TETRA TECH

TECHNICAL MEMO

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To:	Charles Hunt, Senior Associate McMillen Jacobs Associates	**Date:**	February 7, 2022
		Memo No.:	001
From:	Nigel Cavanagh, Elyse Hofs	**File:**	704-ENG.VGEO03612-04.004 | FEI #: P-00763-ENV-MEM-2006

Subject: Eagle Mountain – Woodfibre Gas Pipeline Project
Surface Water Quality Sampling along the Bedrock Tunnel Alignment
November 2021 Sampling Event

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by McMillen Jacobs Associates (MJA) to conduct quarterly surface water quality sampling and analysis of various drainages along a section of the proposed Eagle Mountain – Woodfibre Gas Pipeline (EGP) Project in Squamish, BC. This memo presents the results of the second sampling event conducted in November 2021.

FortisBC Energy Inc. (FortisBC) has proposed the construction of approximately 48 km of nominal pipe size (NPS) 24 gas pipeline beginning from a location north of the Coquitlam Watershed in Metro Vancouver to the former Woodfibre pulp mill site (the Woodfibre site) located southwest of Squamish, BC. Approximately 9 km of the proposed alignment from Squamish to Woodfibre, is proposed for installation within the EGP Tunnel, under the Squamish River Estuary and through the bedrock on Monmouth Ridge. Approximately 4.9 km of this tunnel will be excavated in bedrock using a tunnel boring machine (TBM) and is identified as the Bedrock Tunnel. The Bedrock Tunnel extends from the Woodfibre Portal at Ch. 8+708m to the Interface Reach at approximately Ch. 3+746 m.

The objective of the surface water quality sampling and analysis was to determine the baseline water quality of the drainages for use during tunnel inflow water quality modeling, and Potentially Acid Generating (PAG) rock stockpile modeling. Water from the drainages that intersect with the tunnel alignment could infiltrate into the tunnel during excavation and may require treatment before being released into the environment as determined by future water quality sampling and analysis.

An additional aim of the testing was to assess the natural dissolved metal content of the drainages throughout the year and to conduct a high level, qualitative assessment on the likelihood of dissolved metals being present within groundwater inflows into the Bedrock Tunnel.

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2.0 METHODS

The surface water quality sampling was conducted by Tetra Tech personnel on November 29, 2021. The methodology for completing the investigation is found in the subsections below.

2.1 Study Area

The study area is located along the Bedrock Tunnel section of the proposed EGP Project in Squamish, BC (Figure 1). Samples were collected from four drainages present on the Woodfibre site (including Mill Creek, the Quarry Entrance, Quarry Drainage and the Portal Site), and from thirteen drainages located along the coast between the Woodfibre site and the Squamish River (including WC-A, WC-B, WC-C, WC-E, WC-F, WC-J, WC-K, WC-L, WC-N, WC-R, WC-T, WC-U, and WC-V).

2.2 Surface Water Sampling

The surface water quality sampling was conducted on November 29, 2021 during the wet season. Drainages on the Woodfibre site were accessed by truck, and drainages along the coast were accessed by boat. A georeferenced map showing all the mapped drainages in the area was used to navigate to each of the potential sampling sites (Figure 1), and presence of flow was determined visually. If flow was observed, the drainage was sampled.

At each drainage, in-situ parameters including water temperature (°C), dissolved oxygen (mg/L), total dissolved solids (mg/L), electrical conductivity (µS/cm), salinity (ppt), oxidation-reduction potential (mV) and pH (relative units), were measured using a YSI ProPlus Quattro multiparameter meter. Instruments used for field in-situ sampling were calibrated according to manufacturer's specifications prior to the sampling event.

Surface water samples for laboratory analysis were collected at each site according to the methods described in the BC Field Sampling Manual, Part E, Water and Wastewater Sampling[1]. Collected samples were sent under chain-of-custody (CoC) protocol to ALS Environmental in Burnaby, BC and underwent laboratory analysis for acidity, alkalinity, anions, dissolved and total metals, dissolved mercury, and dissolved organic carbon.

One trip blank, one field blank, and sample duplicates taken every ten samples were collected and submitted for quality assurance/quality control (QA/QC) purposes. The objective of the QA QC program is to assess that all water samples are collected in a similar manner, using standardized protocols designed to maintain accuracy and precision and to monitor for and identify sources of contamination or sampling errors. Trip blanks are meant to detect contamination from within the sample bottle (including caps). Field blanks mimic the sampling and preservative process of the field-collected samples but do not come in contact with surface water. Consequently, they provide information on contamination resulting from the handling technique, preservation and exposure to the atmosphere or sampling environment. Duplicate samples are two independent samples that are collected as close as possible to the same point in space and time (i.e., in quick succession) and are intended to be identical. A comparison of the duplicate samples involved calculating the Relative Percent Difference (RPD) between the duplicate pair. Results were calculated as follows:

[1] B.C. Ministry of Environment & Climate Change Strategy. 2013. BC Field Sampling Manual, Part E, Water and Wastewater Sampling. Prov. B.C., Victoria B.C.

$$RPD\ (\%) = 2 \times 100 \times |X - Y| / (X + Y)$$

Where:

X = the measured concentration in the original sample

Y = the measured concentration in the duplicate sample.

Per the BC Environmental Laboratory Manual (2020), RPDs should be calculated and assessed only when both the sample and the duplicate concentration is greater than five times the method detection limit (MDL), referred to as the Practical Quantification Limit (PQL). When evaluating the RPD for the duplicate sample, a threshold of 20% was applied to assess if samples were considered within the acceptable limit of variation. Should the RPD exceed the threshold value, an explanation for the variation is required.

3.0 RESULTS

Surface water was able to be sampled from the seventeen locations shown on Figure 1. Due to the increased flows during the November 2021 sampling event, seven additional drainages along the coast were able to be sampled relative to the sampling event that occurred during in August 2021. Photos of each drainage sampled are provided at the end of the memo.

The results of the analyses were compared against the 2019 British Columbia Approved Water Quality Guidelines (BCAWQG) and the 2020 Working Water Quality Guidelines for freshwater aquatic life and marine aquatic life[2,3]. In addition to the short-term guidelines, the November 2021 data was also compared to the long-term guidelines as requested by FortisBC. Per the request, although the proper protocol for applying the long-term guideline requires that the average analytical result for a parameter collected over a period of five sample events within a 30-days be compared to the guideline, the single sample analytical result was compared to a respective long-term guideline. The purpose of this approach was to highlight the parameters that may be of interest, as opposed to understanding if the water in a creek meets the guideline.

The surface water analytical results are provided in Table 1 and cells with exceedances of a BCAWQG are formatted based on the guideline(s) exceeded (see the table notes for more details). Table 2 provides the results of the quality assurance/quality control samples. A copy of the laboratory report from ALS is included in Appendix A.

Tetra Tech's primary findings after review of the analytical data were as follows:

[2] B.C. Ministry of Environment & Climate Change Strategy. 2019. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Prov. B.C., Victoria B.C.

[3] B.C. Ministry of Environment and Climate Change Strategy 2020. Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Water Quality Guideline Series, WQG-08. Prov. B.C., Victoria B.C.

Location	Exceedance	Guideline Exceeded
Quarry Drainage	Field pH Dissolved aluminum Total iron	Marine Long-term and Short-term Guidelines Freshwater Long-term Guidelines Freshwater Short-term Guidelines
Quarry Entrance	Field pH Lab pH Dissolved aluminum Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines
Mill Creek	Field pH Lab pH Dissolved aluminum Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine and Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines
Portal Site	Field pH Lab pH Dissolved aluminum Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-A	Field pH Lab pH Dissolved aluminum	Marine and Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Freshwater / Marine Short-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-B	Field pH Lab pH Dissolved aluminum Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine Long-term and Short-term Guidelines Freshwater Long-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-C	Field pH Lab pH Dissolved aluminum Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-E	Field pH Lab pH Dissolved aluminum Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine and Freshwater Long-term and Short-term Guidelines Freshwater Long-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-F	Field pH Lab pH Dissolved aluminum Dissolved cadmium Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine and Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines Freshwater Long-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-J	Field pH Lab pH Dissolved aluminum Dissolved cadmium Dissolved copper	Marine and Freshwater Long-term and Short-term Guidelines Marine and Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines Freshwater Long-term Guidelines Freshwater Long-term and Short-term Guidelines
WC-K	Field pH Lab pH Dissolved aluminum	Marine and Freshwater Long-term and Short-term Guidelines Marine and Freshwater Long-term and Short-term Guidelines Freshwater Long-term and Short-term Guidelines

Location	Exceedance	Guideline Exceeded
	Dissolved cadmium	Freshwater Long-term Guidelines
	Dissolved copper	Freshwater Long-term and Short-term Guidelines
WC-L	Field pH	Marine and Freshwater Long-term and Short-term Guidelines
	Lab pH	Marine and Freshwater Long-term and Short-term Guidelines
	Dissolved aluminum	Freshwater Long-term and Short-term Guidelines
	Dissolved cadmium	Freshwater Long-term Guidelines
	Dissolved copper	Freshwater Long-term and Short-term Guidelines
WC-N	Field pH	Marine and Freshwater Long-term and Short-term Guidelines
	Dissolved aluminum	Freshwater Long-term Guidelines
	Dissolved copper	Freshwater Long-term and Short-term Guidelines
WC-R	Field pH	Marine and Freshwater Long-term and Short-term Guidelines
	Lab pH	Marine Long-term and Short-term Guidelines
	Dissolved aluminum	Freshwater Long-term and Short-term Guidelines
	Dissolved cadmium	Freshwater Long-term and Short-term Guidelines
WC-T	Field pH	Marine and Freshwater Long-term and Short-term Guidelines
	Lab pH	Marine and Freshwater Long-term and Short-term Guidelines
	Dissolved aluminum	Freshwater Long-term and Short-term Guidelines
	Dissolved copper	Freshwater Long-term and Short-term Guidelines
WC-U	Field pH	Marine and Freshwater Long-term and Short-term Guidelines
	Dissolved aluminum	Freshwater Long-term Guidelines
WC-V	Field pH	Marine and Freshwater Long-term and Short-term Guidelines
	Lab pH	Marine and Freshwater Long-term and Short-term Guidelines
	Dissolved aluminum	Freshwater Long-term and Short-term Guidelines

Unless stated above, all other parameters tested for at the seventeen sample locations were at levels below or within the applicable BCAWQGs.

With respect to QA/QC, the analytical results for the trip blank were below the analytical detection limit for all parameters, indicative that no contamination was introduced via the sample bottles (Table 2). The analytical results for the field blank showed that three parameters (dissolved copper, total copper, and dissolved silicon) were slightly above the reportable detection limit (Table 2). The distilled water used for the field blank was purchased from the grocery store instead of being provided by the lab, and this could be a possible explanation as to why those parameters were elevated. All RPD values of parameters that met the PQL requirement within the duplicate samples were below the 20% threshold, indicative that the duplicate sample pair was within acceptable limit of variation (Table 2). Therefore, the analytical results obtained during the surface water quality sampling and analysis were considered representative of natural surface water quality conditions.

4.0 DISCUSSION OF RESULTS

The first sampling event in August 2021 was conducted during the driest time of year to maximize the likelihood that any water flowing through the drainages was sourced from groundwater springs/seeps and not from rainfall or surface run-off. The November 2021 sampling event captured the water quality of these drainages during the wet season and allowed more drainages along the alignment to be sampled due to increased flows.

In-situ measurements of field pH were collected at each site, and upon request by FortisBC, the pH was also tested by the lab as an additional QA/QC measurement. For all seventeen samples, the reported lab pH was higher than the field pH. The BC Ministry of Environment's Sample Preservation & Holding Requirements indicates that the holding time for pH is 15 minutes[4]. Given that the lab pH would have been measured long after the holding time for pH had passed, the field pH is considered to be the more accurate measurement.

All seventeen sample locations had field pH values below the lower marine guideline limit of 7.0, and with the exception of the Quarry Drainage (pH of 6.88), each site had field pHs lower than freshwater guideline limit of 6.5. The lowest pH values, all below 5.0, were recorded at WC-F, WC-J, WC-T, and WC-V. The pH of surface water is primarily dictated by the amount of precipitation the area receives and by how quickly the bedrock and soils weather[5]. Weathering of rock and soils produces carbonate ions which increase the alkalinity / pH of surrounding waters. In areas with abundant precipitation and high surface run-off, carbonates generated from the weathering process are "rapidly leached from the watershed resulting in surface waters with low carbonate and pH levels"[5]. Low pH levels are characteristic of the Cascade Mountain region, due to the presence of thin soils, slow-weathering granitic rock and high run-off rates[5]. Since the drainages were sampled after a period of heavy and prolonged rainfall and were experiencing high surface run-off, low pHs could be expected. There is also the potential that weathering of exposed bedrock within some of the drainages could cause pH to drop due to acid rock drainage. Compared to the August 2021 sampling event, pHs were generally found to be lower in November. In August, pH was below 7.0 at all of the drainages on the Woodfibre site, and the drainages along the coast had pHs between 7.0 and 8.0.

Besides the pH exceedances, the only other exceedances within the drainages were of a few total and dissolved metals. Dissolved aluminum exceedances were found within all seventeen drainages, and dissolved copper exceedances were found at fourteen drainages. Dissolved cadmium exceedances were found at six drainages east of WC-F. Total iron was only found to exceed guidelines at the Quarry Drainage site. Exceedances of total iron, dissolved aluminum and dissolved copper were also found in certain drainages during the August 2021 sampling event. All four of these metals are naturally occurring in the environment and can be produced from the weathering of rock and soils.

As requested by Fortis BC, a lower Dissolved Copper detection limit was used by ALS for the November samples (0.00015 mg/L in November vs 0.0002 mg/L in August). Dissolved Organic Carbon (DOC) was also tested for during the November 2021 sampling event. The DOC results were not able to be compared to the BCAWQG, because a background sample, either measured historically or at an appropriate reference site, is required to calculate the exceedance thresholds. However, the average of the DOC values reported during the baseline sampling, could act as a background sample for surface water tested during the future construction phase of the Project.

[4] BC Ministry of Environment and Climate Change Strategy (BC ENV). 2019. BC ENV Sample Preservation & Holding Time Requirements. Available at: https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/summary-of-sample-preservation-and-hold-time-requirements.pdf.

[5] B.C. Ministry of Environment and Climate Change Strategy 2021. pH Water Quality Guidelines (Reformatted from: British Columbia Ministry of Environment, 1991. Ambient water quality criteria for pH). Water Quality Guideline Series, WQG-09. Prov. B.C., Victoria B.C.

The water quality results provided in this memo were obtained during a single sampling event conducted during the wet season. As such, the results are only able to provide very limited insight into baseline water quality within the drainages sampled. However, these results did indicate that the drainages sampled had naturally low pH levels, and commonly experienced exceedances of dissolved and total metals to which the aquatic ecosystem has likely adapted. Pending further baseline sampling to confirm if these parameters are, in fact, naturally elevated, if similar exceedances are detected in future sampling events (i.e., during construction), baseline findings would serve as a basis for comparison to assess if construction related impacts are occurring.

Drainages should continue to be sampled quarterly to enhance the baseline water quality data set for surface watercourses potentially interacting with the Bedrock Tunnel and associated infrastructure.

