7.4	0.336	17.5	11,973	Open	17.4	300
10/9/2024	4:30:00	7.4	0.336	16.7	11,978	Open	17.4	301
10/9/2024	4:45:00	7.4	0.000	16.1	11,980	Open	17.4	301
10/9/2024	5:00:00	7.4	0.000	16.5	11,980	Open	17.4	301
10/9/2024	5:15:00	7.4	0.000	17.1	11,980	Open	17.3	304
10/9/2024	5:30:00	7.4	0.000	17.2	11,980	Open	17.3	304
10/9/2024	5:45:00	7.4	0.000	16.2	11,980	Open	17.3	304
10/9/2024	6:00:00	7.4	0.336	15.3	11,984	Open	17.3	304
10/9/2024	6:15:00	7.4	0.352	16	11,989	Open	17.3	304
10/9/2024	6:30:00	7.4	0.333	15.4	11,994	Open	17.3	304
10/9/2024	6:45:00	7.4	0.333	15.6	11,999	Open	17.3	304
10/9/2024	7:00:00	7.4	0.000	14.8	12,003	Open	17.3	304
10/9/2024	7:15:00	7.4	0.000	15.2	12,003	Open	17.4	304
10/9/2024	7:30:00	7.4	0.000	15.5	12,003	Open	17.4	304
10/9/2024	7:45:00	7.4	0.333	13.2	12,004	Open	17.3	304

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	8:00:00	7.4	0.336	13.1	12,009	Open	17.4	304
10/9/2024	8:15:00	7.4	0.336	11.9	12,014	Open	17.4	304
10/9/2024	8:30:00	7.4	0.329	14.2	12,019	Open	17.4	304
10/9/2024	8:45:00	7.4	0.329	13.5	12,024	Open	17.5	304
10/9/2024	9:00:00	7.4	0.321	12.1	12,028	Open	17.5	304
10/9/2024	9:15:00	7.4	0.329	12.8	12,033	Open	17.5	304
10/9/2024	9:30:00	7.4	0.321	12.6	12,038	Open	17.6	305
10/9/2024	9:45:00	7.4	0.310	13.5	12,043	Open	17.6	305
10/9/2024	10:00:00	7.5	0.310	12.6	12,047	Open	17.7	306
10/9/2024	10:15:00	7.6	0.306	12.5	12,052	Open	17.8	305
10/9/2024	10:30:00	7.6	0.310	12.1	12,057	Open	17.8	304
10/9/2024	10:45:00	7.6	0.302	11.8	12,062	Open	17.8	304
10/9/2024	11:00:00	7.6	0.306	11.6	12,066	Open	17.8	304
10/9/2024	11:15:00	7.6	0.000	11.9	12,070	Open	17.9	304
10/9/2024	11:30:00	7.6	0.000	10.8	12,070	Open	18	304

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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	11:45:00	7.6	0.363	12.3	12,070	Closed	18	306
10/9/2024	12:00:00	7.6	0.333	10.9	12,070	Closed	18	306
10/9/2024	12:15:00	7.5	0.321	11.5	12,070	Closed	18.1	306
10/9/2024	12:30:00	7.5	0.318	11.9	12,070	Closed	18.1	304
10/9/2024	12:45:00	7.5	0.325	11.4	12,070	Closed	18.2	304
10/9/2024	13:00:00	7.4	0.318	32	12,070	Closed	18.8	306
10/9/2024	13:15:00	7.6	0.325	64	12,070	Closed	17.4	114
10/9/2024	13:30:00	7.6	0.321	56.2	12,070	Closed	16.8	114
10/9/2024	13:45:00	7.7	0.348	60.9	12,072	Open	16.5	114
10/9/2024	14:00:00	7.7	0.344	60.4	12,078	Open	16.4	114
10/9/2024	14:15:00	7.8	0.344	36	12,083	Open	16.4	114
10/9/2024	14:30:00	7.8	0.359	18.7	12,089	Open	16.4	114
10/9/2024	14:45:00	7.8	0.370	20.4	12,094	Open	16.5	114
10/9/2024	15:00:00	7.8	0.355	173.3	12,097	Closed	16.5	114
10/9/2024	15:15:00	7.8	0.408	235.3	12,097	Closed	16.6	114

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	15:30:00	7.8	0.408	37.4	12,098	Closed	16.6	116
10/9/2024	15:45:00	7.8	0.412	23.2	12,101	Open	16.6	117
10/9/2024	16:00:00	7.8	0.401	28.2	12,107	Open	16.6	114
10/9/2024	16:15:00	7.8	0.404	29.5	12,113	Open	16.5	114
10/9/2024	16:30:00	7.8	0.397	32.2	12,118	Closed	16.5	114
10/9/2024	16:45:00	7.8	0.386	37.5	12,118	Closed	16.4	114
10/9/2024	17:00:00	7.8	0.389	86.3	12,121	Closed	16.3	114
10/9/2024	17:15:00	7.7	0.386	71.3	12,121	Closed	16.2	114
10/9/2024	17:30:00	7.7	0.352	62.9	12,123	Open	16.1	114
10/9/2024	17:45:00	7.7	0.386	47.5	12,129	Open	15.9	114
10/9/2024	18:00:00	7.7	0.374	76	12,134	Open	16	114
10/9/2024	18:15:00	7.7	0.359	88.5	12,136	Closed	16.1	114
10/9/2024	18:30:00	7.7	0.370	87.2	12,136	Closed	16.1	114
10/9/2024	18:45:00	7.7	0.370	116.6	12,136	Closed	16.1	114
10/9/2024	19:00:00	7.7	0.370	105.4	12,136	Closed	16.2	114

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	19:15:00	7.7	0.363	108.8	12,138	Open	16.2	114
10/9/2024	19:30:00	7.6	0.374	101.5	12,143	Open	16.1	114
10/9/2024	19:45:00	7.6	0.370	96.6	12,149	Open	15.9	114
10/9/2024	20:00:00	7.6	0.367	85.7	12,154	Open	15.8	114
10/9/2024	20:15:00	7.6	0.363	79.6	12,159	Open	15.8	114
10/9/2024	20:30:00	7.6	0.352	74.4	12,165	Open	15.6	114
10/9/2024	20:45:00	7.6	0.352	86.9	12,170	Open	15.6	113
10/9/2024	21:00:00	7.6	0.352	78.8	12,175	Open	15.6	114
10/9/2024	21:15:00	7.5	0.340	81.5	12,179	Open	15.5	114
10/9/2024	21:30:00	7.5	0.333	69.2	12,184	Open	15.6	114
10/9/2024	21:45:00	7.5	0.000	63.4	12,189	Open	15.9	114
10/9/2024	22:00:00	7.5	0.374	88.1	12,193	Open	15.9	114
10/9/2024	22:15:00	7.5	0.359	64.1	12,199	Open	15.7	114
10/9/2024	22:30:00	7.5	0.370	64.1	12,204	Open	15.6	114
10/9/2024	22:45:00	7.5	0.363	71	12,209	Open	15.5	113

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/9/2024	23:00:00	7.4	0.363	54.4	12,215	Open	15.4	114
10/9/2024	23:15:00	7.4	0.378	54.6	12,220	Open	15.3	113
10/9/2024	23:30:00	7.4	0.382	48.4	12,226	Open	15.3	113
10/9/2024	23:45:00	7.4	0.378	37.7	12,232	Open	15.2	114
10/10/2024	0:00:00	7.4	0.378	55.2	12,237	Open	15.2	113
10/10/2024	0:15:00	7.4	0.378	49.9	12,243	Open	15.1	114
10/10/2024	0:30:00	7.4	0.374	47.2	12,248	Open	15.3	114
10/10/2024	0:45:00	7.3	0.378	50.8	12,254	Open	15.5	114
10/10/2024	1:00:00	7.3	0.374	53.5	12,259	Open	15.2	113
10/10/2024	1:15:00	7.3	0.367	57.9	12,264	Open	15.3	114
10/10/2024	1:30:00	7.3	0.000	45.3	12,268	Open	15.4	114
10/10/2024	1:45:00	7.4	0.382	130.8	12,272	Open	15.4	114
10/10/2024	2:00:00	7.4	0.370	90.8	12,278	Open	15.4	113
10/10/2024	2:15:00	7.3	0.355	131.5	12,283	Open	15.4	114
10/10/2024	2:30:00	7.4	0.454	172.1	12,285	Closed	15.1	114

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/10/2024	2:45:00	7.3	0.423	147.5	12,285	Closed	15.3	113
10/10/2024	3:00:00	7.3	0.416	84.5	12,285	Closed	15.1	113
10/10/2024	3:15:00	7.3	0.408	49	12,285	Closed	15.3	114
10/10/2024	3:30:00	7.3	0.987	384.7	12,290	Open	15.5	113
10/10/2024	3:45:00	7.2	0.491	75.6	12,297	Closed	15.2	113
10/10/2024	4:00:00	7.2	0.499	53.7	12,299	Open	15.1	114
10/10/2024	4:15:00	7.2	0.000	20.8	12,302	Open	15	113
10/10/2024	4:30:00	7.2	0.344	32.3	12,307	Open	15.1	113
10/10/2024	4:45:00	7.2	0.329	18.3	12,312	Open	15.3	113
10/10/2024	5:00:00	7.2	0.314	10.7	12,317	Open	15.4	114
10/10/2024	5:15:00	7.2	0.601	16	12,321	Open	15.5	114
10/10/2024	5:30:00	7.2	0.473	19.2	12,326	Open	14.8	114
10/10/2024	5:45:00	7.2	0.518	6.7	12,334	Open	14.8	114
10/10/2024	6:00:00	7.2	0.537	1.3	12,342	Open	15.1	114
10/10/2024	6:15:00	7.2	0.548	7.5	12,345	Closed	15.2	114

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/10/2024	6:30:00	7.1	0.548	4	12,351	Open	15.2	114
10/10/2024	6:45:00	7.1	0.522	4	12,361	Open	15.3	114
10/10/2024	7:00:00	7.1	0.541	8.4	12,365	Closed	15.3	114
10/10/2024	7:15:00	7.1	0.533	14.5	12,365	Closed	15.4	114
10/10/2024	7:30:00	7.1	0.609	37.4	12,365	Closed	15.3	114
10/10/2024	7:45:00	7.1	0.559	31.1	12,365	Closed	15.3	114
10/10/2024	8:00:00	7.1	0.537	14.7	12,365	Closed	15.4	114
10/10/2024	8:15:00	7	0.514	10.4	12,365	Closed	15.4	114
10/10/2024	8:30:00	7	0.473	10.4	12,365	Closed	15.1	113
10/10/2024	8:45:00	7	0.469	9.4	12,365	Closed	15.1	114
10/10/2024	9:00:00	7	0.476	9.4	12,365	Closed	15.2	114
10/10/2024	9:15:00	7	0.454	9	12,365	Closed	15	113
10/10/2024	9:30:00	7	0.457	11.1	12,365	Closed	15	114
10/10/2024	9:45:00	7	0.442	18.6	12,368	Open	14.9	113
10/10/2024	10:00:00	6.9	0.423	18.7	12,373	Open	15	114

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/10/2024	10:15:00	6.9	0.484	26.5	12,378	Closed	15	113
10/10/2024	10:30:00	6.9	0.457	15.4	12,378	Open	15.1	114
10/10/2024	10:45:00	6.9	0.465	18.4	12,385	Open	15.1	114
10/10/2024	11:00:00	6.9	0.438	21.9	12,390	Open	15.2	113
10/10/2024	11:15:00	6.9	0.431	20.8	12,397	Open	15.4	114
10/10/2024	11:30:00	6.9	0.412	25.6	12,403	Open	15.5	114
10/10/2024	11:45:00	6.8	0.408	33.6	12,410	Open	15.6	114
10/10/2024	12:00:00	6.8	0.412	51.6	12,412	Closed	15.7	114
10/10/2024	12:15:00	6.8	0.310	57.2	12,412	Closed	15.9	114
10/10/2024	12:30:00	6.8	0.246	63.3	12,412	Closed	16	114
10/10/2024	12:45:00	6.8	0.484	114.6	12,412	Closed	16.1	114
10/10/2024	13:00:00	6.8	0.367	125.9	12,412	Closed	16.3	114
10/10/2024	13:15:00	6.8	0.499	252.9	12,412	Closed	16.3	114
10/10/2024	13:30:00	6.7	0.423	327	12,412	Closed	16.6	116
10/10/2024	13:45:00	6.7	0.401	411.5	12,412	Closed	16.7	116

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/10/2024	14:00:00	6.7	0.367	411.6	12,412	Closed	16.9	116
10/10/2024	14:15:00	6.7	0.718	345.4	12,412	Closed	17.1	117
10/10/2024	14:30:00	6.7	0.435	354.1	12,412	Closed	17.2	116
10/10/2024	14:45:00	6.7	0.575	409.7	12,412	Closed	17.3	116
10/10/2024	15:00:00	6.7	0.457	411.3	12,412	Closed	17.5	116
10/10/2024	15:15:00	6.6	0.431	158.1	12,412	Closed	17.6	116
10/10/2024	15:30:00	6.6	0.408	146.6	12,412	Closed	17.6	116
10/10/2024	15:45:00	6.6	0.408	126.6	12,412	Closed	17.5	116
10/10/2024	16:00:00	6.6	0.420	120.9	12,412	Closed	17.5	116
10/10/2024	16:15:00	6.6	0.408	123.6	12,416	Open	17.4	116
10/10/2024	16:30:00	6.5	0.401	104.9	12,421	Closed	17.4	116
10/10/2024	16:45:00	6.6	0.416	102.9	12,421	Closed	17.3	116
10/10/2024	17:00:00	6.6	0.495	80.6	12,421	Closed	17.1	114
10/10/2024	17:15:00	6.6	0.491	72.4	12,421	Closed	16.9	114
10/10/2024	17:30:00	6.6	0.469	70.8	12,423	Open	16.7	114

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/10/2024	17:45:00	6.6	0.480	64.1	12,430	Open	16.5	114
10/10/2024	18:00:00	6.6	0.465	39.3	12,435	Open	16.3	114
10/10/2024	18:15:00	6.6	0.000	0	12,441	Closed	16.2	114
10/10/2024	18:30:00	6.6	0.378	37.4	12,441	Closed	16.2	114
10/10/2024	18:45:00	6.6	0.386	34	12,447	Open	16.1	114
10/10/2024	19:00:00	6.5	0.389	28	12,452	Open	16	114
10/10/2024	19:15:00	6.5	0.488	23.4	12,458	Open	16	114
10/10/2024	19:30:00	6.5	0.488	20.1	12,465	Open	15.9	114
10/10/2024	19:45:00	6.5	0.465	18.4	12,472	Open	15.7	114
10/10/2024	20:00:00	6.5	0.469	11.9	12,478	Open	15.7	113
10/10/2024	20:15:00	6.5	0.480	11.3	12,485	Open	15.7	114
10/10/2024	20:30:00	6.4	0.465	11.9	12,492	Open	15.7	114
10/10/2024	20:45:00	6.4	0.442	13	12,498	Open	15.6	113
10/10/2024	21:00:00	6.4	0.416	16.6	12,504	Open	15.6	114
10/10/2024	21:15:00	6.4	0.404	20	12,510	Open	15.6	113

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/10/2024	21:30:00	6.4	0.393	25.2	12,516	Open	15.5	113
10/10/2024	21:45:00	6.4	0.374	28.5	12,522	Open	15.4	113
10/10/2024	22:00:00	6.3	0.359	35.6	12,526	Open	15.5	113
10/10/2024	22:15:00	6.3	0.363	39.3	12,532	Open	15.4	114
10/10/2024	22:30:00	6.3	0.446	40	12,545	Open	15.4	113
10/10/2024	22:45:00	6.3	0.457	20.9	12,551	Open	15.3	114
10/10/2024	23:00:00	6.3	0.386	38	12,555	Open	15.2	113
10/10/2024	23:15:00	6.3	0.427	39.7	12,562	Open	15.2	114
10/10/2024	23:30:00	6.3	0.427	34.9	12,565	Closed	15.5	114
10/10/2024	23:45:00	6.2	0.363	53.6	12,565	Closed	15.7	114
10/11/2024	0:00:00	-0.4	0.336	56.4	12,565	Closed	15.9	115
10/11/2024	0:15:00	-0.4	0.401	48.5	12,569	Open	16	115
10/11/2024	0:30:00	-0.4	0.382	51.2	12,575	Open	16.1	114
10/11/2024	0:45:00	-0.4	0.363	48.7	12,581	Open	15.8	114
10/11/2024	1:00:00	-0.4	0.359	57.6	12,585	Open	15.6	113

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/11/2024	1:15:00	-0.4	0.412	39.4	12,591	Open	15.4	113
10/11/2024	1:30:00	-0.4	0.000	59.8	12,596	Closed	15.5	114
10/11/2024	1:45:00	-0.4	0.000	50	12,596	Closed	15.9	113
10/11/2024	2:00:00	-0.4	0.121	52.2	12,596	Closed	15.9	114
10/11/2024	2:15:00	-0.4	0.382	73	12,600	Open	15.5	113
10/11/2024	2:30:00	-0.4	0.378	0	12,603	Closed	15.2	114
10/11/2024	2:45:00	-0.4	0.393	119.6	12,605	Open	15.3	113
10/11/2024	3:00:00	-0.4	0.386	90.1	12,608	Closed	15.3	113
10/11/2024	3:15:00	-0.4	0.367	99.1	12,611	Open	15.6	114
10/11/2024	3:30:00	-0.4	0.370	141.7	12,613	Open	15.4	113
10/11/2024	3:45:00	-0.4	0.363	149.3	12,615	Open	15.3	113
10/11/2024	4:00:00	-0.4	0.352	145.9	12,617	Closed	15.3	114
10/11/2024	4:15:00	-0.4	0.382	136.7	12,621	Open	15.1	114
10/11/2024	4:30:00	-0.4	0.367	136.7	12,623	Open	15.3	114
10/11/2024	4:45:00	-0.4	0.344	166.6	12,625	Closed	15.3	113

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/11/2024	5:00:00	-0.4	0.393	159	12,627	Closed	15.1	114
10/11/2024	5:15:00	-0.4	0.261	124.4	12,630	Closed	15.2	114
10/11/2024	5:30:00	-0.4	0.389	136	12,633	Open	15.3	114
10/11/2024	5:45:00	-0.4	0.363	151.7	12,635	Open	15.5	114
10/11/2024	6:00:00	-0.4	0.420	189.8	12,637	Closed	15.6	114
10/11/2024	6:15:00	-0.4	0.416	179.3	12,637	Closed	15.6	114
10/11/2024	6:30:00	-0.4	0.280	149.6	12,637	Closed	15.6	114
10/11/2024	6:45:00	-0.4	0.272	129	12,637	Closed	15.8	114
10/11/2024	7:00:00	-0.4	0.276	117.6	12,637	Closed	15.7	114
10/11/2024	7:15:00	-0.4	0.268	121.8	12,637	Closed	15.6	114
10/11/2024	7:30:00	-0.4	0.276	114	12,640	Open	15.6	114
10/11/2024	7:45:00	-0.4	0.272	126.6	12,641	Open	15.6	114
10/11/2024	8:00:00	-0.4	0.272	109.6	12,643	Closed	15.6	114
10/11/2024	8:15:00	-0.4	0.276	96.5	12,646	Open	15.5	114
10/11/2024	8:30:00	-0.4	0.268	93	12,646	Closed	15.6	114

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/11/2024	8:45:00	-0.4	0.268	111.9	12,646	Closed	15.7	115
10/11/2024	9:00:00	-0.4	0.268	86.9	12,646	Closed	15.4	113
10/11/2024	9:15:00	-0.4	0.276	89.6	12,646	Closed	15.4	114
10/11/2024	9:30:00	-0.4	0.280	76.2	12,650	Open	15.3	114
10/11/2024	9:45:00	-0.4	0.272	80.6	12,654	Open	15.1	113
10/11/2024	10:00:00	-0.4	0.276	65.1	12,657	Open	15.2	113
10/11/2024	10:15:00	-0.4	0.280	69.3	12,661	Open	15.1	113
10/11/2024	10:30:00	-0.4	0.268	55.1	12,664	Closed	15.1	113
10/11/2024	10:45:00	-0.4	0.272	43.7	12,664	Closed	15.5	114
10/11/2024	11:00:00	-0.4	0.276	39.4	12,664	Closed	15.9	114
10/11/2024	11:15:00	-0.4	0.280	38.1	12,664	Closed	16.4	114
10/11/2024	11:30:00	-0.4	0.280	86.2	12,667	Closed	15.3	266
10/11/2024	11:45:00	-0.4	0.284	81.6	12,667	Closed	12.5	261
10/11/2024	12:00:00	-0.4	1.459	53.3	12,671	Open	12.4	263
10/11/2024	12:15:00	-0.4	1.561	30.4	12,694	Open	12.3	263

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/11/2024	12:30:00	-0.4	1.191	37	12,706	Open	12.5	263
10/11/2024	12:45:00	-0.4	0.677	61.7	12,722	Open	12.7	263
10/11/2024	13:00:00	-0.4	0.764	7.5	12,728	Closed	12.6	263
10/11/2024	13:15:00	-0.4	0.000	6.1	12,728	Open	12.9	261
10/11/2024	13:30:00	-0.4	0.000	5.2	12,728	Open	13.3	263
10/11/2024	13:45:00	-0.4	0.000	6.2	12,728	Open	13.6	263
10/11/2024	14:00:00	-0.4	0.348	8.7	12,728	Open	13.8	258
10/11/2024	14:15:00	-0.4	0.386	7.4	12,734	Open	12.9	258
10/11/2024	14:30:00	-0.4	0.480	6.9	12,741	Open	12.9	262
10/11/2024	14:45:00	-0.4	0.480	6.9	12,748	Open	13	262
10/11/2024	15:00:00	-0.4	0.465	11.9	12,753	Open	13.1	263
10/11/2024	15:15:00	-0.4	0.446	17.5	12,760	Open	13.1	265
10/11/2024	15:30:00	-0.4	0.427	21.7	12,767	Open	13.1	263
10/11/2024	15:45:00	-0.4	0.000	31.6	12,772	Closed	13.1	263
10/11/2024	16:00:00	-0.4	0.318	32.6	12,772	Closed	13.2	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	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/11/2024	16:15:00	-0.4	0.000	38.4	12,772	Closed	13.3	263
10/11/2024	16:30:00	-0.4	0.000	18.8	12,772	Closed	13.7	266
10/11/2024	16:45:00	-0.4	0.000	17.5	12,772	Closed	13.9	264
10/11/2024	17:00:00	-0.4	0.000	14.3	12,772	Closed	14.2	267
10/11/2024	17:15:00	-0.4	0.000	14.2	12,772	Closed	14.5	264
10/11/2024	17:30:00	-0.4	0.000	11.9	12,772	Closed	14.7	267
10/11/2024	17:45:00	-0.4	0.000	15.2	12,772	Closed	14.9	263
10/11/2024	18:00:00	-0.4	0.302	29	12,772	Closed	15	264
10/11/2024	18:15:00	-0.4	0.442	19.9	12,772	Closed	15.3	263
10/11/2024	18:30:00	-0.4	0.446	16	12,773	Open	15.5	262
10/11/2024	18:45:00	-0.4	0.408	15.2	12,779	Open	15.8	262
10/11/2024	19:00:00	-0.4	0.389	18.1	12,783	Open	16	264
10/11/2024	19:15:00	-0.4	0.370	17.5	12,789	Open	16.3	262
10/11/2024	19:30:00	-0.4	0.355	16.7	12,794	Open	16.4	264
10/11/2024	19:45:00	-0.4	0.333	16.6	12,800	Open	16.6	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	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/11/2024	20:00:00	-0.4	0.000	0	12,800	Open	16.8	266
10/11/2024	20:15:00	-0.4	0.000	0	12,800	Open	16.8	266
10/11/2024	20:30:00	-0.4	0.000	0	12,800	Open	16.8	266
10/11/2024	20:45:00	-0.4	0.321	13.5	12,802	Open	16.8	265
10/11/2024	21:00:00	-0.4	0.306	13	12,805	Open	16.9	266
10/11/2024	21:15:00	-0.4	0.295	13.2	12,810	Open	17	266
10/11/2024	21:30:00	-0.4	0.280	12	12,814	Open	17.2	267
10/11/2024	21:45:00	-0.4	0.000	0	12,815	Open	17.2	267
10/11/2024	22:00:00	-0.4	0.000	0	12,815	Open	17.2	269
10/11/2024	22:15:00	-0.4	0.000	0	12,815	Open	17.1	266
10/11/2024	22:30:00	-0.4	0.000	5.4	12,815	Open	17	268
10/11/2024	22:45:00	-0.4	0.321	8.4	12,816	Open	17.1	269
10/11/2024	23:00:00	-0.4	0.318	7.5	12,821	Open	17.2	269
10/11/2024	23:15:00	-0.4	0.321	7.2	12,826	Open	17.2	271
10/11/2024	23:30:00	-0.4	0.000	0	12,829	Open	17.3	270

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 (uS/cm)
10/11/2024	23:45:00	-0.4	0.000	0	12,829	Open	17.2	270
10/12/2024	0:00:00	-0.4	0.000	0	12,829	Open	17.1	270
10/12/2024	0:15:00	-0.4	0.000	131.1	12,829	Open	17	269
10/12/2024	0:30:00	-0.4	0.302	6.4	12,832	Open	17	270
10/12/2024	0:45:00	-0.4	0.287	5.5	12,837	Open	17.1	270
10/12/2024	1:00:00	-0.4	0.000	81.2	12,842	Open	17.1	267
10/12/2024	1:15:00	-0.4	0.000	0	12,842	Open	17.1	268
10/12/2024	1:30:00	-0.4	0.000	0	12,842	Open	17	270
10/12/2024	1:45:00	-0.4	0.000	0	12,842	Open	17	270
10/12/2024	2:00:00	-0.4	0.318	4.8	12,844	Open	16.9	269
10/12/2024	2:15:00	-0.4	0.291	4.7	12,849	Open	17	270
10/12/2024	2:30:00	-0.4	0.306	4	12,854	Open	17	271
10/12/2024	2:45:00	-0.4	0.000	0	12,855	Open	17	270
10/12/2024	3:00:00	-0.4	0.000	0	12,855	Open	16.9	266
10/12/2024	3:15:00	-0.4	0.000	0	12,855	Open	16.9	268

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
Title	**WoodFibre Weekly Water Discharge Report**	**Revision:**	**0**
Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/12/2024	3:30:00	-0.4	0.314	2.9	12,856	Open	16.9	269
10/12/2024	3:45:00	-0.4	0.325	3.6	12,861	Open	16.8	269
10/12/2024	4:00:00	-0.4	0.302	3	12,866	Open	16.8	271
10/12/2024	4:15:00	-0.4	0.000	3.8	12,869	Open	17.2	267
10/12/2024	4:30:00	-0.4	0.000	2.7	12,869	Open	17.1	269
10/12/2024	4:45:00	-0.4	0.000	2	12,869	Open	17	267
10/12/2024	5:00:00	-0.4	0.000	2.7	12,869	Open	16.9	267
10/12/2024	5:15:00	-0.4	0.318	2.9	12,873	Open	16.7	271
10/12/2024	5:30:00	-0.4	0.336	1.9	12,878	Open	16.6	271
10/12/2024	5:45:00	-0.4	0.000	1.8	12,880	Open	16.6	270
10/12/2024	6:00:00	-0.4	0.000	2	12,880	Open	16.4	269
10/12/2024	6:15:00	-0.4	0.000	1.8	12,880	Open	16.3	269
10/12/2024	6:30:00	-0.4	0.318	1.9	12,881	Open	16.2	271
10/12/2024	6:45:00	-0.4	0.318	1.8	12,886	Open	16.1	271
10/12/2024	7:00:00	-0.4	0.318	1.6	12,891	Open	16.1	271

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/12/2024	7:15:00	-0.4	0.000	1.3	12,893	Open	16.1	270
10/12/2024	7:30:00	-0.4	0.000	1.1	12,893	Open	16	267
10/12/2024	7:45:00	-0.4	0.000	1.1	12,893	Open	15.9	267
10/12/2024	8:00:00	-0.4	0.318	1.1	12,894	Open	15.7	269
10/12/2024	8:15:00	-0.4	0.321	1.3	12,899	Open	15.7	270
10/12/2024	8:30:00	-0.4	0.314	0.8	12,903	Open	15.7	270
10/12/2024	8:45:00	-0.4	0.000	1	12,905	Open	15.7	269
10/12/2024	9:00:00	-0.4	0.000	2	12,905	Open	15.6	270
10/12/2024	9:15:00	-0.4	0.000	0.9	12,905	Open	15.6	271
10/12/2024	9:30:00	-0.4	0.318	0.7	12,907	Open	15.5	267
10/12/2024	9:45:00	-0.4	0.318	0.6	12,911	Open	15.6	267
10/12/2024	10:00:00	-0.4	0.000	0.6	12,914	Open	15.7	267
10/12/2024	10:15:00	-0.4	0.000	1	12,914	Open	15.8	269
10/12/2024	10:30:00	-0.4	0.000	0.3	12,914	Open	15.8	269
10/12/2024	10:45:00	-0.4	0.310	0.4	12,918	Open	15.9	269

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/12/2024	11:00:00	-0.4	0.321	0.6	12,923	Open	16.1	269
10/12/2024	11:15:00	-0.4	0.000	0.1	12,927	Open	16.2	267
10/12/2024	11:30:00	-0.4	0.000	0	12,927	Open	16.4	268
10/12/2024	11:45:00	-0.4	0.000	0.2	12,927	Open	16.5	269
10/12/2024	12:00:00	-0.4	0.000	0	12,927	Open	16.7	269
10/12/2024	12:15:00	-0.4	0.325	0	12,930	Open	16.8	268
10/12/2024	12:30:00	-0.4	0.336	1.1	12,935	Open	13.8	115
10/12/2024	12:45:00	-0.4	0.000	0	12,936	Open	13.8	116
10/12/2024	13:00:00	-0.4	0.000	0	12,936	Open	14.3	116
10/12/2024	13:15:00	-0.4	0.310	2.3	12,936	Open	13.4	116
10/12/2024	13:30:00	-0.4	0.321	2.2	12,941	Open	13.1	114
10/12/2024	13:45:00	-0.4	0.333	2.4	12,946	Open	13.1	114
10/12/2024	14:00:00	-0.4	0.000	0	12,948	Open	13.4	114
10/12/2024	14:15:00	-0.4	0.000	0	12,948	Open	14	115
10/12/2024	14:30:00	-0.4	0.000	0	12,948	Open	14.5	116

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/12/2024	14:45:00	-0.4	0.000	0	12,948	Open	15	252
10/12/2024	15:00:00	-0.4	0.314	2	12,951	Open	13.5	116
10/12/2024	15:15:00	-0.4	0.314	1.2	12,956	Open	13.5	116
10/12/2024	15:30:00	-0.4	0.329	1.3	12,961	Open	13.5	117
10/12/2024	15:45:00	-0.4	0.000	0	12,964	Open	13.7	116
10/12/2024	16:00:00	-0.4	0.000	0	12,964	Open	14.5	117
10/12/2024	16:15:00	-0.4	0.000	0	12,964	Open	14.9	116
10/12/2024	16:30:00	-0.4	0.000	0	12,964	Open	15.2	253
10/12/2024	16:45:00	-0.4	0.352	8.9	12,966	Open	13.8	114
10/12/2024	17:00:00	-0.4	0.336	9.9	12,971	Open	13.6	114
10/12/2024	17:15:00	-0.4	0.329	12.3	12,976	Open	13.5	114
10/12/2024	17:30:00	-0.4	0.000	4	12,978	Open	13.7	114
10/12/2024	17:45:00	-0.4	0.000	3.4	12,978	Open	14	113
10/12/2024	18:00:00	-0.4	0.284	9.3	12,978	Open	14.3	113
10/12/2024	18:15:00	-0.4	0.344	11.6	12,984	Open	13.3	113

FRONTIER-KEMPER MICHELS® joint venture		Eagle Mountain- Woodfibre Gas Pipeline Project- Tunnel Scope	
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Data Date Range	**October 7th to October 13th**	**Prepared by:** **Approved by:** **Date:**	**SD** **BC2** **October 25th**

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/12/2024	18:30:00	-0.4	0.000	4.4	12,989	Open	13.2	113
10/12/2024	18:45:00	-0.4	0.000	3.4	12,989	Closed	13.6	113
10/12/2024	19:00:00	-0.4	0.000	3.2	12,989	Open	13.8	112
10/12/2024	19:15:00	-0.4	0.329	6	12,993	Open	13	112
10/12/2024	19:30:00	-0.4	0.000	1.8	12,994	Open	13.3	113
10/12/2024	19:45:00	-0.4	0.310	5.6	12,994	Open	13.6	113
10/12/2024	20:00:00	-0.4	0.325	3.6	13,000	Open	12.9	113
10/12/2024	20:15:00	-0.4	0.321	3.9	13,005	Open	12.9	113
10/12/2024	20:30:00	-0.4	0.000	0.9	13,006	Open	13.1	113
10/12/2024	20:45:00	-0.4	0.000	0.3	13,006	Open	13.4	113
10/12/2024	21:00:00	-0.4	0.000	0.7	13,006	Open	13.7	113
10/12/2024	21:15:00	-0.4	0.318	2.5	13,011	Open	12.8	113
10/12/2024	21:30:00	-0.4	0.318	2.4	13,015	Open	12.7	113
10/12/2024	21:45:00	-0.4	0.000	0.4	13,017	Open	12.9	113
10/12/2024	22:00:00	-0.4	0.000	0	13,017	Open	13.2	112

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 (uS/cm)
10/12/2024	22:15:00	-0.4	0.000	0	13,017	Open	13.5	113
10/12/2024	22:30:00	-0.4	0.336	1.4	13,020	Open	12.6	113
10/12/2024	22:45:00	-0.4	0.325	1.7	13,025	Open	12.6	113
10/12/2024	23:00:00	-0.4	0.000	0.2	13,028	Open	12.7	113
10/12/2024	23:15:00	-0.4	0.000	0	13,028	Open	13	112
10/12/2024	23:30:00	-0.4	0.000	0	13,028	Open	13.2	112
10/12/2024	23:45:00	-0.4	0.310	0.8	13,031	Open	12.5	112
10/13/2024	0:00:00	-0.4	0.306	0.9	13,036	Open	12.4	113
10/13/2024	0:15:00	-0.4	0.000	0	13,040	Open	12.4	111
10/13/2024	0:30:00	-0.4	0.000	0	13,040	Open	12.8	111
10/13/2024	0:45:00	-0.4	0.000	0	13,040	Open	13	112
10/13/2024	1:00:00	-0.4	0.000	0	13,040	Open	13.2	112
10/13/2024	1:15:00	-0.4	0.318	0.8	13,043	Open	12.3	111
10/13/2024	1:30:00	-0.4	0.321	1.2	13,048	Open	12.3	111
10/13/2024	1:45:00	-0.4	0.299	0.8	13,053	Open	12.2	112

Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/13/2024	2:00:00	-0.4	0.000	0	13,054	Open	12.4	111
10/13/2024	2:15:00	-0.4	0.000	0	13,054	Open	12.7	111
10/13/2024	2:30:00	-0.4	0.000	0	13,054	Open	12.9	111
10/13/2024	2:45:00	-0.4	0.287	0.3	13,058	Open	12.1	111
10/13/2024	3:00:00	-0.4	0.302	0.2	13,063	Open	12.1	111
10/13/2024	3:15:00	-0.4	0.000	0	13,065	Open	12.2	111
10/13/2024	3:30:00	-0.4	0.000	0	13,065	Open	12.5	111
10/13/2024	3:45:00	-0.4	0.000	0	13,065	Open	12.7	111
10/13/2024	4:00:00	-0.4	0.310	0.1	13,068	Open	12	111
10/13/2024	4:15:00	-0.4	0.325	0.1	13,073	Open	12	112
10/13/2024	4:30:00	-0.4	0.000	0	13,077	Open	12	111
10/13/2024	4:45:00	-0.4	0.000	0	13,077	Open	12.3	111
10/13/2024	5:00:00	-0.4	0.000	0	13,077	Open	12.5	111
10/13/2024	5:15:00	-0.4	0.302	0.4	13,078	Open	12.3	111
10/13/2024	5:30:00	-0.4	0.310	0	13,083	Open	11.9	111

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 (uS/cm)
10/13/2024	5:45:00	-0.4	0.299	0	13,087	Open	11.9	112
10/13/2024	6:00:00	-0.4	0.000	0	13,088	Open	12.1	112
10/13/2024	6:15:00	-0.4	0.000	0	13,088	Open	12.4	111
10/13/2024	6:30:00	-0.4	0.000	0	13,088	Open	12.6	112
10/13/2024	6:45:00	-0.4	0.306	0	13,092	Open	11.8	111
10/13/2024	7:00:00	-0.4	0.295	0	13,097	Open	11.8	111
10/13/2024	7:15:00	-0.4	0.000	0	13,101	Open	11.9	111
10/13/2024	7:30:00	-0.4	0.000	0	13,101	Open	12.2	111
10/13/2024	7:45:00	-0.4	0.000	0	13,101	Open	12.4	110
10/13/2024	8:00:00	-0.4	0.000	0	13,101	Open	12.7	111
10/13/2024	8:15:00	-0.4	0.318	0	13,105	Open	11.8	111
10/13/2024	8:30:00	-0.4	0.321	0	13,110	Open	11.8	112
10/13/2024	8:45:00	-0.4	0.000	0	13,113	Open	11.9	111
10/13/2024	9:00:00	-0.4	0.000	0	13,113	Open	12.1	111
10/13/2024	9:15:00	-0.4	0.000	0	13,113	Open	12.5	111

