

REPORT

Sabina Gold & Silver Corp. Back River Project - 2021 Aquatic Baseline Report

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Sabina Gold & Silver Corp.

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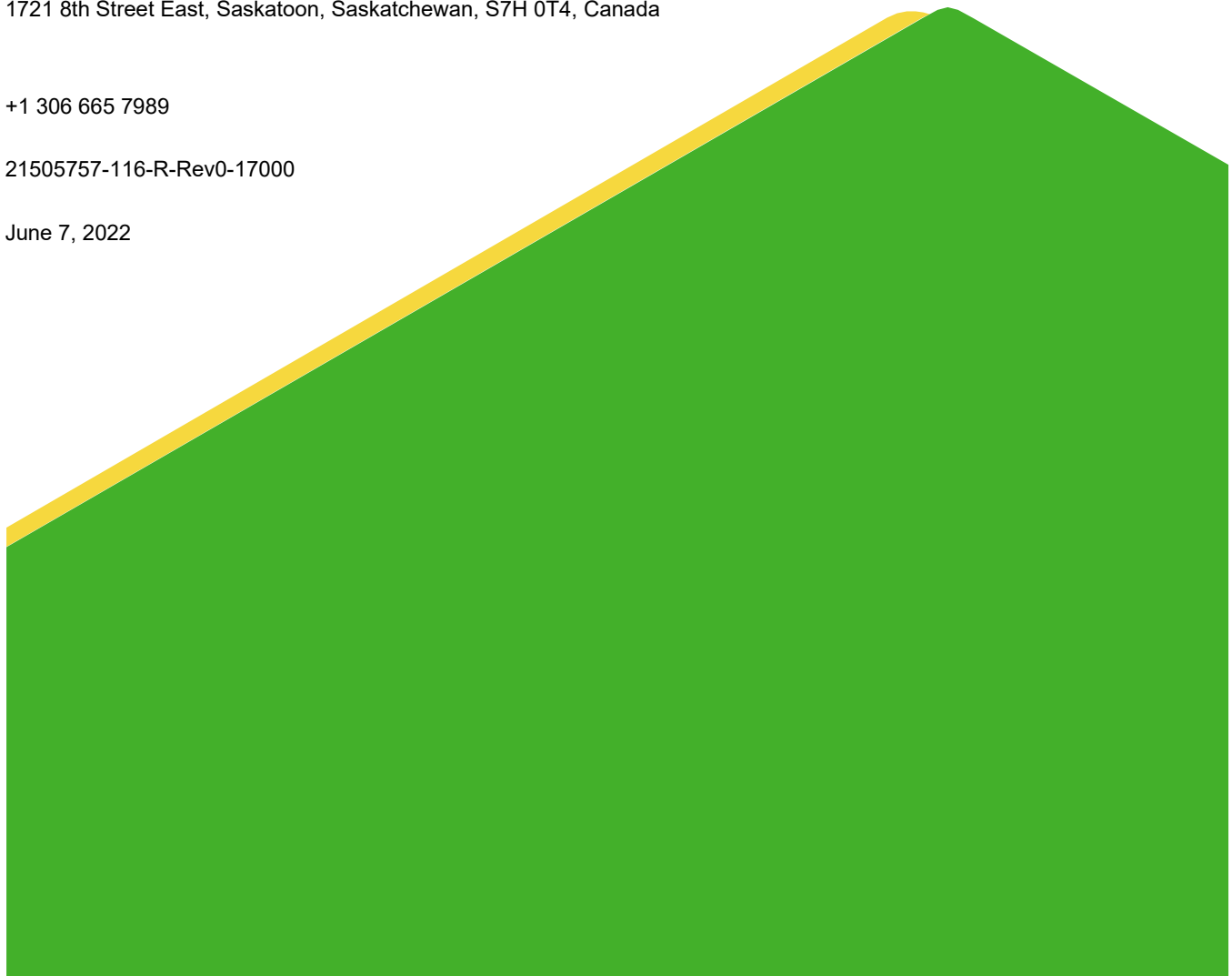
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Table of Contents

1.0 INTRODUCTION	1
2.0 WATER QUALITY.....	2
2.1 Introduction.....	2
2.2 Methods.....	2
2.2.1 Lake Sampling Locations.....	2
2.2.2 Stream Sampling Locations	6
2.2.3 Field	6
2.2.4 Laboratory	8
2.3 Quality Assurance/Quality Control	8
2.4 Results	9
3.0 SEDIMENT QUALITY	10
3.1 Introduction.....	10
3.2 Reconnaissance Survey - July	10
3.3 Sediment Sampling – August.....	11
3.3.1 Field	11
3.3.2 Laboratory	12
3.4 Quality Assurance/Quality Control	12
3.5 Results	12
4.0 BENTHIC INVERTEBRATES	12
4.1 Introduction.....	12
4.2 Methods.....	13
4.2.1 Field	13
4.2.2 Laboratory	13
4.3 Quality Assurance/Quality Control	14
4.4 Results	15
5.0 FISH HEALTH AND TISSUE CHEMISTRY – LAKE TROUT	15
5.1 Introduction.....	15