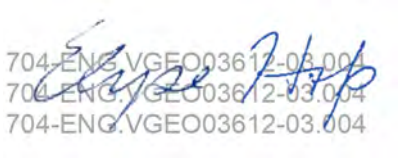
5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of McMillen Jacobs Associates and their agents, including FortisBC Energy Inc. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than McMillen Jacobs Associates, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.



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Enclosure: Tables (2)
Figures (1)
Photos (17)
Appendix A : ALS Certificate of Analysis and Analytical Results
Appendix B: Tetra Tech's Limitations on the Use of This Document

TABLES

Table 1: Surface Water Analytical Results

Parameter	Unit	BCWQG AW - Fresh			BCWQG AW - Marine			Location	Portal								
		Approved		Working	Approved		Working	Field ID									
		Long-term	Short-term		Long-term	Short-term		Sample Date									
								Laboratory Report Number									
								Laboratory Sample ID									
Field																	
Field Temperature	°C	-	15	-	-	-	-	Quarry Drainage	Quarry Entrance	Mill Creek	Portal	DUP 1	WC-A	WC-B	WC-C	WC-E	WC-F	WC-J
Field Electric Conductivity	µS/cm	-	-	-	-	-	-	Quarry Drainage	Quarry Entrance	Mill Creek	Portal	DUP 1	WC-A	WC-B	WC-C	WC-E	WC-F	WC-J
Field Dissolved Oxygen	µg/L	Minimum 5000	-	-	Minimum 5000	-	-	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021
Field Total Dissolved Solids (TDS)	µg/L	-	-	-	-	-	-	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605
Field Oxidation Reduction Potential	mV	-	-	-	-	-	-	VA21C6605-002	VA21C6605-001	VA21C6605-003	VA21C6605-004	VA21C6605-005	VA21C6605-019	VA21C6605-018	VA21C6605-017	VA21C6605-016	VA21C6605-015	VA21C6605-014
Field pH	pH Units	6.5-9.0	6.5-9.0	-	7.0-8.7	7.0-8.7	-	63.3	82.6	88.7	66.6	-	126.9	141.04	132.8	143.6	166.7	140.4
Field Salinity	ppt	-	-	-	-	-	-	6.88	**6.22**	**5.55**	**6.34**	-	**5.74**	**6.28**	**5.60**	**5.89**	**3.98**	**4.39**
Physical Parameters								0.06	0	0	0.01	-	0	0.01	0.01	0	0	0
pH	pH Units	6.5-9.0	6.5-9.0	-	7.0-8.7	7.0-8.7	-	7.76	6.53	**6.17**	6.64	6.64	**6.44**	6.89	6.61	**6.40**	**4.98**	**4.95**
Hardness as $CaCO_3$	µg/L	-	-	-	-	-	-	69,000	3220	2360	4030	3940	2140	4870	3830	2800	1230	1780
Alkalinity (total)	µg/L	-	-	Minimum 10,000[#1]	-	-	-	71,200	2600	1100	3300	3200	1900	4800	3800	1800	<1000	<1000
Bromide	µg/L	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Chloride	µg/L	150,000	600,000	-	-	-	-	520	<500	<500	550	540	760	800	720	810	570	750
Fluoride	µg/L	-	400-1185[#2]	-	-	1500	-	23	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Sulphate	µg/L	128,000-218,000[#2]	-	-	-	-	-	4680	1240	1460	1670	1660	1300	1120	1610	2270	1200	2290
Acidity	µg/L	-	-	-	-	-	-	3200	2400	2400	2400	2500	2300	2300	2800	2100	3400	3000
Nutrients																		
Nitrate (as N)	µg/L	3000	32,800	-	3700	-	-	224	10.5	43.8	8.9	7.3	24.4	311	5.8	<5.0	<5.0	<5.0
Nitrite (as N)	µg/L	20[#3]	60[#3]	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon																		
Dissolved Organic Carbon (DOC)	µg/L	-[#9]	-[#9]	-	-	-	-	2550	2400	1880	2430	2430	1320	1620	1620	1180	3460	1800
Dissolved Metals																		
Aluminum	µg/L	14[#8]	20-100 [#4]	-	-	-	-	19.6	**97.3**	**99.3**	**90.3**	91.6	**40.6**	53.0	**60.1**	25.1	**218**	**120**
Antimony	µg/L	-	-	-	-	-	-	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	µg/L	-	-	-	-	-	-	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Barium	µg/L	-	-	-	-	-	-	16.5	3.35	1.68	2.24	2.26	2.48	3.62	4.52	3.52	4.33	5.47
Beryllium	µg/L	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth	µg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron	µg/L	-	-	-	-	-	-	12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005-0.161[#2]	0.04-0.401[#2]	-	-	-	-	0.0077	0.0069	0.0072	<0.0050	0.0064	<0.0050	<0.0050	0.0063	0.0141	0.0188	0.0163
Calcium	µg/L	-	-	-	-	-	-	25,700	1080	805	1380	1350	602	1250	1120	830	326	489
Cesium	µg/L	-	-	-	-	-	-	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	<0.010
Chromium	µg/L	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	<0.10
Copper	µg/L	0.2-0.3[#5]	0.2-2.1[#5]	-	-	-	-	0.30	**0.73**	**0.24**	**0.60**	**0.66**	<0.15	**0.24**	**0.53**	**0.87**	**0.77**	**0.81**
Iron	µg/L	-	350	-	-	-	-	50	11	11	19	14	<10	<10	<10	<10	33	<10
Lead	µg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	µg/L	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	µg/L	-	-	-	-	-	-	1180	128	83.8	142	139	155	424	250	177	102	137
Manganese	µg/L	-	-	-	-	-	-	5.55	0.84	1.27	0.83	0.74	0.23	0.98	0.28	0.46	5.72	5.46
Mercury	µg/L	-	-	-	-	-	-	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum	µg/L	-	-	-	-	-	-	0.744	0.183	0.174	0.19	0.224	0.384	0.086	0.192	0.366	0.058	<0.050
Nickel	µg/L	-	-	-	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Phosphorus	µg/L	-	-	-	-	-	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	µg/L	-	-	-	-	-	-	1070	71	138	114	116	147	329	221	152	61	70
Rubidium	µg/L	-	-	-	-	-	-	1.66	<0.20	0.35	<0.20	<0.20	<0.20	0.50	0.38	0.31	<0.20	0.22
Selenium	µg/L	-	-	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silicon	µg/L	-	-	-	-	-	-	3550	1770	1350	2680	2650	2530	6040	4410	3260	1690	2110
Silver	µg/L	-	-	-	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Notes:

#1	Waterbodies are highly sensitive to acid inputs below 10 mg/L alkalinity
#2	Guideline varies with lab hardness concentration specific to each particular sample.
#3	Guideline varies with lab chloride concentration specific to each particular sample.
#4	Guideline varies with field pH value specific to each particular sample.
#5	Dissolved Copper guideline is calculated using the BC BLM software and it varies with field pH, field temperature, lab hardness and lab DOC specific to each particular sample.
#6	Guideline is for Antimony III
#7	Guideline is for Chromium VI
#8	Guideline for varies with median field pH.
#9	Within 20% of background median
-	Not analyzed or no applicable guideline
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (August 2019).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (July 2020).
AW	Freshwater and marine aquatic life
Shaded	Shaded indicates an exceedance of the Approved BCWQG - Freshwater AW Long-term guidelines.
Bold	Bold indicates an exceedance of the Approved BCWQG - Freshwater AW Short-term guidelines.
Black Box	Black box indicates an exceedance of the Working BCWQG - Freshwater AW guidelines.
Underlined	Underlined indicates an exceedance of the Approved BCWQG - Marine AW Long-term guidelines.
Red Text	Red text indicates an exceedance of the Approved BCWQG - Marine AW Short-term guidelines.
Red Box	Red box indicates an exceedance of the Working BCWQG - Marine AW guidelines.

Table 1: Surface Water Analytical Results

Parameter	Unit	BCWQG AW - Fresh			BCWQG AW - Marine			Location	Quarry Drainage	Quarry Entrance	Mill Creek	Portal		WC-A	WC-B	WC-C	WC-E	WC-F	WC-J
		Approved		Working	Approved		Working	Field ID	Quarry Drainage	Quarry Entrance	Mill Creek	Portal	DUP 1	WC-A	WC-B	WC-C	WC-E	WC-F	WC-J
								Sample Date	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021
								Laboratory Report Number	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605
								Laboratory Sample ID	VA21C6605-002	VA21C6605-001	VA21C6605-003	VA21C6605-004	VA21C6605-005	VA21C6605-019	VA21C6605-018	VA21C6605-017	VA21C6605-016	VA21C6605-015	VA21C6605-014
		Long-term	Short-term		Long-term	Short-term													
Dissolved Metals																			
Sodium	µg/L	-	-	-	-	-	-		1620	653	496	878	879	983	1510	1150	1080	566	682
Strontium	µg/L	-	-	-	-	-	-		109	5.18	3.84	7.12	7.36	6.11	16.3	15.8	10.2	4.82	6.20
Sulphur	µg/L	-	-	-	-	-	-		1500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Tellurium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	µg/L	-	-	-	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium	µg/L	-	-	-	-	-	-		<0.30	<0.30	0.35	0.32	<0.30	<0.30	0.3	<0.30	<0.30	0.7	<0.30
Tungsten	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium	µg/L	-	-	-	-	-	-		0.197	0.167	0.138	0.143	0.148	0.082	0.012	0.014	0.037	0.010	0.017
Vanadium	µg/L	-	-	-	-	-	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.91	<0.50	<0.50	<0.50	<0.50
Zinc	µg/L	-	-	-	-	-	-		<1.0	4.5	1.2	1.7	1.8	<1.0	<1.0	1.0	1.4	3.3	3.9
Zirconium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Metals																			
Aluminum	µg/L	-	-	-	-	-	-		225	115	146	303	309	42.0	72.1	68.2	30.9	206	114
Antimony	µg/L	-	-	9[#6]	-	-	270[#6]		0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	µg/L	5	5	-	12.5	12.5	-		0.14	<0.10	<0.10	0.16	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Barium	µg/L	-	-	1000	-	-	-		18.2	3.58	1.92	3.15	3.16	2.58	3.66	4.62	3.66	4.12	5.44
Beryllium	µg/L	-	-	0.13	-	-	100		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bismuth	µg/L	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron	µg/L	1200	-	-	1200	-	-		13	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	-	-	-	-	-	0.12		0.0097	<0.0050	0.0082	0.0137	0.0145	<0.0050	<0.0050	0.0063	0.0133	0.0135	0.0138
Calcium	µg/L	-	-	-	-	-	-		23,800	1160	760	1380	1330	590	1200	1070	779	290	442
Cesium	µg/L	-	-	-	-	-	-		0.021	<0.010	<0.010	0.012	0.012	<0.010	<0.010	<0.010	0.016	<0.010	<0.010
Chromium	µg/L	-	-	1[#7]	-	-	1.5[#7]		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	4	110	-	-	-	-		0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Copper	µg/L	-	-	-	2	3	-		0.75	0.70	<0.50	1.59	1.57	<0.50	<0.50	0.52	0.89	0.88	0.80
Iron	µg/L	-	1000	-	-	-	-		**1530**	33	38	163	170	<10	16	13	<10	34	<10
Lead	µg/L	-	3-51[#2]	-	2	140	-		0.28	0.055	<0.050	0.337	0.344	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Lithium	µg/L	-	-	-	-	-	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	µg/L	-	-	-	-	-	-		1160	132	92.2	162	158	144	395	234	169	94	131
Manganese	µg/L	608 - 908[#2]	816-1300[#2]	-	-	-	100		53.3	1.90	1.86	6.75	6.90	0.52	1.37	0.75	0.57	5.19	4.98
Molybdenum	µg/L	7,600	46,000	-	-	-	-		0.763	0.202	0.166	0.249	0.226	0.358	0.099	0.170	0.328	0.056	0.054
Nickel	µg/L	-	-	25-72[#2]	-	-	8.3		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Phosphorus	µg/L	-	-	-	-	-	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	µg/L	-	-	-	-	-	-		1010	55	120	105	103	124	284	196	127	<50	51
Rubidium	µg/L	-	-	-	-	-	-		1.64	<0.20	0.31	0.26	0.26	0.22	0.47	0.41	0.32	<0.20	0.23
Selenium	µg/L	2	2	-	2	2	-		0.055	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silicon	µg/L	-	-	-	-	-	-		3870	1910	1460	2780	2820	2490	5870	4520	3330	1740	2210
Silver	µg/L	0.05[#2]	0.1[#2]	-	1.5	3	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	µg/L	-	-	-	-	-	-		1680	670	502	883	871	960	1550	1130	1060	550	684
Strontium	µg/L	-	-	-	-	-	-		109	5.33	3.92	8.01	7.66	6.01	16.8	16.2	10.1	4.65	6.08
Sulphur	µg/L	-	-	-	-	-	-		1400	<500	<500	<500	<500	<500	<500	<500	620	<500	900
Tellurium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	µg/L	-	-	0.8	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium	µg/L	-	-	-	-	-	-		6.19	1.08	1.84	7.8	8.25	<0.30	0.99	0.40	<0.30	0.70	<0.30
Tungsten	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium	µg/L	-	-	8.5	-	-	-		0.320	0.170	0.144	0.204	0.201	0.078	0.014	0.015	0.041	<0.010	0.016
Vanadium	µg/L	-	-	-	-	-	50		0.72	<0.50	<0.50	<0.50	<0.50	<0.50	0.93	<0.50	<0.50	<0.50	<0.50
Zinc	µg/L	7.5[#2]	33[#2]	-	10	55	-		<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.4	3.8
Zirconium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Notes:

#1	Waterbodies are highly sensitive to acid inputs below 10 mg/L alkalinity
#2	Guideline varies with lab hardness concentration specific to each particular sample.
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TETRA TECH