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/13/2024	9:30:00	-0.4	0.325	0	13,116	Open	11.8	111
10/13/2024	9:45:00	-0.4	0.310	0	13,120	Open	11.8	111
10/13/2024	10:00:00	-0.4	0.000	0	13,125	Open	11.9	111
10/13/2024	10:15:00	-0.4	0.000	0	13,125	Open	12.2	111
10/13/2024	10:30:00	-0.4	0.000	0	13,125	Open	12.4	111
10/13/2024	10:45:00	-0.4	0.000	0	13,125	Open	12.6	111
10/13/2024	11:00:00	-0.4	0.302	0.2	13,127	Open	12.1	111
10/13/2024	11:15:00	-0.4	0.314	0.4	13,132	Open	12	111
10/13/2024	11:30:00	-0.4	0.321	1.4	13,136	Open	12	111
10/13/2024	11:45:00	-0.4	0.000	0	13,139	Open	12.2	111
10/13/2024	12:00:00	-0.4	0.000	0	13,139	Open	12.6	111
10/13/2024	12:15:00	-0.4	0.000	0	13,139	Open	12.9	112
10/13/2024	12:30:00	-0.4	0.318	0	13,141	Open	12.8	111
10/13/2024	12:45:00	-0.4	0.340	0	13,146	Open	13.2	113
10/13/2024	13:00:00	-0.4	0.306	0.4	13,151	Open	12.6	113

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 (uS/cm)
10/13/2024	13:15:00	-0.4	0.000	0	13,151	Open	12.9	113
10/13/2024	13:30:00	-0.4	0.000	0	13,151	Open	13.5	113
10/13/2024	13:45:00	-0.4	0.318	0.6	13,152	Open	13.1	113
10/13/2024	14:00:00	-0.4	0.355	0.4	13,157	Open	12.9	113
10/13/2024	14:15:00	-0.4	0.318	1	13,162	Open	12.9	113
10/13/2024	14:30:00	-0.4	0.000	0	13,163	Open	13.2	113
10/13/2024	14:45:00	-0.4	0.000	0	13,163	Open	13.6	113
10/13/2024	15:00:00	-0.4	0.000	0	13,163	Open	14	113
10/13/2024	15:15:00	-0.4	0.329	0.4	13,167	Open	13.2	114
10/13/2024	15:30:00	-0.4	0.314	0	13,172	Open	13.2	113
10/13/2024	15:45:00	-0.4	0.000	0	13,173	Open	13.5	113
10/13/2024	16:00:00	-0.4	0.000	0	13,173	Open	13.8	113
10/13/2024	16:15:00	-0.4	0.000	0	13,173	Open	14.1	113
10/13/2024	16:30:00	-0.4	0.321	0	13,178	Open	13.2	114
10/13/2024	16:45:00	-0.4	0.333	0	13,183	Open	13.2	113

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Date	Time	Discharge pH	Flow Rate (m3)	Discharge NTU	Flow Total (m3)	Discharge Valve Status	Discharge Temperature (°C)	Discharge Conductivity (uS/cm)
10/13/2024	17:00:00	-0.4	0.000	0	13,185	Open	13.4	113
10/13/2024	17:15:00	-0.4	0.000	0	13,185	Open	13.7	113
10/13/2024	17:30:00	-0.4	0.000	0	13,185	Open	13.9	113
10/13/2024	17:45:00	-0.4	0.321	0	13,188	Open	13.2	113
10/13/2024	18:00:00	-0.4	0.336	0	13,193	Open	13.1	113
10/13/2024	18:15:00	-0.4	0.000	0	13,197	Open	13.1	113
10/13/2024	18:30:00	-0.4	0.000	0	13,197	Open	13.4	112
10/13/2024	18:45:00	-0.4	0.000	0	13,197	Open	13.6	112
10/13/2024	19:00:00	-0.4	0.344	0	13,199	Open	13.1	112
10/13/2024	19:15:00	-0.4	0.348	0	13,204	Open	12.9	112
10/13/2024	19:30:00	-0.4	0.333	0	13,208	Open	12.9	112
10/13/2024	19:45:00	-0.4	0.000	0	13,209	Open	13.1	111
10/13/2024	20:00:00	-0.4	0.000	0	13,209	Open	13.3	111
10/13/2024	20:15:00	-0.4	0.000	0	13,209	Open	13.5	112
10/13/2024	20:30:00	-0.4	0.325	0	13,214	Open	12.8	112

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 (uS/cm)
10/13/2024	20:45:00	-0.4	0.336	0	13,218	Open	12.7	111
10/13/2024	21:00:00	-0.4	0.000	0	13,221	Open	12.8	111
10/13/2024	21:15:00	-0.4	0.000	0	13,221	Open	13	112
10/13/2024	21:30:00	-0.4	0.333	0	13,224	Open	12.7	112
10/13/2024	21:45:00	-0.4	0.340	0.7	13,229	Open	12.7	111
10/13/2024	22:00:00	-0.4	0.314	2	13,234	Open	12.7	111
10/13/2024	22:15:00	-0.4	0.000	0.2	13,235	Open	12.8	111
10/13/2024	22:30:00	-0.4	0.000	0	13,235	Open	13	111
10/13/2024	22:45:00	-0.4	0.325	3.4	13,240	Open	12.6	111
10/13/2024	23:00:00	-0.4	0.000	3.1	13,244	Open	12.6	111
10/13/2024	23:15:00	-0.4	0.000	2.6	13,244	Open	12.8	112
10/13/2024	23:30:00	-0.4	0.000	2.7	13,244	Open	13	111
10/13/2024	23:45:00	-0.4	0.333	6.5	13,248	Open	12.5	111

Appendix D: Woodfibre Site Receiving Environment Documentation

Woodfibre Site Receiving Environment Sample Analysis

TRITON	Sample ID	Reviewed and signed off by:			Farshad Shafiei Ph.D., R.P.Bio.	WLNG US1 (Upstream)	WLNG DS 1 (Downstream)	EAS DS 2 (FKM YSI at the bottom of the waterfall)	Sample or value notes	BCWQ FAL - Short Term	BCWQ FAL - Long Term	BCWQ MAL - Short Term	BCWQ MAL - Long Term
	LAB ID					VA24C6700-001	VA24C6700-002	VA24C6700-003					
	Date Sampled					07-Oct-2024	07-Oct-2024	07-Oct-2024					
	Time Sampled					10:35	12:07	13:25					
Analyte	Units	FAL-ST [1,2]	FAL-LT [1,2]	MAL-ST [1]	MAL-LT [1,2]	Water	Water	Water					
						N/A	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	6.83	6.85	7.64	The pH for the upstream and downstream locations is below the short-term and long-term BCWQG for MAL. However, this is due to natural variability.	If natural pH < 6.5, no statisticaly significant decrease from background. No restriction in increase except in areas with unique flora or fauna. Unrestricted change permitted within range of 6.5 to 9.0. If natural pH > 9.0, no statistically significant increase from background. Refer to BC Water Quality Guidelines for more information.		Unrestricted change within this range (for protection of mollusc embryo development).	
Temperature (field)	°C	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C [4] 5 week averages: US: 14.2 DS: 14.7	-	Short-term daily temperature guideline is 19°C for streams with unknown fish distribution Max +/- from BKG 1°C 4 5 week averages: US: 14.2 DS: 14.7	-	13.2	13.5	14.3		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	-	-	-	-	61	124	171					
Turbidity (field)	NTU	Varies with background, see note Guideline = 8.0	Varies with background, see note Guideline = 2.33 5-week discrete sampling average = 5.21 (DS)	Varies with background, see note Guideline = 8.0	Varies with background, see note Guideline = 2.33 5-week discrete sampling average = 5.21 (DS)	0.02	16.20	8.76	Turbidity at the downstream location exceeds the short-term and long-term BCWQG for FAL and MAL. The turbidity at the East Creek downstream location (FKM YSI at the bottom of the waterfall) also exceeds the short-term BCWQG for FAL and MAL.	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	9.47	9.61	-		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	-	-	-	-	16.3	43.6	65.7					
Total Dissolved Solids	mg/L	-	-	-	-	47	83	100					
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 = 5.26 (DS)	Varies with background, see note Guideline = 28	Varies with background, see note Guideline = 8.00 5-week discrete sampling average = 5.26 (DS)	< 3.0	12	7.1		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	-	-	-	-	2.81	1.1	1.68			Long-term (30-day) median within 20% of background median [3]		
Total Alkalinity ($CaCO_3$)	mg/L	-	Categorical	-	-	8.6	47.6	65.4	The upstream location has high sensitivity to acid inputs (i.e. low buffering capacity), while the downstream and East Creek locations have 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	< 0.0015	< 0.0015					
Total Sulfide (un-ionized as H_2S)	mg/L	-	0.002	-	-	< 0.0015	< 0.0015	< 0.0015			Working guideline		
Total Sulfide (as H_2S)	mg/L	-	-	-	-	< 0.0016	< 0.0016	< 0.0016					
Anions and Nutrients													
Ammonia	mg/L ammonia-N	Varies with pH and temperature. See note. Guideline = 22.3	Varies with pH and temperature. See note. Guideline = 1.79	Varies with pH and temperature. See note. Guideline = 92	Varies with pH, temperature and salinity. See note. Guideline = 14	< 0.0050	0.0054	< 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	< 0.050					
Chloride	mg/L	600	150	> 110% of background	< 90% of background	1.69	1.96	2.46				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 =0.605	-	1.5	-	0.022	0.153	0.107		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	0.229	0.0361	0.0706					
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	< 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	-	-	-	-	0.309	0.1	0.162					
Total Phosphorous	mg/L	-	0.005 to 0.015	-	-	0.0147	0.0123	0.0093			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	-	-	10.6	5.56	9.58			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 = 0.078 5-week field average = 0.056 (US), 0.216 (DS)	-	-	0.0683	*0.718*	0.271	Total aluminum exceeds the long-term BCWQG for FAL at the downstream location.		Guideline varies with pH, hardness and Dissolved Organic Carbon (DOC). Guideline is calculated with the following equation: Guideline = (EXP((0.645 * LN(DOC)) + (2.255 * LN(hardness)) + (1.995 * pH) + (-0.284 * (LN(hardness) * pH))-9.898)/3/1000) If hardness or DOC is below the hardness range, the minimum hardness or DOC will be applied in the calculation.		
Antimony (Sb)-Total	mg/L	0.25	0.074	-	-	< 0.00010	0.00034	0.00032					
Arsenic (As)-Total	mg/L	-	0.005	-	0.0125	0.00018	0.00111	0.00058					Interim guideline status
Barium (Ba)-Total	mg/L	-	1	-	-	0.00527	0.0164	0.0144			Working guideline status		
Beryllium (Be)-Total	mg/L	-	0.00013	-	0.100	< 0.000100	< 0.000100	< 0.000100			Working guideline status		Working guideline status
Bismuth (Bi)-Total	mg/L	-	-	-	-	< 0.000050	< 0.000050	< 0.000050					
Boron (B)-Total	mg/L	-	1.2	-	1.2	< 0.010	0.013	0.018					
Cadmium (Cd)-Total	mg/L	-	-	-	0.00012	0.000008	< 0.000020	0.0000159					Working guideline status
Calcium (Ca)-Total	mg/L	-	-	-	-	4.71	15.8	23.7					
Cesium (Cs)-Total	mg/L	-	-	-	-	0.000011	0.000083	0.000041					
Chromium (Cr) - Total	mg/L	-	-	-	-	< 0.00050	< 0.00050	< 0.00050					
Chromium (Cr(III))-Total	mg/L	-	0.0089	-	0.056	< 0.00050	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Chromium (Cr(VI))-Total	mg/L	-	0.0025	-	0.0015	< 0.00050	< 0.00050	< 0.00050			Working guideline status		Working guideline status
Cobalt (Co)-Total	mg/L	0.11	0.004	-	-	< 0.00010	0.00014	< 0.00010					
Copper (Cu)-Total	mg/L	-	-	0.003	0.002	0.00091	0.00144	0.0009					
Iron (Fe)-Total	mg/L	1	-	-	-	0.06	0.446	0.431					
Lead (Pb)-Total	mg/L	-	-	0.14	0.002	< 0.000050	0.00027	0.000207		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	0.0029	0.0019					
Magnesium (Mg)-Total	mg/L	-	-	-	-	1.1	1.02	1.58					
Manganese (Mn)-Total	mg/L	Varies with hardness Guideline = 0.82	Varies with hardness Guideline = 0.77	-	-	0.00238	0.0148	0.0336		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	< 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	-	-	0.000491	0.0128	0.00862					
Nickel (Ni)-Total	mg/L	-	-	-	0.0083	0.00055	< 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	< 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	-	-	-	-	0.478	1.32	1.22					
Rubidium (Rb)-Total	mg/L	-	-	-	-	0.00068	0.00294	0.00234					
Selenium (Se)-Total	mg/L	-	0.002	-	0.002	< 0.000050	< 0.000050	< 0.000050			Guideline for freshwater aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelens and sampling guidance.		Guideline for marine aquatic life (water column). Alert concentration is 0.001 mg/L, with separate guidelens for sediment, invertebrate and fish tissue. Refer to BC Water Quality Guidelines for more information on guidelens and sampling guidance.
Silicon (Si)-Total	mg/L	-	-	-	-	4.71	6.42	5.78					
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	< 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	-	-	-	-	2.61	3.51	3.94					
Strontium (Sr)-Total	mg/L	-	-	-	-	0.0181	0.0384	0.0679					
Sulfur (S)-Total	mg/L	-	-	-	-	3.29	1.46	3					
Tellurium (Te)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020	< 0.00020					
Thallium (Tl)-Total	mg/L	-	0.00003 5-week field average = < 0.000010 (US), 0.000050 (DS)	-	-	< 0.000010	*0.00002*	< 0.000010	Total thallium exceeds the long-term BCWQG for FAL at the downstream location.		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	0.0001	< 0.000010					
Tin (Sn)-Total	mg/L	-	-	-	-	< 0.00010	< 0.00010	< 0.00010					
Titanium (Ti)-Total	mg/L	-	-	-	-	0.00076	0.0228	0.00772					
Tungsten (W)-Total	mg/L	-	-	-	-	< 0.00010	0.00026	0.00019					
Uranium (U)-Total	mg/L	0.0165	0.0075	-	-	0.000096	0.00345	0.00143			Working guideline status		
Vanadium (V)-Total	mg/L	-	0.06	-	0.005	< 0.00050	0.001	0.00062					Working guideline status
Zinc (Zn)-Total	mg/L	-	-	0.055	0.01 5-week field average = 0.0063 (DS)	< 0.0030	0.0162	0.006					
Zirconium (Zr)-Total	mg/L	-	-	-	-	< 0.00020	< 0.00020	< 0.00020					
Dissolved Metals													
Aluminum (Al)-Dissolved	mg/L	-	-	-	-	0.0539	0.0249	0.0215					
Antimony (Sb)-Dissolved	mg/L	-	-	-	-	< 0.00010	0.00029	0.0003					
Arsenic (As)-Dissolved	mg/L	-	-	-	-	0.00016	0.00068	0.00043					
Barium (Ba)-Dissolved	mg/L	-	-	-	-	0.0049	0.0076	0.011					
Beryllium (Be)-Dissolved	mg/L	-	-	-	-	< 0.000100	< 0.000100	< 0.000100					
Bismuth (Bi)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050	< 0.000050					
Boron (B)-Dissolved	mg/L	-	-	-	-	< 0.010	0.012	0.016					
Cadmium (Cd)-Dissolved	mg/L	Varies with hardness, see note Guideline = 0.000091	Varies with hardness, see note Guideline = 0.000043	-	-	0.0000064	< 0.0000100	< 0.0000100		Guideline is hardness dependent. Guideline is appilcable to water hardness between 7.0 and 455 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(1.03 * (LN(hardness)) - 5.274)/1000) Lowest value for guideline is 0.000018 mg/L. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.	Guideline is hardness dependent. Guideline is applicable to hardness between 3.4 and 285 mg/L. Guideline is calculated with the following formula: Guideline = (EXP(0.736 * (LN(hardness)) - 4.943)/1000) Lowest value for guieedline is 0.00004. If hardness is below the hardness range, the minimum hardness will be applied in the calculation.		
Calcium (Ca)-Dissolved	mg/L	-	Categorical, see note	-	-	4.6	15.6	22.8	The upstream has moderate sensitivity to acid inputs (i.e. moderate buffering capacity), while the East Creek downstream and downstream locations have low sensitivity (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	-	-	-	-	0.00001	0.000026	0.000021					
Chromium (Cr)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050	< 0.00050					
Cobalt (Co)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010	< 0.00010					
Copper (Cu)-Dissolved	mg/L	Guideline varies with other parameters, see note Guideline = 0.0016	Guideline varies with other parameters, see note Guideline = 0.0004 5-week field average = 0.0006 (US), 0.0004 (DS)	-	-	*0.00088*	0.00034	0.00048	Dissolved copper at the upstream location exceeds long-term BCWQG for FAL. This is the background site and naturally occurring, not due to project activities.	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date	Guideline varies with other parameters and is calculated using BC BLM software. Simplified model: Temperature, pH, DOC and hardness Detailed model: Temperature, pH, DOC, humic acid content, total calcium, total magnesium, total sodium, total potassium, sulphate, chloride, and alkalinity Guideline calculated using values for parameters above taken at the specific site on each sampling date		
Iron (Fe)-Dissolved	mg/L	0.35	-	-	-	0.04	0.013	0.016					
Lead (Pb)-Dissolved	mg/L	-	Guideline varies with DOC and hardness Guideline: 0.00202 5-week field average = 0.00005 (US), 0.00005 (DS)	-	-	< 0.000050	< 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	0.0026	0.0018					
Magnesium (Mg)-Dissolved	mg/L	-	-	-	-	1.06	0.896	1.53					
Manganese (Mn)-Dissolved	mg/L	-	-	-	-	0.00174	0.00616	0.0165					
Mercury (Hg)-Dissolved	mg/L	-	-	-	-	< 0.0000050	< 0.0000050	< 0.0000050					
Molybdenum (Mo)-Dissolved	mg/L	-	-	-	-	0.000503	0.0121	0.00792					
Nickel (Ni)-Dissolved	mg/L	Guideline varies with pH, temperature, DOC, and hardness Guideline: 0.0172	Guideline varies with pH, temperature, DOC, and hardness Guideline: 0.00115 5-week field average = 0.0005 (US), 0.0005 (DS)	-	-	0.00054	< 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	< 0.050					
Potassium (K)-Dissolved	mg/L	-	-	-	-	0.462	1.16	1.15					
Rubidium (Rb)-Dissolved	mg/L	-	-	-	-	0.00068	0.00238	0.00214					
Selenium (Se)-Dissolved	mg/L	-	-	-	-	< 0.000050	< 0.000050	< 0.000050					
Silicon (Si)-Dissolved	mg/L	-	-	-	-	4.44	5.38	5.34					
Silver (Ag)-Dissolved	mg/L	-	-	-	-	< 0.000010	< 0.000010	< 0.000010					
Sodium (Na)-Dissolved	mg/L	-	-	-	-	2.69	3.57	3.97					
Strontium (Sr)-Dissolved	mg/L	-	-	-	-	0.0198	0.0367	0.0653					
Sulfur (S)-Dissolved	mg/L	-	-	-	-	3.3	1.86	3.42					
Tellurium (Te)-Dissolved	mg/L	-	-	-	-	< 0.00020	< 0.00020	< 0.00020					
Thallium (Tl)-Dissolved	mg/L	-	-	-	-	< 0.000010	0.000010	0.000010					
Thorium (Th)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010	< 0.00010					
Tin (Sn)-Dissolved	mg/L	-	-	-	-	< 0.00010	< 0.00010	< 0.00010					
Titanium (Ti)-Dissolved	mg/L	-	-	-	-	< 0.00030	< 0.00030	< 0.00030					
Tungsten (W)-Dissolved	mg/L	-	-	-	-	< 0.00010	0.00022	0.00015					
Uranium (U)-Dissolved	mg/L	-	-	-	-	0.00009	0.00168	0.00111					
Vanadium (V)-Dissolved	mg/L	-	-	-	-	< 0.00050	< 0.00050	< 0.00050					
Zinc (Zn)-Dissolved	mg/L	Varies with DOC and hardness Guideline = 0.011	Varies with pH, DOC, hardness Guideline = 0.0042	-	-	0.0012	0.0114	0.0039	Dissolved zinc slightly exceeds the short-term BCWQG for FAL at the downstream location. However, this exceedance was already reported on October 7th EOP data.	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	< 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)	Values: EAS DS 2 (FKM YSI at the bottom of the waterfall)
pH (field)	pH units	Field pH taken using handheld meters during sampling used in calculations				6.83	6.85	7.64
Temperature (field)	°C	Field temperature taken using handheld meters during sampling used in calculations				13.2	13.5	14.3
Turbidity (field)	NTU	Field turbidity taken using handheld meters during sampling used in calculations				0.02	16.20	8.76
Hardness (as CaCO3) (total)	mg/L	aboratory tested total hardness taken at each respective sample site on the day of sampling used in guideline calculatior				16.3	43.6	65.7
Dissolved Organic Carbon (DOC)	mg/L	Laboratory tested dissolved organic carbon tested at the lab used in guideline calculations				2.81	1.1	1.68
Total Alkalinity ($CaCO_3$)	mg/L	Laboratory tested total alkalinity used in calculations				8.6	47.6	65.4
Chloride	mg/L	Laboratory tested chloride taken at each respective sample site on the day of sampling used in guideline calculations				1.69	1.96	2.46

Woodfibre Site Receiving Environment Lab Documentation

CERTIFICATE OF ANALYSIS

Work Order	:	**VA24C6700**			
Client	:	**Triton Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Farshad Shafiei	Account Manager	:	Can Dang
Address	:	Suite 1730, 1111 West Georgia St Vancouver British Columbia Canada V6E 4M3	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	:	+1 604 253 4188
Project	:	11964	Date Samples Received	:	07-Oct-2024 17:50
PO	:	11964-Task20-Phase 3C-4C	Date Analysis Commenced	:	08-Oct-2024
C-O-C number	:	----	Issue Date	:	17-Oct-2024 08:15
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*
Erin Sanchez		Metals, Burnaby, British Columbia
Ghazaleh Khanmirzaei	Analyst	Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kelly Fischer	Technical Specialist	Inorganics, Waterloo, Ontario
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Owen Cheng		Metals, Burnaby, British Columbia
Paolo Obillo	Account Manager Assistant	Administration, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

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

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

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

Qualifiers

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

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		WLNG US 1	WLNG DS 1	EAS DS 2	----	----
			Client sampling date / time		07-Oct-2024 10:35	07-Oct-2024 12:07	07-Oct-2024 13:25	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	VA24C6700-001	VA24C6700-002	VA24C6700-003	----	----
					Result	Result	Result	----	----
Field Tests									
Conductivity, field	----	EF001/VA	0.10	µS/cm	61.000	124.00	171.00	----	----
pH, field	----	EF001/VA	0.10	pH units	6.83	6.85	7.64	----	----
Temperature, field	----	EF001/VA	0.10	°C	13.2	13.5	14.3	----	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	15.8	42.6	63.2	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	16.3	43.6	65.7	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	47	83	100	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	12.0	7.1	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	8.6	47.6	65.4	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	0.0054	<0.0050	----	----
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	1.69	1.96	2.46	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.022	0.153	0.107	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.229	0.0361	0.0706	----	----
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	0.309	0.100	0.162	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	0.0147	0.0123	0.0093	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	10.6	5.56	9.58	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	2.81	1.10	1.68	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	EAS DS 2	----	----
					Client sampling date / time	07-Oct-2024 10:35	07-Oct-2024 12:07	07-Oct-2024 13:25	----	----
						VA24C6700-001	VA24C6700-002	VA24C6700-003	----	----
						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		0.0683	0.718	0.271	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	0.00034	0.00032	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00018	0.00111	0.00058	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00527	0.0164	0.0144	----	----
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	0.013	0.018	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000080	<0.0000200 DLM	0.0000159	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		4.71	15.8	23.7	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000011	0.000083	0.000041	----	----
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		<0.00010	0.00014	<0.00010	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00091	0.00144	0.00090	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.060	0.446	0.431	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	0.000270	0.000207	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		<0.0010	0.0029	0.0019	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		1.10	1.02	1.58	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	EAS DS 2	----	----
					Client sampling date / time	07-Oct-2024 10:35	07-Oct-2024 12:07	07-Oct-2024 13:25	----	----
						VA24C6700-001	VA24C6700-002	VA24C6700-003	----	----
						Result	Result	Result	----	----
Total Metals										
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00238	0.0148	0.0336	----	----
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		0.000491	0.0128	0.00862	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00055	<0.00050	<0.00050	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.478	1.32	1.22	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00068	0.00294	0.00234	----	----
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		4.71	6.42	5.78	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		2.61	3.51	3.94	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0181	0.0384	0.0679	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		3.29	1.46	3.00	----	----
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	0.000020	<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		0.00076	0.0228	0.00772	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	0.00026	0.00019	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000096	0.00345	0.00143	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	0.00100	0.00062	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	EAS DS 2	----	----
					Client sampling date / time	07-Oct-2024 10:35	07-Oct-2024 12:07	07-Oct-2024 13:25	----	----
						VA24C6700-001	VA24C6700-002	VA24C6700-003	----	----
						Result	Result	Result	----	----
Total Metals										
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	0.0162	0.0060	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0539	0.0249	0.0215	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	0.00029	0.00030	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00016	0.00068	0.00043	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00490	0.00760	0.0110	----	----
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	0.012	0.016	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.0000064	<0.0000100 DLM	<0.0000100 DLM	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		4.60	15.6	22.8	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000010	0.000026	0.000021	----	----
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		0.00088	0.00034	0.00048	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.040	0.013	0.016	----	----
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		<0.0010	0.0026	0.0018	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		1.06	0.896	1.53	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00174	0.00616	0.0165	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	EAS DS 2	----	----
					Client sampling date / time	07-Oct-2024 10:35	07-Oct-2024 12:07	07-Oct-2024 13:25	----	----
						VA24C6700-001	VA24C6700-002	VA24C6700-003	----	----
						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		0.000503	0.0121	0.00792	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.00054	<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		0.462	1.16	1.15	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00068	0.00238	0.00214	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	0.000060	<0.000050	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		4.44	5.38	5.34	----	----
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		2.69	3.57	3.97	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0198	0.0367	0.0653	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		3.30	1.86	3.42	----	----
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		<0.00030	<0.00030	<0.00030	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	0.00022	0.00015	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000090	0.00168	0.00111	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.0012	0.0114	0.0039	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	WLNG US 1	WLNG DS 1	EAS DS 2	----	----
					Client sampling date / time	07-Oct-2024 10:35	07-Oct-2024 12:07	07-Oct-2024 13:25	----	----
						VA24C6700-001	VA24C6700-002	VA24C6700-003	----	----
						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	Field	Field	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	----	----
Speciated Metals										
Chromium, hexavalent [Cr VI], total	18540-29-9	E532/WT	0.00050	mg/L		<0.00050	<0.00050	<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	: **VA24C6700**	Page	: 1 of 16
Client	: **Triton Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Farshad Shafiei	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 07-Oct-2024 17:50
PO	: 11964-Task20-Phase 3C-4C	Issue Date	: 17-Oct-2024 08:15
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 Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) EAS DS 2	E298	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	12-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG DS 1	E298	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	12-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WLNG US 1	E298	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	12-Oct-2024	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE EAS DS 2	E235.Br-L	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG DS 1	E235.Br-L	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WLNG US 1	E235.Br-L	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE EAS DS 2	E235.Cl	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WLNG DS 1	E235.Cl	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WLNG US 1	E235.Cl	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
EAS DS 2	E235.F	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WLNG DS 1	E235.F	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WLNG US 1	E235.F	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
EAS DS 2	E235.NO3-L	07-Oct-2024	08-Oct-2024	3 days	1 days	✓	08-Oct-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO3-L	07-Oct-2024	08-Oct-2024	3 days	1 days	✓	08-Oct-2024	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO3-L	07-Oct-2024	08-Oct-2024	3 days	1 days	✓	08-Oct-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
EAS DS 2	E235.NO2-L	07-Oct-2024	08-Oct-2024	3 days	1 days	✓	08-Oct-2024	3 days	1 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG DS 1	E235.NO2-L	07-Oct-2024	08-Oct-2024	3 days	1 days	✓	08-Oct-2024	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WLNG US 1	E235.NO2-L	07-Oct-2024	08-Oct-2024	3 days	1 days	✓	08-Oct-2024	3 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
EAS DS 2	E235.SO4	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG DS 1	E235.SO4	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WLNG US 1	E235.SO4	07-Oct-2024	08-Oct-2024	28 days	1 days	✓	08-Oct-2024	28 days	1 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
EAS DS 2	E366	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG DS 1	E366	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
WLNG US 1	E366	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
EAS DS 2	E372-U	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG DS 1	E372-U	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
WLNG US 1	E372-U	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
EAS DS 2	E509	07-Oct-2024	16-Oct-2024	28 days	9 days	✓	16-Oct-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG DS 1	E509	07-Oct-2024	16-Oct-2024	28 days	9 days	✓	16-Oct-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WLNG US 1	E509	07-Oct-2024	16-Oct-2024	28 days	9 days	✓	16-Oct-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
EAS DS 2	E421	07-Oct-2024	15-Oct-2024	180 days	8 days	✓	15-Oct-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG DS 1	E421	07-Oct-2024	15-Oct-2024	180 days	8 days	✓	15-Oct-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WLNG US 1	E421	07-Oct-2024	15-Oct-2024	180 days	8 days	✓	15-Oct-2024	180 days	8 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)										
EAS DS 2	EF001	07-Oct-2024	----	----	----		10-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 - total (lab preserved) WLNG DS 1	EF001	07-Oct-2024	----	----	----		10-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 - total (lab preserved) WLNG US 1	EF001	07-Oct-2024	----	----	----		10-Oct-2024	----	3 days	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) EAS DS 2	E358-L	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WLNG DS 1	E358-L	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WLNG US 1	E358-L	07-Oct-2024	10-Oct-2024	28 days	3 days	✓	11-Oct-2024	28 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE EAS DS 2	E290	07-Oct-2024	08-Oct-2024	14 days	1 days	✓	08-Oct-2024	14 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG DS 1	E290	07-Oct-2024	08-Oct-2024	14 days	1 days	✓	08-Oct-2024	14 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WLNG US 1	E290	07-Oct-2024	08-Oct-2024	14 days	1 days	✓	08-Oct-2024	14 days	1 days	✓
Physical Tests : TDS by Gravimetry										
HDPE EAS DS 2	E162	07-Oct-2024	----	----	----		11-Oct-2024	7 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG DS 1	E162	07-Oct-2024	----	----	----		11-Oct-2024	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WLNG US 1	E162	07-Oct-2024	----	----	----		11-Oct-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
EAS DS 2	E160	07-Oct-2024	----	----	----		11-Oct-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG US 1	E160	07-Oct-2024	----	----	----		11-Oct-2024	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
WLNG DS 1	E160	07-Oct-2024	----	----	----		15-Oct-2024	7 days	8 days	× EHT
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
EAS DS 2	E532	07-Oct-2024	----	----	----		10-Oct-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG DS 1	E532	07-Oct-2024	----	----	----		10-Oct-2024	28 days	3 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
WLNG US 1	E532	07-Oct-2024	----	----	----		10-Oct-2024	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
EAS DS 2	E508	07-Oct-2024	15-Oct-2024	28 days	8 days	✓	15-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)										
WLNG DS 1	E508	07-Oct-2024	15-Oct-2024	28 days	8 days	✓	15-Oct-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
WLNG US 1	E508	07-Oct-2024	15-Oct-2024	28 days	9 days	✓	15-Oct-2024	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
EAS DS 2	E420	07-Oct-2024	16-Oct-2024	180 days	9 days	✓	16-Oct-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG DS 1	E420	07-Oct-2024	16-Oct-2024	180 days	9 days	✓	16-Oct-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WLNG US 1	E420	07-Oct-2024	16-Oct-2024	180 days	9 days	✓	16-Oct-2024	180 days	9 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
EAS DS 2	E395	07-Oct-2024	----	----	----		08-Oct-2024	7 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG DS 1	E395	07-Oct-2024	----	----	----		08-Oct-2024	7 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
WLNG US 1	E395	07-Oct-2024	----	----	----		08-Oct-2024	7 days	1 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1696779	1	14	7.1	5.0	✓
Ammonia by Fluorescence	E298	1702806	1	11	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1696784	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1696780	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1710907	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701933	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1702802	1	4	25.0	5.0	✓
Fluoride in Water by IC	E235.F	1696783	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1696781	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1696785	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1696782	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1704935	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1710213	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701852	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1702799	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1702803	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1697232	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1704924	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1696779	1	14	7.1	5.0	✓
Ammonia by Fluorescence	E298	1702806	1	11	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1696784	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1696780	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1710907	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701933	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1702802	1	4	25.0	5.0	✓
Fluoride in Water by IC	E235.F	1696783	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1696781	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1696785	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1696782	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1704935	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1710213	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701852	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1702799	1	12	8.3	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1702803	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1697232	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1704924	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1696779	1	14	7.1	5.0	✓
Ammonia by Fluorescence	E298	1702806	1	11	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1696784	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1696780	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1710907	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701933	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1702802	1	4	25.0	5.0	✓
Fluoride in Water by IC	E235.F	1696783	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1696781	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1696785	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1696782	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1704935	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1710213	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701852	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1702799	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1702803	1	11	9.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1697232	1	11	9.0	5.0	✓
TSS by Gravimetry	E160	1704924	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1702806	1	11	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1696784	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	1696780	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1710907	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1701933	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1702802	1	4	25.0	5.0	✓
Fluoride in Water by IC	E235.F	1696783	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1696781	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1696785	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1696782	1	18	5.5	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	1702038	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1710213	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1701852	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	1702799	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1702803	1	11	9.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1697232	1	11	9.0	5.0	✓

Methodology References and Summaries

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

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

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

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

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

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

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **VA24C6700**	Page	: 1 of 17
Client	: Triton Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Farshad Shafiei	Account Manager	: Can Dang
Address	: Suite 1730, 1111 West Georgia St Vancouver BC Canada V6E 4M3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 11964	Date Samples Received	: 07-Oct-2024 17:50
PO	: 11964-Task20-Phase 3C-4C	Date Analysis Commenced	: 08-Oct-2024
C-O-C number	: ----	Issue Date	: 17-Oct-2024 08:15
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*
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Ghazaleh Khanmirzaei	Analyst	Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kelly Fischer	Technical Specialist	Waterloo Inorganics, Waterloo, Ontario
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Paolo Obillo	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1696779)											
VA24C6393-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	214	215	0.233%	20%	----
Physical Tests (QC Lot: 1704924)											
VA24C6685-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	8.1	5.9	2.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1704935)											
VA24C6685-001	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	16100	16400	1.90%	20%	----
Anions and Nutrients (QC Lot: 1696780)											
VA24C6392-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	70.8	70.9	0.0902%	20%	----
Anions and Nutrients (QC Lot: 1696781)											
VA24C6392-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	33.9	34.0	0.224%	20%	----
Anions and Nutrients (QC Lot: 1696782)											
VA24C6392-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	149	148	0.0796%	20%	----
Anions and Nutrients (QC Lot: 1696783)											
VA24C6392-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.241	0.248	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1696784)											
VA24C6392-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1696785)											
VA24C6392-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	1.83	1.78	2.70%	20%	----
Anions and Nutrients (QC Lot: 1702799)											
VA24C6486-001	Anonymous	Nitrogen, total	7727-37-9	E366	0.600	mg/L	22.0	23.0	4.54%	20%	----
Anions and Nutrients (QC Lot: 1702803)											
VA24C6502-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.433	0.432	0.252%	20%	----
Anions and Nutrients (QC Lot: 1702806)											
VA24C6475-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	2.50	mg/L	71.7	71.4	0.309%	20%	----
Organic / Inorganic Carbon (QC Lot: 1702802)											
VA24C6700-001	WLNG US 1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.81	2.95	0.13	Diff <2x LOR	----
Total Sulfides (QC Lot: 1697232)											
VA24C6185-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1701852)											
VA24C6444-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0713	0.0732	2.56%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1701852) - continued											
VA24C6444-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00078	0.00079	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.00954	0.00946	0.884%	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	0.0000061	0.0000055	0.0000006	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	14.0	13.9	0.994%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000010	<0.000010	0.00000007	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.383	0.392	2.19%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	3.20	3.35	4.81%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0257	0.0261	1.66%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000734	0.000705	3.93%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	0.789	0.788	0.0006	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00058	0.00058	0.000005	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000064	0.000061	0.000002	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6.28	6.52	3.72%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	3.37	3.44	2.17%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0880	0.0886	0.673%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	0.73	0.74	0.008	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	0.00231	0.00242	0.00012	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	0.000119	0.000120	0.977%	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: 1701852) - continued											
VA24C6444-001	Anonymous	Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00071	0.00073	0.00002	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: 1710213)											
VA24C6418-005	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1701933)											
VA24C6584-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0013	0.0012	0.00007	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	0.00409	0.00414	1.32%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0570	0.0565	0.895%	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	0.057	0.058	0.0009	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000300	mg/L	<0.0000300	<0.0000300	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	161	161	0.128%	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	0.00022	0.00024	0.00001	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00148	0.00148	0.000003	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.013	0.013	0.0001	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	0.0037	0.0037	0.000004	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	63.6	64.2	1.03%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0295	0.0297	0.737%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0400	0.0406	1.54%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00059	0.00060	0.00001	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.093	0.086	0.007	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	8.30	8.05	3.11%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00070	0.00074	0.00004	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	12.8	12.5	1.83%	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	61.4	60.9	0.845%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.899	0.924	2.77%	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: 1701933) - continued											
VA24C6584-001	Anonymous	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	188	182	3.41%	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	0.000003	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00976	0.00980	0.322%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00556	0.00561	0.896%	20%	----
		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: 1710907)											
VA24C6512-012	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1702038)											
KS2404126-001	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: 1696779)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1704924)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1704935)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1696780)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1696781)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1696782)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1696783)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1696784)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1696785)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1702799)						
Nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 1702803)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1702806)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1702802)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1697232)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1701852)						
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: 1701852) - 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: 1710213)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1701933)						
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: 1701933) - 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: 1710907)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1702038)						
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: 1696779)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1704924)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1704935)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 1696780)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1696781)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1696782)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1696783)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1696784)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	99.8	85.0	115	----
Anions and Nutrients (QCLot: 1696785)									
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: 1702799)									
Nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	96.7	75.0	125	----
Anions and Nutrients (QCLot: 1702803)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	90.6	80.0	120	----
Anions and Nutrients (QCLot: 1702806)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.8	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1702802)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	95.0	80.0	120	----
Total Sulfides (QCLot: 1697232)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	100	80.0	120	----
Total Metals (QCLot: 1701852)									