5.2	Methods.....	15
5.2.1	Field	15
5.2.1.1	Sampling Location and Effort.....	15
5.2.1.2	Fish Collection Methods.....	15
5.2.1.3	Population Survey	19
5.2.2	Laboratory	19
5.2.3	Data Analysis	20
5.2.3.1	Catch-Per-Unit-Effort	20
5.2.3.2	Comparison to Guidelines.....	20
5.3	Quality Assurance/Quality Control	20
5.4	Results	21
5.4.1	Catch Data Summary.....	21
5.4.2	Lake Trout Population Survey.....	22
5.4.3	Lake Trout Fish Tissue Results	22
6.0	FISH HEALTH AND TISSUE CHEMISTRY – SLIMY SCULPIN.....	23
6.1	Introduction.....	23
6.2	Methods.....	23
6.2.1	Field	23
6.2.1.1	Sampling Location and Effort.....	23
6.2.1.2	Fish Collection Methods.....	23
6.2.1.3	Population Survey	26
6.2.1.4	Lethal Fish Health Survey	26
6.2.2	Laboratory	29
6.2.3	Data Analysis	30
6.2.3.1	Catch-Per-Unit-Effort	30
6.2.3.2	Fish Health Indices	30
6.3	Quality Assurance/Quality Control	30
6.4	Results	31
6.4.1	Catch Data Summary.....	31
6.4.2	Slimy Sculpin Fish Health Surveys	33

6.4.2.1	Population Survey	33
6.4.2.2	Lethal Survey	33
6.4.3	Slimy Sculpin Fish Tissue Results	33
7.0	SUMMARY	34
8.0	REFERENCES	35

TABLES

Table 2-1:	Water Quality Sampling Locations in Lakes, 2021	3
Table 2-2:	Streams Water Quality Sampling Locations, 2021	6
Table 3-1:	Propeller Lake Sediment Monitoring Stations, 2021	11
Table 4-2:	Propeller Lake Benthic Invertebrate Community Monitoring Stations, 2021	13
Table 5-1:	Fish Species Captured at Goose Lake and Propeller Lake, 2021	21
Table 5-2:	Catch-Per-Unit Effort for Fish Captured from Goose Lake and Propeller Lake, 2021	21
Table 5-3:	Mercury Concentrations in Lake Trout Muscle Biopsy Samples from Goose Lake and Propeller Lake, 2021	22
Table 6-1:	Gonad Maturity Stages Used During the 2021 Baseline Fish Health Program	28
Table 6-2:	Fish Species Captured at Propeller Lake, 2021	32
Table 6-3:	Catch-Per-Unit Effort for Fish Captured from Propeller Lake, 2021	32
Table 6-4:	Sample Size for Slimy Sculpin Lethally Sampled from Propeller Lake During the 2021 Fish Health Survey	33

FIGURES

Figure 2-1:	Water, Sediment and Benthic Invertebrate Sampling Locations, 2021	5
Figure 5-1:	Goose Lake Fishing Effort, July 2021	17
Figure 5-2:	Propeller Lake Fishing Effort, July 2021	18
Figure 6-1:	Propeller Lake North Basin Electrofishing Effort, August 2021	24
Figure 6-2:	Propeller Lake South Basin Electrofishing Effort, August 2021	25

APPENDICES

APPENDIX A

2021 Quality Assurance and Quality Control Methods and Results

APPENDIX B

2021 Water Quality - Field Profiles Tables and Graphs

APPENDIX C

2021 Water Quality – Analytical Chemistry

APPENDIX D

Representative Sediment Samples Photos at Propeller Lake, 2021

APPENDIX E

2021 Sediment Quality – Analytical Chemistry

APPENDIX F

2021 Benthic Invertebrate Community Data

APPENDIX G

2021 Lake Trout Health and Tissue Chemistry Data

APPENDIX H

2021 Slimy Sculpin Fish Health Data

APPENDIX I

2021 Slimy Sculpin Tissue Chemistry

1.0 INTRODUCTION

The Back River Project (the Project) is a gold project owned by Sabina Gold & Silver Corp. (Sabina) within the West Kitikmeot region of southwestern Nunavut. It is situated approximately 400 kilometres (km) southwest of Cambridge Bay, 95 km southeast of the southern end of Bathurst Inlet, and 520 km northeast of Yellowknife, Northwest Territories. The Project, as updated in the Modification Package (Sabina 2020), involves the Construction, Operations, Closure, and Post-Closure of three open pit mines and one underground mine at the Goose Property. A Marine Laydown Area (MLA) will be established at Bathurst Inlet to deliver supplies, via a 160 km winter ice road connecting the MLA to the Goose Property.