Table 1: Surface Water Analytical Results

Parameter	Unit	BCWQG AW - Fresh			BCWQG AW - Marine			Location	WC-K		WC-L	WC-N	WC-R	WC-T	WC-U	WC-V
		Approved		Working	Approved		Working	Field ID	WC-K	Dup-2	WC-L	WC-N	WC-R	WC-T	WC-U	WC-V
								Sample Date	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021
								Laboratory Report Number	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605
								Laboratory Sample ID	VA21C6605-012	VA21C6605-013	VA21C6605-011	VA21C6605-010	VA21C6605-009	VA21C6605-008	VA21C6605-007	VA21C6605-006
		Long-term	Short-term		Long-term	Short-term										
Field																
Field Temperature	°C	-	15	-	-	-	-		7.3	-	7.1	7.7	7.9	7.7	7.4	6.3
Field Electric Conductivity	µS/cm	-	-	-	-	-	-		6.4	-	6.1	14.1	10.8	6.8	14.1	5.2
Field Dissolved Oxygen	µg/L	Minimum 5000	-	-	Minimum 5000	-	-		11,910	-	12,170	11,970	11,760	12,030	11,980	12,420
Field Total Dissolved Solids (TDS)	µg/L	-	-	-	-	-	-		6500	-	5850	13650	10400	5850	13650	5200
Field Oxidation Reduction Potential	mV	-	-	-	-	-	-		125.8	-	145.2	129.4	131.7	11.8	98.8	80.6
Field pH	pH Units	6.5-9.0	6.5-9.0	-	7.0-8.7	7.0-8.7	-		5.80	-	5.53	6.24	5.66	4.11	6.17	4.85
Field Salinity	ppt	-	-	-	-	-	-		0	-	0	0.01	0.01	0	0.01	0
Physical Parameters																
pH	pH Units	6.5-9.0	6.5-9.0	-	7.0-8.7	7.0-8.7	-		6.27	6.24	6.36	7.03	6.67	5.04	7.07	6.17
Hardness as $CaCO_3$	µg/L	-	-	-	-	-	-		2930	3020	2730	7040	4740	1870	7990	2560
Alkalinity (total)	µg/L	-	-	Minimum 10,000[#1]	-	-	-		1400	1800	1900	6700	3300	<1000	7400	1900
Bromide	µg/L	-	-	-	-	-	-		<50	<50	<50	<50	<50	<50	<50	<50
Chloride	µg/L	150,000	600,000	-	-	-	-		<500	<500	<500	700	700	560	620	<500
Fluoride	µg/L	-	400-1185[#2]	-	-	1500	-		<20	<20	<20	37	24	<20	33	<20
Sulphate	µg/L	128,000-218,000[#2]	-	-	-	-	-		1270	1270	1110	2230	2690	1900	1510	750
Acidity	µg/L	-	-	-	-	-	-		2800	2800	2700	2100	2200	3300	2000	3100
Nutrients																
Nitrate (as N)	µg/L	3000	32,800	-	3700	-	-		<5.0	<5.0	<5.0	10.4	<5.0	<5.0	<5.0	<5.0
Nitrite (as N)	µg/L	20[#3]	60[#3]	-	-	-	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon																
Dissolved Organic Carbon (DOC)	µg/L	-[#9]	-[#9]	-	-	-	-		3440	3570	3160	1080	1780	3440	1660	4700
Dissolved Metals																
Aluminum	µg/L	14[#8]	20-100 [#4]	-	-	-	-		**173**	**176**	**164**	28.7	**48.9**	**171**	36.2	**252**
Antimony	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	µg/L	-	-	-	-	-	-		0.15	0.15	0.14	0.14	<0.10	<0.10	<0.10	<0.10
Barium	µg/L	-	-	-	-	-	-		3.31	3.49	2.44	2.82	4.86	3.61	3.2	2.52
Beryllium	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth	µg/L	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron	µg/L	-	-	-	-	-	-		<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005-0.161[#2]	0.04-0.401[#2]	-	-	-	-		0.0202	0.0222	0.0236	0.0193	**0.0475**	<0.0050	0.0074	0.0060
Calcium	µg/L	-	-	-	-	-	-		994	1020	923	2480	1600	577	2840	867
Cesium	µg/L	-	-	-	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	µg/L	-	-	-	-	-	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Copper	µg/L	0.2-0.3[#5]	0.2-2.1[#5]	-	-	-	-		**1.50**	**1.53**	**0.47**	**0.21**	0.16	**0.57**	0.15	0.16
Iron	µg/L	-	350	-	-	-	-		23	22	22	<10	<10	29	<10	38
Lead	µg/L	-	-	-	-	-	-		<0.050	<0.050	0.076	<0.050	<0.050	0.053	<0.050	<0.050
Lithium	µg/L	-	-	-	-	-	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	µg/L	-	-	-	-	-	-		110	116	104	206	180	104	218	95.8
Manganese	µg/L	-	-	-	-	-	-		2.61	2.59	1.87	1.38	0.49	2.88	0.26	2.90
Mercury	µg/L	-	-	-	-	-	-		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0063	<0.0050	<0.0050
Molybdenum	µg/L	-	-	-	-	-	-		0.285	0.254	0.445	1.7	0.591	<0.050	0.949	0.152
Nickel	µg/L	-	-	-	-	-	-		<0.50	<0.50	<0.50	<0.50	<0.50	0.51	<0.50	<0.50
Phosphorus	µg/L	-	-	-	-	-	-		<50	<50	<50	<50	<50	<50	<50	<50
Potassium	µg/L	-	-	-	-	-	-		86	86	92	206	153	<50	120	67
Rubidium	µg/L	-	-	-	-	-	-		0.21	<0.20	<0.20	0.24	0.3	<0.20	<0.20	<0.20
Selenium	µg/L	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silicon	µg/L	-	-	-	-	-	-		1830	1890	1870	3500	2760	1690	2790	1500
Silver	µg/L	-	-	-	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Notes:

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#9	Within 20% of background median
-	Not analyzed or no applicable guideline
<	Concentration is less than the laboratory detection limit indicated.
BC WQG - Approved	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (August 2019).
BC WQG - Working	British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (July 2020).
AW	Freshwater and marine aquatic life
Shaded	Shaded indicates an exceedance of the Approved BCWQG - Freshwater AW Long-term guidelines.
Bold	Bold indicates an exceedance of the Approved BCWQG - Freshwater AW Short-term guidelines.
Black Box	Black box indicates an exceedance of the Working BCWQG - Freshwater AW guidelines.
Underlined	Underlined indicates an exceedance of the Approved BCWQG - Marine AW Long-term guidelines.
Red Text	Red text indicates an exceedance of the Approved BCWQG - Marine AW Short-term guidelines.
Red Box	Red box indicates an exceedance of the Working BCWQG - Marine AW guidelines.

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Table 1: Surface Water Analytical Results

Parameter	Unit	BCWQG AW - Fresh			BCWQG AW - Marine			Location	WC-K		WC-L	WC-N	WC-R	WC-T	WC-U	WC-V
		Approved		Working	Approved		Working	Field ID	WC-K	Dup-2	WC-L	WC-N	WC-R	WC-T	WC-U	WC-V
								Sample Date	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021
								Laboratory Report Number	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605	VA21C6605
								Laboratory Sample ID	VA21C6605-012	VA21C6605-013	VA21C6605-011	VA21C6605-010	VA21C6605-009	VA21C6605-008	VA21C6605-007	VA21C6605-006
		Long-term	Short-term		Long-term	Short-term										
Dissolved Metals																
Sodium	µg/L	-	-	-	-	-	-		580	595	618	1180	1010	555	881	534
Strontium	µg/L	-	-	-	-	-	-		5.22	5.19	4.92	11.1	8.67	3.92	8.9	3.97
Sulphur	µg/L	-	-	-	-	-	-		<500	<500	<500	750	<500	<500	<500	<500
Tellurium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	µg/L	-	-	-	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium	µg/L	-	-	-	-	-	-		0.48	0.65	0.64	<0.30	0.45	0.43	<0.30	0.85
Tungsten	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium	µg/L	-	-	-	-	-	-		0.064	0.066	0.111	0.257	0.201	0.058	0.650	0.173
Vanadium	µg/L	-	-	-	-	-	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	µg/L	-	-	-	-	-	-		2.9	2.9	2.4	1.5	3.8	3.0	<1.0	1.4
Zirconium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	1.46	<0.20	<0.20
Total Metals																
Aluminum	µg/L	-	-	-	-	-	-		174	176	166	47.0	79.6	163	58.6	247
Antimony	µg/L	-	-	9 [#6]	-	-	270 [#6]		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic	µg/L	5	5	-	12.5	12.5	-		0.16	0.18	0.13	0.17	<0.10	<0.10	0.10	<0.10
Barium	µg/L	-	-	1000	-	-	-		3.50	3.47	2.49	2.85	5.39	3.43	3.23	2.47
Beryllium	µg/L	-	-	0.13	-	-	100		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bismuth	µg/L	-	-	-	-	-	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron	µg/L	1200	-	-	1200	-	-		<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	-	-	-	-	-	0.12		0.0203	0.0202	0.0223	0.0287	0.101	0.0056	0.0125	0.0070
Calcium	µg/L	-	-	-	-	-	-		930	931	864	2350	1540	529	2640	821
Cesium	µg/L	-	-	-	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium	µg/L	-	-	1 [#7]	-	-	1.5 [#7]		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt	µg/L	4	110	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Copper	µg/L	-	-	-	2	3	-		1.5	1.45	<0.50	<0.50	<0.50	0.63	<0.50	<0.50
Iron	µg/L	-	1000	-	-	-	-		24	23	25	20	24	28	16	46
Lead	µg/L	-	3-51 [#2]	-	2	140	-		<0.050	<0.050	0.086	<0.050	0.095	0.056	<0.050	0.097
Lithium	µg/L	-	-	-	-	-	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	µg/L	-	-	-	-	-	-		112	109	101	196	173	103	208	90.2
Manganese	µg/L	608 - 908 [#2]	816-1300 [#2]	-	-	-	100		2.72	2.80	2.08	2.66	6.51	2.84	0.84	3.15
Molybdenum	µg/L	7,600	46,000	-	-	-	-		0.255	0.272	0.488	1.57	0.625	<0.050	0.865	0.171
Nickel	µg/L	-	-	25-72 [#2]	-	-	8.3		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Phosphorus	µg/L	-	-	-	-	-	-		<50	<50	<50	<50	<50	<50	<50	<50
Potassium	µg/L	-	-	-	-	-	-		65	62	77	182	140	<50	97	<50
Rubidium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	0.29	<0.20	<0.20	<0.20
Selenium	µg/L	2	2	-	2	2	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silicon	µg/L	-	-	-	-	-	-		1980	1920	1920	3600	2930	1750	2880	1590
Silver	µg/L	0.05 [#2]	0.1 [#2]	-	1.5	3	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium	µg/L	-	-	-	-	-	-		592	589	621	1170	1000	567	862	515
Strontium	µg/L	-	-	-	-	-	-		4.92	5.15	5.02	10.6	8.65	3.80	8.58	3.78
Sulphur	µg/L	-	-	-	-	-	-		<500	<500	<500	740	940	500	<500	<500
Tellurium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	µg/L	-	-	0.8	-	-	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium	µg/L	-	-	-	-	-	-		0.84	0.72	0.71	0.74	1.3	0.50	0.84	1.24
Tungsten	µg/L	-	-	-	-	-	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium	µg/L	-	-	8.5	-	-	-		0.064	0.063	0.126	0.369	0.258	0.058	0.727	0.186
Vanadium	µg/L	-	-	-	-	-	50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	µg/L	7.5 [#2]	33 [#2]	-	10	55	-		<3.0	<3.0	<3.0	<3.0	4.3	<3.0	<3.0	<3.0
Zirconium	µg/L	-	-	-	-	-	-		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Notes:

#1	Waterbodies are highly sensitive to acid inputs below 10 mg/L alkalinity
#2	Guideline varies with lab hardness concentration specific to each particular sample.
#3	Guideline varies with lab chloride concentration specific to each particular sample.
#4	Guideline varies with field pH value specific to each particular sample.
#5	Dissolved Copper guideline is calculated using the BC BLM software and it varies with field pH, field temperature, lab hardness and lab DOC specific to each particular sample.
#6	Guideline is for Antimony III
#7	Guideline is for Chromium VI
#8	Guideline for varies with median field pH.
#9	Within 20% of background median
-	Not analyzed or no applicable guideline
<	Concentration is less than the laboratory detection limit indicated.
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Table 2: Surface Water Quality Assurance/Quality Control Analytical Results

			QAQC Type	Blanks		Duplicates					
			Field ID	Field Blank	Travel Blank	Portal	DUP 1	RPD (%)	WC-K	Dup-2	RPD (%)
			Sample Date	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021		29-Nov-2021	29-Nov-2021	
			Laboratory Report Number	VA21C6605	VA21C6605	VA21C6605	VA21C6605		VA21C6605	VA21C6605	
			Laboratory Sample ID	VA21C6605-020	VA21C6605-021	VA21C6605-004	VA21C6605-005		VA21C6605-012	VA21C6605-013	
Parameter	**Unit**	**RDL**									
Physical Parameters											
pH	pH Units	0.1		5.14	5.17	6.64	6.64	0	6.27	6.24	0.5
Hardness as $CaCO_3$	µg/L	600		<600	<600	4030	3940	2	2930	3020	3
Alkalinity (total)	µg/L	1000		<1000	<1000	3300	3200	-	1400	1800	-
Bromide	µg/L	50		<50	<50	<50	<50	-	<50	<50	-
Chloride	µg/L	500		<500	<500	550	540	-	<500	<500	-
Fluoride	µg/L	20		<20	<20	<20	<20	-	<20	<20	-
Sulphate	µg/L	300		<300	<300	1670	1660	1	1270	1270	-
Acidity	µg/L	2000		2000	<2000	2400	2500	-	2800	2800	-
Nutrients											
Nitrate (as N)	µg/L	5		<5.0	<5.0	8.9	7.3	-	<5.0	<5.0	-
Nitrite (as N)	µg/L	1		<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	-
Carbon											
Dissolved Organic Carbon (DOC)	µg/L	500		<500	-	2430	2430	-	3440	3570	4
Dissolved Metals											
Aluminum	µg/L	1		<1.0	<1.0	90.3	91.6	1	173	176	2
Antimony	µg/L	0.1		<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Arsenic	µg/L	0.1		<0.10	<0.10	0.1	<0.10	-	0.15	0.15	-
Barium	µg/L	0.1		<0.10	<0.10	2.24	2.26	1	3.31	3.49	5
Beryllium	µg/L	0.1		<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Bismuth	µg/L	0.05		<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	-
Boron	µg/L	10		<10	<10	<10	<10	-	<10	<10	-
Cadmium	µg/L	0.005		<0.0050	<0.0050	<0.0050	0.0064	-	0.0202	0.0222	-
Calcium	µg/L	50		<50	<50	1380	1350	2	994	1020	3
Cesium	µg/L	0.01		<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-
Chromium	µg/L	0.5		<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	-
Cobalt	µg/L	0.1		<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Copper	µg/L	0.15		0.58	<0.15	0.60	0.66	-	1.50	1.53	2
Iron	µg/L	10		<10	<10	19	14	-	23	22	-
Lead	µg/L	0.05		<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	-
Lithium	µg/L	1		<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	-
Magnesium	µg/L	5		<5.0	<5.0	142	139	2	110	116	5
Manganese	µg/L	0.1		<0.10	<0.10	0.83	0.74	11	2.61	2.59	1
Mercury	µg/L	0.005		<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Molybdenum	µg/L	0.05		<0.050	<0.050	0.19	0.224	-	0.285	0.254	12
Nickel	µg/L	0.5		<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	-
Phosphorus	µg/L	50		<50	<50	<50	<50	-	<50	<50	-
Potassium	µg/L	50		<50	<50	114	116	-	86	86	-
Rubidium	µg/L	0.2		<0.20	<0.20	<0.20	<0.20	-	0.21	<0.20	-
Selenium	µg/L	0.05		<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	-
Silicon	µg/L	50		87	<50	2680	2650	1	1830	1890	3
Silver	µg/L	0.01		<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-
Sodium	µg/L	50		<50	<50	878	879	0.1	580	595	3
Strontium	µg/L	0.2		<0.20	<0.20	7.12	7.36	3	5.22	5.19	1
Sulphur	µg/L	500		<500	<500	<500	<500	-	<500	<500	-
Tellurium	µg/L	0.2		<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	-
Thallium	µg/L	0.01		<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-
Thorium	µg/L	0.1				<0.10	<0.10	-	<0.10	<0.10	-
Tin	µg/L	0.1		<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Titanium	µg/L	0.3		<0.30	<0.30	0.32	<0.30	-	0.48	0.65	30
Tungsten	µg/L	0.1		<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Uranium	µg/L	0.01		<0.010	<0.010	0.143	0.148	3	0.064	0.066	3
Vanadium	µg/L	0.5		<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	-
Zinc	µg/L	1		<1.0	<1.0	1.7	1.8	-	2.9	2.9	-
Zirconium	µg/L	0.2		<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	-