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: 1701852) - continued									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	105	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	99.6	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	92.9	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	98.0	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	98.7	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.0	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	94.0	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.3	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	98.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	96.4	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	99.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	103	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.8	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	98.8	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.7	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	95.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	90.4	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	95.9	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	93.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.7	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	92.4	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	93.2	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	98.6	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	91.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	93.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1701852) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.8	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Total Metals (QCLot: 1710213)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	99.8	80.0	120	----
Dissolved Metals (QCLot: 1701933)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	99.7	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	93.8	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	94.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	88.6	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	97.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	99.7	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.9	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.6	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	96.9	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.5	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.4	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.2	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.9	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.4	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	97.8	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	93.3	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	97.6	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1701933) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	94.2	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.9	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	86.3	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	96.5	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	92.0	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.8	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.6	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	95.6	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.8	80.0	120	----
Speciated Metals (QCLot: 1702038)									
Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.025 mg/L	94.3	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1696780)										
VA24C6393-001	Anonymous	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1696781)										
VA24C6393-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.62 mg/L	2.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1696782)										
VA24C6393-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1696783)										
VA24C6393-001	Anonymous	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1696784)										
VA24C6393-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.525 mg/L	0.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1696785)										
VA24C6393-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.509 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1702799)										
VA24C6489-001	Anonymous	Nitrogen, total	7727-37-9	E366	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1702803)										
VA24C6600-003	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0458 mg/L	0.05 mg/L	91.6	70.0	130	----
Anions and Nutrients (QCLot: 1702806)										
VA24C6502-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1702802)										
VA24C6700-002	WLNG DS 1	Carbon, dissolved organic [DOC]	----	E358-L	4.95 mg/L	5 mg/L	98.9	70.0	130	----
Total Sulfides (QCLot: 1697232)										
VA24C6337-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.196 mg/L	0.2 mg/L	98.2	75.0	125	----
Total Metals (QCLot: 1701852)										
VA24C6444-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Barium, total	7440-39-3	E420	0.0172 mg/L	0.02 mg/L	86.2	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00912 mg/L	0.01 mg/L	91.2	70.0	130	----
		Boron, total	7440-42-8	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00944 mg/L	0.01 mg/L	94.4	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0396 mg/L	0.04 mg/L	99.0	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: 1701852) - continued										
VA24C6444-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Iron, total	7439-89-6	E420	1.74 mg/L	2 mg/L	87.2	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	0.0955 mg/L	0.1 mg/L	95.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0390 mg/L	0.04 mg/L	97.5	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.11 mg/L	10 mg/L	91.1	70.0	130	----
		Potassium, total	7440-09-7	E420	3.85 mg/L	4 mg/L	96.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0361 mg/L	0.04 mg/L	90.3	70.0	130	----
		Silicon, total	7440-21-3	E420	8.23 mg/L	10 mg/L	82.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.00389 mg/L	0.004 mg/L	97.3	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	18.4 mg/L	20 mg/L	92.3	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	0.00364 mg/L	0.004 mg/L	91.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Tin, total	7440-31-5	E420	0.0186 mg/L	0.02 mg/L	93.0	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0293 mg/L	0.04 mg/L	73.2	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0178 mg/L	0.02 mg/L	89.1	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00365 mg/L	0.004 mg/L	91.3	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0995 mg/L	0.1 mg/L	99.5	70.0	130	----
		Zinc, total	7440-66-6	E420	0.390 mg/L	0.4 mg/L	97.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
Total Metals (QCLot: 1710213)										
VA24C6418-006	Anonymous	Mercury, total	7439-97-6	E508	0.0000982 mg/L	0 mg/L	98.2	70.0	130	----
Dissolved Metals (QCLot: 1701933)										
VA24C6584-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.6	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0207 mg/L	0.02 mg/L	103	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	94.7	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00894 mg/L	0.01 mg/L	89.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.094 mg/L	0.1 mg/L	93.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00368 mg/L	0.004 mg/L	92.0	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00992 mg/L	0.01 mg/L	99.2	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1701933) - continued										
VA24C6584-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0179 mg/L	0.02 mg/L	89.7	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.0	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0179 mg/L	0.02 mg/L	89.6	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	ND mg/L	----	ND	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.3 mg/L	10 mg/L	103	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00388 mg/L	0.004 mg/L	97.0	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	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00356 mg/L	0.004 mg/L	88.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0198 mg/L	0.02 mg/L	99.3	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0185 mg/L	0.02 mg/L	92.6	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	0.377 mg/L	0.4 mg/L	94.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 1710907)										
VA24C6633-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000993 mg/L	0 mg/L	99.3	70.0	130	----
Speciated Metals (QCLot: 1702038)										
KS2404126-001	Anonymous	Chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0386 mg/L	0.04 mg/L	96.6	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

Regular TAT

Report To	Contact and company name below will appear on the final report
Company:	Triton Environmental
Contact:	Farshad Shafiei
Phone:	306-715-1660
	Company address below will appear on the final report
Street:	1730-1111 West Georgia Street
City/Province:	Vancouver/BC
Postal Code:	V6E 4M3
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	☑ 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	farshad.shafiei@triton-env.com, Default list
Email 2	achan@triton-env.com; lily.chycoski@triton-env.com
Email 3	ESdat_CA+tritonenv@ESdatLabSync.net

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

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:** Can Dang	**Sampler:**

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: ~~Oct 7 2024~~

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

Analysis Request

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

		F						P	P			F/P							
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
	WLNG US 1	07-OCT-24	10:35	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.83 cond: 61 µS/cm temp: 13.2 °C																					
	WLNG DS 1	07-OCT-24	12:07	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.85 cond: 124 µS/cm temp: 13.5 °C																					
	EAS DS 2	07-OCT-24	13:24	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.64 cond: 171 µS/cm temp: 14.3 °C																					

Environmental Division Vancouver
Work Order Reference
VA24C6700

Telephone : +1 604 253 4188

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

SAMPLE CONDITION AS RECEIVED (lab use only)

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

INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C				
					17°				

SHIPMENT RELEASE (client use)				FINAL SHIPMENT RECEPTION (lab use only)			
Released by: Lily Chycoski	07-OCT-24	Time:	Received by:	Time:	Received by: DS	Date: 7-OCT	Time: 5:50pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

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

Regular TAT

Report To	Contact and company name below will appear on the final report
Company:	Triton Environmental
Contact:	Farshad Shafiei
Phone:	306-715-1660
	Company address below will appear on the final report
Street:	1730-1111 West Georgia Street
City/Province:	Vancouver/BC
Postal Code:	V6E 4M3
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ 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: farshad.shafiei@triton-env.com, Default list
Email 2: achan@triton-env.com; lily.chycoski@triton-env.com
Email 3: ESdat_CA+tritonenv@ESdatLabSync.net

Invoice Distribution

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

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

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

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

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

Date and Time Required for all E&P TATs: [illegible] 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: Can Dang	Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Total metals + mercury	Dissolved metals + mercury	Total hexavalent chromium	Total trivalent chromium	TSS	TDS	Nutrients (ammonia, ammonium, total nitrogen, total phosphorus)	Total sulfide (low) (as H2S), Unionized Sulfide (low)	Anions scan (Br, Cl, F, NO2, NO3, SO4)	General parameters (alkalinity)	DOC					SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
						F					P	P			F/P							
	WLNG US 1	07-OCT-24	10:35	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.83 cond: 61 µS/cm temp: 13.2 °C																					
	WLNG DS 1	07-OCT-24	12:07	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 6.85 cond: 124 µS/cm temp: 13.5 °C																					
	EAS DS 2	07-OCT-24	13:24	Water	R	R	R	R	R	R	R	R	R	R	R						N	9
	pH: 7.64 cond: 171 µS/cm temp: 14.3 °C																					

Environmental Division
Vancouver
Work Order Reference
VA24C6700

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 (ele

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			
						17°	

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:	Received by:	Date:	Time:
Lily Chycoski	07-OCT-24				

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
DS	7-OCT	5:50pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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

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

Woodfibre Site Receiving Environment Field Notes and Logs

FortisBC Eagle Mountain-Woodfibre Gas Pipeline

Water Discharge Authorization Water Quality Monitoring

2024-10-7-Chycoski-B5C3D

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Downstream of Discharge
Inspection Date:	10/07/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669290 -123.248057
Temperature(c):	Low 14 High 20	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 12:07:00 **Flow Volume (visual):** low

Notes: A second DS sample (EAS DS 2) was taken at previous sonde location (49.668718, -123.248596) as Fortis requested for a receiving environment sample. Taken at 13:24, pH was 7.64, temp was 14.3, conductivity was 171, and turbidity was 8.76.

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 DS 1

Description: US view

Photo: 2

Location: EAS DS 1

Description: Across view

Photos

Photo: 3

Location: EAS DS 1

Description: DS view

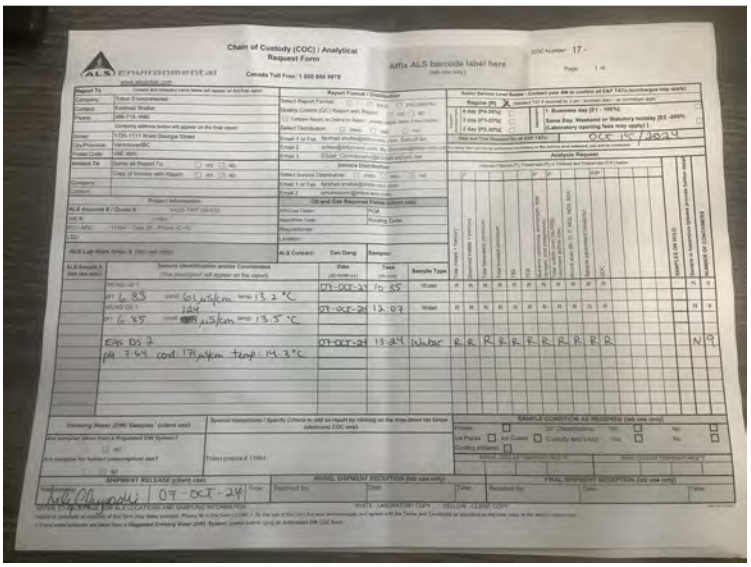

Photo: 4

Location: EAS DS 1

Description: Lab COC

Photos

Photo: 5

Location: EAS DS 2

Description: US view

Photo: 6

Location: EAS DS 2

Description: Across view

Photos

Photo: 7

Location: EAS DS 2

Description: DS view

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

2024-10-7-Chycoski-41514

Project Component:	Tunnel	**Site Name:**	Receiving Environment - Upstream of Discharge
Inspection Date:	10/07/2024	**Location:**	WLNG
Triton QP:	Lily Chycoski	**Latitude/Longitude:**	49.669455 -123.25087
Temperature(c):	Low 14 High 20	**Permit:**	PE 110136
Weather Conditions:	Overcast	**Ground Conditions:**	Dry

Observations

Time: 10:35:00 **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

Photos

Photo: 3

Location: EAS US 1

Description: DS view

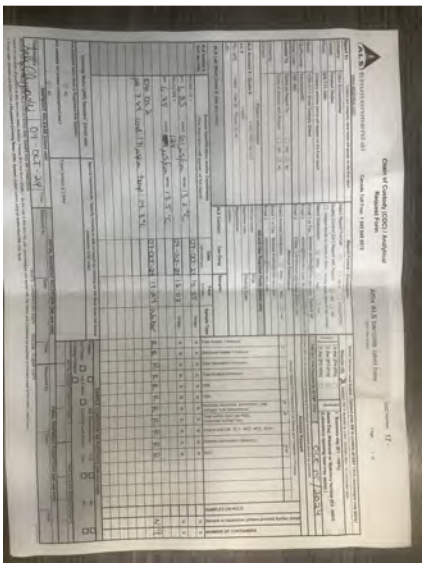

Photo: 4

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) 2024-10-07 to 2024-10-13

Received	Temperature C	Specific Conductivity ÂµS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU	TL Battery V
10/13/2024 23:50	11.91	22.4	0.01	6.96	446.57	9.31	0.27	12.09
10/13/2024 23:40	11.92	22.12	0.01	7.02	443.27	9.32	0.31	12.09
10/13/2024 23:30	11.94	22.39	0.01	6.97	446.18	9.32	0.27	12.09
10/13/2024 23:20	11.94	22.39	0.01	7.02	443.15	9.28	0.26	12.09
10/13/2024 23:10	11.95	22.44	0.01	6.96	446.05	9.33	0.33	12.21
10/13/2024 23:10	11.95	22.44	0.01	6.96	446.05	9.33	0.33	12.21
10/13/2024 23:00	11.96	22.25	0.01	7	443.83	9.28	0.29	12.21
10/13/2024 22:50	11.97	22.45	0.01	6.96	445.68	9.32	0.27	12.21
10/13/2024 22:40	11.97	22.46	0.01	6.96	445.31	9.29	0.26	12.21
10/13/2024 22:30	11.98	22.5	0.01	6.97	444.63	9.3	0.25	12.24
10/13/2024 22:20	11.99	22.31	0.01	6.97	444.37	9.33	0.28	12.24
10/13/2024 22:10	12	22.46	0.01	6.97	444.83	9.33	0.26	12.14
10/13/2024 22:00	12.01	22.49	0.01	7.03	441.08	9.31	0.25	12.24
10/13/2024 21:50	12.01	22.48	0.01	6.96	444.73	9.31	0.28	12.24
10/13/2024 21:40	12.02	22.45	0.01	7.05	439.93	9.29	0.29	12.21
10/13/2024 21:30	12.03	22.54	0.01	6.96	443.96	9.3	0.27	12.14
10/13/2024 21:20	12.03	22.74	0.01	6.96	444.48	9.28	0.29	12.14
10/13/2024 21:10	12.04	22.57	0.01	6.96	443.72	9.28	0.27	12.24
10/13/2024 21:00	12.05	22.59	0.01	6.97	442.98	9.27	0.29	12.21
10/13/2024 20:50	12.06	20.45	0.01	6.99	442.02	9.32	0.27	12.14
10/13/2024 20:40	12.07	22.77	0.01	7.06	438.14	9.28	0.29	12.24
10/13/2024 20:30	12.08	22.63	0.01	6.96	442.76	9.31	0.27	12.26
10/13/2024 20:20	12.09	22.56	0.01	7.04	438.71	9.29	0.3	12.26
10/13/2024 20:10	12.1	22.65	0.01	6.97	442.45	9.3	0.3	12.26
10/13/2024 20:00	12.1	22.66	0.01	7.01	439.66	9.3	0.27	12.26
10/13/2024 19:50	12.11	22.63	0.01	6.96	442.21	9.3	0.29	12.24
10/13/2024 19:40	12.12	22.54	0.01	6.99	440.32	9.29	0.28	12.26
10/13/2024 19:30	12.12	22.7	0.01	6.96	441.16	9.28	0.28	12.29
10/13/2024 19:20	12.13	22.66	0.01	6.97	440.83	9.31	0.29	12.29
10/13/2024 19:10	12.14	22.69	0.01	6.96	440.41	9.31	0.28	12.29
10/13/2024 19:00	12.15	22.45	0.01	7	438.38	9.28	0.26	12.29
10/13/2024 18:50	12.16	22.54	0.01	7	437.92	9.29	0.28	12.29
10/13/2024 18:40	12.17	22.59	0.01	6.97	438.86	9.32	0.28	12.29
10/13/2024 18:30	12.18	22.5	0.01	7.03	435	9.32	0.3	12.29
10/13/2024 18:20	12.19	22.47	0.01	6.97	437.58	9.31	0.3	12.31
10/13/2024 18:10	12.2	22.42	0.01	7.04	433.43	9.34	0.29	12.33
10/13/2024 18:00	12.21	22.45	0.01	6.98	435.78	9.37	0.29	12.36
10/13/2024 17:50	12.22	22.31	0.01	7	434.37	9.38	0.28	12.41
10/13/2024 17:40	12.23	22.36	0.01	6.99	434.62	9.39	0.31	12.48
10/13/2024 17:30	12.23	22.45	0.01	7.02	432.68	9.41	0.32	12.48
10/13/2024 17:20	12.24	22.44	0.01	7	433.38	9.44	0.32	12.53

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/13/2024 17:10	12.24	22.3	0.01	7.05	430.15	9.46	0.3	12.57
10/13/2024 17:00	12.24	22.34	0.01	7.01	431.61	9.47	0.31	12.65
10/13/2024 16:50	12.23	22.13	0.01	7.06	428.09	9.49	0.29	12.67
10/13/2024 16:40	12.23	22.1	0.01	7.01	430.02	9.48	0.3	12.6
10/13/2024 16:30	12.23	21.89	0.01	7.14	422.53	9.5	0.29	12.6
10/13/2024 16:20	12.23	22	0.01	7.03	429.01	9.48	0.3	12.65
10/13/2024 16:10	12.23	22.04	0.01	7.08	424.98	9.53	0.27	12.62
10/13/2024 16:00	12.23	21.94	0.01	7.05	426.55	9.52	0.27	12.67
10/13/2024 15:50	12.23	22	0.01	7.02	428.15	9.53	0.29	13.53
10/13/2024 15:40	12.23	21.81	0.01	7.05	425.36	9.6	0.27	13.08
10/13/2024 15:30	12.23	21.88	0.01	7.09	423	9.66	0.28	13.29
10/13/2024 15:20	12.21	21.93	0.01	7.05	423.71	9.61	0.29	13.53
10/13/2024 15:10	12.2	21.9	0.01	7.06	422.94	9.72	0.27	13.22
10/13/2024 15:00	12.19	21.87	0.01	7.05	422.59	9.72	0.29	13.36
10/13/2024 14:50	12.17	21.88	0.01	7.07	421.3	9.67	0.26	13.53
10/13/2024 14:50	12.17	21.88	0.01	7.07	421.3	9.67	0.26	13.53
10/13/2024 14:40	12.18	21.89	0.01	7.06	420.69	9.72	0.26	13.51
10/13/2024 14:30	12.16	21.7	0.01	7.09	418.57	9.68	0.27	13.51
10/13/2024 14:20	12.11	21.83	0.01	7.06	419.58	9.69	0.26	13.51
10/13/2024 14:10	12.08	21.71	0.01	7.12	416.24	9.68	0.27	13.51
10/13/2024 14:00	12.04	21.82	0.01	7.07	418.74	9.71	0.29	13.53
10/13/2024 13:50	11.99	21.64	0.01	7.11	416.49	9.75	0.27	13.56
10/13/2024 13:40	11.95	21.84	0.01	7.08	417.03	9.76	0.26	13.56
10/13/2024 13:30	11.91	21.78	0.01	7.11	415.53	9.73	0.27	13.56
10/13/2024 13:20	11.87	21.79	0.01	7.07	417.55	9.79	0.26	13.58
10/13/2024 13:10	11.81	21.67	0.01	7.1	415.4	9.76	0.26	13.58
10/13/2024 13:00	11.81	21.81	0.01	7.07	416.73	9.78	0.27	13.51
10/13/2024 12:50	11.83	21.33	0.01	7.08	415.79	9.83	0.26	13.46
10/13/2024 12:40	11.78	21.81	0.01	7.07	416.28	9.79	0.27	13.6
10/13/2024 12:30	11.71	21.7	0.01	7.12	413.55	9.78	0.22	13.63
10/13/2024 12:20	11.65	21.78	0.01	7.08	416.14	9.83	0.27	13.53
10/13/2024 12:10	11.6	21.59	0.01	7.15	412.53	9.85	0.27	13.53
10/13/2024 12:00	11.55	21.71	0.01	7.08	415.89	9.87	0.25	13.56
10/13/2024 11:50	11.5	21.59	0.01	7.08	415.96	9.89	0.23	13.56
10/13/2024 11:40	11.44	21.67	0.01	7.05	418.79	9.91	0.26	13.56
10/13/2024 11:30	11.37	21.4	0.01	7.08	417.48	9.89	0.24	13.58
10/13/2024 11:20	11.38	21.62	0.01	7.07	418.83	9.92	0.23	13.58
10/13/2024 11:10	11.35	21.41	0.01	7.08	418.2	9.92	0.25	13.67
10/13/2024 11:00	11.34	21.68	0.01	7.06	419.54	9.89	0.24	13.67
10/13/2024 10:50	11.3	21.54	0.01	7.07	419.99	9.91	0.24	13.7
10/13/2024 10:40	11.26	21.67	0.01	7.06	420.89	9.91	0.24	13.7
10/13/2024 10:30	11.21	21.56	0.01	7.1	419.44	9.93	0.25	13.7
10/13/2024 10:20	11.17	21.68	0.01	7.05	422.73	9.91	0.24	13.7
10/13/2024 10:10	11.12	21.41	0.01	7.08	421.74	9.91	0.25	13.72
10/13/2024 10:00	11.07	21.68	0.01	7.04	423.99	9.92	0.24	13.72
10/13/2024 9:50	11.02	21.55	0.01	7.1	421.44	9.92	0.24	13.72
10/13/2024 9:40	10.96	21.69	0.01	7.04	425.43	9.95	0.22	13.63

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/13/2024 9:30	10.9	21.41	0.01	7.08	424.02	9.91	0.24	13.63
10/13/2024 9:20	10.83	21.64	0.01	7.03	427.34	9.88	0.22	13.75
10/13/2024 9:10	10.79	21.28	0.01	7.06	425.86	9.89	0.22	13.03
10/13/2024 9:00	10.76	21.76	0.01	7.01	429.39	9.85	0.2	13.44
10/13/2024 8:50	10.72	21.69	0.01	7.07	426.71	9.8	0.22	13.44
10/13/2024 8:40	10.71	21.8	0.01	6.99	431.44	9.8	0.22	12.05
10/13/2024 8:30	10.72	21.67	0.01	6.98	432.58	9.78	0.21	11.95
10/13/2024 8:20	10.73	21.82	0.01	6.98	432.77	9.77	0.23	11.93
10/13/2024 8:10	10.74	21.77	0.01	7	432.12	9.77	0.2	12
10/13/2024 8:00	10.75	21.9	0.01	6.99	433.16	9.76	0.21	12.02
10/13/2024 7:50	10.76	21.76	0.01	7.02	431.81	9.74	0.24	12.02
10/13/2024 7:40	10.77	21.87	0.01	6.98	433.86	9.73	0.2	12.02
10/13/2024 7:30	10.78	21.74	0.01	6.99	433.95	9.73	0.24	12
10/13/2024 7:20	10.79	21.92	0.01	6.97	434.31	9.72	0.28	12
10/13/2024 7:10	10.8	21.63	0.01	7	432.9	9.73	0.21	12.02
10/13/2024 7:00	10.81	21.88	0.01	6.97	434.47	9.73	0.22	12.02
10/13/2024 6:50	10.82	21.82	0.01	7	433.25	9.71	0.22	12.02
10/13/2024 6:40	10.83	21.85	0.01	6.98	433.99	9.72	0.23	12.02
10/13/2024 6:30	10.84	21.72	0.01	7.02	432.02	9.7	0.23	12.05
10/13/2024 6:20	10.86	21.94	0.01	6.98	433.82	9.7	0.21	12.05
10/13/2024 6:10	10.88	21.79	0.01	7.04	430.84	9.7	0.2	12.05
10/13/2024 6:00	10.9	21.92	0.01	6.98	433.68	9.69	0.21	12.02
10/13/2024 5:50	10.91	21.81	0.01	7	433.36	9.7	0.21	11.95
10/13/2024 5:40	10.93	21.91	0.01	6.98	434.22	9.69	0.23	12.05
10/13/2024 5:30	10.94	21.8	0.01	7.05	430.64	9.69	0.25	12.05
10/13/2024 5:20	10.96	21.96	0.01	6.98	434.09	9.68	0.22	11.95
10/13/2024 5:10	10.97	21.65	0.01	7.02	432.44	9.68	0.46	12.07
10/13/2024 5:00	10.99	21.94	0.01	6.98	433.99	9.67	0.23	12.07
10/13/2024 4:50	11	21.57	0.01	7	433.21	9.67	0.24	11.97
10/13/2024 4:40	11.01	22.01	0.01	6.97	434.78	9.66	0.22	11.97
10/13/2024 4:30	11.01	21.89	0.01	6.99	434.14	9.64	0.27	12.09
10/13/2024 4:20	11.02	21.98	0.01	6.98	434.73	9.66	0.25	12.07
10/13/2024 4:10	11.03	21.75	0.01	7	433.74	9.67	0.23	12.09
10/13/2024 4:00	11.04	22	0.01	6.98	434.3	9.66	0.24	12.09
10/13/2024 3:50	11.05	21.91	0.01	6.97	435.44	9.66	0.24	12.09
10/13/2024 3:40	11.08	22	0.01	6.97	435.43	9.65	0.25	12.09
10/13/2024 3:30	11.09	21.91	0.01	6.98	435.63	9.66	0.25	12.09
10/13/2024 3:20	11.12	21.99	0.01	6.99	435.22	9.64	0.24	12
10/13/2024 3:10	11.14	21.71	0.01	6.99	435.2	9.64	0.24	12.09
10/13/2024 3:00	11.16	22.04	0.01	6.97	436.17	9.62	0.26	12.12
10/13/2024 2:50	11.19	21.85	0.01	6.99	435.8	9.61	0.24	12.12
10/13/2024 2:40	11.21	22.05	0.01	6.98	436.38	9.6	0.26	12.12
10/13/2024 2:30	11.23	21.96	0.01	6.96	437.54	9.6	0.25	12.12
10/13/2024 2:20	11.25	22.06	0.01	6.98	436.58	9.61	0.29	12.12
10/13/2024 2:10	11.27	21.85	0.01	7	435.56	9.58	0.25	12.12
10/13/2024 2:00	11.29	22.09	0.01	6.97	436.94	9.59	0.25	12.12
10/13/2024 1:50	11.31	21.68	0.01	6.98	436.83	9.59	0.23	12.14

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/13/2024 1:40	11.33	22.06	0.01	6.97	436.6	9.57	0.26	12.05
10/13/2024 1:30	11.35	21.77	0.01	7.01	434.8	9.55	0.26	12.14
10/13/2024 1:20	11.36	22.09	0.01	6.98	436.23	9.48	0.24	12.17
10/13/2024 1:10	11.39	22.22	0.01	6.97	436.91	9.53	0.27	12.17
10/13/2024 1:00	11.41	22.09	0.01	6.98	436.45	9.53	0.24	12.14
10/13/2024 0:50	11.43	22.21	0.01	7	433.62	9.52	0.25	12.14
10/13/2024 0:40	11.44	22.07	0.01	6.97	433.89	9.55	0.25	12.05
10/13/2024 0:30	11.46	21.89	0.01	7.04	429.45	9.52	0.26	12.07
10/13/2024 0:20	11.47	22.06	0.01	6.97	432.13	9.52	0.28	12.17
10/13/2024 0:10	11.48	21.94	0.01	7.07	425.26	9.55	0.26	12.17
10/13/2024 0:00	11.5	22.11	0.01	6.98	430.34	9.55	0.27	12.07
10/12/2024 23:50	11.52	22.03	0.01	7	429.07	9.53	0.23	12.07
10/12/2024 23:40	11.55	22.08	0.01	6.98	430.24	9.53	0.25	12.09
10/12/2024 23:30	11.57	22.09	0.01	7	429.31	9.52	0.25	12.07
10/12/2024 23:20	11.58	22.12	0.01	6.97	430.42	9.51	0.26	12.09
10/12/2024 23:10	11.6	21.87	0.01	7.02	427.93	9.52	0.26	12.19
10/12/2024 23:00	11.62	22.17	0.01	6.97	430.43	9.49	0.26	12.19
10/12/2024 22:50	11.64	21.96	0.01	7.02	427.7	9.5	0.26	12.19
10/12/2024 22:40	11.66	22.12	0.01	6.98	430.03	9.47	0.26	12.19
10/12/2024 22:30	11.68	21.74	0.01	7.07	424.61	9.51	0.27	12.21
10/12/2024 22:20	11.7	22.17	0.01	6.99	429.36	9.47	0.27	12.21
10/12/2024 22:10	11.72	22.28	0.01	6.98	429.87	9.48	0.25	12.21
10/12/2024 22:00	11.75	22.2	0.01	6.98	429.47	9.46	0.3	12.21
10/12/2024 21:50	11.77	21.92	0.01	7	428.72	9.47	0.28	12.21
10/12/2024 21:40	11.8	22.18	0.01	6.98	429.54	9.44	0.26	12.21
10/12/2024 21:30	11.82	22.08	0.01	7	428.55	9.44	0.25	12.21
10/12/2024 21:20	11.84	22.27	0.01	6.97	430.01	9.44	0.24	12.12
10/12/2024 21:10	11.86	22.14	0.01	7	428.71	9.43	0.29	12.21
10/12/2024 21:00	11.89	22.28	0.01	6.98	429.55	9.42	0.27	12.21
10/12/2024 20:50	11.91	21.88	0.01	6.96	430.36	9.4	0.27	12.12
10/12/2024 20:40	11.93	22.27	0.01	6.97	429.46	9.41	0.26	12.14
10/12/2024 20:30	11.96	22.2	0.01	7.02	426.71	9.4	0.31	12.12
10/12/2024 20:20	11.98	22.24	0.01	6.97	428.9	9.41	0.28	12.24
10/12/2024 20:10	12	22.26	0.01	7	427.59	9.39	0.28	12.24
10/12/2024 20:00	12.02	22.26	0.01	6.97	428.74	9.4	0.3	12.26
10/12/2024 19:50	12.05	21.88	0.01	6.98	428.25	9.38	0.29	12.17
10/12/2024 19:40	12.08	22.3	0.01	6.98	427.46	9.38	0.3	12.24
10/12/2024 19:30	12.1	22.18	0.01	7.01	425.8	9.38	0.28	12.19
10/12/2024 19:20	12.13	22.27	0.01	6.98	426.95	9.4	0.28	12.26
10/12/2024 19:10	12.15	22.34	0.01	6.98	427.06	9.36	0.27	12.26
10/12/2024 19:00	12.18	22.23	0.01	6.98	426.52	9.37	0.28	12.29
10/12/2024 18:50	12.21	22.14	0.01	6.98	426.26	9.35	0.29	12.26
10/12/2024 18:40	12.23	22.23	0.01	6.99	424.89	9.36	0.28	12.29
10/12/2024 18:30	12.25	22.04	0.01	6.99	424.32	9.33	0.27	12.29
10/12/2024 18:20	12.28	22.26	0.01	6.98	424.4	9.36	0.28	12.29
10/12/2024 18:10	12.3	22.07	0.01	7.01	422.59	9.36	0.29	12.31
10/12/2024 18:00	12.32	22.23	0.01	6.99	422.98	9.37	0.28	12.24

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/12/2024 17:50	12.34	22.14	0.01	7.01	421.92	9.36	0.3	12.33
10/12/2024 17:40	12.37	22.12	0.01	6.99	422.46	9.36	0.32	12.33
10/12/2024 17:30	12.39	22.09	0.01	6.98	422.81	9.35	0.29	12.36
10/12/2024 17:20	12.41	22.08	0.01	6.99	421.79	9.38	0.29	12.38
10/12/2024 17:10	12.43	22.03	0.01	7	421.48	9.36	5.28	12.26
10/12/2024 17:00	12.45	21.97	0.01	6.99	421.73	9.36	0.33	12.33
10/12/2024 16:50	12.47	21.89	0.01	7.03	419.25	9.38	0.28	12.48
10/12/2024 16:40	12.49	22.05	0.01	7	420.92	9.37	0.33	12.55
10/12/2024 16:30	12.49	22.01	0.01	7.04	418.51	9.38	0.34	12.57
10/12/2024 16:20	12.51	22.13	0.01	7.01	420.66	9.39	0.34	12.57
10/12/2024 16:10	12.52	22	0.01	7.03	419.2	9.4	0.49	12.55
10/12/2024 16:00	12.53	22.21	0.01	7	420.89	9.4	0.87	12.45
10/12/2024 15:50	12.51	21.88	0.01	7.07	417.35	9.41	0.9	12.55
10/12/2024 15:40	12.5	22.06	0.01	7.01	419.98	9.41	0.78	12.55
10/12/2024 15:30	12.48	21.91	0.01	7.04	418.91	9.43	0.37	12.62
10/12/2024 15:20	12.47	21.94	0.01	7.02	419.75	9.42	0.3	13.46
10/12/2024 15:10	12.46	21.52	0.01	7.05	417.81	9.46	0.3	13.36
10/12/2024 15:00	12.47	21.92	0.01	7.04	417.88	9.47	0.29	13.44
10/12/2024 14:50	12.47	21.8	0.01	7.05	416.86	9.48	0.4	13.44
10/12/2024 14:40	12.49	21.85	0.01	7.04	417.69	9.52	0.29	13.41
10/12/2024 14:30	12.5	21.39	0.01	7.13	412.19	9.54	0.29	13.36
10/12/2024 14:20	12.49	21.84	0.01	7.04	416.84	9.52	0.29	13.36
10/12/2024 14:10	12.45	21.5	0.01	7.1	413.57	9.56	0.31	13.27
10/12/2024 14:00	12.42	21.61	0.01	7.05	415.69	9.56	0.3	13.39
10/12/2024 13:50	12.38	21.67	0.01	7.07	414.73	9.59	0.27	13.41
10/12/2024 13:40	12.33	21.72	0.01	7.04	416.41	9.59	0.42	13.41
10/12/2024 13:30	12.28	21.64	0.01	7.09	414.02	9.63	0.27	13.41
10/12/2024 13:20	12.23	21.72	0.01	7.06	415.23	9.65	0.27	13.46
10/12/2024 13:10	12.17	21.64	0.01	7.07	414.88	9.68	0.25	13.48
10/12/2024 13:00	12.11	21.72	0.01	7.06	416.03	9.7	0.28	13.51
10/12/2024 12:50	12.05	21.57	0.01	7.07	415.78	9.71	0.25	13.53
10/12/2024 12:40	12	21.74	0.01	7.05	416.48	9.71	0.26	13.56
10/12/2024 12:30	11.95	21.67	0.01	7.06	416.06	9.73	0.27	13.58
10/12/2024 12:20	11.92	21.7	0.01	7.04	417.49	9.75	0.27	13.58
10/12/2024 12:10	11.89	21.23	0.01	7.09	415.08	9.76	0.26	13.58
10/12/2024 12:00	11.85	21.7	0.01	7.06	416.99	9.76	0.27	13.58
10/12/2024 11:50	11.81	21.62	0.01	7.05	417.79	9.77	0.27	13.48
10/12/2024 11:40	11.77	21.69	0.01	7.05	418.02	9.77	0.27	13.51
10/12/2024 11:30	11.73	21.63	0.01	7.07	416.68	9.81	0.25	13.63
10/12/2024 11:20	11.68	21.7	0.01	7.06	417.8	9.82	0.25	13.63
10/12/2024 11:10	11.63	21.64	0.01	7.09	416.8	9.84	0.24	13.63
10/12/2024 11:00	11.57	21.72	0.01	7.05	419.57	9.85	0.26	13.63
10/12/2024 10:50	11.52	21.36	0.01	7.05	420.03	9.86	0.25	13.51
10/12/2024 10:40	11.48	21.65	0.01	7.05	420.77	9.85	0.26	13.65
10/12/2024 10:30	11.43	21.58	0.01	7.07	419.79	9.88	0.25	13.53
10/12/2024 10:20	11.38	21.67	0.01	7.05	421.73	9.87	0.25	13.67
10/12/2024 10:10	11.31	21.45	0.01	7.05	422.97	9.86	0.22	13.67

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/12/2024 10:00	11.26	21.62	0.01	7.04	424.04	9.88	0.24	13.58
10/12/2024 9:50	11.18	21.42	0.01	7.04	425.56	9.9	0.25	13.7
10/12/2024 9:40	11.11	21.58	0.01	7.05	425.34	9.89	0.23	13.7
10/12/2024 9:30	11.03	21.43	0.01	7.04	427.05	9.88	0.24	13.7
10/12/2024 9:20	10.96	21.59	0.01	7.02	428.42	9.89	0.24	13.63
10/12/2024 9:10	10.89	21.5	0.01	7.04	427.94	9.87	0.22	13.24
10/12/2024 9:00	10.84	21.57	0.01	7.01	430.23	9.85	0.25	13.72
10/12/2024 8:50	10.79	21.59	0.01	7.03	429.32	9.82	0.2	13.46
10/12/2024 8:40	10.77	21.73	0.01	6.98	432.07	9.81	0.29	12.14
10/12/2024 8:30	10.79	21.64	0.01	7	431.3	9.76	0.21	12.09
10/12/2024 8:20	10.81	21.7	0.01	6.98	431.82	9.76	0.22	12.07
10/12/2024 8:10	10.81	21.68	0.01	7	431.33	9.74	0.2	12.05
10/12/2024 8:00	10.83	21.74	0.01	6.97	432.47	9.72	0.24	11.95
10/12/2024 7:50	10.85	21.74	0.01	7	431.35	9.71	0.22	12.05
10/12/2024 7:40	10.86	21.82	0.01	6.98	432.03	9.73	0.22	12.02
10/12/2024 7:30	10.87	21.49	0.01	7	431.03	9.7	0.21	12.02
10/12/2024 7:20	10.9	21.77	0.01	6.97	432.18	9.68	0.41	12.02
10/12/2024 7:10	10.92	21.45	0.01	7.01	429.99	9.7	0.23	11.95
10/12/2024 7:00	10.94	21.84	0.01	6.97	432.45	9.69	0.21	12.02
10/12/2024 6:50	10.95	21.7	0.01	6.99	431.72	9.68	0.24	11.93
10/12/2024 6:40	10.97	21.89	0.01	6.96	432.87	9.67	0.21	11.95
10/12/2024 6:30	10.98	21.76	0.01	6.99	431.36	9.66	0.23	12.05
10/12/2024 6:20	11	21.82	0.01	6.97	432.47	9.67	0.22	12.05
10/12/2024 6:10	11.02	21.8	0.01	6.99	431.18	9.65	0.22	12.05
10/12/2024 6:00	11.04	21.93	0.01	6.97	432.1	9.66	0.23	12.05
10/12/2024 5:50	11.07	21.69	0.01	6.99	430.9	9.67	0.21	12.05
10/12/2024 5:40	11.08	21.88	0.01	6.98	431.65	9.67	0.25	12.05
10/12/2024 5:30	11.1	21.77	0.01	7	430.59	9.66	0.23	12.05
10/12/2024 5:20	11.12	21.93	0.01	6.98	431.61	9.66	0.24	11.97
10/12/2024 5:10	11.14	21.5	0.01	6.99	430.94	9.61	0.24	11.97
10/12/2024 5:00	11.16	21.95	0.01	6.98	431.11	9.62	0.23	12.09
10/12/2024 4:50	11.18	21.8	0.01	7.01	429.33	9.62	0.23	12.09
10/12/2024 4:40	11.19	21.96	0.01	6.97	431.01	9.61	0.37	12.09
10/12/2024 4:30	11.21	21.87	0.01	7.02	428.54	9.63	0.24	12
10/12/2024 4:20	11.23	21.96	0.01	6.97	431.33	9.62	0.27	12.09
10/12/2024 4:10	11.24	21.88	0.01	6.96	431.72	9.62	0.25	12.02
10/12/2024 4:00	11.27	22.02	0.01	6.97	431.02	9.61	0.26	12.09
10/12/2024 3:50	11.28	21.89	0.01	6.99	430.01	9.6	0.23	12.02
10/12/2024 3:40	11.3	21.95	0.01	6.98	430.67	9.6	0.3	12.12
10/12/2024 3:30	11.31	21.8	0.01	6.97	431.01	9.56	0.23	12.12
10/12/2024 3:20	11.32	22.05	0.01	6.98	430.4	9.58	0.26	12.12
10/12/2024 3:10	11.33	21.9	0.01	6.98	430.26	9.58	0.24	12.12
10/12/2024 3:00	11.34	22.09	0.01	6.97	430.62	9.57	0.26	12.14
10/12/2024 2:50	11.35	21.97	0.01	7.01	428.76	9.59	0.26	12.14
10/12/2024 2:40	11.36	22.01	0.01	6.96	430.81	9.59	0.23	12.14
10/12/2024 2:30	11.36	21.79	0.01	6.96	431.26	9.58	0.22	12.17
10/12/2024 2:20	11.37	22.03	0.01	6.96	430.92	9.59	0.24	12.17

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/12/2024 2:10	11.37	21.75	0.01	7.04	426.91	9.57	0.23	12.17
10/12/2024 2:00	11.37	22.03	0.01	6.97	430.14	9.58	0.26	12.17
10/12/2024 1:50	11.37	22	0.01	6.99	429.02	9.58	0.24	12.17
10/12/2024 1:40	11.37	22.12	0.01	6.97	429.96	9.54	0.25	12.07
10/12/2024 1:30	11.38	22.01	0.01	7.01	427.73	9.57	0.23	12.07
10/12/2024 1:20	11.38	22.06	0.01	6.97	430.09	9.57	0.26	12.17
10/12/2024 1:10	11.39	21.79	0.01	6.99	429.13	9.58	0.25	12.09
10/12/2024 1:00	11.41	22.06	0.01	6.98	429.14	9.57	0.22	12.19
10/12/2024 0:50	11.43	21.95	0.01	7.02	427.1	9.55	0.29	12.19
10/12/2024 0:40	11.45	22.11	0.01	6.98	429.08	9.54	0.28	12.09
10/12/2024 0:30	11.46	22.01	0.01	7	427.67	9.55	0.25	12.17
10/12/2024 0:20	11.48	22.21	0.01	6.98	428.9	9.52	0.23	12.09
10/12/2024 0:10	11.5	21.75	0.01	7.04	425.53	9.54	0.45	12.07
10/12/2024 0:00	11.52	22.18	0.01	6.98	428.65	9.54	0.24	12.19
10/11/2024 23:50	11.54	22.07	0.01	6.99	428.65	9.54	0.25	12.21
10/11/2024 23:40	11.56	22.19	0.01	6.97	429.41	9.52	0.23	12.21
10/11/2024 23:30	11.57	22.05	0.01	7	427.9	9.53	0.23	12.21
10/11/2024 23:20	11.59	22.26	0.01	6.98	428.93	9.52	0.27	12.21
10/11/2024 23:10	11.61	22.16	0.01	6.99	428.35	9.51	0.27	12.14
10/11/2024 23:00	11.62	22.28	0.01	6.98	428.85	9.53	0.32	12.21
10/11/2024 22:50	11.63	22.08	0.01	6.98	428.53	9.5	0.26	12.12
10/11/2024 22:40	11.63	22.26	0.01	6.97	428.81	9.49	0.26	12.12
10/11/2024 22:30	11.64	22.15	0.01	7	427.51	9.51	0.31	12.21
10/11/2024 22:20	11.64	22.25	0.01	6.97	428.65	9.49	0.26	12.24
10/11/2024 22:10	11.65	22.18	0.01	7.01	426.23	9.5	0.27	12.21
10/11/2024 22:00	11.65	22.34	0.01	6.97	427.8	9.5	0.25	12.24
10/11/2024 21:50	11.66	22.27	0.01	7.02	425.65	9.48	0.27	12.17
10/11/2024 21:40	11.67	22.25	0.01	6.97	427.17	9.49	0.27	12.24
10/11/2024 21:30	11.68	21.98	0.01	7.05	422.57	9.51	0.25	12.21
10/11/2024 21:20	11.68	22.33	0.01	6.98	426.26	9.5	0.26	12.26
10/11/2024 21:10	11.69	21.81	0.01	7.01	424.54	9.48	0.24	12.26
10/11/2024 21:00	11.69	22.34	0.01	6.98	425.74	9.5	0.26	12.26
10/11/2024 20:50	11.69	22.16	0.01	7.01	424.06	9.49	0.29	12.26
10/11/2024 20:40	11.7	22.35	0.01	6.98	425.33	9.51	0.26	12.17
10/11/2024 20:30	11.7	22.19	0.01	7.01	423.7	9.48	0.28	12.14
10/11/2024 20:20	11.71	22.25	0.01	6.98	424.92	9.49	0.27	12.17
10/11/2024 20:10	11.71	22.16	0.01	6.98	425.03	9.51	0.27	12.29
10/11/2024 20:00	11.72	22.27	0.01	6.98	424.36	9.48	0.3	12.26
10/11/2024 19:50	11.72	22.14	0.01	7.01	422.73	9.48	0.26	12.29
10/11/2024 19:40	11.72	22.28	0.01	6.98	423.64	9.5	0.29	12.29
10/11/2024 19:30	11.72	22.18	0.01	7	422.51	9.5	0.28	12.19
10/11/2024 19:20	11.73	22.25	0.01	6.99	422.56	9.49	0.26	12.29
10/11/2024 19:10	11.73	22.24	0.01	6.98	423.27	9.49	0.25	12.19
10/11/2024 19:00	11.74	22.29	0.01	6.99	422.23	9.48	0.24	12.19
10/11/2024 18:50	11.74	22.12	0.01	7	421.36	9.47	0.27	12.31
10/11/2024 18:40	11.75	22.25	0.01	6.99	421.24	9.49	0.24	12.31
10/11/2024 18:30	11.76	22.07	0.01	7.01	419.96	9.5	0.4	12.31

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/11/2024 18:20	11.77	22.25	0.01	7	420.04	9.5	0.27	12.33
10/11/2024 18:10	11.77	21.91	0.01	7.03	418.19	9.5	0.27	12.33
10/11/2024 18:00	11.78	22.16	0.01	7	418.89	9.52	0.27	12.36
10/11/2024 17:50	11.79	22.1	0.01	7.03	417.16	9.53	0.26	12.38
10/11/2024 17:40	11.8	22.11	0.01	7.02	417.44	9.56	0.27	12.43
10/11/2024 17:30	11.8	22.06	0.01	7.05	415.22	9.55	0.26	12.48
10/11/2024 17:20	11.8	22.11	0.01	7.01	417.31	9.54	0.27	12.43
10/11/2024 17:10	11.81	21.89	0.01	7.06	413.93	9.55	0.26	12.31
10/11/2024 17:00	11.82	22.01	0.01	7.01	416.08	9.57	0.26	12.38
10/11/2024 16:50	11.82	21.73	0.01	7.04	413.52	9.59	0.3	12.45
10/11/2024 16:40	11.82	21.96	0.01	7.03	414.06	9.6	0.28	12.53
10/11/2024 16:30	11.83	21.74	0.01	7.04	413.05	9.62	0.25	12.57
10/11/2024 16:20	11.83	21.93	0.01	7.02	413.71	9.63	0.29	12.45
10/11/2024 16:10	11.83	21.71	0.01	7.05	411.84	9.63	0.25	12.5
10/11/2024 16:00	11.83	21.8	0.01	7.03	412.38	9.64	0.25	12.62
10/11/2024 15:50	11.82	21.57	0.01	7.03	412.01	9.65	0.27	12.98
10/11/2024 15:40	11.82	21.86	0.01	7.02	411.75	9.68	0.42	13
10/11/2024 15:30	11.81	21.66	0.01	7.05	410.02	9.69	0.27	13.58
10/11/2024 15:20	11.81	21.79	0.01	7.04	409.73	9.67	0.25	13.24
10/11/2024 15:10	11.8	21.61	0.01	7.05	409.06	9.71	0.28	13.29
10/11/2024 15:00	11.78	21.76	0.01	7.05	408.88	9.72	0.26	13.6
10/11/2024 14:50	11.77	21.57	0.01	7.07	407.92	9.71	0.27	13.58
10/11/2024 14:40	11.75	21.75	0.01	7.06	408.15	9.74	0.26	13.58
10/11/2024 14:30	11.71	21.55	0.01	7.07	407.36	9.76	0.25	13.58
10/11/2024 14:20	11.69	21.67	0.01	7.07	407.22	9.78	0.26	13.6
10/11/2024 14:10	11.66	21.4	0.01	7.08	406.2	9.79	0.26	13.6
10/11/2024 14:00	11.61	21.66	0.01	7.07	406.03	9.8	0.25	13.6
10/11/2024 13:50	11.55	21.64	0.01	7.08	405.42	9.81	0.25	13.6
10/11/2024 13:40	11.5	21.7	0.01	7.05	405.9	9.82	0.22	13.6
10/11/2024 13:30	11.47	21.57	0.01	7.06	405.39	9.84	0.22	13.48
10/11/2024 13:20	11.46	21.66	0.01	7.06	404.85	9.85	0.26	13.58
10/11/2024 13:10	11.45	21.59	0.01	7.07	404.8	9.87	0.25	13.58
10/11/2024 13:00	11.41	21.7	0.01	7.07	404.66	9.89	0.26	13.6
10/11/2024 12:50	11.29	21.5	0.01	7.06	405.01	9.9	0.24	13.53
10/11/2024 12:40	11.27	21.68	0.01	7.05	405.08	9.88	0.23	13.53
10/11/2024 12:30	11.28	21.52	0.01	7.07	404.59	9.92	0.26	13.65
10/11/2024 12:20	11.21	21.66	0.01	7.05	405.41	9.92	0.24	13.67
10/11/2024 12:10	11.14	21.6	0.01	7.08	404.51	9.9	0.22	13.58
10/11/2024 12:00	11.1	21.75	0.01	7.06	405.36	9.92	0.23	13.7
10/11/2024 11:50	11.05	21.31	0.01	7.08	404.85	9.93	0.22	13.7
10/11/2024 11:40	10.99	21.71	0.01	7.05	406.63	9.96	0.23	13.7
10/11/2024 11:30	10.89	21.55	0.01	7.07	406.46	9.98	0.19	13.65
10/11/2024 11:20	10.78	21.67	0.01	7.05	407.72	9.98	0.23	13.72
10/11/2024 11:10	10.67	21.55	0.01	7.07	407.54	9.99	0.24	13.65
10/11/2024 11:00	10.65	21.6	0.01	7.04	408.84	9.98	0.21	13.77
10/11/2024 10:50	10.65	21.53	0.01	7.05	408.77	10.01	0.23	13.75
10/11/2024 10:40	10.62	21.57	0.01	7.06	408.55	10.04	0.23	13.75

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/11/2024 10:30	10.56	21.56	0.01	7.04	410.4	10.02	0.2	13.75
10/11/2024 10:20	10.51	21.66	0.01	7.05	409.85	10.05	0.19	13.75
10/11/2024 10:10	10.46	21.39	0.01	7.04	411.17	10.05	0.18	13.58
10/11/2024 10:00	10.41	21.61	0.01	7.03	412.04	10.04	0.18	13.29
10/11/2024 9:50	10.36	21.52	0.01	7.06	411.28	10.06	0.2	13.12
10/11/2024 9:40	10.31	21.65	0.01	7.03	413.33	10.04	0.19	13.05
10/11/2024 9:30	10.28	21.19	0.01	7.01	415.1	10.04	0.21	12.81
10/11/2024 9:20	10.25	21.71	0.01	7	415.37	10.01	0.2	12.81
10/11/2024 9:10	10.23	21.41	0.01	7.01	415.4	10	0.22	12.6
10/11/2024 9:00	10.21	21.68	0.01	7.01	415.59	10.01	0.2	12.41
10/11/2024 8:50	10.18	21.66	0.01	7.02	415.7	9.99	0.21	12.33
10/11/2024 8:40	10.18	21.78	0.01	7	416.47	9.98	0.18	12.12
10/11/2024 8:30	10.17	21.71	0.01	6.99	417.6	9.95	0.19	12.12
10/11/2024 8:20	10.16	21.84	0.01	6.99	417.04	9.94	0.19	12.05
10/11/2024 8:10	10.17	21.74	0.01	7.02	416.35	9.92	0.17	12.09
10/11/2024 8:00	10.17	21.87	0.01	6.99	417.4	9.91	0.2	12.07
10/11/2024 7:50	10.19	21.73	0.01	7.02	416.23	9.91	0.2	12.05
10/11/2024 7:40	10.2	21.97	0.01	6.97	418.45	9.9	0.23	12
10/11/2024 7:30	10.21	21.8	0.01	7.02	416.24	9.89	0.2	11.93
10/11/2024 7:20	10.22	21.99	0.01	6.99	417.49	9.89	0.19	12.02
10/11/2024 7:10	10.23	21.87	0.01	6.99	417.84	9.89	0.21	12.02
10/11/2024 7:00	10.24	21.99	0.01	6.99	417.44	9.88	0.22	12.02
10/11/2024 6:50	10.25	21.76	0.01	7.01	416.11	9.88	0.19	12.02
10/11/2024 6:40	10.26	21.95	0.01	6.99	417.54	9.89	0.21	12.02
10/11/2024 6:30	10.27	21.94	0.01	6.99	417.46	9.88	0.19	11.95
10/11/2024 6:20	10.28	22.05	0.01	6.96	418.47	9.88	0.21	11.95
10/11/2024 6:10	10.29	21.97	0.01	7.05	413.77	9.87	0.22	12.02
10/11/2024 6:00	10.31	22.08	0.01	6.98	417.39	9.86	0.2	11.97
10/11/2024 5:50	10.32	21.77	0.01	6.97	418.21	9.88	0.23	12.05
10/11/2024 5:40	10.33	22.07	0.01	6.98	417.48	9.86	0.2	12.07
10/11/2024 5:30	10.35	21.86	0.01	7.01	415.93	9.86	0.21	12.07
10/11/2024 5:20	10.37	22.1	0.01	6.97	417.5	9.84	0.18	12.07
10/11/2024 5:10	10.39	22.04	0.01	7	416.43	9.83	0.2	12.07
10/11/2024 5:00	10.4	22.12	0.01	6.98	417.1	9.85	0.21	12.09
10/11/2024 4:50	10.43	22.06	0.01	7.03	414.56	9.85	0.44	12.07
10/11/2024 4:40	10.44	22.17	0.01	6.99	416.57	9.81	0.19	12.09
10/11/2024 4:30	10.46	21.75	0.01	6.98	416.95	9.83	0.22	12.09
10/11/2024 4:20	10.48	22.18	0.01	6.99	416.38	9.82	0.22	12.09
10/11/2024 4:10	10.49	22.02	0.01	6.98	417.26	9.81	0.21	12.09
10/11/2024 4:00	10.5	22.13	0.01	6.97	417.32	9.81	0.22	12.12
10/11/2024 3:50	10.53	22.12	0.01	7.03	414.36	9.79	0.23	12.02
10/11/2024 3:40	10.56	22.13	0.01	6.98	416.66	9.81	0.37	12
10/11/2024 3:30	10.58	22.09	0.01	7.02	415	9.8	0.22	12.12
10/11/2024 3:20	10.62	22.17	0.01	6.97	417.36	9.77	0.21	12.05
10/11/2024 3:10	10.63	22.14	0.01	6.96	418.26	9.77	0.2	12.12
10/11/2024 3:00	10.66	22.27	0.01	6.97	417.13	9.79	0.22	12.14
10/11/2024 2:50	10.68	21.93	0.01	7.02	414.93	9.76	0.23	12.05

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/11/2024 2:40	10.69	22.26	0.01	6.99	416.06	9.76	0.22	12.12
10/11/2024 2:30	10.71	22.14	0.01	6.98	416.69	9.77	0.25	12.02
10/11/2024 2:20	10.73	22.28	0.01	6.98	416.61	9.75	0.22	12.12
10/11/2024 2:10	10.74	21.92	0.01	6.98	416.56	9.77	0.2	12.07
10/11/2024 2:00	10.76	22.24	0.01	6.99	415.83	9.75	0.24	12.17
10/11/2024 1:50	10.78	22.18	0.01	6.98	416.17	9.75	0.25	12.17
10/11/2024 1:40	10.8	22.27	0.01	6.97	416.13	9.74	0.22	12.17
10/11/2024 1:30	10.83	22.13	0.01	6.98	416	9.74	0.21	12.17
10/11/2024 1:20	10.85	22.27	0.01	6.99	415.3	9.73	0.24	12.07
10/11/2024 1:10	10.87	21.94	0.01	6.97	416.03	9.72	0.22	12.05
10/11/2024 1:00	10.9	22.28	0.01	6.99	414.9	9.72	0.21	12.05
10/11/2024 0:50	10.92	22.17	0.01	7.04	412.39	9.71	0.21	12.14
10/11/2024 0:40	10.95	22.34	0.01	6.98	415.15	9.71	0.24	12.17
10/11/2024 0:40	10.95	22.34	0.01	6.98	415.15	9.71	0.24	12.17
10/11/2024 0:30	10.96	22.22	0.01	6.97	415.91	9.72	0.24	12.17
10/11/2024 0:20	10.98	22.39	0.01	6.97	416.08	9.69	0.23	12.17
10/11/2024 0:10	11	22.27	0.01	6.97	416.08	9.71	0.25	12.07
10/11/2024 0:00	11.02	22.42	0.01	6.97	415.7	9.69	0.25	12.07
10/10/2024 23:50	11.05	22.22	0.01	6.98	415.19	9.67	0.24	12.09
10/10/2024 23:40	11.09	22.42	0.01	6.98	415.17	9.69	0.24	12.17
10/10/2024 23:30	11.11	22.29	0.01	6.98	415.44	9.66	0.23	12.21
10/10/2024 23:20	11.13	22.49	0.01	6.98	414.96	9.66	0.23	12.21
10/10/2024 23:10	11.16	22.38	0.01	7	414.48	9.65	0.24	12.21
10/10/2024 23:00	11.18	22.46	0.01	6.98	415.1	9.67	0.25	12.21
10/10/2024 22:50	11.21	22.35	0.01	7	414.18	9.67	0.23	12.21
10/10/2024 22:40	11.23	22.56	0.01	6.98	415.3	9.63	0.27	12.21
10/10/2024 22:30	11.26	22.12	0.01	7	413.9	9.62	0.22	12.21
10/10/2024 22:20	11.29	22.65	0.01	6.99	414.47	9.64	0.26	12.21
10/10/2024 22:10	11.31	22.53	0.01	6.97	415.63	9.64	0.22	12.21
10/10/2024 22:00	11.33	22.69	0.01	6.98	414.97	9.61	0.23	12.21
10/10/2024 21:50	11.36	22.42	0.01	6.97	415.19	9.61	0.27	12.21
10/10/2024 21:40	11.39	22.74	0.01	6.98	414.28	9.61	0.26	12.14
10/10/2024 21:30	11.43	22.68	0.01	6.97	414.86	9.6	0.24	12.14
10/10/2024 21:20	11.45	22.77	0.01	6.98	414.28	9.57	0.38	12.14
10/10/2024 21:10	11.48	22.71	0.01	7	413.09	9.57	0.25	12.14
10/10/2024 21:00	11.51	22.91	0.01	6.99	413.36	9.57	0.27	12.24
10/10/2024 20:50	11.54	22.86	0.01	7.01	412.15	9.56	0.25	12.26
10/10/2024 20:40	11.57	22.98	0.01	6.98	413.52	9.56	0.27	12.17
10/10/2024 20:30	11.59	22.74	0.01	6.98	413.62	9.55	0.26	12.26
10/10/2024 20:20	11.63	22.98	0.01	6.98	412.78	9.54	0.26	12.24
10/10/2024 20:10	11.65	22.89	0.01	6.97	413.6	9.54	0.28	12.24
10/10/2024 20:00	11.68	23.02	0.01	6.99	412.06	9.53	0.25	12.14
10/10/2024 19:50	11.7	23.08	0.01	6.98	412.88	9.52	0.25	12.26
10/10/2024 19:40	11.73	23.16	0.01	6.99	411.48	9.51	0.28	12.29
10/10/2024 19:30	11.75	23.08	0.01	6.99	411.43	9.53	0.26	12.29
10/10/2024 19:20	11.78	23.25	0.01	6.99	411.33	9.51	0.25	12.29
10/10/2024 19:10	11.8	22.93	0.01	6.99	410.76	9.51	0.29	12.29

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/10/2024 19:00	11.83	23.22	0.01	6.99	410.47	9.49	0.28	12.29
10/10/2024 18:50	11.86	22.98	0.01	6.98	410.64	9.52	0.27	12.29
10/10/2024 18:40	11.88	23.33	0.01	7.01	408.35	9.48	0.25	12.19
10/10/2024 18:30	11.9	23.13	0.01	6.99	409.14	9.49	0.27	12.19
10/10/2024 18:20	11.93	23.26	0.01	7	408.01	9.5	0.26	12.24
10/10/2024 18:10	11.95	23.28	0.01	7.02	406.49	9.5	0.27	12.33
10/10/2024 18:00	11.97	23.38	0.01	6.99	407.32	9.51	0.28	12.36
10/10/2024 17:50	12	22.97	0.01	7.06	403.21	9.51	0.25	12.38
10/10/2024 17:40	12.02	23.4	0.01	6.99	406.33	9.51	0.28	12.26
10/10/2024 17:30	12.04	23.19	0.01	6.99	406.8	9.52	0.24	12.41
10/10/2024 17:20	12.06	23.38	0.01	7.02	404.69	9.52	0.26	12.5
10/10/2024 17:10	12.08	23.09	0.01	6.99	406.18	9.51	0.28	12.45
10/10/2024 17:00	12.1	23.5	0.01	7.02	404.34	9.51	0.29	12.57
10/10/2024 16:50	12.11	23.36	0.01	7.02	404.11	9.51	0.28	12.57
10/10/2024 16:40	12.12	23.55	0.01	7.03	403.02	9.53	0.25	12.57
10/10/2024 16:30	12.13	23.55	0.01	7.03	403.33	9.51	0.27	12.45
10/10/2024 16:20	12.13	23.61	0.01	7.03	403.07	9.52	0.28	12.48
10/10/2024 16:10	12.14	23.41	0.01	7.02	403.02	9.53	0.29	12.6
10/10/2024 16:00	12.14	23.68	0.01	7.03	402.32	9.56	0.28	12.65
10/10/2024 15:50	12.15	23.72	0.01	7.02	403.2	9.56	0.3	12.69
10/10/2024 15:40	12.16	23.86	0.01	7.04	401.2	9.54	0.26	12.69
10/10/2024 15:30	12.17	23.66	0.01	7.04	400.51	9.56	0.28	12.69
10/10/2024 15:20	12.17	23.98	0.01	7.05	399.73	9.57	0.28	13.44
10/10/2024 15:10	12.18	23.65	0.01	7.05	398.95	9.57	0.28	13.58
10/10/2024 15:00	12.2	24.07	0.01	7.05	398.57	9.58	0.29	13.58
10/10/2024 14:50	12.22	23.97	0.01	7.04	398.59	9.58	0.32	13.53
10/10/2024 14:40	12.25	24.21	0.01	7.06	396.73	9.61	0.28	13.48
10/10/2024 14:30	12.26	24.03	0.01	7.05	396.76	9.61	0.3	13.51
10/10/2024 14:20	12.25	24.29	0.01	7.07	395.17	9.64	0.29	13.48
10/10/2024 14:10	12.23	23.99	0.01	7.06	395.17	9.64	0.28	13.48
10/10/2024 14:00	12.21	24.48	0.01	7.07	394.21	9.66	0.29	13.51
10/10/2024 13:50	12.17	24.31	0.01	7.05	395.55	9.67	0.29	13.51
10/10/2024 13:40	12.12	24.48	0.01	7.05	395.43	9.7	0.3	13.53
10/10/2024 13:30	12.06	24.42	0.01	7.06	395.39	9.71	0.29	13.53
10/10/2024 13:20	12.01	24.65	0.01	7.07	394.87	9.72	0.28	13.56
10/10/2024 13:10	11.95	24.52	0.01	7.05	397.33	9.73	0.28	13.58
10/10/2024 13:00	11.92	24.72	0.01	7.07	396.32	9.77	0.28	13.6
10/10/2024 12:50	11.85	24.36	0.01	7.06	397.68	9.77	0.24	13.63
10/10/2024 12:40	11.8	24.77	0.01	7.05	397.87	9.78	0.27	13.65
10/10/2024 12:30	11.74	24.54	0.01	7.08	396.51	9.81	0.27	13.65
10/10/2024 12:20	11.71	24.76	0.01	7.06	396.92	9.82	0.24	13.53
10/10/2024 12:10	11.68	24.52	0.01	7.06	397.23	9.85	0.26	13.56
10/10/2024 12:00	11.65	24.7	0.01	7.05	397.28	9.84	0.26	13.67
10/10/2024 11:50	11.62	24.7	0.01	7.05	397.79	9.85	0.25	13.67
10/10/2024 11:40	11.6	24.9	0.01	7.06	397.04	9.86	0.26	13.67
10/10/2024 11:30	11.58	24.65	0.01	7.07	397.15	9.88	0.28	13.58
10/10/2024 11:20	11.54	24.99	0.01	7.06	398.3	9.88	0.25	13.58

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/10/2024 11:10	11.51	24.92	0.01	7.12	396.28	9.87	0.26	13.67
10/10/2024 11:00	11.46	25.09	0.01	7.06	399.33	9.92	0.25	13.7
10/10/2024 10:50	11.4	24.78	0.01	7.08	399.49	9.92	0.25	13.72
10/10/2024 10:40	11.33	25.19	0.01	7.04	402.05	9.94	0.25	13.75
10/10/2024 10:30	11.22	25.12	0.01	7.08	401.3	9.96	0.23	13.75
10/10/2024 10:20	11.08	25.26	0.01	7.03	404.26	9.95	0.23	13.77
10/10/2024 10:10	11.02	25.11	0.01	7.05	404.23	9.92	0.22	13.53
10/10/2024 10:00	10.99	25.4	0.01	7.01	406.39	9.93	0.24	13
10/10/2024 9:50	10.99	25.42	0.01	7.05	404.86	9.93	0.23	12.84
10/10/2024 9:40	11.01	25.56	0.01	7.03	406.21	9.95	0.34	13.12
10/10/2024 9:30	10.95	25.47	0.01	7.04	406.64	9.94	0.21	13.65
10/10/2024 9:20	10.9	25.69	0.01	7.03	407.63	9.93	0.23	12.93
10/10/2024 9:10	10.88	25.77	0.01	7.04	407.89	9.92	0.22	13.32
10/10/2024 9:00	10.84	25.95	0.01	7.02	409.24	9.9	0.22	12.91
10/10/2024 8:50	10.84	25.86	0.01	7.02	410.16	9.92	0.24	12.88
10/10/2024 8:40	10.82	26.17	0.01	7	411.32	9.87	0.22	12.36
10/10/2024 8:30	10.82	26.24	0.01	7	412.01	9.86	0.22	12.14
10/10/2024 8:20	10.83	26.49	0.01	7	411.23	9.84	0.24	12.07
10/10/2024 8:10	10.84	26.26	0.01	7.01	411.45	9.83	0.22	12.02
10/10/2024 8:00	10.85	26.65	0.01	7	412.07	9.82	0.37	11.9
10/10/2024 7:50	10.86	26.45	0.01	6.99	412.8	9.8	0.29	12
10/10/2024 7:40	10.88	26.82	0.01	6.99	412.64	9.79	0.29	12
10/10/2024 7:30	10.9	26.4	0.01	7.05	409.88	9.77	0.23	11.9
10/10/2024 7:20	10.91	26.87	0.01	6.98	412.77	9.78	0.26	11.9
10/10/2024 7:10	10.92	26.92	0.01	6.99	412.8	9.77	0.2	12
10/10/2024 7:00	10.94	27.07	0.01	7	411.46	9.77	0.22	12
10/10/2024 6:50	10.94	27.09	0.01	6.99	412.77	9.79	0.24	12
10/10/2024 6:40	10.95	24.93	0.01	7	412.15	9.76	0.23	12.02
10/10/2024 6:30	10.96	27.02	0.01	7	412.6	9.77	0.22	12.02
10/10/2024 6:20	10.98	27.5	0.01	7	411.52	9.77	0.23	12.02
10/10/2024 6:10	10.98	27.41	0.01	7.03	410.24	9.77	0.25	12.02
10/10/2024 6:00	10.99	27.79	0.01	7	411.05	9.75	0.23	11.93
10/10/2024 5:50	11	27.83	0.01	7	411.78	9.77	0.24	11.93
10/10/2024 5:40	11.02	28.07	0.01	6.99	411.37	9.75	0.26	11.93
10/10/2024 5:30	11.02	28.05	0.01	7.01	410.85	9.74	0.22	12.02
10/10/2024 5:20	11.04	28.38	0.01	6.97	412.22	9.73	0.24	11.95
10/10/2024 5:10	11.05	27.98	0.01	7.02	410.09	9.73	0.22	12.05
10/10/2024 5:00	11.07	28.71	0.01	7	410.19	9.74	0.25	12.05
10/10/2024 4:50	11.08	28.7	0.01	7.05	407.88	9.72	0.24	12.05
10/10/2024 4:40	11.1	28.89	0.01	7.01	409.58	9.73	0.24	12.02
10/10/2024 4:30	11.11	28.79	0.01	7.04	408.09	9.72	0.27	12.02
10/10/2024 4:20	11.13	29.15	0.01	7	410.18	9.72	0.24	12.05
10/10/2024 4:10	11.14	28.85	0.01	7.01	409.86	9.69	0.22	12.05
10/10/2024 4:00	11.15	29.54	0.01	7.01	409.49	9.7	0.27	12.07
10/10/2024 3:50	11.17	29.57	0.01	7.04	408.2	9.72	0.24	12.07
10/10/2024 3:40	11.19	30.05	0.01	7	409.83	9.69	0.26	12.09
10/10/2024 3:30	11.21	30.2	0.01	7	410.16	9.7	0.27	12.07

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/10/2024 3:20	11.24	30.6	0.01	7.01	409.82	9.67	0.28	11.97
10/10/2024 3:10	11.26	30.97	0.02	7.06	407.18	9.66	0.27	12
10/10/2024 3:00	11.29	31.34	0.02	7.01	409.54	9.68	0.26	12.09
10/10/2024 2:50	11.31	31.44	0.02	7	410.3	9.66	0.23	12.12
10/10/2024 2:40	11.34	31.78	0.02	7.01	409.48	9.66	0.23	12.12
10/10/2024 2:30	11.35	31.7	0.02	7.01	409.62	9.64	0.27	12.12
10/10/2024 2:20	11.38	32.1	0.02	7.01	409.07	9.64	0.26	12.09
10/10/2024 2:10	11.41	31.76	0.02	7.02	408.48	9.64	0.25	12.12
10/10/2024 2:00	11.44	32.45	0.02	7	409.24	9.64	0.25	12.12
10/10/2024 1:50	11.47	32.58	0.02	7.03	408.3	9.63	0.25	12.05
10/10/2024 1:40	11.5	32.9	0.02	7.02	408.38	9.61	0.26	12.02
10/10/2024 1:30	11.53	32.98	0.02	7.03	408.12	9.6	0.24	12.14
10/10/2024 1:20	11.55	33.39	0.02	7.02	407.6	9.59	0.26	12.14
10/10/2024 1:10	11.57	33.26	0.02	7	408.81	9.6	0.26	12.14
10/10/2024 1:00	11.6	33.84	0.02	7.02	407.54	9.59	0.26	12.14
10/10/2024 0:50	11.62	33.82	0.02	7.03	406.99	9.59	0.28	12.05
10/10/2024 0:40	11.65	34.29	0.02	7.01	407.72	9.57	0.27	12.05
10/10/2024 0:30	11.68	34.47	0.02	7.04	406.64	9.56	0.26	12.17
10/10/2024 0:20	11.71	34.77	0.02	7.01	407.52	9.56	0.26	12.17
10/10/2024 0:10	11.74	34.75	0.02	7.05	405.92	9.56	0.29	12.17
10/10/2024 0:00	11.77	35.23	0.02	7.03	406.73	9.54	0.27	12.17
10/9/2024 23:50	11.79	35.19	0.02	7.03	406.95	9.53	0.28	12.17
10/9/2024 23:40	11.81	35.64	0.02	7.01	407.62	9.53	0.27	12.17
10/9/2024 23:30	11.84	35.8	0.02	7.02	407.44	9.52	0.26	12.09
10/9/2024 23:20	11.86	36.17	0.02	7	408.39	9.54	0.27	12.07
10/9/2024 23:10	11.89	35.81	0.02	7.01	408.12	9.52	0.26	12.17
10/9/2024 23:00	11.92	36.64	0.02	7.02	407.27	9.5	0.29	12.19
10/9/2024 22:50	11.94	36.73	0.02	7.01	408.19	9.48	0.27	12.21
10/9/2024 22:40	11.96	37.34	0.02	7.03	406.36	9.47	0.27	12.19
10/9/2024 22:30	11.98	37.41	0.02	7.02	407.28	9.5	0.25	12.19
10/9/2024 22:20	12	37.83	0.02	7	407.63	9.47	0.29	12.19
10/9/2024 22:10	12.01	37.84	0.02	7.02	406.94	9.48	0.28	12.21
10/9/2024 22:00	12.02	38.27	0.02	7.03	406.35	9.47	0.28	12.21
10/9/2024 21:50	12.03	38.17	0.02	7.02	406.95	9.46	0.27	12.19
10/9/2024 21:40	12.04	38.7	0.02	7.02	407.06	9.46	0.27	12.21
10/9/2024 21:30	12.05	38.76	0.02	7.02	407.21	9.46	0.26	12.12
10/9/2024 21:20	12.06	39.37	0.02	7.03	406.02	9.46	0.27	12.21
10/9/2024 21:10	12.07	39.37	0.02	7.01	407.21	9.47	0.28	12.14
10/9/2024 21:00	12.08	39.68	0.02	7.03	405.69	9.46	0.42	12.21
10/9/2024 20:50	12.09	39.58	0.02	7.04	405.69	9.45	0.27	12.21
10/9/2024 20:40	12.1	40	0.02	7.03	406.1	9.46	0.28	12.21
10/9/2024 20:30	12.11	39.73	0.02	7.05	404.95	9.44	0.29	12.14
10/9/2024 20:20	12.12	39.96	0.02	7.03	405.73	9.44	0.27	12.14
10/9/2024 20:10	12.14	39.69	0.02	7.06	404.69	9.42	0.26	12.14
10/9/2024 20:00	12.15	39.39	0.02	7.02	406.28	9.44	0.29	12.17
10/9/2024 19:50	12.17	38.69	0.02	7.03	406.13	9.44	0.26	12.14
10/9/2024 19:40	12.19	38.13	0.02	7.02	406.62	9.41	0.27	12.14