TETRA TECH

Table 2: Surface Water Quality Assurance/Quality Control Analytical Results

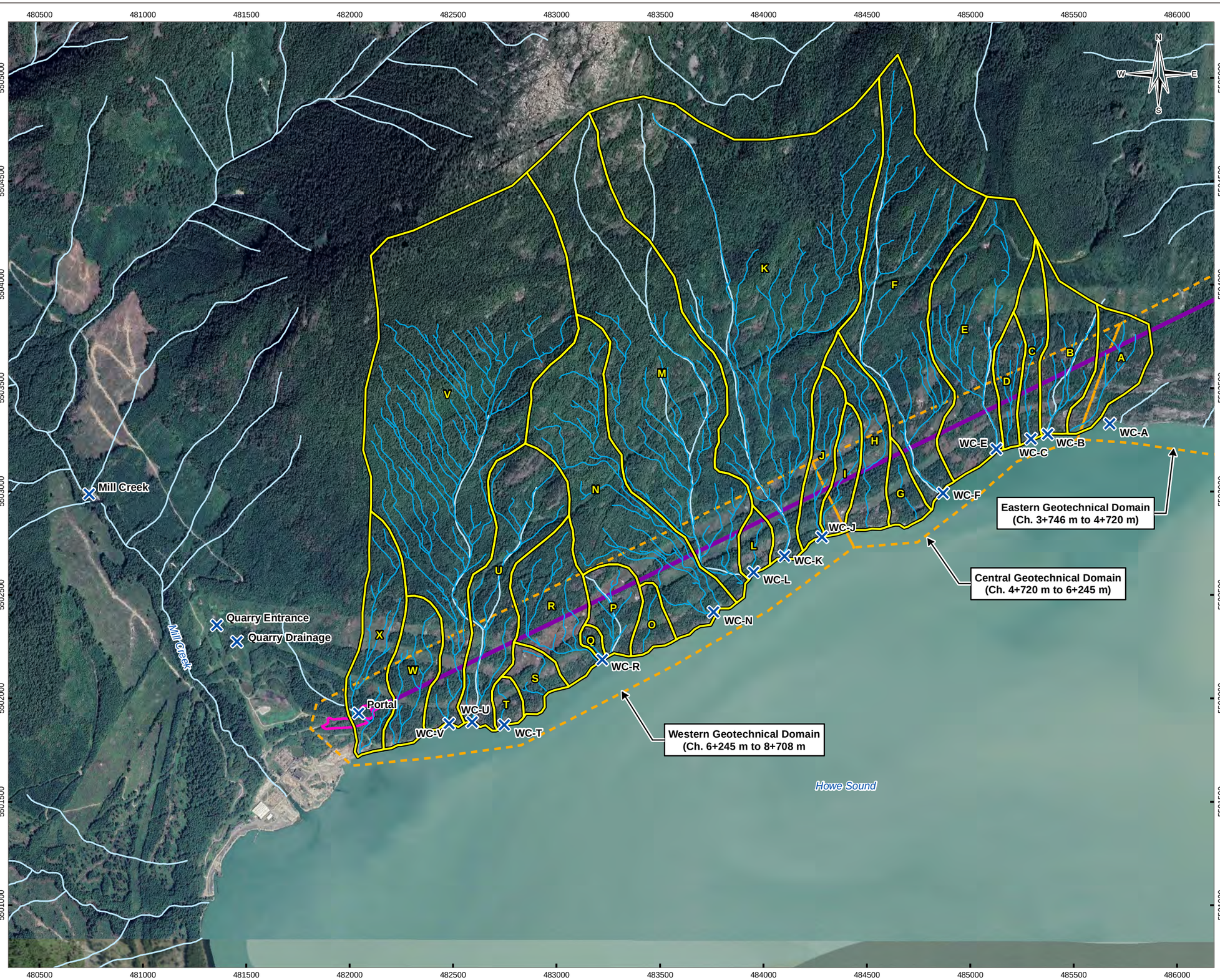
		QAQC Type	Blanks		Duplicates					
		Field ID	Field Blank	Travel Blank	Portal	DUP 1	RPD (%)	WC-K	Dup-2	RPD (%)
		Sample Date	29-Nov-2021	29-Nov-2021	29-Nov-2021	29-Nov-2021		29-Nov-2021	29-Nov-2021	
		Laboratory Report Number	VA21C6605	VA21C6605	VA21C6605	VA21C6605		VA21C6605	VA21C6605	
		Laboratory Sample ID	VA21C6605-020	VA21C6605-021	VA21C6605-004	VA21C6605-005		VA21C6605-012	VA21C6605-013	
Parameter	**Unit**	**RDL**								
Total Metals										
Aluminum	µg/L	3	<3.0	<3.0	303	309	2	174	176	1
Antimony	µg/L	0.1	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Arsenic	µg/L	0.1	<0.10	<0.10	0.16	0.14	-	0.16	0.18	-
Barium	µg/L	0.1	<0.10	<0.10	3.15	3.16	0.3	3.50	3.47	1
Beryllium	µg/L	0.02	<0.020	<0.020	<0.020	<0.020	-	<0.020	<0.020	-
Bismuth	µg/L	0.05	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	-
Boron	µg/L	10	<10	<10	<10	<10	-	<10	<10	-
Cadmium	µg/L	0.005	<0.0050	<0.0050	0.0137	0.0145	-	0.0203	0.0202	-
Calcium	µg/L	50	<50	<50	1380	1330	4	930	931	0.1
Cesium	µg/L	0.01	<0.010	<0.010	0.012	0.012	-	<0.010	<0.010	-
Chromium	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	-
Cobalt	µg/L	0.1	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Copper	µg/L	0.5	0.65	<0.50	1.59	1.57	-	1.5	1.45	-
Iron	µg/L	10	<10	<10	163	170	4	24	23	-
Lead	µg/L	0.05	<0.050	<0.050	0.337	0.344	2	<0.050	<0.050	-
Lithium	µg/L	1	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	-
Magnesium	µg/L	5	<5.0	<5.0	162	158	3	112	109	3
Manganese	µg/L	0.1	<0.10	<0.10	6.75	6.90	2	2.72	2.80	3
Molybdenum	µg/L	0.05	<0.050	<0.050	0.249	0.226	10	0.255	0.272	6
Nickel	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	-
Phosphorus	µg/L	50	<50	<50	<50	<50	-	<50	<50	-
Potassium	µg/L	50	<50	<50	105	103	-	65	62	-
Rubidium	µg/L	0.2	<0.20	<0.20	0.26	0.26	-	<0.20	<0.20	-
Selenium	µg/L	0.05	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	-
Silicon	µg/L	100	<100	<100	2780	2820	1	1980	1920	3
Silver	µg/L	0.01	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-
Sodium	µg/L	50	<50	<50	883	871	1	592	589	1
Strontium	µg/L	0.2	<0.20	<0.20	8.01	7.66	4	4.92	5.15	5
Sulphur	µg/L	500	<500	<500	<500	<500	-	<500	<500	-
Tellurium	µg/L	0.2	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	-
Thallium	µg/L	0.01	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-
Thorium	µg/L	0.1	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Tin	µg/L	0.1	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Titanium	µg/L	0.3	<0.30	<0.30	7.8	8.25	6	0.84	0.72	-
Tungsten	µg/L	0.1	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
Uranium	µg/L	0.01	<0.010	<0.010	0.204	0.201	1	0.064	0.063	2
Vanadium	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50	-
Zinc	µg/L	3	<3.0	<3.0	<3.0	<3.0	-	<3.0	<3.0	-
Zirconium	µg/L	0.2	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20	-

Notes:

-	Not analyzed or RPD not calculated.
<	Concentration is less than the laboratory detection limit indicated.
RDL	Laboratory Reportable Detection Limit
RPD	RPD is Relative Percentage Difference calculated as RPD(%)=(|V1-V2|)/[(V1+V2)/2])*100 where V1,V2 = concentrations of parent and duplicate sample, respectively.
	RPDs have only been calculated where a concentration is greater than 5 times the RDL
BOLD	High RPDs are in bold (groundwater metals and general inorganics were compared against a 30% screening threshold and groundwater VOCs and other organics were compared to a 45% screening threshold as recommended by BC Ministry of Environment Q&A, and BC Environmental Laboratory Manual).
Shaded	Detect Value in Blank Sample

TETRA TECH

FIGURE



LEGEND

- Water Quality Sample
- Study Catchment (Jacobs 2020)
- Woodfibre Portal Area
- Tunnel Alignment (MJA 2019)
- Geotechnical Domain (MJA 2019)[1]
- Study Stream (Jacobs 2020)
- Provincial Watercourse

NOTES
1. The boundaries of the domains are at the elevation of the borehole and may not correspond to the same location on the surface.

Base data source:
Imagery from Google Earth (2019)

STATUS
ISSUED FOR USE

EGP TUNNEL PROJECT

Water Quality Sample Locations

PROJECTION UTM Zone 10		**DATUM** NAD83		**CLIENT** FORTIS BC
Scale: 1:18,000 300 150 0 300 Metres				TETRA TECH
FILE NO. VGEO03612-03_Fig01_WaterQuality.mxd				
OFFICE Tt-VANC	**DWN** DS	**CKD** SL	**APVD** EH	**REV** 0
DATE February 7, 2022	**PROJECT NO.** ENG.VGEO03612-03			**Figure 1**

Q:\Vancouver\GIS\ENGINEERING\VGEO\VGEO03612-03\Maps\Water_Quality_Memo\VGEO03612-03_Fig01_WaterQuality.mxd modified 2/7/2022 by stephanie.leusink

PHOTOS

Photo 1: Mill Creek

Photo 2: Quarry Entrance

Photo 3: Quarry Drainage

Photo 4: Portal

Photo 5: WC-V

Photo 6: WC-U

Photo 7: WC-T

Photo 8: WC-R

Photo 9: WC-N

Photo 10: WC-L

Photo 11: WC-K

Photo 12: WC-J

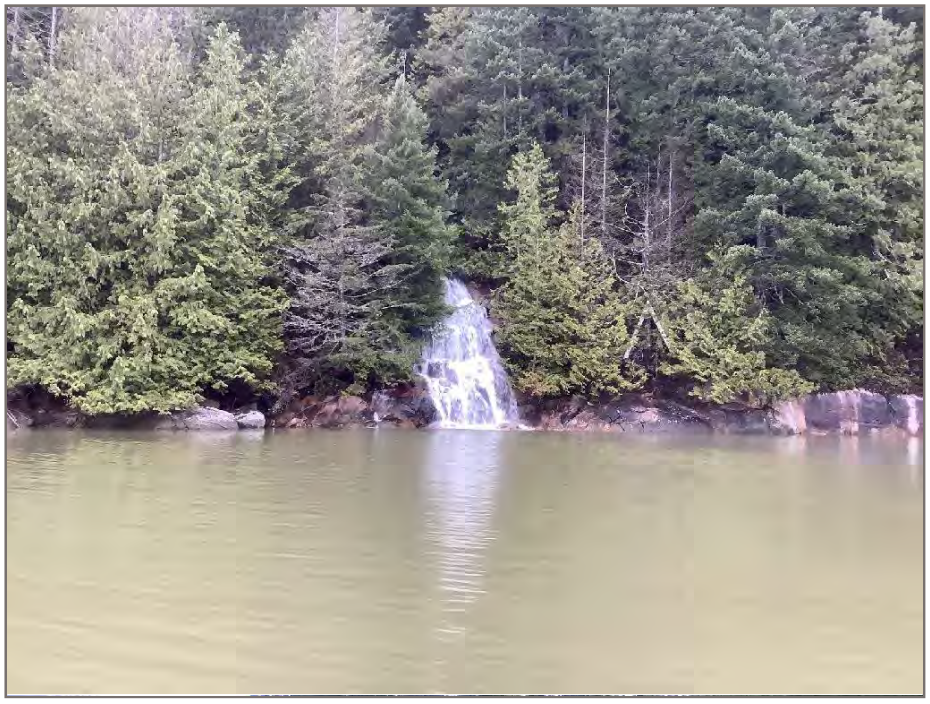


Photo 13: WC-F

Photo 14: WC-E

Photo 15: WC-C

Photo 16: WC-B

Photo 17: WC-A

APPENDIX A

ALS CERTIFICATE OF ANALYSIS AND ANALYTICAL RESULTS

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21C6605**	Page	: 1 of 22
Client	: **Tetra Tech Canada Inc.**	Laboratory	: Vancouver - Environmental
Contact	: Elyse Hofs	Account Manager	: Brent Mack
Address	: 1000 - 885 Dunsmuir Street, 10th floor Vancouver BC Canada V6E 1N5	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: 778-370-3279
Project	: 704-VGE003612-03.004	Date Samples Received	: 29-Nov-2021 18:15
PO	: ----	Date Analysis Commenced	: 01-Dec-2021
C-O-C number	: 20-937287	Issue Date	: 09-Dec-2021 12:06
Sampler	: EH		
Site	: ----		
Quote number	: Standard Client Price List (BC & YK)		
No. of samples received	: 21		
No. of samples analysed	: 21		

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*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Annabelle Prasad	Analyst	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dion Chan	Lab Assistant	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Team Leader - Metals preparation	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, 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*
-	No Unit
mg/L	milligrams per litre
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	*Description*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*
DTMF	*Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration.*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Quarry Entrance	Quarry Drainage	Mill Creek	Portal	DUP 1
					Client sampling date / time	29-Nov-2021 09:00	29-Nov-2021 09:50	29-Nov-2021 09:25	29-Nov-2021 08:16	29-Nov-2021 08:16
						VA21C6605-001	VA21C6605-002	VA21C6605-003	VA21C6605-004	VA21C6605-005
						Result	Result	Result	Result	Result
Physical Tests										
acidity (as CaCO3)	----	E283	2.0	mg/L		2.4	3.2	2.4	2.4	2.5
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		2.6 RRV	71.2	1.1	3.3 RRV	3.2 RRV
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		3.22	69.0	2.36	4.03	3.94
pH	----	E108	0.10	pH units		6.53	7.76	6.17	6.64	6.64
Anions and Nutrients										
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	0.52	<0.50	0.55	0.54
fluoride	16984-48-8	E235.F	0.020	mg/L		<0.020	0.023	<0.020	<0.020	<0.020
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.0105	0.224	0.0438	0.0089	0.0073
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		1.24	4.68	1.46	1.67	1.66
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		2.40	2.55	1.88	2.43	2.43
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.115	0.225	0.146	0.303	0.309
antimony, total	7440-36-0	E420	0.00010	mg/L		<0.00010	0.00017	<0.00010	<0.00010	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L		<0.00010	0.00014	<0.00010	0.00016	0.00014
barium, total	7440-39-3	E420	0.00010	mg/L		0.00358	0.0182	0.00192	0.00315	0.00316
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	0.013	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		<0.0000050	0.0000097	0.0000082	0.0000137	0.0000145
calcium, total	7440-70-2	E420	0.050	mg/L		1.16	23.8	0.760	1.38	1.33
cesium, total	7440-46-2	E420	0.000010	mg/L		<0.000010	0.000021	<0.000010	0.000012	0.000012
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	0.00017	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L		0.00070	0.00075	<0.00050	0.00159	0.00157
iron, total	7439-89-6	E420	0.010	mg/L		0.033	1.53	0.038	0.163	0.170
lead, total	7439-92-1	E420	0.000050	mg/L		0.000055	0.000280	<0.000050	0.000337	0.000344
lithium, total	7439-93-2	E420	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Quarry Entrance	Quarry Drainage	Mill Creek	Portal	DUP 1
					Client sampling date / time	29-Nov-2021 09:00	29-Nov-2021 09:50	29-Nov-2021 09:25	29-Nov-2021 08:16	29-Nov-2021 08:16
						VA21C6605-001	VA21C6605-002	VA21C6605-003	VA21C6605-004	VA21C6605-005
						Result	Result	Result	Result	Result
Total Metals										
magnesium, total	7439-95-4	E420	0.0050	mg/L		0.132	1.16	0.0922	0.162	0.158
manganese, total	7439-96-5	E420	0.00010	mg/L		0.00190	0.0533	0.00186	0.00675	0.00690
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000202	0.000763	0.000166	0.000249	0.000226
nickel, total	7440-02-0	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.050	mg/L		0.055	1.01	0.120	0.105	0.103
rubidium, total	7440-17-7	E420	0.00020	mg/L		<0.00020	0.00164	0.00031	0.00026	0.00026
selenium, total	7782-49-2	E420	0.000050	mg/L		<0.000050	0.000055	<0.000050	<0.000050	<0.000050
silicon, total	7440-21-3	E420	0.10	mg/L		1.91	3.87	1.46	2.78	2.82
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		0.670	1.68	0.502	0.883	0.871
strontium, total	7440-24-6	E420	0.00020	mg/L		0.00533	0.109	0.00392	0.00801	0.00766
sulfur, total	7704-34-9	E420	0.50	mg/L		<0.50	1.40	<0.50	<0.50	<0.50
tellurium, total	13494-80-9	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, total	7440-29-1	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		0.00108	0.00619	0.00184	0.00780	0.00825
tungsten, total	7440-33-7	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000170	0.000320	0.000144	0.000204	0.000201
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	0.00072	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0973	0.0196	0.0993	0.0903	0.0916
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00010	0.00017	<0.00010	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	0.00010	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.00335	0.0165	0.00168	0.00224	0.00226
beryllium, dissolved	7440-41-7	E421	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	0.012	<0.010	<0.010	<0.010

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Quarry Entrance	Quarry Drainage	Mill Creek	Portal	DUP 1
					Client sampling date / time	29-Nov-2021 09:00	29-Nov-2021 09:50	29-Nov-2021 09:25	29-Nov-2021 08:16	29-Nov-2021 08:16
						VA21C6605-001	VA21C6605-002	VA21C6605-003	VA21C6605-004	VA21C6605-005
						Result	Result	Result	Result	Result
Dissolved Metals										
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000069	0.0000077	0.0000072	<0.0000050	0.0000064
calcium, dissolved	7440-70-2	E421	0.050	mg/L		1.08	25.7	0.805	1.38	1.35
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000010	0.000014	<0.000010	<0.000010	<0.000010
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L		0.00073	0.00030	0.00024	0.00060	0.00066
iron, dissolved	7439-89-6	E421	0.010	mg/L		0.011	0.050	0.011	0.019	0.014
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		0.128	1.18	0.0838	0.142	0.139
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00084	0.00555	0.00127	0.00083	0.00074
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		0.0000052	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000183	0.000744	0.000174	0.000190	0.000224
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.050	mg/L		0.071	1.07	0.138	0.114	0.116
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00020	0.00166	0.00035	<0.00020	<0.00020
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L		1.77	3.55	1.35	2.68	2.65
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		0.653	1.62	0.496	0.878	0.879
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.00518	0.109	0.00384	0.00712	0.00736
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		<0.50	1.50	<0.50	<0.50	<0.50
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	0.00035	0.00032	<0.00030
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000167	0.000197	0.000138	0.000143	0.000148
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Analytical Results

Sub-Matrix: **Water** (Matrix: **Water**)					Client sample ID	Quarry Entrance	Quarry Drainage	Mill Creek	Portal	DUP 1
					Client sampling date / time	29-Nov-2021 09:00	29-Nov-2021 09:50	29-Nov-2021 09:25	29-Nov-2021 08:16	29-Nov-2021 08:16
Analyte	*CAS Number*	*Method*	*LOR*	*Unit*		**VA21C6605-001**	**VA21C6605-002**	**VA21C6605-003**	**VA21C6605-004**	**VA21C6605-005**
						Result	Result	Result	Result	Result
Dissolved Metals										
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0045 DTC	<0.0010	0.0012	0.0017	0.0018
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-Y	WC-U	WC-T	WC-R	WC-N
					Client sampling date / time	29-Nov-2021 10:45	29-Nov-2021 11:00	29-Nov-2021 11:30	29-Nov-2021 12:00	29-Nov-2021 12:30
						VA21C6605-006	VA21C6605-007	VA21C6605-008	VA21C6605-009	VA21C6605-010
						Result	Result	Result	Result	Result
Physical Tests										
acidity (as CaCO3)	----	E283	2.0	mg/L		3.1	2.0	3.3	2.2	2.1
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		1.9	7.4 RRV	<1.0	3.3 RRV	6.7 RRV
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		2.56	7.99	1.87	4.74	7.04
pH	----	E108	0.10	pH units		6.17	7.07	5.04	6.67	7.03
Anions and Nutrients										
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	0.62	0.56	0.70	0.70
fluoride	16984-48-8	E235.F	0.020	mg/L		<0.020	0.033	<0.020	0.024	0.037
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	0.0104
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		0.75	1.51	1.90	2.69	2.23
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		4.70	1.66	3.44	1.78	1.08
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.247	0.0586	0.163	0.0796	0.0470
antimony, total	7440-36-0	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L		<0.00010	0.00010	<0.00010	<0.00010	0.00017
barium, total	7440-39-3	E420	0.00010	mg/L		0.00247	0.00323	0.00343	0.00539	0.00285
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000070	0.0000125	0.0000056	0.000101	0.0000287
calcium, total	7440-70-2	E420	0.050	mg/L		0.821	2.64	0.529	1.54	2.35
cesium, total	7440-46-2	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L		<0.00050	<0.00050	0.00063	<0.00050	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L		0.046	0.016	0.028	0.024	0.020
lead, total	7439-92-1	E420	0.000050	mg/L		0.000097	<0.000050	0.000056	0.000095	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, total	7439-95-4	E420	0.0050	mg/L		0.0902	0.208	0.103	0.173	0.196

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-Y	WC-U	WC-T	WC-R	WC-N
					Client sampling date / time	29-Nov-2021 10:45	29-Nov-2021 11:00	29-Nov-2021 11:30	29-Nov-2021 12:00	29-Nov-2021 12:30
						VA21C6605-006	VA21C6605-007	VA21C6605-008	VA21C6605-009	VA21C6605-010
						Result	Result	Result	Result	Result
Total Metals										
manganese, total	7439-96-5	E420	0.00010	mg/L		0.00315	0.00084	0.00284	0.00651	0.00266
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000171	0.000865	<0.000050	0.000625	0.00157
nickel, total	7440-02-0	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.050	mg/L		<0.050	0.097	<0.050	0.140	0.182
rubidium, total	7440-17-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	0.00029	<0.00020
selenium, total	7782-49-2	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, total	7440-21-3	E420	0.10	mg/L		1.59	2.88	1.75	2.93	3.60
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		0.515	0.862	0.567	1.00	1.17
strontium, total	7440-24-6	E420	0.00020	mg/L		0.00378	0.00858	0.00380	0.00865	0.0106
sulfur, total	7704-34-9	E420	0.50	mg/L		<0.50	<0.50	0.50	0.94	0.74
tellurium, total	13494-80-9	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, total	7440-29-1	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		0.00124	0.00084	0.00050	0.00130	0.00074
tungsten, total	7440-33-7	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000186	0.000727	0.000058	0.000258	0.000369
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	0.0043	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.252	0.0362	0.171	0.0489	0.0287
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	0.00014
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.00252	0.00320	0.00361	0.00486	0.00282
beryllium, dissolved	7440-41-7	E421	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000060	0.0000074	<0.0000050	0.0000475	0.0000193

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-Y	WC-U	WC-T	WC-R	WC-N
					Client sampling date / time	29-Nov-2021 10:45	29-Nov-2021 11:00	29-Nov-2021 11:30	29-Nov-2021 12:00	29-Nov-2021 12:30
						VA21C6605-006	VA21C6605-007	VA21C6605-008	VA21C6605-009	VA21C6605-010
						Result	Result	Result	Result	Result
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L		0.867	2.84	0.577	1.60	2.48
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L		0.00016	0.00015	0.00057	0.00016	0.00021
iron, dissolved	7439-89-6	E421	0.010	mg/L		0.038	<0.010	0.029	<0.010	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	0.000053	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		0.0958	0.218	0.104	0.180	0.206
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00290	0.00026	0.00288	0.00049	0.00138
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	0.0000063	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000152	0.000949	<0.000050	0.000591	0.00170
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	0.00051	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.050	mg/L		0.067	0.120	<0.050	0.153	0.206
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	0.00030	0.00024
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L		1.50	2.79	1.69	2.76	3.50
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		0.534	0.881	0.555	1.01	1.18
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.00397	0.00890	0.00392	0.00867	0.0111
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	0.75
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		0.00085	<0.00030	0.00043	0.00045	<0.00030
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000173	0.000650	0.000058	0.000201	0.000257
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0014	<0.0010	0.0030	0.0038	0.0015

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-Y	WC-U	WC-T	WC-R	WC-N
					Client sampling date / time	29-Nov-2021 10:45	29-Nov-2021 11:00	29-Nov-2021 11:30	29-Nov-2021 12:00	29-Nov-2021 12:30
						VA21C6605-006	VA21C6605-007	VA21C6605-008	VA21C6605-009	VA21C6605-010
						Result	Result	Result	Result	Result
Dissolved Metals										
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	0.00146 DTMF	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-L	WC-K	Dup-2	WC-J	WC-F
					Client sampling date / time	29-Nov-2021 13:00	29-Nov-2021 13:30	29-Nov-2021 13:30	29-Nov-2021 14:07	29-Nov-2021 14:30
						VA21C6605-011	VA21C6605-012	VA21C6605-013	VA21C6605-014	VA21C6605-015
						Result	Result	Result	Result	Result
Physical Tests										
acidity (as CaCO3)	----	E283	2.0	mg/L		2.7	2.8	2.8	3.0	3.4
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		1.9 RRV	1.4	1.8	<1.0	<1.0
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		2.73	2.93	3.02	1.78	1.23
pH	----	E108	0.10	pH units		6.36	6.27	6.24	4.95	4.98
Anions and Nutrients										
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	<0.50	<0.50	0.75	0.57
fluoride	16984-48-8	E235.F	0.020	mg/L		<0.020	<0.020	<0.020	<0.020	<0.020
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		1.11	1.27	1.27	2.29	1.20
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		3.16	3.44	3.57	1.80	3.46
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.166	0.174	0.176	0.114	0.206
antimony, total	7440-36-0	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.00013	0.00016	0.00018	<0.00010	<0.00010
barium, total	7440-39-3	E420	0.00010	mg/L		0.00249	0.00350	0.00347	0.00544	0.00412
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000223	0.0000203	0.0000202	0.0000138	0.0000135
calcium, total	7440-70-2	E420	0.050	mg/L		0.864	0.930	0.931	0.442	0.290
cesium, total	7440-46-2	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L		<0.00050	0.00150	0.00145	0.00080	0.00088
iron, total	7439-89-6	E420	0.010	mg/L		0.025	0.024	0.023	<0.010	0.034
lead, total	7439-92-1	E420	0.000050	mg/L		0.000086	<0.000050	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, total	7439-95-4	E420	0.0050	mg/L		0.101	0.112	0.109	0.131	0.0940

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-L	WC-K	Dup-2	WC-J	WC-F
					Client sampling date / time	29-Nov-2021 13:00	29-Nov-2021 13:30	29-Nov-2021 13:30	29-Nov-2021 14:07	29-Nov-2021 14:30
						VA21C6605-011	VA21C6605-012	VA21C6605-013	VA21C6605-014	VA21C6605-015
						Result	Result	Result	Result	Result
Total Metals										
manganese, total	7439-96-5	E420	0.00010	mg/L		0.00208	0.00272	0.00280	0.00498	0.00519
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000488	0.000255	0.000272	0.000054	0.000056
nickel, total	7440-02-0	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.050	mg/L		0.077	0.065	0.062	0.051	<0.050
rubidium, total	7440-17-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	0.00023	<0.00020
selenium, total	7782-49-2	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, total	7440-21-3	E420	0.10	mg/L		1.92	1.98	1.92	2.21	1.74
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		0.621	0.592	0.589	0.684	0.550
strontium, total	7440-24-6	E420	0.00020	mg/L		0.00502	0.00492	0.00515	0.00608	0.00465
sulfur, total	7704-34-9	E420	0.50	mg/L		<0.50	<0.50	<0.50	0.90	<0.50
tellurium, total	13494-80-9	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, total	7440-29-1	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		0.00071	0.00084	0.00072	<0.00030	0.00070
tungsten, total	7440-33-7	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000126	0.000064	0.000063	0.000016	<0.000010
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	0.0038	0.0034
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.164	0.173	0.176	0.120	0.218
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00014	0.00015	0.00015	<0.00010	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.00244	0.00331	0.00349	0.00547	0.00433
beryllium, dissolved	7440-41-7	E421	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000236	0.0000202	0.0000222	0.0000163	0.0000188

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-L	WC-K	Dup-2	WC-J	WC-F
					Client sampling date / time	29-Nov-2021 13:00	29-Nov-2021 13:30	29-Nov-2021 13:30	29-Nov-2021 14:07	29-Nov-2021 14:30
						VA21C6605-011	VA21C6605-012	VA21C6605-013	VA21C6605-014	VA21C6605-015
						Result	Result	Result	Result	Result
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L		0.923	0.994	1.02	0.489	0.326
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	0.00010
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L		0.00047	0.00150	0.00153	0.00081	0.00077
iron, dissolved	7439-89-6	E421	0.010	mg/L		0.022	0.023	0.022	<0.010	0.033
lead, dissolved	7439-92-1	E421	0.000050	mg/L		0.000076	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		0.104	0.110	0.116	0.137	0.102
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00187	0.00261	0.00259	0.00546	0.00572
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000445	0.000285	0.000254	<0.000050	0.000058
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.050	mg/L		0.092	0.086	0.086	0.070	0.061
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00020	0.00021	<0.00020	0.00022	<0.00020
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L		1.87	1.83	1.89	2.11	1.69
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		0.618	0.580	0.595	0.682	0.566
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.00492	0.00522	0.00519	0.00620	0.00482
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		0.00064	0.00048	0.00065	<0.00030	0.00070
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000111	0.000064	0.000066	0.000017	0.000010
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0024	0.0029	0.0029	0.0039	0.0033