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/9/2024 19:30	12.22	37.43	0.02	7.03	406.33	9.4	0.28	12.14
10/9/2024 19:20	12.24	37.04	0.02	7.03	405.55	9.43	0.3	12.14
10/9/2024 19:10	12.27	36.09	0.02	7.04	405.11	9.4	0.3	12.26
10/9/2024 19:00	12.3	36.25	0.02	7.03	404.74	9.38	0.28	12.26
10/9/2024 18:50	12.33	35.73	0.02	7.03	404.81	9.39	0.3	12.29
10/9/2024 18:40	12.35	36.22	0.02	7.03	403.76	9.41	0.3	12.29
10/9/2024 18:30	12.36	35.98	0.02	7.03	403.92	9.4	0.3	12.31
10/9/2024 18:20	12.38	36.42	0.02	7.03	403	9.4	0.3	12.31
10/9/2024 18:10	12.4	36.63	0.02	7.04	402.23	9.39	0.3	12.31
10/9/2024 18:00	12.43	37.02	0.02	7.03	402.08	9.37	0.33	12.31
10/9/2024 17:50	12.45	37.14	0.02	7.04	401.53	9.37	0.29	12.31
10/9/2024 17:40	12.48	37.64	0.02	7.05	400.28	9.37	0.33	12.31
10/9/2024 17:30	12.51	36.99	0.02	7.04	400.59	9.37	0.29	12.21
10/9/2024 17:20	12.54	38.18	0.02	7.04	399.83	9.36	0.32	12.33
10/9/2024 17:10	12.56	38.13	0.02	7.03	400.23	9.36	0.28	12.33
10/9/2024 17:00	12.59	38.65	0.02	7.05	398.5	9.35	0.29	12.26
10/9/2024 16:50	12.61	38.62	0.02	7.06	398.34	9.36	0.32	12.36
10/9/2024 16:40	12.64	39.34	0.02	7.04	398.58	9.36	0.32	12.48
10/9/2024 16:30	12.65	39.65	0.02	7.05	398.27	9.39	0.29	12.55
10/9/2024 16:20	12.67	40.12	0.02	7.06	396.88	9.39	0.31	12.6
10/9/2024 16:10	12.67	40.26	0.02	7.06	396.79	9.41	0.31	12.67
10/9/2024 16:00	12.69	41.06	0.02	7.07	395.58	9.44	0.36	12.55
10/9/2024 15:50	12.69	41.46	0.02	7.07	395.98	9.4	0.49	12.72
10/9/2024 15:40	12.7	42.16	0.02	7.08	394.66	9.42	0.31	12.57
10/9/2024 15:30	12.7	42.06	0.02	7.1	393.67	9.48	0.31	13
10/9/2024 15:20	12.72	42.93	0.02	7.08	394.18	9.49	0.29	13.63
10/9/2024 15:10	12.69	43	0.02	7.09	394.1	9.48	0.32	13.65
10/9/2024 15:00	12.68	43.22	0.02	7.08	394.05	9.49	0.31	13.6
10/9/2024 14:50	12.67	42.63	0.02	7.09	394.21	9.46	0.3	13.6
10/9/2024 14:40	12.65	43.25	0.02	7.1	392.8	9.46	0.31	13.65
10/9/2024 14:30	12.65	42.52	0.02	7.09	393.51	9.47	0.31	13.65
10/9/2024 14:20	12.64	42.93	0.02	7.09	392.3	9.47	0.3	13.51
10/9/2024 14:10	12.64	42.27	0.02	7.08	393.05	9.48	0.29	12.93
10/9/2024 14:00	12.66	42.82	0.02	7.1	391.67	9.53	0.32	13.15
10/9/2024 13:50	12.65	42.94	0.02	7.09	392.41	9.54	0.32	13.56
10/9/2024 13:40	12.7	43.51	0.02	7.1	391.61	9.56	0.3	13.65
10/9/2024 13:30	12.58	43.61	0.02	7.1	393.18	9.58	0.3	13.7
10/9/2024 13:20	12.47	44.41	0.02	7.1	392.77	9.54	0.3	13.6
10/9/2024 13:10	12.45	44.4	0.02	7.1	393.51	9.54	0.29	13.72
10/9/2024 13:00	12.43	45.23	0.02	7.1	392.8	9.54	0.33	13.39
10/9/2024 12:50	12.42	45.41	0.02	7.1	393.19	9.52	0.31	13.7
10/9/2024 12:40	12.42	45.88	0.02	7.08	393.73	9.54	0.29	13.7
10/9/2024 12:30	12.4	45.99	0.02	7.07	394.63	9.49	0.32	12.86
10/9/2024 12:20	12.41	46.8	0.02	7.1	392.42	9.5	0.31	12.74
10/9/2024 12:10	12.41	46.01	0.02	7.08	392.86	9.52	0.32	12.84
10/9/2024 12:00	12.42	47.43	0.02	7.11	391.16	9.54	0.29	13.34
10/9/2024 11:50	12.4	47.61	0.02	7.09	392.06	9.54	0.37	13.56

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/9/2024 11:40	12.4	47.88	0.02	7.11	391.13	9.57	0.34	12.91
10/9/2024 11:30	12.37	47.75	0.02	7.13	390.2	9.57	0.28	13.67
10/9/2024 11:20	12.36	48.36	0.02	7.11	390.96	9.56	0.3	13.58
10/9/2024 11:10	12.36	48.21	0.02	7.09	392.43	9.58	0.29	13.58
10/9/2024 11:00	12.34	48.12	0.02	7.12	390.7	9.6	0.28	13.67
10/9/2024 10:50	12.31	48.09	0.02	7.09	392.62	9.55	0.3	12.93
10/9/2024 10:40	12.3	48.96	0.02	7.1	391.3	9.54	0.28	12.79
10/9/2024 10:30	12.31	48.71	0.02	7.1	391.22	9.56	0.28	12.81
10/9/2024 10:20	12.37	49.44	0.03	7.11	390.94	9.53	0.29	12.93
10/9/2024 10:10	12.44	49.79	0.03	7.12	390.58	9.57	0.31	13.41
10/9/2024 10:00	12.47	50.45	0.03	7.12	391.06	9.58	0.29	13.63
10/9/2024 9:50	12.41	50.71	0.03	7.12	392.53	9.59	0.57	13.65
10/9/2024 9:40	12.35	51.33	0.03	7.11	393.68	9.58	0.3	13.65
10/9/2024 9:30	12.27	51.57	0.03	7.1	395.62	9.57	0.3	13.53
10/9/2024 9:20	12.2	52.11	0.03	7.1	395.59	9.55	0.28	13.65
10/9/2024 9:10	12.14	52.37	0.03	7.07	398.33	9.54	0.28	13.63
10/9/2024 9:00	12.11	53.12	0.03	7.08	397.72	9.51	0.28	12.84
10/9/2024 8:50	12.09	53.32	0.03	7.08	398.7	9.49	0.25	12.43
10/9/2024 8:40	12.09	54.04	0.03	7.07	398.7	9.49	0.29	12.29
10/9/2024 8:30	12.1	53.58	0.03	7.08	398.79	9.47	0.3	12.24
10/9/2024 8:20	12.1	54.92	0.03	7.08	398.7	9.44	0.28	12.17
10/9/2024 8:10	12.1	54.27	0.03	7.07	399.27	9.44	0.29	12.12
10/9/2024 8:00	12.11	55.88	0.03	7.07	399.12	9.45	0.28	11.97
10/9/2024 7:50	12.11	56.15	0.03	7.07	399.79	9.44	0.26	11.97
10/9/2024 7:40	12.12	56.85	0.03	7.07	399.5	9.42	0.28	12.07
10/9/2024 7:30	12.12	56.7	0.03	7.07	399.67	9.42	0.26	11.97
10/9/2024 7:20	12.13	57.8	0.03	7.08	398.59	9.42	0.29	12.05
10/9/2024 7:10	12.14	57.1	0.03	7.05	399.83	9.41	0.29	12.05
10/9/2024 7:00	12.15	58.48	0.03	7.08	398.36	9.4	0.29	11.95
10/9/2024 6:50	12.15	58.74	0.03	7.08	398.5	9.4	0.29	12.05
10/9/2024 6:40	12.15	59.96	0.03	7.08	397.81	9.4	0.28	12.05
10/9/2024 6:30	12.15	60.06	0.03	7.08	398.34	9.41	0.28	12.05
10/9/2024 6:20	12.16	61.12	0.03	7.07	398.2	9.41	0.29	12.05
10/9/2024 6:10	12.17	61.5	0.03	7.08	397.98	9.4	0.27	11.97
10/9/2024 6:00	12.18	62.42	0.03	7.09	397.03	9.42	0.28	12.09
10/9/2024 5:50	12.18	61.73	0.03	7.08	397.61	9.39	0.31	12.09
10/9/2024 5:40	12.19	63.6	0.03	7.09	396.81	9.39	0.29	12.09
10/9/2024 5:30	12.21	63.94	0.03	7.08	397.67	9.38	0.28	12.09
10/9/2024 5:20	12.23	64.8	0.03	7.09	396.38	9.38	0.35	12.12
10/9/2024 5:10	12.24	65.19	0.03	7.08	397.52	9.4	0.29	12.02
10/9/2024 5:00	12.25	65.95	0.03	7.1	396.36	9.37	0.29	12.12
10/9/2024 4:50	12.27	65.71	0.03	7.11	395.73	9.36	0.29	12.12
10/9/2024 4:40	12.29	66.91	0.03	7.1	396.41	9.36	0.29	12.12
10/9/2024 4:40	12.29	66.91	0.03	7.1	396.41	9.36	0.29	12.12
10/9/2024 4:30	12.3	67.3	0.03	7.09	396.67	9.35	0.3	12.12
10/9/2024 4:20	12.31	67.94	0.04	7.1	396.28	9.35	0.27	12.05
10/9/2024 4:10	12.32	68.19	0.04	7.09	396.88	9.36	0.26	12.12

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/9/2024 4:00	12.34	68.88	0.04	7.1	396.29	9.36	0.27	12.12
10/9/2024 3:50	12.34	69.17	0.04	7.1	396.17	9.36	0.3	12.14
10/9/2024 3:40	12.36	69.93	0.04	7.1	396.31	9.34	0.29	12.14
10/9/2024 3:30	12.37	70.39	0.04	7.09	396.71	9.34	0.28	12.07
10/9/2024 3:20	12.38	71.32	0.04	7.09	396.53	9.36	0.29	12.14
10/9/2024 3:10	12.38	71.73	0.04	7.09	396.58	9.33	0.27	12.07
10/9/2024 3:00	12.4	72.6	0.04	7.11	395.21	9.33	0.3	12.07
10/9/2024 2:50	12.42	72.49	0.04	7.1	395.5	9.35	0.3	12.17
10/9/2024 2:40	12.43	73.96	0.04	7.12	394.19	9.33	0.28	12.17
10/9/2024 2:30	12.43	74.3	0.04	7.11	394.33	9.33	0.29	12.19
10/9/2024 2:20	12.44	75.37	0.04	7.11	394.02	9.32	0.3	12.19
10/9/2024 2:10	12.45	75.97	0.04	7.11	393.93	9.32	0.39	12.19
10/9/2024 2:00	12.47	76.84	0.04	7.12	393.02	9.33	0.29	12.19
10/9/2024 1:50	12.47	77.65	0.04	7.1	393.79	9.32	0.28	12.19
10/9/2024 1:40	12.48	78.43	0.04	7.12	392.29	9.31	0.32	12.09
10/9/2024 1:30	12.49	78.54	0.04	7.1	393.18	9.32	0.3	12.09
10/9/2024 1:20	12.5	79.88	0.04	7.12	391.96	9.31	0.3	12.19
10/9/2024 1:10	12.51	80.19	0.04	7.11	391.91	9.31	0.3	12.12
10/9/2024 1:00	12.52	81.37	0.04	7.12	390.74	9.31	0.29	12.19
10/9/2024 0:50	12.53	81.89	0.04	7.11	390.73	9.31	0.38	12.12
10/9/2024 0:40	12.54	83.03	0.04	7.11	390.11	9.31	0.31	12.19
10/9/2024 0:30	12.55	82.56	0.04	7.11	390.13	9.29	0.29	12.19
10/9/2024 0:20	12.56	84	0.04	7.12	389.17	9.3	0.31	12.09
10/9/2024 0:10	12.57	84.66	0.04	7.11	389.99	9.31	0.31	12.21
10/9/2024 0:00	12.58	85.44	0.04	7.13	388.8	9.29	0.29	12.21
10/8/2024 23:50	12.59	85.44	0.04	7.12	388.94	9.3	0.29	12.21
10/8/2024 23:40	12.6	86.42	0.05	7.12	388.82	9.29	0.32	12.21
10/8/2024 23:30	12.61	86.75	0.05	7.13	388.73	9.28	0.3	12.21
10/8/2024 23:20	12.62	87.92	0.05	7.13	388.16	9.3	0.29	12.24
10/8/2024 23:10	12.63	87.8	0.05	7.11	389.35	9.27	0.3	12.24
10/8/2024 23:00	12.64	88.77	0.05	7.13	387.97	9.28	0.32	12.24
10/8/2024 22:50	12.65	89.43	0.05	7.12	389.04	9.28	0.33	12.14
10/8/2024 22:40	12.66	90.47	0.05	7.14	387.62	9.27	0.33	12.14
10/8/2024 22:30	12.66	89.6	0.05	7.15	386.98	9.27	0.31	12.14
10/8/2024 22:20	12.68	91.05	0.05	7.14	386.94	9.25	0.3	12.24
10/8/2024 22:10	12.69	91.17	0.05	7.13	387.92	9.26	0.29	12.24
10/8/2024 22:00	12.7	92.28	0.05	7.14	386.46	9.28	0.52	12.24
10/8/2024 21:50	12.71	92.26	0.05	7.14	386.89	9.27	0.31	12.17
10/8/2024 21:40	12.72	92.82	0.05	7.13	386.82	9.26	0.31	12.24
10/8/2024 21:30	12.72	93.24	0.05	7.14	386.85	9.26	0.29	12.26
10/8/2024 21:20	12.74	94.24	0.05	7.14	386.17	9.26	0.32	12.26
10/8/2024 21:10	12.74	93.44	0.05	7.13	386.65	9.28	0.38	12.26
10/8/2024 21:00	12.75	94.83	0.05	7.15	385.34	9.26	0.28	12.26
10/8/2024 20:50	12.76	94.21	0.05	7.14	385.8	9.25	4.8	12.26
10/8/2024 20:40	12.77	95.67	0.05	7.15	385.14	9.24	0.29	12.19
10/8/2024 20:30	12.78	96.52	0.05	7.14	385.88	9.24	0.32	12.19
10/8/2024 20:20	12.78	97.65	0.05	7.14	385.3	9.24	0.31	12.26

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/8/2024 20:10	12.79	97.21	0.05	7.14	385.53	9.25	0.32	12.29
10/8/2024 20:00	12.8	97.38	0.05	7.14	385.12	9.24	0.3	12.29
10/8/2024 19:50	12.81	96.53	0.05	7.15	384.76	9.24	0.31	12.29
10/8/2024 19:40	12.82	97.2	0.05	7.15	384.67	9.25	0.31	12.31
10/8/2024 19:30	12.83	96.8	0.05	7.15	385.02	9.23	0.3	12.31
10/8/2024 19:20	12.84	97.43	0.05	7.15	384.41	9.21	0.32	12.31
10/8/2024 19:10	12.85	96.61	0.05	7.13	385.5	9.23	0.31	12.21
10/8/2024 19:00	12.86	96.22	0.05	7.16	383.67	9.24	0.32	12.31
10/8/2024 18:50	12.86	95.77	0.05	7.16	383.72	9.23	0.35	12.24
10/8/2024 18:40	12.87	96.27	0.05	7.16	383.45	9.25	0.31	12.33
10/8/2024 18:30	12.88	95.75	0.05	7.16	383.37	9.24	0.33	12.36
10/8/2024 18:20	12.89	97.38	0.05	7.15	383.28	9.24	0.32	12.36
10/8/2024 18:10	12.91	96.88	0.05	7.15	383.23	9.23	0.33	12.38
10/8/2024 18:00	12.92	97.58	0.05	7.16	381.94	9.26	0.32	12.41
10/8/2024 17:50	12.93	96.83	0.05	7.17	381.86	9.26	0.33	12.45
10/8/2024 17:40	12.94	98	0.05	7.17	381.21	9.25	0.34	12.48
10/8/2024 17:30	12.95	98.27	0.05	7.16	382.29	9.27	0.33	12.5
10/8/2024 17:20	12.97	99.47	0.05	7.18	380.44	9.25	0.31	12.55
10/8/2024 17:10	12.98	97.39	0.05	7.18	380.4	9.29	0.32	12.65
10/8/2024 17:00	12.99	99.84	0.05	7.2	379.08	9.32	0.35	12.69
10/8/2024 16:50	13	99.4	0.05	7.19	379.69	9.33	0.3	12.69
10/8/2024 16:40	13	99.98	0.05	7.2	378.96	9.33	0.32	12.6
10/8/2024 16:30	13	100.12	0.05	7.18	380.57	9.33	0.3	12.65
10/8/2024 16:20	13.01	101.07	0.05	7.21	378.59	9.33	0.35	12.79
10/8/2024 16:10	13.01	101.48	0.05	7.21	378.64	9.35	0.44	12.72
10/8/2024 16:00	13.01	102.97	0.05	7.23	377.56	9.36	0.34	12.72
10/8/2024 15:50	13.01	103.7	0.05	7.22	378.43	9.36	0.31	12.76
10/8/2024 15:40	13.01	105.35	0.06	7.24	376.91	9.37	0.33	12.79
10/8/2024 15:30	13	105.89	0.06	7.23	377.79	9.37	0.31	12.81
10/8/2024 15:20	13	107.07	0.06	7.24	376.96	9.37	0.3	12.93
10/8/2024 15:10	12.99	107.09	0.06	7.26	376.13	9.37	0.31	13.03
10/8/2024 15:00	12.99	110.33	0.06	7.27	375.24	9.38	0.32	13.15
10/8/2024 14:50	12.97	112.03	0.06	7.27	375.66	9.4	0.32	13.17
10/8/2024 14:40	12.96	115.19	0.06	7.28	375.09	9.4	0.36	13.12
10/8/2024 14:30	12.95	117.02	0.06	7.26	376.2	9.44	0.31	13.58
10/8/2024 14:20	12.91	120.09	0.06	7.29	375.14	9.43	0.33	13.08
10/8/2024 14:10	12.89	123.22	0.07	7.29	375.5	9.42	0.36	12.93
10/8/2024 14:00	12.89	126.65	0.07	7.29	375.44	9.43	0.33	12.88
10/8/2024 13:50	12.89	129.39	0.07	7.3	375.88	9.43	0.32	12.98
10/8/2024 13:40	12.9	132.69	0.07	7.31	375.7	9.45	0.31	13.2
10/8/2024 13:30	12.82	135.7	0.07	7.3	377.62	9.47	0.31	13.53
10/8/2024 13:20	12.79	138.26	0.07	7.32	377.54	9.44	0.33	12.74
10/8/2024 13:10	12.77	141.14	0.07	7.31	378.9	9.49	0.3	12.81
10/8/2024 13:00	12.74	145.23	0.08	7.32	379.16	9.46	0.3	12.6
10/8/2024 12:50	12.71	147.1	0.08	7.31	380.17	9.44	0.33	12.65
10/8/2024 12:40	12.68	151.19	0.08	7.32	380.56	9.43	0.3	12.41
10/8/2024 12:30	12.67	153.64	0.08	7.32	381.34	9.45	0.3	12.38

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/8/2024 12:20	12.66	157.08	0.08	7.34	381.28	9.44	0.3	12.48
10/8/2024 12:10	12.63	159.36	0.08	7.33	382.61	9.42	0.38	12.36
10/8/2024 12:00	12.62	163.03	0.09	7.33	382.58	9.4	0.31	12.31
10/8/2024 11:50	12.61	166.62	0.09	7.34	382.78	9.4	0.32	12.26
10/8/2024 11:40	12.6	170.66	0.09	7.35	382.54	9.41	0.3	12.38
10/8/2024 11:30	12.59	173.56	0.09	7.35	382.94	9.41	0.31	12.33
10/8/2024 11:20	12.57	177.49	0.09	7.36	383.13	9.4	0.39	12.31
10/8/2024 11:10	12.56	179.95	0.1	7.37	383.56	9.4	0.35	12.31
10/8/2024 11:00	12.55	185.18	0.1	7.38	383.4	9.4	0.33	12.29
10/8/2024 10:50	12.54	189.51	0.1	7.37	384.69	9.42	0.32	12.26
10/8/2024 10:40	12.53	195.31	0.1	7.38	384.59	9.37	0.35	12.17
10/8/2024 10:30	12.51	201.55	0.11	7.38	385.17	9.37	0.36	12.12
10/8/2024 10:20	12.51	211.09	0.11	7.39	385.19	9.35	0.41	12.09
10/8/2024 10:10	12.5	221.05	0.12	7.4	385.45	9.35	0.42	12.09
10/8/2024 10:00	12.5	234.64	0.13	7.42	384.98	9.37	0.41	12
10/8/2024 9:50	12.49	247.57	0.13	7.42	385.63	9.37	0.43	12.07
10/8/2024 9:40	12.48	264.41	0.14	7.43	385.04	9.35	0.59	12.09
10/8/2024 9:30	12.47	271.94	0.15	7.42	386.11	9.36	0.75	12.09
10/8/2024 9:20	12.44	260.64	0.14	7.4	386.94	9.38	1.05	12.09
10/8/2024 9:10	12.41	187.88	0.1	7.48	390.98	9.38	0.63	12.09
10/8/2024 9:00	12.4	114.47	0.06	7.23	392.76	9.38	0.41	12.07
10/8/2024 8:50	12.4	109.2	0.06	7.22	392.36	9.37	0.33	11.97
10/8/2024 8:40	12.4	113.95	0.06	7.24	391.73	9.36	0.37	11.97
10/8/2024 8:30	12.39	119.31	0.06	7.25	392.32	9.35	0.51	12.05
10/8/2024 8:30	12.39	119.31	0.06	7.25	392.32	9.35	0.51	12.05
10/8/2024 8:20	12.39	126.2	0.07	7.25	393.44	9.34	0.41	12.07
10/8/2024 8:10	12.39	132.76	0.07	7.25	394.29	9.36	0.33	12.12
10/8/2024 8:00	12.39	140.28	0.07	7.27	393.63	9.35	0.28	12.12
10/8/2024 7:50	12.39	145.33	0.08	7.28	393.51	9.33	0.49	12.07
10/8/2024 7:40	12.39	157.18	0.08	7.3	392.22	9.35	0.29	12
10/8/2024 7:30	12.39	164.49	0.09	7.31	392.3	9.32	0.29	12.09
10/8/2024 7:20	12.39	176.63	0.09	7.32	391.69	9.34	0.31	12
10/8/2024 7:10	12.4	183.62	0.1	7.33	391.68	9.33	0.32	12.07
10/8/2024 7:00	12.4	200.24	0.11	7.34	390.91	9.32	0.32	12.09
10/8/2024 6:50	12.4	210.76	0.11	7.36	390.44	9.32	0.31	12.09
10/8/2024 6:40	12.41	232.86	0.12	7.38	389.46	9.32	0.35	12.09
10/8/2024 6:30	12.41	247.76	0.13	7.39	388.87	9.3	0.42	12.09
10/8/2024 6:20	12.41	264.44	0.14	7.4	388.33	9.31	0.35	12
10/8/2024 6:10	12.41	275.3	0.15	7.42	387.6	9.33	0.48	12.07
10/8/2024 6:00	12.42	293.25	0.16	7.42	387.03	9.32	0.48	12.07
10/8/2024 5:50	12.41	315.87	0.17	7.43	386.67	9.32	0.57	11.97
10/8/2024 5:40	12.4	332.62	0.18	7.42	387.04	9.35	0.53	12.09
10/8/2024 5:30	12.38	309.6	0.17	7.36	389.61	9.35	0.57	12.09
10/8/2024 5:20	12.35	234.39	0.13	7.28	393.24	9.36	0.49	12.09
10/8/2024 5:10	12.32	146.06	0.08	7.14	398.18	9.38	0.9	12.09
10/8/2024 5:00	12.31	61.35	0.03	7	402.23	9.37	0.4	12.09
10/8/2024 4:50	12.31	37.39	0.02	6.96	403.76	9.35	0.49	12.12

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/8/2024 4:40	12.32	34.36	0.02	6.99	403	9.35	0.52	12.12
10/8/2024 4:30	12.32	32.46	0.02	7	403.04	9.34	0.56	12.12
10/8/2024 4:20	12.33	32.39	0.02	6.97	405.53	9.32	0.47	12.12
10/8/2024 4:10	12.33	32.18	0.02	6.98	406.34	9.34	0.35	12.12
10/8/2024 4:00	12.33	32.44	0.02	7	407.13	9.33	0.37	12.12
10/8/2024 3:50	12.33	32.56	0.02	6.98	408.72	9.32	0.28	12.02
10/8/2024 3:40	12.34	32.75	0.02	6.99	406.46	9.32	0.32	12.12
10/8/2024 3:30	12.34	32.17	0.02	6.99	406.74	9.33	0.32	12.12
10/8/2024 3:20	12.34	32.79	0.02	6.98	407.72	9.34	0.33	12.12
10/8/2024 3:10	12.34	32.84	0.02	6.95	411.41	9.32	0.32	12.12
10/8/2024 3:00	12.35	33.18	0.02	6.99	411.52	9.34	0.34	12.12
10/8/2024 2:50	12.35	33.15	0.02	6.99	413.83	9.34	0.32	12.12
10/8/2024 2:40	12.35	33.29	0.02	6.99	414.27	9.33	0.31	12.02
10/8/2024 2:30	12.35	33.08	0.02	7.01	413.21	9.34	0.28	12.02
10/8/2024 2:20	12.36	33.35	0.02	6.99	413.71	9.34	0.29	12.02
10/8/2024 2:10	12.36	32.63	0.02	6.97	415.53	9.34	0.3	12.12
10/8/2024 2:00	12.37	33.22	0.02	6.97	415.04	9.33	0.3	12.14
10/8/2024 1:50	12.37	32.76	0.02	6.98	415.08	9.32	0.3	12.14
10/8/2024 1:40	12.38	33.04	0.02	6.97	414.73	9.32	0.31	12.14
10/8/2024 1:30	12.38	32.93	0.02	7	413.79	9.35	0.3	12.14
10/8/2024 1:20	12.39	32.93	0.02	6.99	413.96	9.33	0.32	12.07
10/8/2024 1:10	12.39	32.86	0.02	6.97	415.33	9.32	0.3	12.05
10/8/2024 1:00	12.4	33.07	0.02	6.97	414.46	9.34	0.29	12.07
10/8/2024 0:50	12.4	32.71	0.02	6.96	415.42	9.33	0.31	12.17
10/8/2024 0:40	12.4	33.1	0.02	6.98	414.13	9.32	0.3	12.17
10/8/2024 0:30	12.41	32.9	0.02	6.98	413.74	9.33	0.3	12.09
10/8/2024 0:20	12.41	33.15	0.02	7	412.44	9.33	0.28	12.09
10/8/2024 0:10	12.42	32.78	0.02	6.97	414.92	9.31	0.3	12.07
10/8/2024 0:00	12.42	33.15	0.02	6.97	414.35	9.34	0.3	12.09
10/7/2024 23:50	12.43	32.91	0.02	6.98	414.89	9.33	0.31	12.07
10/7/2024 23:40	12.43	33.23	0.02	6.97	414.68	9.34	0.33	12.09
10/7/2024 23:30	12.44	32.56	0.02	6.98	414.73	9.33	0.31	12.21
10/7/2024 23:20	12.44	33.2	0.02	6.98	414.12	9.33	0.29	12.21
10/7/2024 23:10	12.44	32.77	0.02	6.96	415.43	9.33	0.31	12.21
10/7/2024 23:00	12.45	33.11	0.02	6.97	414.61	9.31	0.31	12.21
10/7/2024 22:50	12.45	33.03	0.02	6.97	414.97	9.33	0.27	12.21
10/7/2024 22:40	12.46	33.21	0.02	6.98	414.5	9.31	0.3	12.21
10/7/2024 22:30	12.46	32.78	0.02	6.96	415.88	9.31	0.31	12.21
10/7/2024 22:20	12.46	33.12	0.02	6.98	414.17	9.32	0.31	12.19
10/7/2024 22:10	12.47	32.35	0.02	6.97	414.63	9.34	0.31	12.21
10/7/2024 22:00	12.47	33.02	0.02	6.98	413.89	9.34	0.3	12.21
10/7/2024 21:50	12.47	32.83	0.02	6.97	414.38	9.32	0.3	12.14
10/7/2024 21:40	12.48	32.96	0.02	6.99	413.29	9.32	0.28	12.21
10/7/2024 21:30	12.48	32.72	0.02	6.97	414.56	9.31	0.32	12.24
10/7/2024 21:20	12.49	32.77	0.02	6.99	412.76	9.32	0.3	12.21
10/7/2024 21:10	12.5	32.56	0.02	6.97	414.24	9.32	0.31	12.14
10/7/2024 21:00	12.5	32.88	0.02	6.98	412.76	9.31	0.3	12.21

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/7/2024 20:50	12.51	32.77	0.02	6.97	413.2	9.31	0.29	12.21
10/7/2024 20:40	12.52	32.81	0.02	6.98	412.47	9.31	0.38	12.26
10/7/2024 20:30	12.52	32.56	0.02	7	411.79	9.32	0.31	12.26
10/7/2024 20:20	12.53	32.9	0.02	6.98	411.97	9.3	0.31	12.14
10/7/2024 20:10	12.53	32.67	0.02	6.97	412.9	9.31	0.32	12.24
10/7/2024 20:00	12.54	32.79	0.02	6.97	411.7	9.31	0.31	12.24
10/7/2024 19:50	12.55	32.59	0.02	6.96	412.72	9.3	0.3	12.29
10/7/2024 19:40	12.56	32.9	0.02	6.99	410.41	9.32	0.3	12.29
10/7/2024 19:30	12.56	32.72	0.02	6.96	411.71	9.32	0.32	12.29
10/7/2024 19:20	12.57	32.99	0.02	6.98	409.98	9.3	0.41	12.29
10/7/2024 19:10	12.58	32.88	0.02	6.99	409.84	9.32	0.3	12.29
10/7/2024 19:00	12.59	32.95	0.02	6.97	410.22	9.31	0.3	12.29
10/7/2024 18:50	12.6	32.67	0.02	6.98	409.59	9.31	0.33	12.29
10/7/2024 18:40	12.61	32.94	0.02	6.99	408.27	9.31	0.33	12.29
10/7/2024 18:30	12.62	32.44	0.02	6.99	408.48	9.31	0.44	12.29
10/7/2024 18:20	12.63	33.14	0.02	6.98	407.97	9.31	0.3	12.21
10/7/2024 18:10	12.64	32.94	0.02	6.99	407.49	9.3	0.31	12.31
10/7/2024 18:00	12.64	33.29	0.02	6.99	407.02	9.32	0.31	12.33
10/7/2024 17:50	12.65	33.28	0.02	6.98	407.34	9.34	0.3	12.26
10/7/2024 17:40	12.66	33.62	0.02	7	405.74	9.36	0.3	12.24
10/7/2024 17:30	12.66	33.46	0.02	6.98	406.91	9.37	0.32	12.29
10/7/2024 17:20	12.67	33.93	0.02	6.98	406.29	9.38	0.46	12.43
10/7/2024 17:10	12.67	33.59	0.02	6.98	406.58	9.38	0.31	12.53
10/7/2024 17:00	12.68	34.18	0.02	7	404.69	9.37	0.3	12.5
10/7/2024 16:50	12.68	33.77	0.02	6.99	405.2	9.35	0.39	12.48
10/7/2024 16:40	12.68	34.39	0.02	6.97	405.94	9.37	0.34	12.45
10/7/2024 16:30	12.69	34.53	0.02	6.99	404.89	9.38	0.31	12.48
10/7/2024 16:20	12.7	34.64	0.02	7.01	403.44	9.37	0.3	12.48
10/7/2024 16:10	12.69	34.79	0.02	7	403.51	9.38	0.29	12.45
10/7/2024 16:00	12.7	35.05	0.02	6.99	403.4	9.37	0.31	12.57
10/7/2024 15:50	12.7	34.77	0.02	7.04	400.53	9.39	0.28	12.6
10/7/2024 15:40	12.71	35.34	0.02	7.02	400.93	9.41	0.32	12.65
10/7/2024 15:30	12.71	35.29	0.02	6.98	403.04	9.43	0.31	12.69
10/7/2024 15:20	12.72	35.59	0.02	7.02	399.87	9.43	0.3	12.84
10/7/2024 15:10	12.71	35.64	0.02	7.02	399.97	9.45	0.37	12.76
10/7/2024 15:00	12.71	35.97	0.02	7.03	398.1	9.45	0.32	12.74
10/7/2024 14:50	12.71	35.75	0.02	7	399.8	9.45	0.33	12.6
10/7/2024 14:40	12.7	36.26	0.02	7.04	397.08	9.48	0.31	13.03
10/7/2024 14:30	12.69	36	0.02	7.04	397.52	9.49	0.33	13.29
10/7/2024 14:20	12.68	36.71	0.02	7.03	397.12	9.48	0.31	13.12
10/7/2024 14:10	12.67	36.57	0.02	7.01	398.61	9.52	0.31	13.12
10/7/2024 14:00	12.65	36.96	0.02	7.05	395.85	9.47	0.32	13.2
10/7/2024 13:50	12.66	36.91	0.02	7.02	397.65	9.54	0.27	13.36
10/7/2024 13:40	12.64	37.24	0.02	7.06	394.96	9.55	0.31	13.63
10/7/2024 13:30	12.62	37.28	0.02	7.03	396.84	9.54	0.32	13.63
10/7/2024 13:20	12.62	37.57	0.02	7.05	395.41	9.56	0.32	13.63
10/7/2024 13:10	12.56	37.63	0.02	7.02	398.2	9.58	0.35	13.65

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/7/2024 13:00	12.52	37.97	0.02	7.04	396.8	9.57	0.29	13.53
10/7/2024 12:50	12.49	38.07	0.02	7.03	397.86	9.54	0.31	13.29
10/7/2024 12:40	12.49	38.44	0.02	7.04	396.71	9.59	0.3	12.98
10/7/2024 12:30	12.46	38.38	0.02	7.04	397.4	9.6	0.28	13.65
10/7/2024 12:20	12.43	38.68	0.02	7.02	398.67	9.57	0.31	13.05
10/7/2024 12:10	12.42	38.8	0.02	7.04	397.82	9.6	0.29	13.1
10/7/2024 12:00	12.41	39	0.02	7.06	396.83	9.62	0.3	13.12
10/7/2024 11:50	12.4	38.39	0.02	7.01	399.7	9.63	0.3	13.63
10/7/2024 11:40	12.38	39.38	0.02	7.03	399.19	9.61	0.31	13.24
10/7/2024 11:30	12.32	39.08	0.02	7.04	399.54	9.64	0.31	13.63
10/7/2024 11:20	12.28	39.5	0.02	7.06	399.03	9.63	0.3	13.12
10/7/2024 11:10	12.25	39.3	0.02	7.04	401.5	9.63	0.28	12.88
10/7/2024 11:00	12.24	39.29	0.02	7.03	402.06	9.65	0.31	13
10/7/2024 10:50	12.22	39.09	0.02	7.03	402.89	9.66	0.28	12.93
10/7/2024 10:40	12.19	39.28	0.02	7.06	402.54	9.66	0.3	13
10/7/2024 10:30	12.14	39.14	0.02	7.02	405.8	9.64	0.29	13.15
10/7/2024 10:20	12.11	39.45	0.02	7.02	406.13	9.63	0.28	12.74
10/7/2024 10:10	12.08	38.94	0.02	7.03	406.25	9.63	0.3	12.57
10/7/2024 10:00	12.07	39.57	0.02	7.04	406.35	9.63	0.28	12.6
10/7/2024 9:50	12.05	39.62	0.02	7.04	407.45	9.64	0.29	12.69
10/7/2024 9:40	12.03	39.74	0.02	7	410.43	9.66	0.3	12.55
10/7/2024 9:30	12	39.64	0.02	7	411.68	9.61	0.26	12.41
10/7/2024 9:20	11.98	40.07	0.02	7	412.18	9.61	0.28	12.29
10/7/2024 9:10	11.97	40.23	0.02	6.99	413.74	9.57	0.3	12.21
10/7/2024 9:00	11.97	40.6	0.02	6.99	413.55	9.56	0.25	12.19
10/7/2024 8:50	11.96	40.57	0.02	6.99	414.61	9.55	0.3	12.19
10/7/2024 8:40	11.96	41.03	0.02	7	413.87	9.53	0.28	12.17
10/7/2024 8:30	11.95	41.08	0.02	6.99	415.07	9.54	0.27	12.07
10/7/2024 8:20	11.95	41.3	0.02	7	414.25	9.52	0.29	12.14
10/7/2024 8:10	11.95	41.26	0.02	7.02	413.32	9.55	0.27	12.14
10/7/2024 8:00	11.94	41.74	0.02	7	414.35	9.53	0.27	12.14
10/7/2024 7:50	11.94	41.64	0.02	6.98	415.99	9.53	0.27	12.14
10/7/2024 7:40	11.94	42.15	0.02	6.99	414.91	9.53	0.45	12.14
10/7/2024 7:30	11.94	41.83	0.02	6.99	415.38	9.54	0.27	12.05
10/7/2024 7:20	11.94	42.52	0.02	7.01	414.14	9.51	0.29	12.14
10/7/2024 7:10	11.94	41.93	0.02	6.98	415.65	9.51	0.27	12.07
10/7/2024 7:00	11.94	42.72	0.02	7	414.03	9.52	0.27	12.14
10/7/2024 6:50	11.94	42.56	0.02	6.99	415.26	9.53	0.26	12.17
10/7/2024 6:40	11.94	43.14	0.02	7	414.54	9.53	0.31	12.17
10/7/2024 6:30	11.94	42.98	0.02	6.99	415.31	9.53	0.26	12.17
10/7/2024 6:20	11.95	43.35	0.02	7	414.46	9.54	0.28	12.17
10/7/2024 6:10	11.95	43.12	0.02	6.98	415.82	9.52	0.27	12.17
10/7/2024 6:00	11.96	43.7	0.02	7.02	413.59	9.53	0.27	12.17
10/7/2024 5:50	11.96	43.6	0.02	6.98	415.64	9.51	0.28	12.05
10/7/2024 5:40	11.97	43.93	0.02	7	414.25	9.51	0.28	12.05
10/7/2024 5:30	11.97	43.7	0.02	6.99	415.2	9.52	0.27	12.17
10/7/2024 5:20	11.97	44.13	0.02	7.01	413.7	9.52	0.31	12.17

EGP-STU-003 (WLNG US) 2024-10-07 to 2024-10-13

10/7/2024 5:10	11.98	44.08	0.02	7	414.38	9.52	0.28	12.17
10/7/2024 5:00	11.99	44.35	0.02	7	414.16	9.52	0.29	12.17
10/7/2024 4:50	11.99	44.31	0.02	6.99	414.91	9.53	0.27	12.07
10/7/2024 4:40	11.99	44.87	0.02	6.99	414.57	9.52	0.29	12.17
10/7/2024 4:30	11.99	44.86	0.02	7	414.23	9.53	0.3	12.07
10/7/2024 4:20	11.99	45.18	0.02	7.01	413.64	9.53	0.29	12.17
10/7/2024 4:10	11.99	44.89	0.02	7	414.5	9.51	0.28	12.17
10/7/2024 4:00	11.99	45.53	0.02	7.01	413.65	9.53	0.28	12.17
10/7/2024 3:50	12	45.07	0.02	7	414.05	9.53	0.28	12.17
10/7/2024 3:40	12	45.92	0.02	7.01	413	9.52	0.27	12.17
10/7/2024 3:30	12	45.94	0.02	7	413.68	9.53	0.28	12.17
10/7/2024 3:20	12.01	46.41	0.02	7	413.28	9.52	0.29	12.09
10/7/2024 3:10	12.01	46.07	0.02	6.98	414.35	9.54	0.28	12.19
10/7/2024 3:00	12.02	46.72	0.02	7.02	412.34	9.54	0.25	12.19
10/7/2024 2:50	12.02	46.67	0.02	6.99	414.48	9.53	0.28	12.19
10/7/2024 2:40	12.03	47.09	0.02	7.02	412.83	9.52	0.28	12.21
10/7/2024 2:30	12.03	46.98	0.02	7.01	413.81	9.51	0.27	12.21
10/7/2024 2:20	12.04	47.41	0.02	7.02	412.96	9.52	0.29	12.19
10/7/2024 2:10	12.05	47.33	0.02	7	413.9	9.52	0.27	12.09
10/7/2024 2:00	12.06	47.73	0.02	7.02	412.59	9.5	0.29	12.19
10/7/2024 1:50	12.07	47.54	0.02	7	413.97	9.51	0.29	12.21
10/7/2024 1:40	12.07	48	0.02	7.02	412.64	9.51	0.28	12.17
10/7/2024 1:30	12.07	47.86	0.02	7	414.16	9.52	0.27	12.21
10/7/2024 1:20	12.07	48.08	0.02	7.02	412.83	9.52	0.29	12.21
10/7/2024 1:10	12.07	47.81	0.02	7	413.82	9.52	0.31	12.21
10/7/2024 1:00	12.07	48.18	0.02	7.02	412.57	9.53	0.28	12.12
10/7/2024 0:50	12.07	47.86	0.02	7.01	413.19	9.51	0.26	12.12
10/7/2024 0:40	12.08	48.4	0.02	7	413.45	9.52	0.45	12.12
10/7/2024 0:30	12.08	48	0.02	7.02	412.57	9.51	0.28	12.21
10/7/2024 0:20	12.08	48.55	0.02	7.02	412.07	9.52	0.3	12.21
10/7/2024 0:10	12.09	48.35	0.02	6.99	413.93	9.52	0.28	12.24
10/7/2024 0:00	12.1	48.97	0.02	7	412.93	9.53	0.31	12.21

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

Received	Temperature C	Specific Conductivity ÂµS/cm	Salinity PSU	pH pH	ORP mV	Dissolved Oxygen Concentration mg/L	Turbidity NTU	TL Battery V
10/13/2024 23:50	12.03	131.11	0.06	8.02	204.53	9.89	8.99	12.24
10/13/2024 23:40	12	126.86	0.06	7.98	207.58	9.89	9.3	12.29
10/13/2024 23:30	11.97	88.6	0.04	7.81	211.73	9.85	4.46	12.29
10/13/2024 23:20	12.01	91.78	0.04	7.83	213.04	9.84	5.28	12.29
10/13/2024 23:10	12.06	112.77	0.05	7.95	208.85	9.83	7.58	12.29
10/13/2024 23:00	12.09	131.65	0.06	8.02	206.95	9.87	8.86	12.29
10/13/2024 22:50	12.1	131.31	0.06	8.02	205.71	9.87	7.83	12.29
10/13/2024 22:40	12.08	127.81	0.06	7.98	209.77	9.88	6.86	12.29
10/13/2024 22:30	12.04	90.53	0.04	7.82	212.51	9.84	5.64	12.29
10/13/2024 22:20	12.08	101.16	0.05	7.89	212.63	9.83	7.67	12.31
10/13/2024 22:10	12.12	130.69	0.06	8.02	208.53	9.87	9.88	12.21
10/13/2024 22:00	12.12	131.88	0.06	8.04	208.79	9.86	9.66	12.31
10/13/2024 21:50	12.13	131.94	0.06	8.02	208.69	9.87	6.8	12.31
10/13/2024 21:40	12.14	131.58	0.06	8.03	209	9.85	7.05	12.21
10/13/2024 21:30	12.14	128.33	0.06	8.02	208.25	9.86	4.47	12.29
10/13/2024 21:20	12.09	89.79	0.04	7.83	213.56	9.82	3.59	12.29
10/13/2024 21:10	12.12	100.21	0.05	7.89	208.99	9.82	4.58	12.21
10/13/2024 21:00	12.16	130.15	0.06	8.01	208.07	9.84	7.62	12.21
10/13/2024 20:50	12.18	131.89	0.06	8.03	207.69	9.84	6.57	12.31
10/13/2024 20:40	12.2	131.73	0.06	8.02	208.31	9.84	6.28	12.33
10/13/2024 20:30	12.23	130.64	0.06	8.01	207.5	9.83	5.82	12.33
10/13/2024 20:20	12.17	88.62	0.04	7.81	217.09	9.81	3.33	12.31
10/13/2024 20:10	12.18	87.16	0.04	7.81	216.07	9.8	3.29	12.24
10/13/2024 20:00	12.2	89	0.04	7.83	215.86	9.8	3.45	12.21
10/13/2024 19:50	12.23	97.19	0.05	7.87	212.08	9.79	4.31	12.33
10/13/2024 19:40	12.28	128.02	0.06	8	209.69	9.82	6.45	12.36
10/13/2024 19:30	12.3	131.88	0.06	8.03	208.07	9.83	7.05	12.36
10/13/2024 19:20	12.32	131.82	0.06	8.02	209.5	9.83	4.63	12.36
10/13/2024 19:10	12.34	131.48	0.06	8.02	208.52	9.81	4.01	12.36
10/13/2024 19:00	12.32	114.33	0.05	7.91	217.49	9.81	4.56	12.36
10/13/2024 18:50	12.28	86.85	0.04	7.79	217.35	9.79	3.06	12.38
10/13/2024 18:40	12.3	87.78	0.04	7.81	219.39	9.77	3.36	12.36
10/13/2024 18:30	12.33	93.93	0.04	7.86	217.21	9.78	3.94	12.38
10/13/2024 18:20	12.38	124.54	0.06	7.99	214.94	9.78	4.32	12.36
10/13/2024 18:10	12.41	131.91	0.06	8.03	213.13	9.81	5.37	12.29
10/13/2024 18:00	12.44	131.5	0.06	8.02	214.19	9.79	4.82	12.31
10/13/2024 17:50	12.47	130.55	0.06	8.03	212.78	9.79	5.18	12.38
10/13/2024 17:40	12.44	92	0.04	7.81	222.11	9.78	4.54	12.41
10/13/2024 17:30	12.41	85.99	0.04	7.79	220	9.76	3.27	12.31
10/13/2024 17:20	12.39	87.36	0.04	7.83	220.26	9.77	3.64	12.41
10/13/2024 17:10	12.41	96.69	0.04	7.89	216.96	9.79	3.77	12.5

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/13/2024 17:00	12.46	128.34	0.06	8.03	214.72	9.81	5.82	12.88
10/13/2024 16:50	12.51	131.48	0.06	8.06	213.23	9.81	5.32	12.93
10/13/2024 16:40	12.52	131.27	0.06	8.05	214.14	9.79	4.78	12.96
10/13/2024 16:30	12.54	130.14	0.06	8.04	213.34	9.8	4.95	12.91
10/13/2024 16:20	12.49	87.56	0.04	7.82	222.03	9.79	4.45	12.96
10/13/2024 16:10	12.45	84.48	0.04	7.81	219.12	9.8	3.63	13.03
10/13/2024 16:00	12.4	86.17	0.04	7.84	217.75	9.79	3.77	13.15
10/13/2024 15:50	12.37	96.74	0.04	7.91	213.12	9.81	6.36	13.2
10/13/2024 15:40	12.43	129.09	0.06	8.05	212.97	9.85	5.9	13.2
10/13/2024 15:30	12.44	131.08	0.06	8.07	211.54	9.84	7.27	13.24
10/13/2024 15:20	12.47	130.27	0.06	8.05	213.26	9.83	5.05	13.05
10/13/2024 15:10	12.54	116.93	0.05	7.96	219.62	9.8	5.77	12.91
10/13/2024 15:00	12.45	82.58	0.04	7.8	220.46	9.8	3.41	13.2
10/13/2024 14:50	12.39	83.13	0.04	7.8	218.46	9.83	3.98	13
10/13/2024 14:40	12.34	88.5	0.04	7.86	215.94	9.85	4.62	13.08
10/13/2024 14:30	12.31	121.47	0.06	8.02	210.12	9.86	8.77	13.22
10/13/2024 14:20	12.31	130.66	0.06	8.06	208.7	9.87	6.88	13.22
10/13/2024 14:10	12.29	130.74	0.06	8.03	209.22	9.87	6.84	13.24
10/13/2024 14:00	12.28	130.09	0.06	8.04	208.45	9.87	5.65	13.44
10/13/2024 13:50	12.31	124	0.06	8.01	207.54	9.86	5.73	13.53
10/13/2024 13:40	12.21	82.03	0.04	7.8	214	9.86	3.14	13.32
10/13/2024 13:30	12.13	83.04	0.04	7.8	210.9	9.87	3.6	13.32
10/13/2024 13:20	12.04	91.74	0.04	7.85	209.18	9.93	4.93	13.51
10/13/2024 13:10	11.99	121.89	0.06	8.01	203.11	9.95	6.78	13.51
10/13/2024 13:00	11.98	129.95	0.06	8.03	203.34	9.97	7.31	13.51
10/13/2024 12:50	11.96	130.12	0.06	8.04	201.86	9.97	4.76	13.44
10/13/2024 12:40	11.97	129.57	0.06	8.03	200.92	9.97	5.52	13.51
10/13/2024 12:30	12.04	121.55	0.06	7.97	203.35	9.93	4.42	13.27
10/13/2024 12:20	11.86	82.11	0.04	7.78	204.46	9.96	3.5	13.2
10/13/2024 12:10	11.78	81.8	0.04	7.79	200.75	10.01	3.28	13.6
10/13/2024 12:00	11.69	86.08	0.04	7.82	197.7	10.04	3.79	13.27
10/13/2024 11:50	11.62	108.77	0.05	7.94	191.75	10.06	4.63	13.17
10/13/2024 11:40	11.61	130	0.06	8.04	187.5	10.07	5.28	13.08
10/13/2024 11:30	11.53	129.87	0.06	8.03	185.42	10.08	4.84	12.96
10/13/2024 11:20	11.45	129.62	0.06	8.02	183.83	10.1	4.6	12.91
10/13/2024 11:10	11.4	128.94	0.06	8.02	180.67	10.11	4.32	12.86
10/13/2024 11:00	11.19	105.61	0.05	7.83	186.56	10.12	4.08	12.81
10/13/2024 10:50	11.04	79.47	0.04	7.73	182.28	10.13	3.01	12.88
10/13/2024 10:40	10.99	79.01	0.04	7.72	181.56	10.14	3.05	12.53
10/13/2024 10:30	10.98	81.49	0.04	7.75	178.74	10.15	3.13	12.41
10/13/2024 10:20	11.02	88.77	0.04	7.8	177.03	10.14	3.54	12.33
10/13/2024 10:10	11.11	119.65	0.06	7.96	172.07	10.13	3.97	12.26
10/13/2024 10:00	11.13	130.17	0.06	8	170.24	10.17	4.56	12.24
10/13/2024 9:50	11.08	130.09	0.06	8	168.21	10.18	4.81	12.17
10/13/2024 9:40	11.05	130.08	0.06	7.99	167.69	10.17	5.05	12.12
10/13/2024 9:30	10.89	124.38	0.06	7.94	168.25	10.2	7.18	12
10/13/2024 9:20	10.79	83.06	0.04	7.72	168.64	10.17	3.03	12.05

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/13/2024 9:10	10.83	84.15	0.04	7.66	148.58	10.16	2.97	12.14
10/13/2024 9:00	10.91	91.26	0.04	7.84	210.43	10.14	3.06	12.12
10/13/2024 8:50	11.01	121.56	0.06	7.99	204.79	10.13	3.2	12.12
10/13/2024 8:40	11.03	129.61	0.06	8.01	205.26	10.15	3.44	12.09
10/13/2024 8:30	11.03	129.49	0.06	8	203.55	10.15	3.72	12.07
10/13/2024 8:20	11.01	129.17	0.06	8	203.29	10.14	3.57	12.07
10/13/2024 8:10	10.9	124.82	0.06	7.97	202.02	10.17	3.87	12
10/13/2024 8:00	10.8	81.63	0.04	7.75	210.41	10.16	3.1	12.07
10/13/2024 7:50	10.85	81.52	0.04	7.74	209.17	10.15	3.04	12
10/13/2024 7:40	10.92	84.02	0.04	7.77	212.23	10.13	2.95	12.07
10/13/2024 7:30	11.02	95.02	0.04	7.85	208.06	10.11	3.1	12.02
10/13/2024 7:20	11.09	125.17	0.06	8	206.71	10.11	4.7	11.95
10/13/2024 7:20	11.09	125.17	0.06	8	206.71	10.11	4.7	11.95
10/13/2024 7:10	11.11	129.7	0.06	8	203.99	10.12	3.79	11.97
10/13/2024 7:00	11.11	129.72	0.06	8	205.63	10.13	3.84	11.97
10/13/2024 6:50	11.1	129.16	0.06	7.99	201.64	10.13	3.55	12.09
10/13/2024 6:40	10.94	122.77	0.06	7.96	205.23	10.16	4.77	12.09
10/13/2024 6:30	10.92	82.31	0.04	7.77	206.25	10.14	3.19	12.12
10/13/2024 6:20	10.97	83.11	0.04	7.78	209.05	10.11	3.04	12.12
10/13/2024 6:10	11.05	87.71	0.04	7.82	206.28	10.1	3.55	12.12
10/13/2024 6:00	11.17	112.88	0.05	7.97	206.32	10.07	3.26	12.12
10/13/2024 5:50	11.21	129.92	0.06	8.02	202.42	10.09	3.87	12.12
10/13/2024 5:40	11.22	129.77	0.06	8.01	205.04	10.1	3.63	12
10/13/2024 5:30	11.22	129.25	0.06	8.01	200.99	10.12	3.92	12.02
10/13/2024 5:20	11.07	117.81	0.06	7.95	206.83	10.14	3.74	12.14
10/13/2024 5:10	11.07	83.03	0.04	7.79	208.36	10.1	3.05	12.14
10/13/2024 5:00	11.13	84.54	0.04	7.8	211.59	10.08	3.04	12.05
10/13/2024 4:50	11.21	91.79	0.04	7.86	206.73	10.07	3.83	12.14
10/13/2024 4:40	11.31	122.63	0.06	8	205.88	10.05	3.32	12.05
10/13/2024 4:30	11.33	129.86	0.06	8.04	201.48	10.07	3.45	12.07
10/13/2024 4:20	11.33	130.3	0.06	8.03	204.17	10.07	3.91	12.14
10/13/2024 4:10	11.33	129.61	0.06	8.02	200.55	10.07	3.49	12.17
10/13/2024 4:00	11.19	123.14	0.06	7.98	206.33	10.11	4.01	12.17
10/13/2024 3:50	11.16	82.82	0.04	7.79	209.37	10.07	3.14	12.17
10/13/2024 3:40	11.23	84.21	0.04	7.8	212.46	10.06	3.21	12.17
10/13/2024 3:30	11.3	91.69	0.04	7.86	207.97	10.03	3.11	12.19
10/13/2024 3:20	11.41	120.78	0.06	8	208.12	10.03	3.3	12.17
10/13/2024 3:10	11.45	129.82	0.06	8.03	204.76	10.05	3.97	12.05
10/13/2024 3:00	11.46	129.65	0.06	8.02	207.14	10.05	3.94	12.19
10/13/2024 2:50	11.47	129.27	0.06	8.03	203.61	10.04	4.07	12.19
10/13/2024 2:40	11.36	123.36	0.06	7.98	207.19	10.08	4.15	12.21
10/13/2024 2:30	11.34	82.81	0.04	7.79	209.47	10.03	3.12	12.21
10/13/2024 2:20	11.4	84.55	0.04	7.8	211.56	10.03	3.17	12.21
10/13/2024 2:10	11.48	91	0.04	7.86	207.8	10.01	3.34	12.21
10/13/2024 2:00	11.58	120.34	0.06	8	207.43	10	3.79	12.21
10/13/2024 1:50	11.61	130.1	0.06	8.04	204.36	10.02	4.96	12.21
10/13/2024 1:40	11.63	130.06	0.06	8.02	206.79	10.03	4.11	12.21

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/13/2024 1:30	11.64	129.86	0.06	8.03	203.41	10.01	4.22	12.21
10/13/2024 1:20	11.63	129.1	0.06	8.02	205.12	10.02	4.09	12.21
10/13/2024 1:10	11.47	118.09	0.06	7.96	207.77	10.04	4	12.24
10/13/2024 1:00	11.48	81.12	0.04	7.77	212.27	9.99	3.27	12.21
10/13/2024 0:50	11.53	81.79	0.04	7.78	209.66	10	3.29	12.12
10/13/2024 0:40	11.59	86.38	0.04	7.81	211.73	9.97	3.96	12.12
10/13/2024 0:30	11.69	98.01	0.05	7.9	206.81	9.95	3.57	12.17
10/13/2024 0:20	11.76	126.97	0.06	8.03	207.27	9.99	3.84	12.26
10/13/2024 0:10	11.78	130.22	0.06	8.04	204.19	9.97	5.72	12.24
10/13/2024 0:00	11.78	130.09	0.06	8.04	205.31	9.98	5.54	12.24
10/12/2024 23:50	11.79	128.95	0.06	8.03	203.11	9.98	4.52	12.24
10/12/2024 23:40	11.66	83.76	0.04	7.78	212.97	9.96	3.22	12.26
10/12/2024 23:30	11.71	84.58	0.04	7.79	210.67	9.95	3.39	12.17
10/12/2024 23:20	11.77	88.2	0.04	7.82	212.09	9.94	3.49	12.14
10/12/2024 23:10	11.87	105.91	0.05	7.94	206.52	9.92	3.61	12.17
10/12/2024 23:00	11.93	130.25	0.06	8.02	206.98	9.96	5.7	12.26
10/12/2024 22:50	11.94	130.51	0.06	8.03	204.34	9.94	4.13	12.29
10/12/2024 22:40	11.96	130.29	0.06	8.03	205.63	9.93	4.94	12.29
10/12/2024 22:30	11.93	127.35	0.06	8	204	9.93	4.63	12.29
10/12/2024 22:20	11.83	83.58	0.04	7.78	212.82	9.94	3.24	12.29
10/12/2024 22:10	11.9	84.39	0.04	7.78	210.59	9.9	3.27	12.17
10/12/2024 22:00	11.96	88.83	0.04	7.83	211.91	9.89	3.35	12.26
10/12/2024 21:50	12.06	109.98	0.05	7.95	206.15	9.89	3.79	12.29
10/12/2024 21:40	12.11	130.67	0.06	8.02	206.18	9.9	5.09	12.29
10/12/2024 21:30	12.13	130.84	0.06	8.03	203.71	9.89	4.46	12.31
10/12/2024 21:20	12.15	130.24	0.06	8.03	205.21	9.88	5.19	12.31
10/12/2024 21:10	12.08	126.18	0.06	8.01	204.28	9.89	6.12	12.21
10/12/2024 21:00	12.03	85	0.04	7.79	212.75	9.86	3.74	12.31
10/12/2024 20:50	12.09	86.88	0.04	7.8	210.8	9.85	4.03	12.31
10/12/2024 20:40	12.17	95.58	0.04	7.86	211.11	9.83	3.47	12.31
10/12/2024 20:30	12.23	122.7	0.06	8	204.68	9.83	4.42	12.31
10/12/2024 20:20	12.27	131.59	0.06	8.04	204.9	9.85	5.29	12.21
10/12/2024 20:10	12.34	131.13	0.06	8.04	203.47	9.82	6.71	12.21
10/12/2024 20:00	12.37	130.47	0.06	8.03	205.97	9.82	5.61	12.24
10/12/2024 19:50	12.27	109.27	0.05	7.92	212.58	9.83	7.9	12.21
10/12/2024 19:40	12.34	97.42	0.05	7.88	212.09	9.79	4.51	12.21
10/12/2024 19:30	12.43	118.73	0.06	8	206.46	9.78	6.02	12.21
10/12/2024 19:20	12.49	131.64	0.06	8.04	207.04	9.8	10.39	12.33
10/12/2024 19:10	12.45	120.65	0.06	7.98	212.33	9.81	10.95	12.33
10/12/2024 19:00	12.37	78.15	0.04	7.75	222.37	9.79	4.56	12.36
10/12/2024 18:50	12.45	88.52	0.04	7.85	215.19	9.74	6.35	12.36
10/12/2024 18:40	12.55	118.84	0.06	8.01	211.69	9.75	7.79	12.36
10/12/2024 18:30	12.65	131.7	0.06	8.05	208.26	9.76	9.39	12.38
10/12/2024 18:20	12.7	131.32	0.06	8.05	210.93	9.76	9.86	12.38
10/12/2024 18:10	12.73	128.8	0.06	8.03	210.59	9.75	11.5	12.38
10/12/2024 18:00	12.63	83.87	0.04	7.81	222.93	9.73	5.17	12.41
10/12/2024 17:50	12.68	85.54	0.04	7.82	219.69	9.72	4.64	12.41

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/12/2024 17:40	12.74	94.54	0.04	7.87	220.47	9.7	5.16	12.41
10/12/2024 17:30	12.82	120.52	0.06	8.01	214.04	9.69	9.94	12.41
10/12/2024 17:20	12.88	130.98	0.06	8.05	216.34	9.72	10.93	12.33
10/12/2024 17:10	12.9	131.07	0.06	8.05	215.38	9.7	9.03	12.36
10/12/2024 17:00	12.95	130.43	0.06	8.06	218.51	9.7	9.44	12.45
10/12/2024 16:50	13.04	128.03	0.06	8.04	218.39	9.66	8.7	12.62
10/12/2024 16:40	12.94	81.15	0.04	7.82	227.31	9.66	3.98	12.79
10/12/2024 16:30	12.92	80.91	0.04	7.81	224.97	9.68	3.71	12.79
10/12/2024 16:20	12.92	81.48	0.04	7.82	226.13	9.67	4.27	12.76
10/12/2024 16:10	12.91	83.42	0.04	7.84	222.8	9.68	3.76	12.76
10/12/2024 16:00	12.9	92.76	0.04	7.89	223.64	9.68	5.15	12.65
10/12/2024 15:50	12.89	122.93	0.06	8.04	217.48	9.7	4.89	12.69
10/12/2024 15:40	12.9	129.4	0.06	8.06	219.07	9.71	5.87	12.86
10/12/2024 15:30	12.88	129.14	0.06	8.06	216.19	9.72	5.61	12.98
10/12/2024 15:20	12.87	129.06	0.06	8.05	219.07	9.72	5.11	12.88
10/12/2024 15:10	12.89	128.92	0.06	8.06	215.97	9.72	4.81	12.88
10/12/2024 15:00	12.97	126.59	0.06	8.05	219.96	9.69	5.15	12.91
10/12/2024 14:50	12.97	82.01	0.04	7.82	225.98	9.68	4.24	12.93
10/12/2024 14:40	12.92	80.28	0.04	7.84	226.57	9.68	4.35	12.98
10/12/2024 14:30	12.85	79.49	0.04	7.83	221.99	9.71	4.81	12.98
10/12/2024 14:20	12.73	80.5	0.04	7.84	223.22	9.73	4.8	13
10/12/2024 14:10	12.62	88.31	0.04	7.9	216	9.76	5.07	13.1
10/12/2024 14:00	12.56	118.64	0.06	8.04	212.91	9.8	6.38	13.17
10/12/2024 13:50	12.55	129.02	0.06	8.06	209.82	9.83	5.99	13.08
10/12/2024 13:40	12.53	128.88	0.06	8.07	212.39	9.81	7.65	12.88
10/12/2024 13:30	12.54	128.14	0.06	8.05	211.79	9.83	6.53	13.03
10/12/2024 13:20	12.64	121.26	0.06	8.02	215.17	9.78	8.11	13.2
10/12/2024 13:10	12.45	77.63	0.04	7.8	215.04	9.8	6.09	13.22
10/12/2024 13:00	12.34	79.6	0.04	7.82	215.53	9.83	5.03	13.27
10/12/2024 12:50	12.23	89.41	0.04	7.89	207.58	9.87	5.64	13.39
10/12/2024 12:40	12.17	121.33	0.06	8.04	206.04	9.91	8.3	13.41
10/12/2024 12:30	12.16	127.63	0.06	8.04	205.37	9.91	9.33	12.98
10/12/2024 12:20	12.16	126.68	0.06	8.03	208.51	9.92	8.21	12.96
10/12/2024 12:10	12.13	76.51	0.04	7.8	211.44	9.9	6.84	13
10/12/2024 12:00	12.05	77.92	0.04	7.81	210.04	9.93	5.91	12.91
10/12/2024 11:50	11.94	77.85	0.04	7.81	203.76	9.95	6.44	12.84
10/12/2024 11:40	11.8	81.33	0.04	7.83	202.73	9.99	10.16	12.6
10/12/2024 11:30	11.71	96.95	0.05	7.92	193.14	10	8.82	12.69
10/12/2024 11:20	11.67	124.7	0.06	8.03	194.28	10.03	8.6	12.72
10/12/2024 11:10	11.6	126.99	0.06	8.03	190.07	10.03	8.39	12.74
10/12/2024 11:00	11.53	126.88	0.06	8.03	191.27	10.04	5.95	12.81
10/12/2024 10:50	11.48	126.53	0.06	8.02	186.91	10.05	5.21	12.86
10/12/2024 10:40	11.34	114.02	0.05	7.95	192.77	10.07	5.33	12.38
10/12/2024 10:30	11.18	77.23	0.04	7.78	189.24	10.1	4.54	12.31
10/12/2024 10:20	11.17	81.86	0.04	7.82	188.9	10.1	3.46	12.31
10/12/2024 10:10	11.19	93.65	0.04	7.9	182.03	10.1	3.83	12.26
10/12/2024 10:00	11.24	125.34	0.06	8.03	181.01	10.12	4.49	12.12

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/12/2024 9:50	11.2	126.99	0.06	8.02	177.49	10.12	4.69	12.19
10/12/2024 9:40	11.15	126.62	0.06	8	177.29	10.13	5.4	12.09
10/12/2024 9:30	10.93	79.62	0.04	7.75	180.79	10.12	3.83	12.14
10/12/2024 9:20	10.94	78.02	0.04	7.75	179.57	10.12	3.16	12
10/12/2024 9:10	10.93	79.26	0.04	7.76	172.65	10.11	3.31	12
10/12/2024 9:00	10.97	84.06	0.04	7.79	165.29	10.1	3.36	12.14
10/12/2024 8:50	11.04	99.15	0.05	7.88	154.43	10.09	3.7	12.14
10/12/2024 8:40	11.11	127.83	0.06	7.93	122.47	10.08	4.9	12.12
10/12/2024 8:30	11.12	126.86	0.06	8.02	179.79	10.11	17.05	12.14
10/12/2024 8:20	11.14	127.03	0.06	8.02	180.33	10.11	18.73	12.12
10/12/2024 8:10	11.08	126.12	0.06	8.01	180.15	10.12	18.34	12.12
10/12/2024 8:00	10.89	81.55	0.04	7.76	185.03	10.13	21.41	12.09
10/12/2024 7:50	10.92	78.42	0.04	7.77	184.64	10.12	20.64	12
10/12/2024 7:40	10.94	78.28	0.04	7.77	184.49	10.11	21.44	12.09
10/12/2024 7:30	11.01	80.3	0.04	7.79	184.22	10.09	20.26	12.12
10/12/2024 7:20	11.11	89.77	0.04	7.85	180.9	10.06	17.81	12.12
10/12/2024 7:10	11.21	126.67	0.06	8.03	180.84	10.08	17.64	12.12
10/12/2024 7:00	11.23	126.98	0.06	8.03	179.62	10.1	20.41	12.12
10/12/2024 6:50	11.23	126.77	0.06	8.03	181.34	10.08	20.21	12.05
10/12/2024 6:40	11.22	125.09	0.06	8.01	180.29	10.08	19.87	12.05
10/12/2024 6:30	11.04	79.38	0.04	7.77	183	10.1	19.26	12.14
10/12/2024 6:20	11.08	78.58	0.04	7.77	179.7	10.08	21.26	12.14
10/12/2024 6:10	11.1	78.76	0.04	7.76	185.73	10.1	22.16	12.14
10/12/2024 6:00	11.16	82.03	0.04	7.8	182.73	10.06	19.45	12.14
10/12/2024 5:50	11.27	99.71	0.05	7.9	179.38	10.04	24.42	12.14
10/12/2024 5:40	11.35	127.42	0.06	8.03	179.42	10.06	26.46	12.17
10/12/2024 5:30	11.37	127.09	0.06	8.02	180.55	10.06	31.69	12.14
10/12/2024 5:20	11.35	126.67	0.06	8.02	181.19	10.07	25.55	12.12
10/12/2024 5:10	11.26	121.24	0.06	7.97	184.7	10.1	23.52	12.17
10/12/2024 5:00	11.18	79	0.04	7.77	185.9	10.07	22.35	12.17
10/12/2024 4:50	11.22	78.25	0.04	7.76	185.86	10.05	19.83	12.17
10/12/2024 4:40	11.24	78.72	0.04	7.77	184.3	10.05	22.98	12.19
10/12/2024 4:30	11.31	82.68	0.04	7.8	183.54	10.04	22.63	12.19
10/12/2024 4:20	11.4	99.88	0.05	7.91	181.28	10.02	23.74	12.19
10/12/2024 4:10	11.47	127.54	0.06	8.03	182.23	10.05	23.57	12.09
10/12/2024 4:00	11.49	127.35	0.06	8.02	182.69	10.03	25.05	12.19
10/12/2024 3:50	11.5	127.59	0.06	8.03	185.07	10.04	25.1	12.12
10/12/2024 3:40	11.5	126.16	0.06	8.01	186.96	10.05	23.89	12.21
10/12/2024 3:30	11.34	79.45	0.04	7.77	192.89	10.03	23.75	12.12
10/12/2024 3:20	11.37	78.38	0.04	7.76	191.94	10.02	23.32	12.21
10/12/2024 3:10	11.4	78.63	0.04	7.75	191.51	10.02	23.83	12.19
10/12/2024 3:00	11.45	80.49	0.04	7.78	188.38	10.01	24.04	12.12
10/12/2024 2:50	11.52	88.25	0.04	7.83	186.64	9.99	24.86	12.24
10/12/2024 2:40	11.62	126.7	0.06	8	185.47	10.01	26.12	12.24
10/12/2024 2:30	11.65	128.32	0.06	8.01	188.25	10.02	25.68	12.24
10/12/2024 2:20	11.67	127.91	0.06	8.02	187.3	10	24.08	12.24
10/12/2024 2:10	11.68	127.65	0.06	8.01	188.35	10	24.74	12.26