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-L	WC-K	Dup-2	WC-J	WC-F
					Client sampling date / time	29-Nov-2021 13:00	29-Nov-2021 13:30	29-Nov-2021 13:30	29-Nov-2021 14:07	29-Nov-2021 14:30
						VA21C6605-011	VA21C6605-012	VA21C6605-013	VA21C6605-014	VA21C6605-015
						Result	Result	Result	Result	Result
Dissolved Metals										
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-E	WC-C	WC-B	WC-A	Field Blank
					Client sampling date / time	29-Nov-2021 15:00	29-Nov-2021 15:20	29-Nov-2021 15:35	29-Nov-2021 16:00	29-Nov-2021 16:00
						VA21C6605-016	VA21C6605-017	VA21C6605-018	VA21C6605-019	VA21C6605-020
						Result	Result	Result	Result	Result
Physical Tests										
acidity (as CaCO3)	----	E283	2.0	mg/L		2.1	2.8	2.3	2.3	2.0
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		1.8	3.8 RRV	4.8 RRV	1.9 RRV	<1.0
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		2.80	3.83	4.87	2.14	<0.60
pH	----	E108	0.10	pH units		6.40	6.61	6.89	6.44	5.14
Anions and Nutrients										
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		0.81	0.72	0.80	0.76	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L		<0.020	<0.020	<0.020	<0.020	<0.020
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		<0.0050	0.0058	0.311	0.0244	<0.0050
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		2.27	1.61	1.12	1.30	<0.30
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		1.18	1.62	1.62	1.32	<0.50
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.0309	0.0682	0.0721	0.0420	<0.0030
antimony, total	7440-36-0	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
barium, total	7440-39-3	E420	0.00010	mg/L		0.00366	0.00462	0.00366	0.00258	<0.00010
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000133	0.0000063	<0.0000050	<0.0000050	<0.0000050
calcium, total	7440-70-2	E420	0.050	mg/L		0.779	1.07	1.20	0.590	<0.050
cesium, total	7440-46-2	E420	0.000010	mg/L		0.000016	<0.000010	<0.000010	<0.000010	<0.000010
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L		0.00089	0.00052	<0.00050	<0.00050	0.00065 RRV
iron, total	7439-89-6	E420	0.010	mg/L		<0.010	0.013	0.016	<0.010	<0.010
lead, total	7439-92-1	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, total	7439-95-4	E420	0.0050	mg/L		0.169	0.234	0.395	0.144	<0.0050

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-E	WC-C	WC-B	WC-A	Field Blank
					Client sampling date / time	29-Nov-2021 15:00	29-Nov-2021 15:20	29-Nov-2021 15:35	29-Nov-2021 16:00	29-Nov-2021 16:00
						VA21C6605-016	VA21C6605-017	VA21C6605-018	VA21C6605-019	VA21C6605-020
						Result	Result	Result	Result	Result
Total Metals										
manganese, total	7439-96-5	E420	0.00010	mg/L		0.00057	0.00075	0.00137	0.00052	<0.00010
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000328	0.000170	0.000099	0.000358	<0.000050
nickel, total	7440-02-0	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.050	mg/L		0.127	0.196	0.284	0.124	<0.050
rubidium, total	7440-17-7	E420	0.00020	mg/L		0.00032	0.00041	0.00047	0.00022	<0.00020
selenium, total	7782-49-2	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, total	7440-21-3	E420	0.10	mg/L		3.33	4.52	5.87	2.49	<0.10
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		1.06	1.13	1.55	0.960	<0.050
strontium, total	7440-24-6	E420	0.00020	mg/L		0.0101	0.0162	0.0168	0.00601	<0.00020
sulfur, total	7704-34-9	E420	0.50	mg/L		0.62	<0.50	<0.50	<0.50	<0.50
tellurium, total	13494-80-9	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, total	7440-29-1	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		<0.00030	0.00040	0.00099	<0.00030	<0.00030
tungsten, total	7440-33-7	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000041	0.000015	0.000014	0.000078	<0.000010
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	0.00093	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0251	0.0601	0.0530	0.0406	<0.0010
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.00352	0.00452	0.00362	0.00248	<0.00010
beryllium, dissolved	7440-41-7	E421	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000141	0.0000063	<0.0000050	<0.0000050	<0.0000050

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-E	WC-C	WC-B	WC-A	Field Blank
					Client sampling date / time	29-Nov-2021 15:00	29-Nov-2021 15:20	29-Nov-2021 15:35	29-Nov-2021 16:00	29-Nov-2021 16:00
						VA21C6605-016	VA21C6605-017	VA21C6605-018	VA21C6605-019	VA21C6605-020
						Result	Result	Result	Result	Result
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L		0.830	1.12	1.25	0.602	<0.050
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		0.000016	<0.000010	<0.000010	<0.000010	<0.000010
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L		0.00087	0.00053	0.00024	<0.00015	0.00058 RRV
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		0.177	0.250	0.424	0.155	<0.0050
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00046	0.00028	0.00098	0.00023	<0.00010
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000366	0.000192	0.000086	0.000384	<0.000050
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.050	mg/L		0.152	0.221	0.329	0.147	<0.050
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		0.00031	0.00038	0.00050	<0.00020	<0.00020
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
silicon, dissolved	7440-21-3	E421	0.050	mg/L		3.26	4.41	6.04	2.53	0.087 RRV
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		1.08	1.15	1.51	0.983	<0.050
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.0102	0.0158	0.0163	0.00611	<0.00020
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	0.00030	<0.00030	<0.00030
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000037	0.000014	0.000012	0.000082	<0.000010
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	0.00091	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0014	0.0010	<0.0010	<0.0010	<0.0010

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	WC-E	WC-C	WC-B	WC-A	Field Blank
					Client sampling date / time	29-Nov-2021 15:00	29-Nov-2021 15:20	29-Nov-2021 15:35	29-Nov-2021 16:00	29-Nov-2021 16:00
						VA21C6605-016	VA21C6605-017	VA21C6605-018	VA21C6605-019	VA21C6605-020
						Result	Result	Result	Result	Result
Dissolved Metals										
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

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

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Travel Blank	----	----	----	----
					Client sampling date / time	29-Nov-2021	----	----	----	----
						VA21C6605-021	--------	--------	--------	--------
						Result	----	----	----	----
Physical Tests										
acidity (as CaCO3)	----	E283	2.0	mg/L		<2.0	----	----	----	----
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		<1.0	----	----	----	----
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		<0.60	----	----	----	----
pH	----	E108	0.10	pH units		5.17	----	----	----	----
Anions and Nutrients										
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	----	----	----	----
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	----	----	----	----
fluoride	16984-48-8	E235.F	0.020	mg/L		<0.020	----	----	----	----
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		<0.0050	----	----	----	----
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	----	----	----	----
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		<0.30	----	----	----	----
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		<0.0030	----	----	----	----
antimony, total	7440-36-0	E420	0.00010	mg/L		<0.00010	----	----	----	----
arsenic, total	7440-38-2	E420	0.00010	mg/L		<0.00010	----	----	----	----
barium, total	7440-39-3	E420	0.00010	mg/L		<0.00010	----	----	----	----
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	----	----	----	----
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	----	----	----	----
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	----	----	----	----
cadmium, total	7440-43-9	E420	0.0000050	mg/L		<0.0000050	----	----	----	----
calcium, total	7440-70-2	E420	0.050	mg/L		<0.050	----	----	----	----
cesium, total	7440-46-2	E420	0.000010	mg/L		<0.000010	----	----	----	----
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	----	----	----	----
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	----	----	----	----
copper, total	7440-50-8	E420	0.00050	mg/L		<0.00050	----	----	----	----
iron, total	7439-89-6	E420	0.010	mg/L		<0.010	----	----	----	----
lead, total	7439-92-1	E420	0.000050	mg/L		<0.000050	----	----	----	----
lithium, total	7439-93-2	E420	0.0010	mg/L		<0.0010	----	----	----	----
magnesium, total	7439-95-4	E420	0.0050	mg/L		<0.0050	----	----	----	----
manganese, total	7439-96-5	E420	0.00010	mg/L		<0.00010	----	----	----	----
molybdenum, total	7439-98-7	E420	0.000050	mg/L		<0.000050	----	----	----	----
nickel, total	7440-02-0	E420	0.00050	mg/L		<0.00050	----	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Travel Blank	----	----	----	----
					Client sampling date / time	29-Nov-2021	----	----	----	----
						VA21C6605-021	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	----	----	----	----
potassium, total	7440-09-7	E420	0.050	mg/L		<0.050	----	----	----	----
rubidium, total	7440-17-7	E420	0.00020	mg/L		<0.00020	----	----	----	----
selenium, total	7782-49-2	E420	0.000050	mg/L		<0.000050	----	----	----	----
silicon, total	7440-21-3	E420	0.10	mg/L		<0.10	----	----	----	----
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	----	----	----	----
sodium, total	17341-25-2	E420	0.050	mg/L		<0.050	----	----	----	----
strontium, total	7440-24-6	E420	0.00020	mg/L		<0.00020	----	----	----	----
sulfur, total	7704-34-9	E420	0.50	mg/L		<0.50	----	----	----	----
tellurium, total	13494-80-9	E420	0.00020	mg/L		<0.00020	----	----	----	----
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	----	----	----	----
thorium, total	7440-29-1	E420	0.00010	mg/L		<0.00010	----	----	----	----
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	----	----	----	----
titanium, total	7440-32-6	E420	0.00030	mg/L		<0.00030	----	----	----	----
tungsten, total	7440-33-7	E420	0.00010	mg/L		<0.00010	----	----	----	----
uranium, total	7440-61-1	E420	0.000010	mg/L		<0.000010	----	----	----	----
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	----	----	----	----
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	----	----	----	----
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	----	----	----	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		<0.0010	----	----	----	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		<0.00010	----	----	----	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		<0.00010	----	----	----	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L		<0.00010	----	----	----	----
beryllium, dissolved	7440-41-7	E421	0.000100	mg/L		<0.000100	----	----	----	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	----	----	----	----
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	----	----	----	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		<0.0000050	----	----	----	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L		<0.050	----	----	----	----
cesium, dissolved	7440-46-2	E421	0.000010	mg/L		<0.000010	----	----	----	----
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	----	----	----	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	----	----	----	----

Analytical Results

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

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	Travel Blank	----	----	----	----
					Client sampling date / time	29-Nov-2021	----	----	----	----
						VA21C6605-021	--------	--------	--------	--------
						Result	----	----	----	----
Dissolved Metals										
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L		<0.00015	----	----	----	----
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.010	----	----	----	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	----	----	----	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		<0.0010	----	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		<0.0050	----	----	----	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		<0.00010	----	----	----	----
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	----	----	----	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		<0.000050	----	----	----	----
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	----	----	----	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	----	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L		<0.050	----	----	----	----
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		<0.00020	----	----	----	----
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		<0.000050	----	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L		<0.050	----	----	----	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	----	----	----	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L		<0.050	----	----	----	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		<0.00020	----	----	----	----
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		<0.50	----	----	----	----
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L		<0.00020	----	----	----	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	----	----	----	----
thorium, dissolved	7440-29-1	E421	0.00010	mg/L		<0.00010	----	----	----	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	----	----	----	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	----	----	----	----
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L		<0.00010	----	----	----	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		<0.000010	----	----	----	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	----	----	----	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0010	----	----	----	----
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	----	----	----	----
dissolved mercury filtration location	----	EP509	-	-		Field	----	----	----	----
dissolved metals filtration location	----	EP421	-	-		N/A	----	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21C6605**	Page	: 1 of 39
Client	: **Tetra Tech Canada Inc.**	Laboratory	: Vancouver - Environmental
Contact	: Elyse Hofs	Account Manager	: Brent Mack
Address	: 1000 - 885 Dunsmuir Street, 10th floor Vancouver BC Canada V6E 1N5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: 778-370-3279
Project	: 704-VGE003612-03.004	Date Samples Received	: 29-Nov-2021 18:15
PO	: ----	Issue Date	: 09-Dec-2021 12:06
C-O-C number	: 20-937287		
Sampler	: EH		
Site	: ----		
Quote number	: Standard Client Price List (BC & YK)		
No. of samples received	: 21		
No. of samples analysed	: 21		

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 Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Dissolved Metals	QC-MRG3-3593150 02	----	sulfur, dissolved	7704-34-9	E421	74.3 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE DUP 1	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Dup-2	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Mill Creek	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Portal	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Quarry Drainage	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Quarry Entrance	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
Travel Blank	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-A	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-B	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-C	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-E	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-F	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-J	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-K	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
WC-L	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WC-N	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WC-R	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WC-T	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WC-U	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE WC-Y	E235.Br-L	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE DUP 1	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Dup-2	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Blank	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Mill Creek	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE Portal	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Quarry Drainage	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Quarry Entrance	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Travel Blank	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-A	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-B	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-C	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-E	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-F	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-J	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-K	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-L	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-N	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-R	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-T	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-U	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WC-Y	E235.Cl	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE DUP 1	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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										
Dup-2	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Field Blank	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Mill Creek	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Portal	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Quarry Drainage	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Quarry Entrance	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Travel Blank	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WC-A	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WC-B	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 WC-C	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-E	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-F	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-J	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-K	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-L	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-N	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-R	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WC-T	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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										
WC-U	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WC-Y	E235.F	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
DUP 1	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Dup-2	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Mill Creek	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Portal	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Quarry Drainage	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Quarry Entrance	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 : Nitrate in Water by IC (Low Level)										
HDPE										
Travel Blank	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-A	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-B	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-C	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-E	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-F	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-J	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-K	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WC-L	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 : Nitrate in Water by IC (Low Level)										
HDPE WC-N	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WC-R	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WC-T	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WC-U	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WC-Y	E235.NO3-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE DUP 1	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Dup-2	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Field Blank	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Mill Creek	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 Portal	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Quarry Drainage	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Quarry Entrance	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Travel Blank	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-A	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-B	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-C	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-E	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-F	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 WC-J	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-K	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-L	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-N	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-R	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-T	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-U	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WC-Y	E235.NO2-L	29-Nov-2021	----	----	----		01-Dec-2021	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE DUP 1	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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Analyte Group / 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										
Dup-2	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Field Blank	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Mill Creek	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Portal	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Quarry Drainage	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Quarry Entrance	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Travel Blank	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WC-A	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WC-B	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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Analyte Group / 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 WC-C	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-E	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-F	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-J	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-K	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-L	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-N	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-R	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WC-T	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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										
WC-U	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WC-Y	E235.SO4	29-Nov-2021	----	----	----		01-Dec-2021	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
DUP 1	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Dup-2	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Mill Creek	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Portal	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Quarry Drainage	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Quarry Entrance	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group / 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 Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Travel Blank	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-A	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-B	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-C	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-E	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-F	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-J	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-K	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WC-L	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group / 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 Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WC-N	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WC-R	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WC-T	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WC-U	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WC-Y	E509	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) Field Blank	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) WC-A	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) WC-B	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) WC-C	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓

Matrix: **Water**

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

Analyte Group / 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 (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) DUP 1	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) Dup-2	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) Mill Creek	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) Portal	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) Quarry Drainage	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) Quarry Entrance	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) WC-E	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) WC-F	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved) WC-J	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓

Matrix: **Water**

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

Analyte Group / 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 (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-K	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-L	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-N	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-R	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-T	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-U	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
WC-Y	E421-L	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)										
HDPE - dissolved (lab preserved)										
Travel Blank	E421-L	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Field Blank	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓

Matrix: **Water**

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

Analyte Group / 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)										
WC-A	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-B	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-C	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
DUP 1	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Dup-2	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Mill Creek	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Portal	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Quarry Drainage	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Quarry Entrance	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓

Matrix: **Water**

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

Analyte Group / 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)										
WC-E	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-F	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-J	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-K	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-L	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-N	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-R	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-T	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WC-U	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓