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/12/2024 2:00	11.57	119.12	0.06	7.94	192.24	10.03	27.94	12.24
10/12/2024 1:50	11.48	79.28	0.04	7.75	192.42	9.99	25.49	12.24
10/12/2024 1:40	11.5	78.42	0.04	7.74	190.75	10	21.37	12.24
10/12/2024 1:30	11.5	79.52	0.04	7.76	190.78	10	21.92	12.14
10/12/2024 1:20	11.54	83.61	0.04	7.8	187.95	10	20.93	12.14
10/12/2024 1:10	11.64	104.95	0.05	7.92	186.12	9.98	22.67	12.14
10/12/2024 1:00	11.71	127.61	0.06	8.02	184.51	10	27.49	12.26
10/12/2024 0:50	11.72	127.51	0.06	8.01	185.86	10	20.62	12.26
10/12/2024 0:40	11.72	127.6	0.06	8.02	184.9	9.99	25.07	12.26
10/12/2024 0:30	11.71	126.83	0.06	8.02	184.76	10	23.92	12.17
10/12/2024 0:20	11.53	80.82	0.04	7.76	190.18	10.01	17.35	12.29
10/12/2024 0:10	11.56	73.98	0.03	7.72	196.61	9.99	17.95	12.26
10/12/2024 0:00	11.58	69.67	0.03	7.71	192.87	9.99	16.92	12.29
10/11/2024 23:50	11.66	79.48	0.04	7.78	190.62	9.98	19.5	12.29
10/11/2024 23:40	11.73	86.95	0.04	7.84	187.84	9.96	20.52	12.29
10/11/2024 23:30	11.89	124.13	0.06	8.01	186.09	9.94	24.22	12.29
10/11/2024 23:20	11.92	129.72	0.06	8.03	186.99	9.96	23.58	12.29
10/11/2024 23:10	11.95	129.36	0.06	8.03	187.32	9.95	33.07	12.29
10/11/2024 23:00	11.97	128.95	0.06	8.02	187.85	9.95	30.97	12.29
10/11/2024 22:50	11.97	127.96	0.06	8.01	187.9	9.93	37.3	12.29
10/11/2024 22:40	11.92	115.64	0.05	7.95	190.68	9.93	23.9	12.29
10/11/2024 22:30	11.77	77.12	0.04	7.75	193.86	9.96	22.02	12.21
10/11/2024 22:20	11.77	76.13	0.03	7.74	194.34	9.94	21.35	12.19
10/11/2024 22:10	11.77	72.74	0.03	7.72	194.28	9.93	21.45	12.19
10/11/2024 22:00	11.82	70.32	0.03	7.73	191.96	9.93	20.36	12.19
10/11/2024 21:50	11.89	82.74	0.04	7.79	192.42	9.92	20.96	12.19
10/11/2024 21:40	12.05	115.49	0.05	7.96	189.53	9.89	26.35	12.19
10/11/2024 21:30	12.12	129.29	0.06	8.02	189.5	9.9	32.07	12.19
10/11/2024 21:20	12.12	130.47	0.06	8.02	190.52	9.9	25.22	12.31
10/11/2024 21:10	12.12	129.29	0.06	8.02	190.43	9.91	24.68	12.33
10/11/2024 21:00	12.12	127.86	0.06	8.01	191.05	9.91	33.31	12.33
10/11/2024 20:50	12.13	127.76	0.06	8.01	192.25	9.89	35.39	12.33
10/11/2024 20:40	11.91	82.13	0.04	7.78	196.66	9.93	25.79	12.33
10/11/2024 20:30	11.92	80.65	0.04	7.77	197.53	9.92	24.68	12.24
10/11/2024 20:20	11.94	78.53	0.04	7.77	197.48	9.92	25.23	12.33
10/11/2024 20:10	11.99	82.88	0.04	7.81	196.16	9.91	19.3	12.33
10/11/2024 20:00	12.14	113.92	0.05	7.95	192.22	9.88	23.11	12.33
10/11/2024 19:50	12.23	131.03	0.06	8.02	192.64	9.89	26.27	12.33
10/11/2024 19:40	12.24	131.37	0.06	8.03	191.62	9.89	21.02	12.26
10/11/2024 19:30	12.24	132.56	0.06	8.04	192.24	9.89	21.5	12.33
10/11/2024 19:20	12.25	131.72	0.06	8.03	192.29	9.9	22.72	12.33
10/11/2024 19:10	12.25	132.12	0.06	8.03	194.01	9.88	19.74	12.26
10/11/2024 19:00	12.22	130.29	0.06	8.01	197.01	9.88	30.53	12.36
10/11/2024 18:50	12.24	132.67	0.06	8.02	198.31	9.86	21.84	12.36
10/11/2024 18:40	12.23	128.85	0.06	7.99	202.25	9.84	21.58	12.33
10/11/2024 18:30	11.8	39.78	0.02	7.33	218.75	9.86	4.56	12.26
10/11/2024 18:20	11.82	39.95	0.02	7.34	217.33	9.84	5.86	12.38

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/11/2024 18:10	11.84	40.04	0.02	7.34	217.56	9.85	4.88	12.38
10/11/2024 18:00	11.87	40.11	0.02	7.34	216.89	9.84	5.51	12.36
10/11/2024 17:50	11.9	40.2	0.02	7.34	216.68	9.84	5.98	12.29
10/11/2024 17:40	11.91	40.41	0.02	7.35	215.23	9.84	7.17	12.48
10/11/2024 17:30	11.93	40.6	0.02	7.36	214.57	9.84	8.33	12.5
10/11/2024 17:20	11.96	40.99	0.02	7.37	213.04	9.84	7.3	12.5
10/11/2024 17:10	11.98	41.33	0.02	7.37	211.85	9.82	9.18	12.53
10/11/2024 17:00	12	41.81	0.02	7.38	210.33	9.82	10.52	12.6
10/11/2024 16:50	12.03	42.45	0.02	7.39	208.36	9.83	11.01	12.69
10/11/2024 16:40	12.05	43.44	0.02	7.42	205.07	9.84	12.67	12.72
10/11/2024 16:30	12.08	45.12	0.02	7.44	202.55	9.83	15.81	12.74
10/11/2024 16:20	12.1	47.64	0.02	7.49	199.56	9.84	15.88	12.79
10/11/2024 16:10	12.14	53.23	0.02	7.56	195.81	9.83	17.8	12.72
10/11/2024 16:00	12.22	67.39	0.03	7.73	189.04	9.83	17.71	12.84
10/11/2024 15:50	12.4	130.81	0.06	8.01	182.81	9.81	23.76	12.86
10/11/2024 15:40	12.42	138.11	0.06	8.06	185.18	9.84	29.85	12.88
10/11/2024 15:30	12.41	137.57	0.06	8.06	184.76	9.84	21.27	12.86
10/11/2024 15:20	12.39	137.22	0.06	8.06	184.91	9.83	16.65	12.84
10/11/2024 15:10	12.39	136.2	0.06	8.06	186	9.83	15.06	13.03
10/11/2024 15:00	12.35	133.98	0.06	8.05	185.23	9.81	14.14	13.27
10/11/2024 14:50	12.34	135.49	0.06	8.06	184.11	9.8	11.2	13.29
10/11/2024 14:40	12.3	136.74	0.06	8.06	184.93	9.81	10.51	13.63
10/11/2024 14:30	12.28	134.52	0.06	8.06	184.26	9.83	12.1	13.58
10/11/2024 14:20	12.2	132.82	0.06	8.05	185.21	9.85	12.12	13.58
10/11/2024 14:10	12.22	130.46	0.06	8.04	188.13	9.86	15.95	13.6
10/11/2024 14:00	12.05	71.66	0.03	7.7	193.81	9.85	13.37	13.58
10/11/2024 13:50	11.97	68.31	0.03	7.68	192.7	9.88	9.52	13.58
10/11/2024 13:40	11.92	67.23	0.03	7.67	191.29	9.91	8.47	13.56
10/11/2024 13:30	11.87	69.56	0.03	7.68	188.13	9.89	9.83	13.44
10/11/2024 13:20	11.86	79.11	0.04	7.76	184.41	9.91	11.28	13.53
10/11/2024 13:10	11.92	0.07	0	7.21	184.21	9.83	2.61	13.2
10/11/2024 13:00	12.01	124.42	0.06	7.9	180.69	9.96	15.43	13.41
10/11/2024 12:50	11.97	118.79	0.06	7.9	174.32	9.89	33.26	13.51
10/11/2024 12:40	11.84	144.29	0.07	7.96	177.69	10.23	26.78	13.48
10/11/2024 12:30	11.78	113.67	0.05	7.86	183.02	9.93	34.61	13.39
10/11/2024 12:20	11.77	147.8	0.07	8.02	175.3	9.89	75.6	13.51
10/11/2024 12:10	11.7	147.59	0.07	8	177.6	9.92	67.36	13.53
10/11/2024 12:00	11.74	144.87	0.07	8.01	184.85	10.05	147.98	13.46
10/11/2024 11:50	11.04	34.36	0.01	7.24	198.91	10.07	17.21	13.48
10/11/2024 11:40	10.97	35.67	0.02	7.33	183.93	10.08	18.25	13.53
10/11/2024 11:30	11.36	118.32	0.06	7.96	175.54	9.96	34.11	13.58
10/11/2024 11:20	11.33	135.45	0.06	7.78	209	10.02	79.97	13.63
10/11/2024 11:10	10.62	34.1	0.01	7.24	202.93	10.16	17.91	13.77
10/11/2024 11:00	10.61	34.22	0.01	7.27	190.53	10.17	19.1	13.29
10/11/2024 10:50	10.6	34.63	0.01	7.28	189.55	10.16	18.08	13.36
10/11/2024 10:40	10.61	35.84	0.02	7.35	171.36	10.15	18.66	13.79
10/11/2024 10:30	10.72	44.14	0.02	7.68	162.56	10.1	20.34	13.12

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/11/2024 10:20	11.24	135.23	0.06	8.02	155.31	9.99	53.39	13.03
10/11/2024 10:10	11.21	139.24	0.07	8.02	161.67	10	51.46	12.93
10/11/2024 10:00	11.16	139.33	0.07	8.02	155.84	10	56.19	12.81
10/11/2024 9:50	11.1	131.12	0.06	7.97	161.27	9.97	49.08	12.6
10/11/2024 9:40	11.13	138.77	0.07	8	170.22	10.01	59.96	12.67
10/11/2024 9:30	11.11	137.87	0.06	8	170.93	10.02	54.56	12.62
10/11/2024 9:20	10.96	137.23	0.06	7.91	187.37	10.05	57.98	12.57
10/11/2024 9:10	10.24	34.51	0.01	7.21	206.05	10.22	18.73	12.53
10/11/2024 9:00	10.22	34.71	0.01	7.24	205.25	10.23	21.31	12.43
10/11/2024 8:50	10.23	33.57	0.01	7.21	197.65	10.22	19.23	12.33
10/11/2024 8:40	10.23	35.27	0.02	7.26	193.92	10.2	19.11	12.33
10/11/2024 8:30	10.24	35.07	0.02	7.27	182.71	10.18	19.07	12.24
10/11/2024 8:20	10.65	76.83	0.04	7.84	169.17	10	32.26	12.21
10/11/2024 8:10	10.75	129.13	0.06	7.77	190.9	10.09	67.93	12.17
10/11/2024 8:00	10.67	81.67	0.04	7.85	168.26	9.97	37.48	12.14
10/11/2024 7:50	10.9	125.91	0.06	7.92	168.1	9.96	64.77	12.09
10/11/2024 7:40	10.45	49.01	0.02	7.68	172.44	10.05	22.1	12.09
10/11/2024 7:30	10.94	135.12	0.06	7.93	177.33	10.01	79.02	12.12
10/11/2024 7:20	10.22	35.03	0.02	7.18	211.24	10.18	17.3	12.14
10/11/2024 7:10	10.22	33.73	0.01	7.16	205.3	10.21	18.51	12.05
10/11/2024 7:00	10.26	35.11	0.02	7.18	207.51	10.19	20.17	12.14
10/11/2024 6:50	10.27	33.81	0.01	7.15	201.42	10.2	18.9	12.14
10/11/2024 6:40	10.28	35.28	0.02	7.2	200.72	10.19	19.52	12.14
10/11/2024 6:30	10.3	34.2	0.01	7.17	193.27	10.17	18.37	12.14
10/11/2024 6:20	10.33	35.67	0.02	7.22	189.39	10.15	18.51	12.14
10/11/2024 6:10	10.36	34.9	0.02	7.26	178.87	10.14	17.87	12.14
10/11/2024 6:00	10.44	38.1	0.02	7.45	162.44	10.08	18.06	12.14
10/11/2024 5:50	11.05	130.14	0.06	7.93	154.95	9.86	98.83	12.14
10/11/2024 5:40	10.5	38.87	0.02	7.46	155.71	10.04	17.8	12.05
10/11/2024 5:30	11.14	147.12	0.07	7.98	151.04	9.97	127.55	12.14
10/11/2024 5:20	10.47	38.62	0.02	7.46	163.32	10.07	20.53	12.14
10/11/2024 5:10	11.15	148.3	0.07	7.96	155.1	9.95	145.34	12.07
10/11/2024 5:00	10.65	48.81	0.02	7.65	146.82	9.98	26.51	12.07
10/11/2024 4:50	10.5	37.16	0.02	7.31	175.46	10.08	15.33	12.21
10/11/2024 4:40	10.71	47.56	0.02	7.66	151.16	9.98	23.66	12.21
10/11/2024 4:30	11.3	147.01	0.07	7.96	152.34	9.89	156.28	12.21
10/11/2024 4:20	11.06	97.82	0.05	7.88	142.12	9.82	83.4	12.21
10/11/2024 4:10	11.32	153.43	0.07	7.96	151.2	9.88	159.02	12.21
10/11/2024 4:00	10.75	47.53	0.02	7.74	146.28	9.95	37.69	12.21
10/11/2024 3:50	11.26	141.81	0.07	7.91	149.66	9.79	156.27	12.21
10/11/2024 3:40	10.94	67.46	0.03	7.82	144.53	9.87	39.2	12.12
10/11/2024 3:30	11.36	153.59	0.07	7.95	152.76	9.87	199.84	12.14
10/11/2024 3:20	11.2	112.08	0.05	7.88	143.14	9.79	122.78	12.21
10/11/2024 3:10	11.36	155.02	0.07	7.92	157.8	9.87	175.89	12.21
10/11/2024 3:00	11.03	72.1	0.03	7.78	141.95	9.85	41.87	12.21
10/11/2024 2:50	11.38	145.63	0.07	7.93	150.73	9.79	130.35	12.14
10/11/2024 2:40	10.72	36.92	0.02	7.24	177.23	10.03	21.21	12.14

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/11/2024 2:30	10.83	42.17	0.02	7.42	158.73	9.95	9.71	12.17
10/11/2024 2:20	11.54	154.98	0.07	7.96	150.97	9.8	97.4	12.17
10/11/2024 2:10	11.47	158.33	0.07	7.9	165.77	9.82	106.4	12.26
10/11/2024 2:00	10.78	36.17	0.02	7.22	188.42	10.08	7.94	12.26
10/11/2024 1:50	10.82	36.87	0.02	7.24	184.17	10.03	7.31	12.26
10/11/2024 1:40	10.9	38.95	0.02	7.31	168.15	9.96	15.92	12.24
10/11/2024 1:30	11.7	157.51	0.07	7.98	148.69	9.73	89.98	12.24
10/11/2024 1:20	11.76	160.72	0.08	7.98	144.19	9.73	67.22	12.24
10/11/2024 1:10	11.79	160.64	0.08	7.98	149.89	9.73	61.4	12.21
10/11/2024 1:00	11.81	158.26	0.07	7.97	145.97	9.72	70.58	12.12
10/11/2024 0:50	11.73	145.25	0.07	7.93	152.41	9.67	44.31	12.12
10/11/2024 0:40	11.85	158.52	0.07	7.97	147.57	9.73	50.88	12.24
10/11/2024 0:30	11.87	158.46	0.07	7.97	153.84	9.73	56.66	12.21
10/11/2024 0:20	11.88	157.76	0.07	7.97	151.35	9.75	60.53	12.21
10/11/2024 0:10	11.83	156.06	0.07	7.93	167.16	9.79	53.87	12.26
10/11/2024 0:10	11.83	156.06	0.07	7.93	167.16	9.79	53.87	12.26
10/11/2024 0:00	11.03	36.27	0.02	7.2	195.17	10.02	5.27	12.17
10/10/2024 23:50	11.06	36.64	0.02	7.21	193.45	9.99	6.15	12.17
10/10/2024 23:40	11.13	37.95	0.02	7.25	179.78	9.93	5.01	12.17
10/10/2024 23:30	11.39	50.22	0.02	7.6	160.38	9.82	7.21	12.17
10/10/2024 23:20	12.1	144.37	0.07	7.97	163.12	9.73	32.63	12.29
10/10/2024 23:10	12.13	141.63	0.07	7.97	158.49	9.71	26.5	12.29
10/10/2024 23:00	12.15	140.36	0.07	7.97	160.21	9.71	32.26	12.29
10/10/2024 22:50	12.09	136.8	0.06	7.94	166.86	9.6	24.07	12.29
10/10/2024 22:40	12.2	146.09	0.07	7.97	170.2	9.59	35.69	12.29
10/10/2024 22:30	12.24	145.01	0.07	7.98	168.9	9.61	34.75	12.31
10/10/2024 22:20	12.32	147.63	0.07	7.99	169.22	9.63	84.66	12.29
10/10/2024 22:10	12.26	142.86	0.07	7.98	166.45	9.58	33.73	12.26
10/10/2024 22:00	12.25	147.75	0.07	7.98	168.16	9.57	33.24	12.24
10/10/2024 21:50	12.22	141.49	0.07	7.96	169.88	9.54	27.7	12.31
10/10/2024 21:40	12.29	148.02	0.07	7.98	170.08	9.55	24.83	12.21
10/10/2024 21:30	12.29	142.98	0.07	7.98	170.11	9.55	25.75	12.21
10/10/2024 21:20	12.3	141.59	0.07	7.98	166.72	9.57	26.2	12.33
10/10/2024 21:10	12.31	146.57	0.07	7.98	172.62	9.58	19.42	12.33
10/10/2024 21:00	12.3	145.41	0.07	7.98	175.11	9.58	22.3	12.33
10/10/2024 20:50	12.27	137.54	0.06	7.95	179.74	9.55	13.41	12.31
10/10/2024 20:40	12.34	137.94	0.06	7.98	174.71	9.59	15.24	12.33
10/10/2024 20:30	12.34	141.32	0.07	7.97	183.48	9.6	14.81	12.33
10/10/2024 20:20	12.36	135.82	0.06	7.97	181.56	9.62	13.49	12.33
10/10/2024 20:10	12.38	137.21	0.06	7.97	188	9.62	12.5	12.21
10/10/2024 20:00	12.39	135.49	0.06	7.96	185.49	9.64	18.44	12.21
10/10/2024 19:50	12.38	127.52	0.06	7.94	192.6	9.61	16.75	12.24
10/10/2024 19:40	12.48	133.77	0.06	7.96	192.07	9.68	20.97	12.36
10/10/2024 19:30	12.53	133.29	0.06	7.96	193.31	9.7	21.17	12.36
10/10/2024 19:20	12.59	133.06	0.06	7.96	193.11	9.72	22.2	12.38
10/10/2024 19:10	12.63	132.53	0.06	7.95	195.28	9.7	24.32	12.38
10/10/2024 19:00	12.7	131.75	0.06	7.94	193.83	9.67	33.69	12.38

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/10/2024 18:50	12.68	123.11	0.06	7.9	196.83	9.6	26.04	12.41
10/10/2024 18:40	12.84	132.39	0.06	7.94	194.37	9.66	27.69	12.41
10/10/2024 18:30	11.92	37.73	0.02	7.22	215.17	9.8	3.94	12.43
10/10/2024 18:20	12.1	42.04	0.02	7.41	205.27	9.76	6.08	12.36
10/10/2024 18:10	12.96	134.14	0.06	7.94	200.98	9.66	27.69	12.5
10/10/2024 18:00	12.97	134.02	0.06	7.94	200.48	9.68	36.65	12.6
10/10/2024 17:50	12.94	127.11	0.06	7.93	203.75	9.64	37.8	12.67
10/10/2024 17:40	13.03	134.16	0.06	7.95	202.99	9.74	46.03	12.72
10/10/2024 17:30	12.93	123.73	0.06	7.89	215.99	9.73	59.06	12.69
10/10/2024 17:20	12.18	36.27	0.02	7.21	231.83	9.81	4.25	12.79
10/10/2024 17:10	12.23	36.25	0.02	7.21	231.86	9.78	5.5	13
10/10/2024 17:00	12.28	36.35	0.02	7.22	228.7	9.79	3.8	13.17
10/10/2024 16:50	12.33	36.59	0.02	7.24	228.17	9.78	4.01	13.17
10/10/2024 16:40	12.41	37.72	0.02	7.28	222.96	9.76	4.21	13.44
10/10/2024 16:30	13.17	128.67	0.06	8	212.24	9.72	67.3	13.44
10/10/2024 16:20	13.17	129.46	0.06	7.99	214.4	9.76	69.98	13.44
10/10/2024 16:10	14.54	125.61	0.06	7.82	238.97	9.35	81.5	13.44
10/10/2024 16:00	12.48	36.05	0.02	7.21	242.73	9.76	4.33	13.36
10/10/2024 15:50	12.51	36.06	0.02	7.2	244.44	9.76	4.01	13.44
10/10/2024 15:40	12.53	36.09	0.02	7.21	242.71	9.76	3.94	13.46
10/10/2024 15:30	12.55	36.08	0.02	7.22	243	9.76	3.66	13.46
10/10/2024 15:20	12.57	36.11	0.02	7.21	242.16	9.76	4.34	13.51
10/10/2024 15:10	12.59	36.12	0.02	7.21	242.49	9.77	3.87	13.53
10/10/2024 15:00	12.59	36.13	0.02	7.22	243.24	9.77	5.02	13.53
10/10/2024 14:50	12.59	36.11	0.02	7.2	245.43	9.77	3.94	13.51
10/10/2024 14:40	12.59	36.18	0.02	7.22	243.39	9.76	4.92	13.27
10/10/2024 14:30	12.6	36.14	0.02	7.2	245.83	9.77	5.6	13.48
10/10/2024 14:20	12.62	36.13	0.02	7.2	242.87	9.77	4.09	13.51
10/10/2024 14:10	12.57	36.17	0.02	7.22	242.4	9.78	3.87	13.53
10/10/2024 14:00	12.52	36.19	0.02	7.21	240.76	9.79	4.01	13.56
10/10/2024 13:50	12.49	36.22	0.02	7.2	241.82	9.79	3.66	13.53
10/10/2024 13:40	12.49	36.22	0.02	7.21	240.2	9.81	4.54	13.46
10/10/2024 13:30	12.45	36.23	0.02	7.21	240.77	9.82	3.69	13.34
10/10/2024 13:20	12.39	36.28	0.02	7.23	234.87	9.84	3.95	13.53
10/10/2024 13:10	12.32	36.35	0.02	7.2	237.4	9.86	3.68	13.53
10/10/2024 13:00	12.27	36.42	0.02	7.23	234.2	9.87	3.86	13.53
10/10/2024 12:50	12.22	36.44	0.02	7.2	234.38	9.89	3.71	13.51
10/10/2024 12:40	12.15	36.58	0.02	7.22	229.85	9.91	4.26	13.51
10/10/2024 12:30	12.06	36.67	0.02	7.24	223.46	9.91	3.4	13.51
10/10/2024 12:20	11.97	36.91	0.02	7.28	224.24	9.94	3.63	13.53
10/10/2024 12:10	11.9	37.55	0.02	7.29	218.87	9.94	3.96	13.53
10/10/2024 12:00	11.87	46.55	0.02	7.65	200.65	9.93	8.42	13.56
10/10/2024 11:50	11.93	120.71	0.06	7.98	202.34	9.96	32.99	13.48
10/10/2024 11:40	11.85	127.71	0.06	8	202.2	10.04	36.15	13.58
10/10/2024 11:30	11.8	127.41	0.06	8	201.7	10.05	28.26	13.63
10/10/2024 11:20	11.72	127.51	0.06	8	200.55	10.06	26.04	13.58
10/10/2024 11:10	11.65	127.5	0.06	7.99	200.73	10.08	24.96	13.53

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/10/2024 11:00	11.57	127.51	0.06	7.99	200.06	10.1	28.47	13.32
10/10/2024 10:50	11.49	120.29	0.06	7.95	200.66	10.05	22.76	13.72
10/10/2024 10:40	11.46	127.35	0.06	7.98	198.92	10.16	23.36	13.77
10/10/2024 10:30	11.04	37.68	0.02	7.15	225.11	10.12	4.74	12.88
10/10/2024 10:20	11.04	39.13	0.02	7.22	218.07	10.12	5.56	12.91
10/10/2024 10:10	11.33	125.81	0.06	7.97	200.81	10.14	53.73	12.84
10/10/2024 10:00	11.3	125.76	0.06	7.97	201.02	10.16	27.2	12.81
10/10/2024 9:50	11.21	115.99	0.05	7.91	202.96	10.09	18.72	12.72
10/10/2024 9:40	10.84	37.68	0.02	7.1	232.59	10.15	5.34	12.72
10/10/2024 9:30	10.8	37.8	0.02	7.09	232.18	10.15	4.84	12.67
10/10/2024 9:20	10.77	37.94	0.02	7.09	230.87	10.15	4.71	12.5
10/10/2024 9:10	10.75	38.04	0.02	7.09	229.68	10.15	5.48	12.36
10/10/2024 9:00	10.73	38.1	0.02	7.09	228.91	10.15	5.26	12.38
10/10/2024 8:50	10.72	38.26	0.02	7.09	227.87	10.14	4.9	12.31
10/10/2024 8:40	10.7	38.37	0.02	7.08	227.17	10.15	4.76	12.24
10/10/2024 8:30	10.7	38.49	0.02	7.08	226.22	10.14	5.27	12.17
10/10/2024 8:20	10.7	38.65	0.02	7.08	224.6	10.13	5.07	12
10/10/2024 8:10	10.7	38.77	0.02	7.08	223.01	10.12	4.81	12.07
10/10/2024 8:00	10.71	38.87	0.02	7.09	221.18	10.11	5.64	12.05
10/10/2024 7:50	10.72	39	0.02	7.09	217.11	10.12	5.34	11.97
10/10/2024 7:40	10.75	39.22	0.02	7.09	219.04	10.11	4.96	11.95
10/10/2024 7:30	10.77	38.54	0.02	7.09	214.85	10.09	5.36	11.95
10/10/2024 7:20	10.8	39.68	0.02	7.1	211.35	10.09	5.3	11.93
10/10/2024 7:10	10.83	40.23	0.02	7.14	202.98	10.08	5.71	11.97
10/10/2024 7:00	11.08	88.11	0.04	7.77	180.57	10.01	12.34	12.07
10/10/2024 6:50	11.19	115.84	0.05	7.89	182.82	10.06	9.68	12.07
10/10/2024 6:40	11.23	125.19	0.06	7.94	180.84	10.16	10.22	12.07
10/10/2024 6:30	10.99	118.45	0.06	7.82	199.8	10.14	18.38	12.07
10/10/2024 6:20	10.92	40.85	0.02	7.14	203.56	10.04	5.28	12.07
10/10/2024 6:10	11.14	88.13	0.04	7.77	176.26	10.06	8.66	12.07
10/10/2024 6:00	11.26	124.3	0.06	7.93	177.33	10.24	10.65	12.07
10/10/2024 5:50	11.28	123.94	0.06	7.91	178.51	10.3	22.89	12.07
10/10/2024 5:40	11.25	125.67	0.06	7.91	180.58	10.43	39.46	11.97
10/10/2024 5:30	11.27	111.06	0.05	7.84	184.59	10.13	14.87	11.97
10/10/2024 5:20	11.34	122.73	0.06	7.9	183.05	10.15	17.75	11.97
10/10/2024 5:10	11.39	119.23	0.06	7.87	187.12	10.08	14.75	12.07
10/10/2024 5:00	11.42	119.21	0.06	7.87	188.48	10.08	23.36	12
10/10/2024 4:50	11.45	119.95	0.06	7.87	188.36	10.1	23.07	12.09
10/10/2024 4:40	11.48	121.05	0.06	7.87	188.2	10.13	25.21	12.07
10/10/2024 4:30	11.53	121.3	0.06	7.86	186.4	10.09	34.92	12.09
10/10/2024 4:20	11.28	109.18	0.05	7.58	219.29	10.04	36.57	12.09
10/10/2024 4:10	11.33	78.04	0.04	7.66	188.27	9.94	21.86	12.09
10/10/2024 4:00	11.31	113.92	0.05	7.76	200.97	10.02	82.39	12
10/10/2024 3:50	11.15	41.37	0.02	7.14	207.26	9.97	6.08	12.07
10/10/2024 3:40	11.47	104.5	0.05	7.83	179.78	9.9	57.44	12.07
10/10/2024 3:30	11.58	130.3	0.06	7.9	186.2	10.03	139.67	12.07
10/10/2024 3:20	11.2	42.36	0.02	7.1	216.05	9.97	29.13	12.05

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/10/2024 3:10	11.23	42.69	0.02	7.11	217.73	9.96	6.11	12.12
10/10/2024 3:00	11.26	42.89	0.02	7.1	214.41	9.96	6.2	12.14
10/10/2024 2:50	11.3	43.23	0.02	7.12	210.55	9.94	6.88	12.07
10/10/2024 2:40	11.33	43.53	0.02	7.13	206.02	9.93	7.91	12.14
10/10/2024 2:30	11.38	44.58	0.02	7.18	197.56	9.92	7.75	12.14
10/10/2024 2:20	11.81	123.45	0.06	7.86	174.53	9.9	109.13	12.17
10/10/2024 2:10	11.85	123.81	0.06	7.86	179.68	9.95	70.7	12.14
10/10/2024 2:00	11.88	123.74	0.06	7.86	179.87	10.04	80.92	12.07
10/10/2024 1:50	11.91	119.48	0.06	7.85	174.99	10.08	105.36	12.14
10/10/2024 1:40	11.9	123.98	0.06	7.84	180.49	9.89	67.83	12.05
10/10/2024 1:30	11.59	50.89	0.02	7.37	181.61	9.84	15.76	12.07
10/10/2024 1:20	11.96	125.45	0.06	7.87	171.47	9.75	53.77	12.07
10/10/2024 1:10	11.98	125.47	0.06	7.87	175.21	9.76	53.77	12.07
10/10/2024 1:00	11.98	125.1	0.06	7.87	171.67	9.76	53.36	12.12
10/10/2024 0:50	12	124.89	0.06	7.87	175.71	9.76	52.55	12.12
10/10/2024 0:40	12.01	122.83	0.06	7.87	172.35	9.77	52.6	12.09
10/10/2024 0:30	12.02	124.66	0.06	7.87	176.89	9.77	51.3	12.21
10/10/2024 0:20	12.03	124.43	0.06	7.87	172.28	9.77	45.91	12.21
10/10/2024 0:10	12.05	124.4	0.06	7.87	176.05	9.77	50.55	12.21
10/10/2024 0:00	12.06	123.9	0.06	7.87	172.22	9.77	52.31	12.26
10/9/2024 23:50	12.07	124.61	0.06	7.87	179.46	9.76	45.4	12.26
10/9/2024 23:40	12.09	124.82	0.06	7.87	177.66	9.76	46.14	12.26
10/9/2024 23:30	12.13	124.1	0.06	7.88	177.97	9.74	47.92	12.26
10/9/2024 23:20	12.16	125.53	0.06	7.88	182.11	9.75	50.05	12.26
10/9/2024 23:10	12.2	121.15	0.06	7.88	178.21	9.73	47.55	12.26
10/9/2024 23:00	12.25	126.32	0.06	7.87	183.65	9.72	50.71	12.26
10/9/2024 22:50	12.29	122.3	0.06	7.87	180.16	9.7	57.32	12.26
10/9/2024 22:40	12.34	123.34	0.06	7.87	173.29	9.7	55.69	12.29
10/9/2024 22:30	12.36	127.26	0.06	7.87	178.55	9.7	59.97	12.24
10/9/2024 22:20	12.37	125.59	0.06	7.87	176	9.71	59.58	12.29
10/9/2024 22:10	12.38	128.09	0.06	7.87	182	9.72	64.47	12.26
10/9/2024 22:00	12.38	127.72	0.06	7.86	185.02	9.74	68.29	12.17
10/9/2024 21:50	12.22	104.81	0.05	7.57	198.6	9.75	58.87	12.26
10/9/2024 21:40	12.38	126.37	0.06	7.86	187.13	9.72	125.6	12.31
10/9/2024 21:30	12.38	122.34	0.06	7.86	184.21	9.72	62.86	12.31
10/9/2024 21:20	12.4	123.11	0.06	7.86	180.52	9.74	64.97	12.31
10/9/2024 21:10	12.37	124.65	0.06	7.83	187.65	9.75	62.68	12.31
10/9/2024 21:00	12.44	127.28	0.06	7.87	175.9	9.74	75.21	12.31
10/9/2024 20:50	12.45	127.84	0.06	7.87	181.31	9.73	73.41	12.21
10/9/2024 20:40	12.46	124.54	0.06	7.88	177.66	9.74	69.32	12.29
10/9/2024 20:30	12.48	128.04	0.06	7.87	186.37	9.67	71.94	12.29
10/9/2024 20:20	12.51	128.63	0.06	7.86	190.87	9.68	136.61	12.29
10/9/2024 20:10	12.52	124.67	0.06	7.87	189.49	9.66	74.55	12.31
10/9/2024 20:00	12.53	125.41	0.06	7.87	187.27	9.65	77.16	12.33
10/9/2024 19:50	12.55	129.67	0.06	7.87	189.27	9.66	81.35	12.33
10/9/2024 19:40	12.56	127.57	0.06	7.87	189.22	9.66	75.22	12.24
10/9/2024 19:30	12.57	130.92	0.06	7.87	195.84	9.66	79.75	12.24

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/9/2024 19:20	12.57	130.62	0.06	7.85	200.49	9.68	74.39	12.24
10/9/2024 19:10	12.22	45.86	0.02	7.1	236.21	9.71	3.89	12.36
10/9/2024 19:00	12.26	46.13	0.02	7.09	235.32	9.7	3.65	12.38
10/9/2024 18:50	12.3	46.34	0.02	7.11	233.23	9.69	3.92	12.38
10/9/2024 18:40	12.34	46.58	0.02	7.11	228.52	9.69	4.95	12.41
10/9/2024 18:30	12.37	46.88	0.02	7.12	230.84	9.69	3.64	12.41
10/9/2024 18:20	12.39	47.43	0.02	7.14	226.14	9.67	5.34	12.43
10/9/2024 18:10	12.45	51.23	0.02	7.29	210.41	9.65	6.85	12.41
10/9/2024 18:00	12.69	125.88	0.06	7.86	199.49	9.64	59.4	12.36
10/9/2024 17:50	12.7	124.46	0.06	7.86	203.1	9.64	54.78	12.43
10/9/2024 17:40	12.7	123.2	0.06	7.85	203.09	9.66	45.96	12.43
10/9/2024 17:30	12.71	121.83	0.06	7.84	205.17	9.67	46.23	12.43
10/9/2024 17:20	12.55	48.3	0.02	7.12	234.93	9.66	3.34	12.36
10/9/2024 17:10	12.59	48.86	0.02	7.14	232.28	9.66	3.58	12.53
10/9/2024 17:00	12.74	103.17	0.05	7.79	203.03	9.67	37.3	12.55
10/9/2024 16:50	12.66	48.98	0.02	7.14	234.26	9.65	4.16	12.45
10/9/2024 16:40	12.69	49.45	0.02	7.16	230.56	9.65	3.44	12.55
10/9/2024 16:30	12.74	58.56	0.03	7.44	210.87	9.64	9.9	12.53
10/9/2024 16:20	12.86	120.34	0.06	7.86	204.72	9.64	35.08	12.6
10/9/2024 16:10	12.87	119.76	0.06	7.87	207.39	9.67	32.68	12.88
10/9/2024 16:00	12.88	119.76	0.06	7.86	206.64	9.71	39.49	12.98
10/9/2024 15:50	12.87	119.79	0.06	7.85	208.76	9.66	32.89	12.88
10/9/2024 15:40	13.02	119.01	0.06	7.8	220.11	9.71	76.9	12.91
10/9/2024 15:30	12.85	48.91	0.02	7.16	238.09	9.69	3.45	13.27
10/9/2024 15:20	12.9	54.43	0.02	7.34	219.5	9.66	4.78	13.48
10/9/2024 15:10	12.85	49.24	0.02	7.17	232.45	9.69	4.38	13.63
10/9/2024 15:00	12.86	51.57	0.02	7.28	219.25	9.68	4.56	13.63
10/9/2024 14:50	12.84	118.28	0.06	7.83	204.89	9.64	32.15	13.63
10/9/2024 14:40	12.82	118.43	0.06	7.82	203.32	9.65	31.88	13.63
10/9/2024 14:30	12.81	118.19	0.06	7.82	205.53	9.68	31.37	13.46
10/9/2024 14:20	12.78	117.86	0.06	7.83	205.12	9.73	39.54	13.41
10/9/2024 14:10	12.76	117.31	0.05	7.83	205.62	9.73	32.73	13.34
10/9/2024 14:00	12.75	117.14	0.05	7.81	206.8	9.74	33.55	13.34
10/9/2024 13:50	12.78	117.03	0.05	7.8	210.58	9.77	34.57	13.63
10/9/2024 13:40	12.77	50.53	0.02	7.12	238.01	9.71	3.69	13.46
10/9/2024 13:30	12.78	50.84	0.02	7.11	238.87	9.72	3.52	13.67
10/9/2024 13:20	12.62	51.11	0.02	7.12	235.46	9.73	3.16	13.56
10/9/2024 13:10	12.55	51.37	0.02	7.1	233.84	9.73	3.52	13.29
10/9/2024 13:00	12.53	51.58	0.02	7.11	230.91	9.73	3.2	13.03
10/9/2024 12:50	12.52	51.72	0.02	7.12	232.93	9.73	8.13	13.1
10/9/2024 12:40	12.56	53.28	0.02	7.39	204.86	9.7	3.6	13.1
10/9/2024 12:30	12.51	51.8	0.02	7.22	230.55	9.7	55.28	12.76
10/9/2024 12:20	12.52	51.91	0.02	7.23	231.95	9.7	51.77	12.81
10/9/2024 12:10	12.53	51.98	0.02	7.23	230.1	9.72	52.54	12.88
10/9/2024 12:00	12.55	52.15	0.02	7.23	231.63	9.71	52.37	12.93
10/9/2024 11:50	12.56	54.1	0.02	7.35	220.17	9.7	53.33	12.81
10/9/2024 11:40	12.54	52.6	0.02	7.25	228.73	9.72	51.39	13