Matrix: **Water**

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

Analyte Group / 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)										
WC-Y	E421	29-Nov-2021	02-Dec-2021	----	----		02-Dec-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Travel Blank	E421	29-Nov-2021	07-Dec-2021	----	----		07-Dec-2021	180 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
DUP 1	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Dup-2	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Field Blank	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Mill Creek	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Portal	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Quarry Drainage	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
Quarry Entrance	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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) WC-A	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-B	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-C	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-E	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-F	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-J	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-K	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-L	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-N	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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) WC-R	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-T	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-U	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) WC-Y	E358-L	29-Nov-2021	01-Dec-2021	----	----		01-Dec-2021	28 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE DUP 1	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE Dup-2	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE Field Blank	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE Mill Creek	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE Portal	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 : Acidity by Titration										
HDPE Quarry Drainage	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE Quarry Entrance	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE Travel Blank	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-A	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-B	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-C	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-E	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-F	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-J	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓

Matrix: **Water**

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

Analyte Group / 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 : Acidity by Titration										
HDPE WC-K	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-L	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-N	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-R	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-T	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-U	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Acidity by Titration										
HDPE WC-Y	E283	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP 1	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Dup-2	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE Field Blank	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Mill Creek	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Portal	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Quarry Drainage	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Quarry Entrance	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Travel Blank	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-A	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-B	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-C	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WC-E	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-F	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-J	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-K	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-L	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-N	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-R	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-T	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WC-U	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WC-Y	E290	29-Nov-2021	----	----	----		01-Dec-2021	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE Field Blank	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	38 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-A	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	38 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-B	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	38 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-C	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	38 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Travel Blank	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	39 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-E	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	39 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-F	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	39 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Dup-2	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	40 hrs	× EHTR-FM

Matrix: **Water**

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

Analyte Group / 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 : pH by Meter										
HDPE WC-J	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	40 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-K	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	40 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-L	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	41 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-N	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	41 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-R	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	42 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-T	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	42 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-U	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	43 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE WC-Y	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	43 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Mill Creek	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	44 hrs	× EHTR-FM

Matrix: **Water**

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

Analyte Group / 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 : pH by Meter										
HDPE Quarry Drainage	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	44 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE DUP 1	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	45 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Portal	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	45 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Quarry Entrance	E108	29-Nov-2021	----	----	----		01-Dec-2021	0.25 hrs	45 hrs	× EHTR-FM
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Dup-2	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Field Blank	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Mill Creek	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Quarry Drainage	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Quarry Entrance	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Travel Blank	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-A	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-B	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-C	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-E	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-F	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-J	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-K	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
WC-L	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WC-N	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WC-R	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WC-T	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WC-U	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WC-Y	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) DUP 1	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Portal	E420	29-Nov-2021	----	----	----		02-Dec-2021	180 days	4 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).

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)							
Acidity by Titration	E283	356505	1	21	4.7	5.0	✗
Alkalinity Species by Titration	E290	356503	2	29	6.9	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	356508	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	356507	2	35	5.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	361824	2	21	9.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	356593	3	25	12.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)	E421-L	356594	2	22	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	356692	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	356506	2	29	6.9	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	356509	2	30	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	356510	2	34	5.8	5.0	✓
pH by Meter	E108	356504	2	33	6.0	5.0	✓
Sulfate in Water by IC	E235.SO4	356511	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	356860	2	40	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Acidity by Titration	E283	356505	2	21	9.5	5.0	✓
Alkalinity Species by Titration	E290	356503	2	29	6.9	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	356508	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	356507	2	35	5.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	361824	2	21	9.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	356593	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)	E421-L	356594	2	22	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	356692	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	356506	2	29	6.9	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	356509	2	30	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	356510	2	34	5.8	5.0	✓
pH by Meter	E108	356504	2	33	6.0	5.0	✓
Sulfate in Water by IC	E235.SO4	356511	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	356860	2	40	5.0	5.0	✓
Method Blanks (MB)							
Acidity by Titration	E283	356505	2	21	9.5	5.0	✓
Alkalinity Species by Titration	E290	356503	2	29	6.9	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	356508	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	356507	2	35	5.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	361824	2	21	9.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	356593	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)	E421-L	356594	2	22	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*
Method Blanks (MB) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	356692	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	356506	2	29	6.9	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	356509	2	30	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	356510	2	34	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	356511	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	356860	2	40	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	356508	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	356507	2	35	5.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	361824	1	21	4.7	5.0	✗
Dissolved Metals in Water by CRC ICPMS	E421	356593	2	25	8.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)	E421-L	356594	2	22	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	356692	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	356506	2	29	6.9	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	356509	2	30	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	356510	2	34	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	356511	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	356860	2	40	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
pH by Meter	E108 Vancouver - Environmental	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.
Bromide in Water by IC (Low Level)	E235.Br-L Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Acidity by Titration	E283 Vancouver - Environmental	Water	APHA 2310 B (mod)	Acidity is determined by potentiometric titration to pH 8.3
Alkalinity Species by Titration	E290 Vancouver - Environmental	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
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Vancouver - Environmental	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 Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	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 Vancouver - Environmental	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.
Dissolved Metals in Water by CRC ICPMS (Additional Low Level Metals)	E421-L Vancouver - Environmental	Water	APHA 3030 B/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.
Dissolved Mercury in Water by CVAAS	E509 Vancouver - Environmental	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.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	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.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA21C6605**	Page	: 1 of 26
Client	: Tetra Tech Canada Inc.	Laboratory	: Vancouver - Environmental
Contact	: Elyse Hofs	Account Manager	: Brent Mack
Address	: 1000 - 885 Dunsmuir Street, 10th floor Vancouver BC Canada V6E 1N5	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: 778-370-3279
Project	: 704-VGE003612-03.004	Date Samples Received	: 29-Nov-2021 18:15
PO	: ----	Date Analysis Commenced	: 01-Dec-2021
C-O-C number	: 20-937287	Issue Date	: 09-Dec-2021 12:06
Sampler	: EH		
Site	: ----		
Quote number	: Standard Client Price List (BC & YK)		
No. of samples received	: 21		
No. of samples analysed	: 21		

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 Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

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*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Annabelle Prasad	Analyst	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dion Chan	Lab Assistant	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Team Leader - Metals preparation	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	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 Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

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: 356503)											
VA21C6605-001	Quarry Entrance	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	2.6	2.7	0.1	Diff <2x LOR	----
Physical Tests (QC Lot: 356504)											
VA21C6605-001	Quarry Entrance	pH	----	E108	0.10	pH units	6.53	6.54	0.153%	4%	----
Physical Tests (QC Lot: 356505)											
VA21C6605-002	Quarry Drainage	acidity (as CaCO3)	----	E283	2.0	mg/L	3.2	3.4	0.1	Diff <2x LOR	----
Physical Tests (QC Lot: 356520)											
KS2103919-001	Anonymous	pH	----	E108	0.10	pH units	6.93	6.92	0.144%	4%	----
Physical Tests (QC Lot: 356522)											
KS2103919-001	Anonymous	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	8.7	9.0	0.3	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356506)											
VA21C6605-001	Quarry Entrance	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356507)											
VA21C6605-001	Quarry Entrance	chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356508)											
VA21C6605-001	Quarry Entrance	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356509)											
VA21C6605-001	Quarry Entrance	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0105	0.0108	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356510)											
VA21C6605-001	Quarry Entrance	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: 356511)											
VA21C6605-001	Quarry Entrance	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	1.24	1.22	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356523)											
VA21C6605-021	Travel Blank	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356524)											
VA21C6605-021	Travel Blank	chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356525)											
VA21C6605-021	Travel Blank	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 356526)											
VA21C6605-021	Travel Blank	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: 356527)											
VA21C6605-021	Travel Blank	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	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: 356529)											
VA21C6605-021	Travel Blank	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 356692)											
VA21C6605-001	Quarry Entrance	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.40	2.48	0.09	Diff <2x LOR	----
Total Metals (QC Lot: 356860)											
VA21C6605-001	Quarry Entrance	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.115	0.120	4.24%	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	<0.00010	<0.00010	0	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.00358	0.00359	0.515%	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	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		calcium, total	7440-70-2	E420	0.050	mg/L	1.16	1.17	0.343%	20%	----
		cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		copper, total	7440-50-8	E420	0.00050	mg/L	0.00070	0.00070	0.000004	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.010	mg/L	0.033	0.034	0.0009	Diff <2x LOR	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000055	0.000057	0.000002	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	0.0050	mg/L	0.132	0.134	1.55%	20%	----
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00190	0.00193	1.44%	20%	----
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000202	0.000202	0.00000005	Diff <2x LOR	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.050	mg/L	0.055	0.055	0.0004	Diff <2x LOR	----
		rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	0.00020	0.000006	Diff <2x LOR	----
		selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		silicon, total	7440-21-3	E420	0.10	mg/L	1.91	1.84	3.39%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	0.050	mg/L	0.670	0.675	0.700%	20%	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.00533	0.00532	0.302%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

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: 356860) - continued											
VA21C6605-001	Quarry Entrance	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	0.00108	0.00110	0.00002	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	0.000170	0.000170	0.222%	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	<0.0030	<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: 357481)											
CG2106165-008	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0037	0.0037	0.00003	Diff <2x LOR	----
		antimony, total	7440-36-0	E420	0.00010	mg/L	0.00053	0.00053	0.000003	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00051	0.00056	0.00005	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0115	0.0115	0.0930%	20%	----
		beryllium, total	7440-41-7	E420	0.020	mg/L	<0.020 µg/L	<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	0.037	0.038	0.001	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0050	mg/L	0.412 µg/L	0.000412	0.0177%	20%	----
		calcium, total	7440-70-2	E420	0.050	mg/L	248	246	0.839%	20%	----
		cesium, total	7440-46-2	E420	0.000010	mg/L	0.000065	0.000064	0.000001	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	0.10	mg/L	14.5 µg/L	0.0146	0.214%	20%	----
		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	0.285	0.280	1.65%	20%	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000091	0.000088	0.000003	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0569	0.0563	1.10%	20%	----
		magnesium, total	7439-95-4	E420	0.0050	mg/L	154	157	1.59%	20%	----
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.350	0.354	1.33%	20%	----
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0169	0.0169	0.110%	20%	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.0521	0.0531	1.86%	20%	----
		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	4.76	4.86	2.09%	20%	----
		rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00463	0.00470	1.51%	20%	----
		selenium, total	7782-49-2	E420	0.050	mg/L	6.11 µg/L	0.00648	5.84%	20%	----
		silicon, total	7440-21-3	E420	0.10	mg/L	3.31	3.23	2.30%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 357481) - continued											
CG2106165-008	Anonymous	sodium, total	17341-25-2	E420	0.050	mg/L	6.74	6.90	2.35%	20%	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.364	0.363	0.316%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	290	285	1.73%	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	0.000086	0.000084	0.000001	Diff <2x LOR	----
		thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.0118	0.0115	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	0.0212	0.0213	0.0001	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 356593)											
VA21C6605-001	Quarry Entrance	zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0045	0.0043	0.0003	Diff <2x LOR	----
VA21C6605-001	Quarry Entrance	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0973	0.102	4.60%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00335	0.00336	0.294%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000069	0.0000076	0.0000007	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	1.08	1.08	0.253%	20%	----
		cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.011	0.011	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	<0.0010	<0.0010	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	0.128	0.129	1.29%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00084	0.00086	0.00001	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000183	0.000170	0.000013	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	----

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: 356593) - continued											
VA21C6605-001	Quarry Entrance	potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.071	0.073	0.002	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.77	1.78	0.470%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.653	0.662	1.34%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.00518	0.00509	1.68%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000167	0.000174	4.00%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 356594)											
VA21C6605-001	Quarry Entrance	copper, dissolved	7440-50-8	E421-L	0.00015	mg/L	0.00073	0.00070	0.00003	Diff <2x LOR	----
Dissolved Metals (QC Lot: 359315)											
YL2101733-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0659	0.0648	1.56%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00025	0.00023	0.00002	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0611	0.0643	5.18%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	0.000022	0.000002	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	0.335	0.342	2.17%	20%	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000229	0.000231	0.751%	20%	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	148	153	2.99%	20%	----
		cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000072	0.000072	0.0000004	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	0.00530	0.00557	4.82%	20%	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.230	0.234	1.81%	20%	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0296	0.0300	1.38%	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: 359315) - continued											
YL2101733-001	Anonymous	magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	29.2	30.0	2.97%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.490	0.510	3.97%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00298	0.00307	3.07%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.0357	0.0370	3.59%	20%	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	9.18	9.52	3.66%	20%	----
		rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.0118	0.0124	4.76%	20%	----
		selenium, dissolved	7782-49-2	E421	0.000100	mg/L	<0.000100	0.000173	0.000073	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.875	0.909	3.86%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	118	121	2.11%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	2.77	2.78	0.596%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	47.0	47.9	1.94%	20%	----
		tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	0.00029	<0.00020	0.00009	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000061	0.000063	0.000002	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00126	0.00132	4.15%	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	0.0268	0.0276	3.10%	20%	----
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 359317)											
YL2101733-001	Anonymous	copper, dissolved	7440-50-8	E421-L	0.00015	mg/L	0.00192	0.00196	2.08%	20%	----
Dissolved Metals (QC Lot: 361824)											
VA21C6605-001	Quarry Entrance	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	0.0000052	<0.0000050	0.0000002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 361825)											
VA21C6605-021	Travel Blank	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	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: 356503)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 356505)						
acidity (as CaCO3)	----	E283	2	mg/L	<2.0	----
Physical Tests (QCLot: 356522)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 356532)						
acidity (as CaCO3)	----	E283	2	mg/L	2.0	----
Anions and Nutrients (QCLot: 356506)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 356507)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 356508)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 356509)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 356510)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 356511)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 356523)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 356524)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 356525)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 356526)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 356527)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 356529)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 356692)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 356860)						
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	17341-25-2	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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 356860) - continued						
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: 357481)						
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	17341-25-2	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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 357481) - continued						
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	----
Dissolved Metals (QCLot: 356593)						
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	----
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	17341-25-2	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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 356593) - continued						
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: 356594)						
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L	<0.00015	----
Dissolved Metals (QCLot: 359315)						
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	----
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: 359315) - 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	17341-25-2	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: 359317)						
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L	<0.00015	----
Dissolved Metals (QCLot: 361824)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 361825)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