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/9/2024 11:30	12.55	56.52	0.03	7.34	223.22	9.72	54.29	13.08
10/9/2024 11:20	12.52	55.53	0.03	7.37	216.83	9.71	56.29	13
10/9/2024 11:10	12.43	115.71	0.05	7.84	205.15	9.74	91.59	13
10/9/2024 11:00	12.4	115.98	0.05	7.82	206.68	9.75	89.87	13.08
10/9/2024 10:50	12.35	116	0.05	7.83	203.39	9.76	89.48	12.88
10/9/2024 10:40	12.31	116.08	0.05	7.82	204.76	9.77	91.78	12.79
10/9/2024 10:30	12.28	116.1	0.05	7.83	202.05	9.77	85.29	12.62
10/9/2024 10:20	12.26	116.21	0.05	7.82	202.63	9.78	77.39	12.67
10/9/2024 10:10	12.23	115.87	0.05	7.82	200.19	9.78	74.19	12.67
10/9/2024 10:00	12.2	116.1	0.05	7.81	200.84	9.79	70.89	12.5
10/9/2024 9:50	12.14	116.53	0.05	7.81	198.4	9.8	69.23	12.21
10/9/2024 9:40	12.12	116.79	0.05	7.8	198.94	9.81	75.02	12.17
10/9/2024 9:30	12.09	117.08	0.05	7.8	197.26	9.8	71.6	12.19
10/9/2024 9:20	12.08	117.28	0.05	7.79	198.24	9.79	74.36	12.19
10/9/2024 9:10	12.07	117.34	0.05	7.8	196.66	9.8	72.49	12.41
10/9/2024 9:00	12.06	117.55	0.05	7.79	198.2	9.8	74.1	12.33
10/9/2024 8:50	12.05	117.86	0.06	7.79	197.2	9.8	75.33	12.26
10/9/2024 8:40	12.06	117.61	0.06	7.78	198.43	9.8	75.23	12.24
10/9/2024 8:30	12.06	117.95	0.06	7.78	198.32	9.81	75.43	12.24
10/9/2024 8:20	12.07	118.18	0.06	7.77	199.58	9.84	78.2	12.21
10/9/2024 8:10	12.08	118.22	0.06	7.77	199.25	9.86	84.18	12.17
10/9/2024 8:00	12.09	118.73	0.06	7.76	202.13	9.9	91.19	12.14
10/9/2024 7:50	12.1	118.44	0.06	7.75	204	9.83	96.32	12.02
10/9/2024 7:40	12.1	61.47	0.03	7.16	223.14	9.66	64.17	12.12
10/9/2024 7:30	12.11	62.02	0.03	7.19	218.72	9.66	66.22	12.02
10/9/2024 7:20	12.11	62.47	0.03	7.18	216.49	9.65	70.4	12.02
10/9/2024 7:10	12.12	63.34	0.03	7.24	207	9.65	72.35	12.12
10/9/2024 7:00	12.13	115.26	0.05	7.77	195.61	9.75	92.28	12.12
10/9/2024 6:50	12.14	119.27	0.06	7.76	195.33	9.75	94.52	12.02
10/9/2024 6:40	12.14	119.53	0.06	7.75	196.32	9.75	92.89	12.05
10/9/2024 6:30	12.14	119.75	0.06	7.76	195.55	9.77	103.81	12.05
10/9/2024 6:20	12.16	119.93	0.06	7.74	198.59	9.81	94.04	12.12
10/9/2024 6:10	12.18	120.06	0.06	7.75	198.84	9.84	102.63	12.05
10/9/2024 6:00	12.2	119.99	0.06	7.74	202.39	9.82	118.84	12.09
10/9/2024 5:50	12.08	117.81	0.06	7.68	215.25	9.76	91.53	12.12
10/9/2024 5:40	12.16	66.35	0.03	7.19	220.78	9.64	75.16	12.12
10/9/2024 5:30	12.16	66.97	0.03	7.2	218.47	9.64	73.37	12.05
10/9/2024 5:20	12.16	67.75	0.03	7.21	217.31	9.63	73.46	12.17
10/9/2024 5:10	12.17	68.71	0.03	7.24	213.72	9.63	73.82	12.17
10/9/2024 5:00	12.18	69.94	0.03	7.27	210.71	9.63	75.35	12.07
10/9/2024 4:50	12.19	71.54	0.03	7.32	204.34	9.62	77.08	12.19
10/9/2024 4:40	12.21	79.56	0.04	7.52	192.13	9.63	83.5	12.19
10/9/2024 4:30	12.21	120.75	0.06	7.8	189.12	9.73	103.82	12.19
10/9/2024 4:20	12.23	120.74	0.06	7.79	189.75	9.74	109.29	12.19
10/9/2024 4:10	12.24	121.07	0.06	7.79	189.41	9.72	104.3	12.09
10/9/2024 4:00	12.27	121.35	0.06	7.78	188.84	9.73	103.81	12.09
10/9/2024 3:50	12.29	121.8	0.06	7.78	188.39	9.72	107.53	12.17

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/9/2024 3:40	12.31	122.05	0.06	7.78	188.57	9.71	112.08	12.09
10/9/2024 3:30	12.34	122.33	0.06	7.77	188.54	9.72	103.8	12.19
10/9/2024 3:20	12.36	122.72	0.06	7.76	188.46	9.7	104.01	12.19
10/9/2024 3:10	12.38	123.37	0.06	7.76	185.75	9.7	104.97	12.12
10/9/2024 3:00	12.4	123.73	0.06	7.73	193.2	9.69	103.18	12.12
10/9/2024 2:50	12.43	124.13	0.06	7.73	193.25	9.7	107.46	12.21
10/9/2024 2:40	12.48	124.71	0.06	7.72	194.3	9.72	103.53	12.24
10/9/2024 2:30	12.55	125.86	0.06	7.72	196.59	9.73	110.04	12.24
10/9/2024 2:20	12.58	127.39	0.06	7.68	201.37	9.48	97.26	12.24
10/9/2024 2:10	12.36	74.6	0.03	7.18	221.4	9.57	71.95	12.24
10/9/2024 2:00	12.37	75.33	0.03	7.18	219.8	9.58	70.08	12.26
10/9/2024 1:50	12.38	76.12	0.04	7.2	215.19	9.57	72.36	12.24
10/9/2024 1:40	12.39	77.01	0.04	7.2	219.75	9.57	71.86	12.24
10/9/2024 1:30	12.4	78.21	0.04	7.25	213.88	9.56	71.86	12.12
10/9/2024 1:20	12.41	79.28	0.04	7.26	211.77	9.57	72.78	12.21
10/9/2024 1:10	12.42	80.56	0.04	7.26	212.59	9.55	73.43	12.26
10/9/2024 1:00	12.44	81.43	0.04	7.3	205.59	9.55	73.56	12.26
10/9/2024 0:50	12.46	83.68	0.04	7.32	205.85	9.54	79.96	12.21
10/9/2024 0:40	12.49	83.83	0.04	7.43	195.51	9.52	85.35	12.24
10/9/2024 0:30	12.66	129.18	0.06	7.76	187.45	9.47	107.41	12.17
10/9/2024 0:20	12.66	129.25	0.06	7.76	188.95	9.48	110.23	12.17
10/9/2024 0:10	12.65	128.92	0.06	7.76	190.48	9.49	114.43	12.19
10/9/2024 0:00	12.66	124.4	0.06	7.76	190.05	9.49	120.51	12.26
10/8/2024 23:50	12.7	130.08	0.06	7.75	191.5	9.47	120.72	12.29
10/8/2024 23:40	12.76	127.33	0.06	7.74	189.26	9.44	122.78	12.29
10/8/2024 23:30	12.84	135.87	0.06	7.72	188.37	9.39	125.49	12.29
10/8/2024 23:20	12.87	137.38	0.06	7.7	189.74	9.37	99.11	12.31
10/8/2024 23:10	12.89	137.56	0.06	7.7	188.63	9.37	98.75	12.31
10/8/2024 23:00	12.9	138	0.06	7.7	189.61	9.36	100.33	12.31
10/8/2024 22:50	12.91	138.42	0.07	7.7	188.22	9.35	102.51	12.31
10/8/2024 22:40	12.92	138.85	0.07	7.7	189.17	9.36	97.8	12.31
10/8/2024 22:30	12.93	139.45	0.07	7.69	188.57	9.36	90.99	12.31
10/8/2024 22:20	12.95	140.07	0.07	7.69	189.51	9.36	89.46	12.31
10/8/2024 22:10	12.97	140.66	0.07	7.7	189.32	9.35	89.71	12.31
10/8/2024 22:00	12.98	141.17	0.07	7.7	189.66	9.35	90.88	12.29
10/8/2024 21:50	13	141.81	0.07	7.69	189.07	9.33	87.96	12.31
10/8/2024 21:40	13.02	142.68	0.07	7.68	190.77	9.32	90.25	12.24
10/8/2024 21:30	13.04	143.66	0.07	7.68	189.82	9.33	92.48	12.21
10/8/2024 21:20	13.07	144.72	0.07	7.67	191.37	9.31	90.52	12.33
10/8/2024 21:10	13.09	145.68	0.07	7.66	190.81	9.31	89.17	12.33
10/8/2024 21:00	13.11	145.98	0.07	7.66	192.29	9.31	89.98	12.36
10/8/2024 20:50	13.13	146.76	0.07	7.67	190.56	9.31	90.95	12.33
10/8/2024 20:40	13.15	147.71	0.07	7.66	192.62	9.29	90.04	12.33
10/8/2024 20:30	13.17	148.62	0.07	7.66	191.27	9.28	90.26	12.31
10/8/2024 20:20	13.18	149	0.07	7.64	193.25	9.28	93.07	12.24
10/8/2024 20:10	13.2	149.88	0.07	7.64	193.61	9.27	89.28	12.24
10/8/2024 20:00	13.23	150.86	0.07	7.63	194.34	9.27	93.69	12.31

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/8/2024 19:50	13.25	151.74	0.07	7.62	193.01	9.25	88.55	12.38
10/8/2024 19:40	13.26	152.14	0.07	7.62	193.36	9.27	94.76	12.38
10/8/2024 19:30	13.27	152.73	0.07	7.62	192.87	9.26	87.96	12.38
10/8/2024 19:20	13.29	153.55	0.07	7.62	193.03	9.25	85.08	12.38
10/8/2024 19:10	13.31	154.32	0.07	7.61	193.84	9.24	84.11	12.38
10/8/2024 19:00	13.32	154.94	0.07	7.6	194.85	9.25	80.05	12.38
10/8/2024 18:50	13.33	155.22	0.07	7.6	194.34	9.23	77.89	12.38
10/8/2024 18:40	13.34	156.03	0.07	7.58	194.34	9.24	77.8	12.29
10/8/2024 18:30	13.36	156.39	0.07	7.59	193.92	9.25	75.9	12.38
10/8/2024 18:20	13.36	156.48	0.07	7.57	194.98	9.26	73.82	12.41
10/8/2024 18:10	13.38	156.85	0.07	7.58	194.82	9.25	70.38	12.5
10/8/2024 18:00	13.39	157.23	0.07	7.56	195.83	9.26	71.6	12.5
10/8/2024 17:50	13.4	157.3	0.07	7.56	195.05	9.28	69.81	12.55
10/8/2024 17:40	13.41	157.44	0.07	7.54	196.4	9.27	71.33	12.74
10/8/2024 17:30	13.41	157.03	0.07	7.55	195.7	9.28	67.7	12.86
10/8/2024 17:20	13.42	157.22	0.07	7.54	195.96	9.28	60.23	13.08
10/8/2024 17:10	13.42	156.93	0.07	7.54	192.37	9.31	59.25	13.2
10/8/2024 17:00	13.43	156.6	0.07	7.53	197.98	9.31	56.57	13.27
10/8/2024 16:50	13.42	155.96	0.07	7.53	198.43	9.35	54.1	13.32
10/8/2024 16:40	13.08	90.53	0.04	7.25	214.48	9.53	13.37	13.29
10/8/2024 16:40	13.08	90.53	0.04	7.25	214.48	9.53	13.37	13.29
10/8/2024 16:30	13.18	105.8	0.05	7.59	193.48	9.4	18.54	13.24
10/8/2024 16:20	13.4	153.89	0.07	7.53	199.72	9.39	56.65	13.29
10/8/2024 16:10	13.14	96.33	0.04	7.49	197.53	9.48	13.31	13.58
10/8/2024 16:00	13.38	152.65	0.07	7.55	202.19	9.42	54.44	13.34
10/8/2024 15:50	13.11	95.16	0.04	7.22	227.13	9.56	7.88	13.39
10/8/2024 15:40	13.11	96.56	0.04	7.21	227.71	9.55	8.14	13.36
10/8/2024 15:30	13.13	98.48	0.05	7.22	225.38	9.56	8	13.34
10/8/2024 15:20	13.13	100.07	0.05	7.23	224.04	9.55	8.58	13.29
10/8/2024 15:10	13.13	102.39	0.05	7.25	221.01	9.55	8.63	13.34
10/8/2024 15:00	13.14	104.74	0.05	7.29	215.24	9.53	9.35	13.46
10/8/2024 14:50	13.25	157.35	0.07	7.54	198.9	9.42	49.68	13.58
10/8/2024 14:40	13.23	157.34	0.07	7.53	201.78	9.42	42.04	13.41
10/8/2024 14:30	13.21	155.79	0.07	7.52	201.3	9.44	35.49	13.44
10/8/2024 14:20	13.14	152.75	0.07	7.51	204.9	9.47	34.93	13.39
10/8/2024 14:10	13.14	148.9	0.07	7.42	214.19	9.49	39.28	13.24
10/8/2024 14:00	12.98	115.84	0.05	7.22	229.05	9.6	8.21	13.08
10/8/2024 13:50	12.97	117.77	0.06	7.21	228.47	9.6	9.36	13.2
10/8/2024 13:40	12.95	119.69	0.06	7.21	229.84	9.61	8.69	13.27
10/8/2024 13:30	12.9	121.86	0.06	7.21	228.13	9.62	8.84	13.24
10/8/2024 13:20	12.81	123.98	0.06	7.22	228.7	9.62	9.53	13.08
10/8/2024 13:10	12.78	125.66	0.06	7.2	229.25	9.63	9.99	12.98
10/8/2024 13:00	12.74	127.93	0.06	7.2	229.28	9.63	10.86	12.88
10/8/2024 12:50	12.71	130.41	0.06	7.2	228.13	9.63	10.19	12.88
10/8/2024 12:40	12.66	133.03	0.06	7.19	229.48	9.64	10.03	12.72
10/8/2024 12:30	12.64	135.3	0.06	7.2	229.45	9.63	10.21	12.72
10/8/2024 12:20	12.62	137.54	0.06	7.2	232.26	9.62	11.02	12.76

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/8/2024 12:10	12.58	140.6	0.07	7.19	229.1	9.6	10.23	12.6
10/8/2024 12:00	12.62	154.47	0.07	7.36	217.23	9.54	33.08	12.53
10/8/2024 11:50	12.54	145.21	0.07	7.27	223.99	9.56	12.58	12.41
10/8/2024 11:40	12.58	154.17	0.07	7.06	233.77	9.53	34.26	12.5
10/8/2024 11:30	12.51	153.63	0.07	7.18	226.08	9.61	10.23	12.45
10/8/2024 11:20	12.53	161.94	0.08	7.33	222.87	9.54	36.52	12.48
10/8/2024 11:10	12.47	164.25	0.08	7.2	223.34	9.59	9.59	12.45
10/8/2024 11:00	12.51	169.32	0.08	7.08	234.04	9.53	37.03	12.41
10/8/2024 10:50	12.44	177.58	0.08	7.17	226.3	9.59	11	12.38
10/8/2024 10:40	12.48	177.16	0.08	7.32	223.25	9.51	37.79	12.29
10/8/2024 10:30	12.39	186.86	0.09	7.18	230	9.57	8.38	12.19
10/8/2024 10:20	12.48	175.76	0.08	7.05	237.76	9.47	33.86	12.19
10/8/2024 10:10	12.37	170.3	0.08	7.15	235.04	9.55	8.34	12.17
10/8/2024 10:00	12.48	169.14	0.08	7.31	222.12	9.44	38.65	12.09
10/8/2024 9:50	12.36	117.9	0.06	7.13	233.05	9.55	6.99	12.17
10/8/2024 9:40	12.49	156.57	0.07	7	243.79	9.39	31.75	12.14
10/8/2024 9:30	12.5	160.23	0.08	6.93	233.84	9.37	29.39	12.17
10/8/2024 9:20	12.5	162.44	0.08	7.34	225.56	9.37	29.41	12.14
10/8/2024 9:10	12.51	165.56	0.08	7.22	225.77	9.37	32.6	12.14
10/8/2024 9:00	12.51	169.01	0.08	6.99	239.48	9.34	29.11	12.17
10/8/2024 8:50	12.5	171.16	0.08	7.01	240.65	9.36	34.92	12.17
10/8/2024 8:40	12.52	169.29	0.08	7.4	227.11	9.36	24.43	12.17
10/8/2024 8:30	12.53	178.61	0.08	7.21	231.55	9.33	25.24	12.14
10/8/2024 8:20	12.54	181.91	0.09	6.97	249.27	9.32	27.6	12.12
10/8/2024 8:10	12.55	188.06	0.09	7.04	234.19	9.31	27.55	12.12
10/8/2024 8:00	12.56	190.97	0.09	7.39	231.86	9.33	23.77	12.14
10/8/2024 7:50	12.57	193.8	0.09	7.19	238.68	9.33	216.49	12.02
10/8/2024 7:40	12.57	198.1	0.09	6.96	255.58	9.33	23.14	12
10/8/2024 7:30	12.57	200.54	0.1	7.12	238.22	9.34	197.31	12.09
10/8/2024 7:20	12.58	203.9	0.1	7.36	247.06	9.34	21.16	12.14
10/8/2024 7:10	12.59	206.42	0.1	7.15	255.07	9.33	23.08	12.14
10/8/2024 7:00	12.6	209.44	0.1	6.94	272.29	9.33	24.51	12.14
10/8/2024 6:50	12.6	210.67	0.1	7.2	252.5	9.35	86.91	12.14
10/8/2024 6:40	12.6	212.36	0.1	7.33	265.61	9.36	21.97	12.14
10/8/2024 6:30	12.6	210.53	0.1	7.1	277.76	9.35	24.99	12.14
10/8/2024 6:20	12.6	195.57	0.09	6.93	283.6	9.34	20.19	12.14
10/8/2024 6:10	12.6	187.05	0.09	7.3	265.4	9.37	25.27	12.05
10/8/2024 6:00	12.6	168.9	0.08	7.28	274.11	9.38	19.96	12.02
10/8/2024 5:50	12.6	152.76	0.07	7.04	281.39	9.36	22.22	12.02
10/8/2024 5:40	12.6	143.19	0.07	6.97	285.1	9.37	22.7	12.02
10/8/2024 5:30	12.6	137.79	0.06	7.35	268.95	9.39	24.3	12.12
10/8/2024 5:20	12.6	136.65	0.06	7.24	279.28	9.4	26.48	12.05
10/8/2024 5:10	12.6	138.05	0.06	7.02	286.71	9.39	30.72	12.14
10/8/2024 5:00	12.61	139.51	0.07	7.02	282	9.39	35.36	12.17
10/8/2024 4:50	12.61	139.25	0.07	7.39	268.72	9.43	36.97	12.17
10/8/2024 4:40	12.59	138.18	0.06	7.18	285.29	9.44	42.76	12.17
10/8/2024 4:30	12.3	46.28	0.02	7.03	280.61	9.55	6.64	12.17

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/8/2024 4:20	12.61	138.27	0.07	7.12	278.73	9.45	48.18	12.17
10/8/2024 4:10	12.28	45	0.02	7.07	273	9.56	5.73	12.17
10/8/2024 4:00	12.62	138.58	0.07	7.15	284.64	9.46	63.1	12.17
10/8/2024 3:50	12.29	45.28	0.02	7.07	277.14	9.56	5.1	12.17
10/8/2024 3:40	12.6	134.11	0.06	7.28	269.44	9.49	79.5	12.09
10/8/2024 3:30	12.24	41.38	0.02	7.01	281.72	9.59	3.2	12.17
10/8/2024 3:20	12.25	41.34	0.02	7.02	284.53	9.6	3.46	12.19
10/8/2024 3:10	12.24	41.23	0.02	7.02	282.82	9.6	3.96	12.19
10/8/2024 3:00	12.24	41.17	0.02	7.03	285.25	9.6	9.2	12.19
10/8/2024 2:50	12.24	41.26	0.02	7.02	283.69	9.6	3.86	12.19
10/8/2024 2:40	12.25	41.25	0.02	7.03	285.72	9.61	4.82	12.19
10/8/2024 2:30	12.25	41.3	0.02	7.02	284.78	9.6	3.8	12.09
10/8/2024 2:20	12.26	41.54	0.02	7.03	286.7	9.6	3.26	12.21
10/8/2024 2:10	12.33	49.85	0.02	7.15	276.65	9.57	10.05	12.19
10/8/2024 2:00	12.29	48.27	0.02	7.06	278.44	9.58	17.16	12.09
10/8/2024 1:50	12.27	41.25	0.02	7	281.95	9.59	3.12	12.17
10/8/2024 1:40	12.28	41.32	0.02	7.03	284.64	9.59	3.6	12.19
10/8/2024 1:30	12.29	41.45	0.02	7.03	283.93	9.58	3.48	12.19
10/8/2024 1:20	12.51	97.23	0.05	7.14	284.04	9.52	71.74	12.12
10/8/2024 1:10	12.31	41.71	0.02	7.03	285.39	9.59	3.17	12.12
10/8/2024 1:00	12.34	42.78	0.02	7.06	286.81	9.57	4.27	12.12
10/8/2024 0:50	12.66	126.93	0.06	6.97	285.22	9.51	112.43	12.12
10/8/2024 0:40	12.33	42.03	0.02	7.05	283.33	9.58	3.65	12.26
10/8/2024 0:30	12.69	125.71	0.06	7.45	269.24	9.53	94.04	12.26
10/8/2024 0:20	12.34	42.65	0.02	7.06	280.94	9.57	3.95	12.19
10/8/2024 0:10	12.34	41.56	0.02	7.03	284.66	9.58	3.29	12.26
10/8/2024 0:00	12.35	41.69	0.02	7.03	289.21	9.58	3.43	12.26
10/7/2024 23:50	12.38	43.51	0.02	7.04	287.1	9.57	4.43	12.19
10/7/2024 23:40	12.4	43.53	0.02	7.04	293.55	9.56	4.61	12.19
10/7/2024 23:30	12.83	127.03	0.06	6.95	295.8	9.45	46.31	12.29
10/7/2024 23:20	12.85	126.78	0.06	7.08	289.08	9.46	45.52	12.29
10/7/2024 23:10	12.86	125.99	0.06	7.51	273.62	9.47	41.72	12.29
10/7/2024 23:00	12.88	126.64	0.06	7.33	290.43	9.45	35.09	12.29
10/7/2024 22:50	12.9	127.22	0.06	7.06	299.44	9.45	31.3	12.29
10/7/2024 22:40	12.92	127.89	0.06	6.97	298.16	9.44	26.25	12.19
10/7/2024 22:30	12.94	127.22	0.06	7.39	278.07	9.45	24.46	12.24
10/7/2024 22:20	12.95	127.6	0.06	7.41	284.46	9.46	24.47	12.26
10/7/2024 22:10	12.95	127.86	0.06	7.18	292.56	9.43	22.88	12.17
10/7/2024 22:00	12.96	128.49	0.06	6.94	300.52	9.43	21.57	12.31
10/7/2024 21:50	12.96	127.91	0.06	7.16	283.66	9.44	23.02	12.31
10/7/2024 21:40	12.96	127.33	0.06	7.46	278.83	9.45	23.84	12.21
10/7/2024 21:30	12.95	127.1	0.06	7.28	285.8	9.45	24.16	12.31
10/7/2024 21:20	12.94	127.44	0.06	7.02	294.26	9.44	23.39	12.33
10/7/2024 21:10	12.94	127.51	0.06	7	289.91	9.44	23.46	12.31
10/7/2024 21:00	12.94	126.13	0.06	7.46	274.14	9.46	24.22	12.31
10/7/2024 20:50	12.94	126.35	0.06	7.36	279.8	9.46	26.51	12.21
10/7/2024 20:40	12.94	126.78	0.06	7.13	289.78	9.46	27.45	12.21

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/7/2024 20:30	12.94	127.39	0.06	6.93	286.78	9.45	26.68	12.24
10/7/2024 20:20	12.94	126.2	0.06	7.27	275.16	9.46	27.58	12.33
10/7/2024 20:10	12.93	125.65	0.06	7.42	268.71	9.47	30.79	12.24
10/7/2024 20:00	12.93	125.86	0.06	7.22	285.54	9.47	34.12	12.24
10/7/2024 19:50	12.93	126.08	0.06	6.95	291.25	9.44	34.3	12.21
10/7/2024 19:40	12.93	125.77	0.06	7.11	279.62	9.47	36.42	12.36
10/7/2024 19:30	12.92	124.9	0.06	7.47	268.08	9.49	40.5	12.36
10/7/2024 19:20	12.92	124.36	0.06	7.27	275.3	9.48	43.97	12.33
10/7/2024 19:10	12.91	124.44	0.06	7.01	278.51	9.48	44.73	12.36
10/7/2024 19:00	12.91	123.86	0.06	7.08	273.75	9.51	42	12.36
10/7/2024 18:50	12.91	121.1	0.06	7.35	260.09	9.51	45.24	12.38
10/7/2024 18:40	12.53	41.82	0.02	7.05	270.32	9.57	5.8	12.38
10/7/2024 18:30	12.54	41.84	0.02	7.06	268.32	9.57	3.54	12.38
10/7/2024 18:20	12.55	41.97	0.02	7.06	274.67	9.57	4.47	12.38
10/7/2024 18:10	12.57	42.02	0.02	7.05	272.15	9.57	3.78	12.41
10/7/2024 18:00	12.59	42.16	0.02	7.07	279.76	9.58	3.13	12.43
10/7/2024 17:50	12.6	42.25	0.02	7.06	275.6	9.57	3.63	12.33
10/7/2024 17:40	12.62	42.58	0.02	7.08	279.89	9.58	3.41	12.45
10/7/2024 17:30	12.64	42.64	0.02	7.04	283.98	9.58	4.92	12.48
10/7/2024 17:20	12.71	49.14	0.02	7.12	282.19	9.55	9.35	12.5
10/7/2024 17:10	13.02	120.27	0.06	7.2	275.49	9.48	27.89	12.65
10/7/2024 17:00	13.03	119.55	0.06	7.45	271.73	9.49	28.57	12.62
10/7/2024 16:50	13.04	117.44	0.06	7.24	282.67	9.48	29.41	12.57
10/7/2024 16:40	13.05	120.73	0.06	6.99	290.05	9.48	30.32	12.55
10/7/2024 16:30	13.07	120.12	0.06	7.03	280.62	9.47	31.24	12.53
10/7/2024 16:20	13.09	119.33	0.06	7.5	266.71	9.49	34.46	12.5
10/7/2024 16:10	13.1	119.25	0.06	7.35	269.29	9.5	34.22	12.45
10/7/2024 16:00	13.11	119.05	0.06	7.11	284.06	9.48	35.87	12.53
10/7/2024 15:50	13.13	119.06	0.06	6.92	283.16	9.49	34.17	12.67
10/7/2024 15:40	13.14	117.8	0.06	7.26	271.79	9.5	30.13	13.24
10/7/2024 15:30	13.15	117.06	0.05	7.43	270.04	9.51	29.67	13.24
10/7/2024 15:20	13.16	117.02	0.05	7.24	275.49	9.51	30.49	13.27
10/7/2024 15:10	13.15	112.79	0.05	6.97	283.41	9.5	30.23	13.29
10/7/2024 15:00	13.16	117.32	0.05	7.02	276.29	9.51	26.54	13.32
10/7/2024 14:50	13.16	112.78	0.05	7.47	262.81	9.52	23.44	13.29
10/7/2024 14:40	13.16	115.79	0.05	7.37	270.3	9.51	23.66	13.27
10/7/2024 14:30	13.16	111.17	0.05	7.13	277.55	9.51	22.29	13.22
10/7/2024 14:20	13.15	116.18	0.05	6.92	280.78	9.5	22.51	13.27
10/7/2024 14:10	13.15	115.74	0.05	7.12	257.93	9.52	26.4	13.17
10/7/2024 14:00	13.13	102.48	0.05	7.44	289.21	9.53	30.25	13.58
10/7/2024 13:50	13.12	102.54	0.05	7.26	294.34	9.54	29.88	13.34
10/7/2024 13:40	13.1	103.74	0.05	7.03	300.41	9.53	29.39	13.41
10/7/2024 13:30	13.07	103.53	0.05	6.92	300.35	9.54	31.8	13.51
10/7/2024 13:20	13.04	101.95	0.05	7.25	288.82	9.54	30.72	13.58
10/7/2024 13:10	13.02	101.27	0.05	7.39	285.35	9.58	29.52	13.6
10/7/2024 13:00	12.94	102.05	0.05	7.19	290.99	9.58	31.36	13.6
10/7/2024 12:50	12.91	102.25	0.05	7	294.26	9.57	31.21	13.36

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/7/2024 12:40	12.88	101.11	0.05	7.15	287.12	9.59	31.43	13.34
10/7/2024 12:30	12.84	99.45	0.05	7.43	280.21	9.62	29.11	13.6
10/7/2024 12:20	12.79	99.58	0.05	7.25	285.11	9.62	29.18	13.44
10/7/2024 12:10	12.76	99.2	0.05	7	290.47	9.64	46.04	13.27
10/7/2024 12:00	12.72	96.26	0.04	7.07	282.37	9.65	26.77	13.63
10/7/2024 11:50	12.72	89.82	0.04	7.34	275.09	9.67	38.32	13.63
10/7/2024 11:40	12.4	39.49	0.02	7.07	282.96	9.75	14.67	13.48
10/7/2024 11:30	12.37	39.69	0.02	7.07	281.02	9.77	12.5	13.56
10/7/2024 11:20	12.3	39.93	0.02	7.07	283.12	9.77	11.54	13.32
10/7/2024 11:10	12.25	39.95	0.02	7.09	282.36	9.78	13.34	13.15
10/7/2024 11:00	12.22	40.36	0.02	7.12	282.94	9.78	12.19	13.12
10/7/2024 10:50	12.21	40.93	0.02	7.18	283.46	9.77	13.8	12.98
10/7/2024 10:40	12.22	48.67	0.02	7.46	277.04	9.75	15.39	13.1
10/7/2024 10:30	12.4	97.39	0.05	7.44	279.96	9.73	24.89	12.93
10/7/2024 10:20	12.36	98.05	0.05	7.25	285.01	9.72	25.17	12.6
10/7/2024 10:10	12.33	98.87	0.05	7.03	289.47	9.72	26.38	12.62
10/7/2024 10:00	12.31	99.17	0.05	7	287.76	9.71	26.04	12.72
10/7/2024 9:50	12.28	97.36	0.05	7.43	274.84	9.73	26.59	12.57
10/7/2024 9:40	12.25	97.49	0.05	7.4	276.13	9.73	28.73	12.5
10/7/2024 9:30	12.22	97.7	0.05	7.21	280.28	9.74	25.66	12.62
10/7/2024 9:20	12.18	98.93	0.05	6.99	285.99	9.72	23.74	12.43
10/7/2024 9:10	12.16	98.08	0.05	7.06	280.1	9.73	23.44	12.31
10/7/2024 9:00	12.15	96.95	0.05	7.46	270.21	9.74	25.16	12.26
10/7/2024 8:50	12.14	96.68	0.04	7.35	273.25	9.73	23.52	12.24
10/7/2024 8:40	12.13	97.79	0.05	7.15	278.59	9.73	23.01	12.21
10/7/2024 8:30	12.13	98.23	0.05	6.94	282.71	9.71	23.44	12.19
10/7/2024 8:20	12.12	97.45	0.05	7.14	274.46	9.71	22.95	12.09
10/7/2024 8:10	12.12	96.25	0.04	7.43	267.62	9.73	23.74	12.07
10/7/2024 8:00	12.12	96.96	0.05	7.3	271.56	9.73	25.66	12.19
10/7/2024 7:50	12.13	97.72	0.05	7.11	275.99	9.71	30.09	12.07
10/7/2024 7:40	12.14	98.92	0.05	6.96	279.01	9.71	26.91	12.17
10/7/2024 7:30	12.14	97.28	0.05	7.29	268.36	9.72	27.7	12.14
10/7/2024 7:20	12.15	97.11	0.05	7.35	268.4	9.71	29.46	12.07
10/7/2024 7:10	12.16	97.32	0.05	7.18	273.29	9.71	29.21	12.17
10/7/2024 7:00	12.18	99.31	0.05	6.99	278.07	9.7	30.37	12.19
10/7/2024 6:50	12.18	98.21	0.05	7.11	271.67	9.71	31.01	12.17
10/7/2024 6:40	12.19	97.33	0.05	7.35	266.99	9.71	30.57	12.19
10/7/2024 6:30	12.19	97.64	0.05	7.23	270.6	9.72	31.09	12.19
10/7/2024 6:20	12.2	98.73	0.05	7.05	275.51	9.7	34.19	12.19
10/7/2024 6:10	12.21	98.68	0.05	6.99	274.26	9.69	32.65	12.19
10/7/2024 6:00	12.22	97.32	0.05	7.36	265.22	9.7	32.94	12.19
10/7/2024 5:50	12.22	97.45	0.05	7.28	267.76	9.7	33.99	12.19
10/7/2024 5:40	12.23	98.6	0.05	7.12	271.99	9.7	33.89	12.17
10/7/2024 5:30	12.23	98.66	0.05	6.97	274.18	9.69	36.69	12.09
10/7/2024 5:20	12.23	96.98	0.05	7.29	264.72	9.7	35.26	12.21
10/7/2024 5:10	12.22	95.85	0.04	7.3	264.83	9.71	34.93	12.21
10/7/2024 5:00	12.22	96.55	0.04	7.11	271.1	9.7	35.18	12.21

EGP-STU-004 (WLNG DS) 2024-10-07 to 2024-10-13

10/7/2024 4:50	12.23	96.83	0.05	6.96	273.84	9.69	35.88	12.21
10/7/2024 4:40	12.22	95.7	0.04	7.28	263.04	9.7	37.38	12.19
10/7/2024 4:30	12.22	95.23	0.04	7.28	263.44	9.7	39.47	12.21
10/7/2024 4:20	12.21	94.83	0.04	7.11	266.82	9.7	39.99	12.21
10/7/2024 4:10	12	78.71	0.04	6.95	272.47	9.78	46.33	12.19
10/7/2024 4:00	11.95	49.78	0.02	7.35	259.22	9.74	16.19	12.09
10/7/2024 3:50	12.08	83.31	0.04	6.93	275.79	9.76	46.2	12.17
10/7/2024 3:40	12.03	62.46	0.03	7.12	268.11	9.69	22.41	12.09
10/7/2024 3:30	12.04	85.4	0.04	6.97	271.58	9.75	61.85	12.09
10/7/2024 3:20	11.88	43.83	0.02	7.02	271.65	9.76	13.54	12.14
10/7/2024 3:10	11.88	43.76	0.02	7.01	272.82	9.77	14.67	12.24
10/7/2024 3:00	11.89	44	0.02	7.02	274.01	9.77	15.33	12.24
10/7/2024 2:50	11.9	43.95	0.02	7.02	274.97	9.76	16.12	12.24
10/7/2024 2:40	11.91	44.13	0.02	7.03	275.58	9.77	15.92	12.24
10/7/2024 2:30	11.92	44.21	0.02	7.04	276.7	9.75	17.39	12.24
10/7/2024 2:20	11.93	44.56	0.02	7.05	279.14	9.75	16.86	12.24
10/7/2024 2:10	11.96	45.14	0.02	7.07	282.45	9.74	17.19	12.24
10/7/2024 2:00	12.03	50.06	0.02	7.16	284.29	9.71	21.82	12.21
10/7/2024 1:50	12.3	93.17	0.04	7.12	285.17	9.68	40.23	12.12
10/7/2024 1:40	12.32	92.24	0.04	7.36	281.27	9.69	39.5	12.12
10/7/2024 1:30	12.33	92.72	0.04	7.17	286.3	9.68	35.12	12.21
10/7/2024 1:20	12.34	93.61	0.04	7.06	288.02	9.68	37.94	12.24
10/7/2024 1:10	12.35	91.89	0.04	7.38	279.73	9.68	32.14	12.24
10/7/2024 1:00	12.36	92.79	0.04	7.21	285.64	9.69	29.35	12.14
10/7/2024 0:50	12.37	93.26	0.04	7.05	288.69	9.67	29.75	12.19
10/7/2024 0:40	12.39	92.37	0.04	7.33	280.2	9.68	30.32	12.17
10/7/2024 0:30	12.4	92.37	0.04	7.26	284	9.68	29.34	12.17
10/7/2024 0:20	12.41	93.5	0.04	7.07	288.98	9.66	28.48	12.17
10/7/2024 0:10	12.43	92.68	0.04	7.25	281.59	9.68	28.48	12.26
10/7/2024 0:00	12.44	92.31	0.04	7.31	282.46	9.67	32.36	12.29