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	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 356503)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 356504)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 356505)									
acidity (as CaCO3)	----	E283	2	mg/L	50 mg/L	97.1	85.0	115	----
Physical Tests (QCLot: 356520)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 356522)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.4	85.0	115	----
Physical Tests (QCLot: 356532)									
acidity (as CaCO3)	----	E283	2	mg/L	50 mg/L	97.1	85.0	115	----
Anions and Nutrients (QCLot: 356506)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 356507)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 356508)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	98.8	85.0	115	----
Anions and Nutrients (QCLot: 356509)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 356510)									
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: 356511)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	106	90.0	110	----
Anions and Nutrients (QCLot: 356523)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 356524)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 356525)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 356526)									
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: 356527)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 356527) - continued									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 356529)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	98.3	85.0	115	----
Organic / Inorganic Carbon (QCLot: 356692)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	110	80.0	120	----
Total Metals (QCLot: 356860)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	99.6	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.0	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	97.5	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	92.4	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	98.1	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	94.8	80.0	120	----
cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	93.4	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	88.1	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	96.4	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.2	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	89.3	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	99.0	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.8	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.6	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	93.3	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	97.1	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	95.8	80.0	120	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.0	80.0	120	----
rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	97.4	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	99.7	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.4	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	105	80.0	120	----
tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 356860) - continued									
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	96.9	80.0	120	----
thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	92.9	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	95.6	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	88.2	80.0	120	----
tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	96.6	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	99.2	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	96.0	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.7	80.0	120	----
Total Metals (QCLot: 357481)									
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	109	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	93.1	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.7	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	92.9	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	97.2	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	98.1	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.0	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.7	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	95.8	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.8	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.6	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	95.4	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	102	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	103	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	93.3	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 357481) - continued									
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.1	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	107	80.0	120	----
tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	110	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	80.0	120	----
thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	93.2	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	93.5	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.5	80.0	120	----
tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	95.6	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.4	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	97.9	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	100	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.2	80.0	120	----
Dissolved Metals (QCLot: 356593)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	106	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.0	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.5	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	103	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.4	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	99.7	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.8	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.2	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	102	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	101	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	96.2	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	103	80.0	120	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.8	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	97.0	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 356593) - continued									
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.7	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	98.2	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	93.9	80.0	120	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	90.3	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.3	80.0	120	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	103	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	100	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 356594)									
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L	0.25 mg/L	97.5	80.0	120	----
Dissolved Metals (QCLot: 359315)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	103	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	107	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	96.3	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	101	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	104	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	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	104	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	101	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 359315) - continued									
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.4	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	93.7	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	115	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	# 74.3	80.0	120	MES
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	105	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.4	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	102	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	101	80.0	120	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	116	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	98.4	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 359317)									
copper, dissolved	7440-50-8	E421-L	0.00015	mg/L	0.25 mg/L	102	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	97.5	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	95.9	80.0	120	----

Qualifiers

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

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 356506)										
VA21C6605-002	Quarry Drainage	fluoride	16984-48-8	E235.F	1.08 mg/L	1 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 356507)										
VA21C6605-002	Quarry Drainage	chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 356508)										
VA21C6605-002	Quarry Drainage	bromide	24959-67-9	E235.Br-L	0.505 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 356509)										
VA21C6605-002	Quarry Drainage	nitrate (as N)	14797-55-8	E235.NO3-L	2.61 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 356510)										
VA21C6605-002	Quarry Drainage	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: 356511)										
VA21C6605-002	Quarry Drainage	sulfate (as SO4)	14808-79-8	E235.SO4	107 mg/L	100 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 356523)										
VA21C6713-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 356524)										
VA21C6713-001	Anonymous	chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 356525)										
VA21C6713-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	ND mg/L	2.5 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 356526)										
VA21C6713-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.511 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 356527)										
VA21C6713-001	Anonymous	fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 356529)										
VA21C6713-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.499 mg/L	0.5 mg/L	99.9	75.0	125	----
Organic / Inorganic Carbon (QCLot: 356692)										
VA21C6605-002	Quarry Drainage	carbon, dissolved organic [DOC]	----	E358-L	5.14 mg/L	5 mg/L	103	70.0	130	----
Total Metals (QCLot: 356860)										
VA21C6605-002	Quarry Drainage	aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130	----
		antimony, total	7440-36-0	E420	0.0193 mg/L	0.02 mg/L	96.4	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: 356860) - continued										
VA21C6605-002	Quarry Drainage	arsenic, total	7440-38-2	E420	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		barium, total	7440-39-3	E420	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0357 mg/L	0.04 mg/L	89.2	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00979 mg/L	0.01 mg/L	97.9	70.0	130	----
		boron, total	7440-42-8	E420	0.088 mg/L	0.1 mg/L	88.6	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		chromium, total	7440-47-3	E420	0.0345 mg/L	0.04 mg/L	86.2	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	----
		copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		iron, total	7439-89-6	E420	1.77 mg/L	2 mg/L	88.4	70.0	130	----
		lead, total	7439-92-1	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		lithium, total	7439-93-2	E420	0.0900 mg/L	0.1 mg/L	90.0	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	----
		nickel, total	7440-02-0	E420	0.0380 mg/L	0.04 mg/L	94.9	70.0	130	----
		phosphorus, total	7723-14-0	E420	9.54 mg/L	10 mg/L	95.4	70.0	130	----
		potassium, total	7440-09-7	E420	3.77 mg/L	4 mg/L	94.3	70.0	130	----
		rubidium, total	7440-17-7	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		selenium, total	7782-49-2	E420	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		silicon, total	7440-21-3	E420	9.24 mg/L	10 mg/L	92.4	70.0	130	----
		silver, total	7440-22-4	E420	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		sodium, total	17341-25-2	E420	1.90 mg/L	2 mg/L	95.0	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	19.8 mg/L	20 mg/L	99.0	70.0	130	----
		tellurium, total	13494-80-9	E420	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		thallium, total	7440-28-0	E420	0.00354 mg/L	0.004 mg/L	88.5	70.0	130	----
		thorium, total	7440-29-1	E420	0.0205 mg/L	0.02 mg/L	102	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	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		tungsten, total	7440-33-7	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		uranium, total	7440-61-1	E420	0.00390 mg/L	0.004 mg/L	97.5	70.0	130	----
		vanadium, total	7440-62-2	E420	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	----
		zinc, total	7440-66-6	E420	0.374 mg/L	0.4 mg/L	93.5	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0403 mg/L	0.04 mg/L	101	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 357481)										
CG2106165-010	Anonymous	aluminum, total	7429-90-5	E420	0.196 mg/L	0.2 mg/L	97.8	70.0	130	----
		antimony, total	7440-36-0	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----
		barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0362 mg/L	0.04 mg/L	90.6	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00854 mg/L	0.01 mg/L	85.4	70.0	130	----
		boron, total	7440-42-8	E420	0.097 mg/L	0.1 mg/L	97.2	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00374 mg/L	0.004 mg/L	93.5	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E420	0.00999 mg/L	0.01 mg/L	99.9	70.0	130	----
		chromium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0184 mg/L	0.02 mg/L	92.0	70.0	130	----
		copper, total	7440-50-8	E420	0.0178 mg/L	0.02 mg/L	88.8	70.0	130	----
		iron, total	7439-89-6	E420	1.90 mg/L	2 mg/L	94.8	70.0	130	----
		lead, total	7439-92-1	E420	0.0175 mg/L	0.02 mg/L	87.6	70.0	130	----
		lithium, total	7439-93-2	E420	0.0856 mg/L	0.1 mg/L	85.6	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		nickel, total	7440-02-0	E420	0.0358 mg/L	0.04 mg/L	89.5	70.0	130	----
		phosphorus, total	7723-14-0	E420	9.34 mg/L	10 mg/L	93.4	70.0	130	----
		potassium, total	7440-09-7	E420	3.67 mg/L	4 mg/L	91.8	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	ND mg/L	0.04 mg/L	ND	70.0	130	----
		silicon, total	7440-21-3	E420	8.58 mg/L	10 mg/L	85.8	70.0	130	----
		silver, total	7440-22-4	E420	0.00370 mg/L	0.004 mg/L	92.6	70.0	130	----
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	ND mg/L	20 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		thallium, total	7440-28-0	E420	0.00360 mg/L	0.004 mg/L	89.9	70.0	130	----
		thorium, total	7440-29-1	E420	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		tin, total	7440-31-5	E420	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	----
		titanium, total	7440-32-6	E420	0.0397 mg/L	0.04 mg/L	99.3	70.0	130	----
		tungsten, total	7440-33-7	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		uranium, total	7440-61-1	E420	ND mg/L	0.004 mg/L	ND	70.0	130	----
		vanadium, total	7440-62-2	E420	0.0979 mg/L	0.1 mg/L	97.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 357481) - continued										
CG2106165-010	Anonymous	zinc, total	7440-66-6	E420	0.361 mg/L	0.4 mg/L	90.3	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
Dissolved Metals (QCLot: 356593)										
VA21C6605-002	Quarry Drainage	aluminum, dissolved	7429-90-5	E421	0.201 mg/L	0.2 mg/L	100	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0216 mg/L	0.02 mg/L	108	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		barium, dissolved	7440-39-3	E421	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00908 mg/L	0.01 mg/L	90.8	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.3	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00387 mg/L	0.004 mg/L	96.8	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E421	0.0100 mg/L	0.01 mg/L	100	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	----
		iron, dissolved	7439-89-6	E421	1.95 mg/L	2 mg/L	97.4	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.0969 mg/L	0.1 mg/L	96.9	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.0216 mg/L	0.02 mg/L	108	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	9.22 mg/L	10 mg/L	92.2	70.0	130	----
		potassium, dissolved	7440-09-7	E421	3.87 mg/L	4 mg/L	96.7	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0406 mg/L	0.04 mg/L	101	70.0	130	----
		silicon, dissolved	7440-21-3	E421	9.07 mg/L	10 mg/L	90.7	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00414 mg/L	0.004 mg/L	104	70.0	130	----
		sodium, dissolved	17341-25-2	E421	1.79 mg/L	2 mg/L	89.5	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	20.5 mg/L	20 mg/L	102	70.0	130	----
		tellurium, dissolved	13494-80-9	E421	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 356593) - continued										
VA21C6605-002	Quarry Drainage	tungsten, dissolved	7440-33-7	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.0969 mg/L	0.1 mg/L	96.9	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.398 mg/L	0.4 mg/L	99.4	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 356594)										
VA21C6605-002	Quarry Drainage	copper, dissolved	7440-50-8	E421-L	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
Dissolved Metals (QCLot: 359315)										
YL2101733-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.203 mg/L	0.2 mg/L	102	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00795 mg/L	0.01 mg/L	79.5	70.0	130	----
		boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00391 mg/L	0.004 mg/L	97.9	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E421	0.0106 mg/L	0.01 mg/L	106	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		iron, dissolved	7439-89-6	E421	2.00 mg/L	2 mg/L	99.8	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0186 mg/L	0.02 mg/L	93.0	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.0976 mg/L	0.1 mg/L	97.6	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	10.5 mg/L	10 mg/L	105	70.0	130	----
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.0217 mg/L	0.02 mg/L	109	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0838 mg/L	0.08 mg/L	105	70.0	130	----
		silicon, dissolved	7440-21-3	E421	9.27 mg/L	10 mg/L	92.7	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00384 mg/L	0.004 mg/L	95.9	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 359315) - continued										
YL2101733-001	Anonymous	tellurium, dissolved	13494-80-9	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
		tungsten, dissolved	7440-33-7	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00420 mg/L	0.004 mg/L	105	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.371 mg/L	0.4 mg/L	92.8	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0405 mg/L	0.04 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 359317)										
YL2101733-001	Anonymous	copper, dissolved	7440-50-8	E421-L	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
Dissolved Metals (QCLot: 361824)										
VA21C6605-002	Quarry Drainage	mercury, dissolved	7439-97-6	E509	0.0000955 mg/L	0.0001 mg/L	95.5	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 937287

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
Company:	Tetra Tech Canada Inc.
Contact:	Elyse Hofs
Phone:	778 879 9183
	Company address below will appear on the final report
Street:	1000-885 Dunsmuir Street
City/Province:	Vancouver BC
Postal Code:	V6C 1N5
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company:	see above
Contact:	

Reports / Recipients

Select Report Format: ☒ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: elyse.hofs@tetratech.com

Email 2:

Email 3:

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: elyse.hofs@tetratech.com

Email 2:

Turnaround Time (TAT) Requested

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

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

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

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

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

☐ Same day [EZ] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

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

Project Information

ALS Account # / Quote #:	
Job #:	704-VGE003612-03.004
PO / AFE:	
LSD:	
ALS Lab Work Order # (ALS use only):	

Oil and Gas Required Fields (client use)

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

ALS Contact: Brent Mack Sampler: Elyse Hofs

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	Acidity & lab pH	Alkalinity	Anions	Dissolved Metals (F)	Dissolved Hg (F)	Total Metals	DOC (F/P)	BOTTLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Quarry Entrance	Nov 29-21	9:00	Water	5	X	X	X	X	X	X	X			
	Quarry Drainage		9:50		5	X	X	X	X	X	X	X			
	Mill Creek		9:25		5	X	X	X	X	X	X	X			
	PORTAL		8:16		5	X	X	X	X	X	X	X			
	DUP 1		8:16		5	X	X	X	X	X	X	X			
	WC-Y		10:45		5	X	X	X	X	X	X	X			
	WC-U		11:00		5	X	X	X	X	X	X	X			
	WC-T		11:30		5	X	X	X	X	X	X	X			
	WC-R		12:00		5	X	X	X	X	X	X	X			
	WC-N		12:30		5	X	X	X	X	X	X	X			
	WC-L		13:00		5	X	X	X	X	X	X	X			
	WC-K	↓	13:30	↓	5	X	X	X	X	X	X	X			

Environmental Division Vancouver
Work Order Reference
VA21C6605

Telephone : +1 604 253 4188

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

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

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

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

please use a lower D-Cu detection limit.

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			
			8.4			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Elyse Hofs	Nov 29-21	6:15

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
RJ	Nov-29	18:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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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.**

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 937288

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
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Contact:	Elyse Hofs
Phone:	778 879 9183
	Company address below will appear on the final report
Street:	1000 - 885 Dunsmuir St
City/Province:	Vancouver, BC
Postal Code:	V6C 1N5
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company:	see above
Contact:	

Reports / Recipients

Select Report Format: ☒ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2 elyse.hofs@tetratech.com

Email 3

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax elyse.hofs@tetratech.com

Email 2

Turnaround Time (TAT) Requested

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

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

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☐ 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 non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

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Project Information

ALS Account # / Quote #:	
Job #:	704-VGE003612-03.004
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LSD:	
ALS Lab Work Order # (ALS use only):	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact: Brent Mack	Sampler: Elyse Hofs

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	Acidity & lab pH	Alkalinity	Anions	Dissolved Metals (F)	Dissolved Hg (F)	Total Metals	DOC (F/P)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	DUP-2	Nov 29-21	13:30	Water	5	X	X	X	X	X	X	X			
	WC-J		14:07		5	X	X	X	X	X	X	X			
	WC-F		14:30		5	X	X	X	X	X	X	X			
	WC-E		15:00		5	X	X	X	X	X	X	X			
	WC-C		15:20		5	X	X	X	X	X	X	X			
	WC-B		15:35		5	X	X	X	X	X	X	X			
	WC-A		16:00		5	X	X	X	X	X	X	X			
	Field blank		16:00		5	X	X	X	X	X	X	X			
	TRIP BLANK		N/A		4	X	X	X	X	X	X	X			

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

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

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

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

see pg 1

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			
				8.4			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Elyse Hofs	Nov 29-21	16:15

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
RJ	NOV-29	18:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

APPENDIX B

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

NATURAL SCIENCES

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL ISSUES

The ability to rely upon and generalize from environmental baseline data is dependent on data collection activities occurring within biologically relevant survey windows.

It is incumbent upon the Client and any Authorized Party, to be knowledgeable of the level of risk that has been incorporated into the project design or scope, in consideration of the level of the environmental baseline information that was reasonably acquired to facilitate completion of the scope.

1.8 NOTIFICATION OF AUTHORITIES

TETRA TECH professionals are bound by their ethical commitments to act within the bounds of all pertinent regulations. In certain instances, observations by TETRA TECH of regulatory contravention may require that regulatory agencies and other persons be informed. The client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.