The Project will be subject to both an Aquatic Effects Management Plan (AEMP) as required by the Type A Water Licence (2AM-BRP1831) and an Environmental Effects Monitoring (EEM) program under the Metal and Diamond Mining Effluent Regulations (MDMER). Baseline studies were undertaken to support the environmental assessment process from 2010 to 2015 (Sabina 2015). Supplemental baseline studies were carried out in 2017 and 2018 to support the design and implementation of the AEMP, address relevant commitments made by Sabina through the water licensing process, and support the future EEM that will be triggered when the dewatering discharge begins during construction. An Aquatic Baseline Synthesis Report was prepared to evaluate the overall baseline dataset in terms of sampling area compatibility, suitability of the compiled baseline dataset to support the AEMP design, and sufficiency of baseline data to support normal range calculations (Golder 2019). This synthesis report generally confirmed the capability, suitability, and sufficiency of the compiled baseline dataset, but recommended the following data collection to support the AEMP:

- Collect additional under-ice water quality data prior to the implementation of the AEMP to augment the ice-cover season dataset.
- Collect additional data for all components from Propeller Lake prior to the end of the Operations phase, before pit overflow discharge will result in a potential Project-related influence on this lake.

The Nunavut Water Board (NWB) completed its technical review of the Aquatic Baseline Synthesis Report in November 2020 (NWB 2020). Sabina made the following commitments in response to technical comments by Kitikmeot Inuit Association (KIA), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), and Environment and Climate Change (ECCC):

- To collect water quality data in Propeller Lake starting in Year 8 to accumulate at least three years of data before a potential Project-related influence on Propeller Lake water quality is expected to be observable.
- To collect another year of under-ice water quality data for Goose Lake and Reference B Lake.
- To collect additional Lake Trout data during the fish health surveys to augment the baseline dataset for normal range calculations.
- To replace non-detect analytical chemistry results with one-half the detection limit when calculating summary statistics and normal ranges, and before the data are statistically analyzed.

Additional baseline data were collected in 2021 to address these commitments and to support the next update to the AEMP. The following field programs occurred in 2021:

- ice-cover and open-water water quality in Goose Lake, Propeller Lake, and Reference B Lake
- open-water water quality in Goose Lake streams

- sediment and benthic invertebrate community in Propeller Lake
- fish health and fish tissue chemistry of Lake Trout (*Salvelinus namaycush*) in Goose and Propeller lakes
- fish health and fish tissue chemistry of Slimy Sculpin (*Cottus cognatus*) in Propeller Lake

The methods and results of these programs are presented in this report.

2.0 WATER QUALITY

2.1 Introduction

Water quality sampling in 2021 occurred during five field programs (one conducted under ice-covered conditions and four during open-water conditions) and consisted of field measurements and sample collection from three lakes and seven streams. Lake water quality data were collected primarily to supplement the AEMP baseline dataset per the recommendations from the Aquatic Baseline Synthesis Report (Golder 2019). Stream water quality data were collected to support the hydrodynamic (HD) model for Goose Lake. Collection of water quality samples followed the updated AEMP study design (Sabina 2021).

2.2 Methods

2.2.1 Lake Sampling Locations

Lake water quality sampling locations are summarized in Table 2-1 and Figure 2-1. The ice-cover season water quality sampling program was conducted in April 2021 and consisted of collection of water quality samples, in situ physico-chemical measurements, and depth profiles in the AEMP lakes (i.e., Goose Lake, Propeller Lake, and Reference B Lake). Sampling locations consisted of three areas within Goose Lake (i.e., West Bay, Central Basin, and Southeast Basin), one area in Reference B Lake, and one area in Propeller Lake (PLSB, near centre). Each area was sampled from five stations and were consistent with previously identified/sampled stations. At each station, depth profile measurements were recorded and water quality samples were collected. Depth profile and water samples for total dissolved solids (TDS) analysis were also collected at a sixth station at the deepest area of Goose Lake West Bay (BRP-29-6) and in the Goose Lake Tail (GLTL).

Two open-water sampling AEMP programs occurred in July and August 2021. The July program consisted of collection of water samples for TDS analysis, and depth profiles at one station from four areas within Goose Lake (i.e., West Bay, Central Basin, Southeast Basin, and Goose Lake Tail) for the HD model. A fifth station within GLWB shallow area was part of the sampling program in July; however, due to sloped lakebed that made the anchor move and the boat shift towards the deep area and it was later determined (based on the water depth) that the samples were actually collected from the deep area. Thus, a shallow station within the GLWB was sampled in September 2021 during the stream sampling program. The primary purpose of the August program was to fill the AEMP baseline data gaps during open-water conditions; therefore, water quality samples, in situ physico-chemical measurements, and depth profiles were collected at two areas in Propeller Lake (i.e., PLSB and PLNB). Depth profiles were also collected from the central area of Propeller Lake.

Table 2-1: Water Quality Sampling Locations in Lakes, 2021

Lake Area	Station ID	UTM Coordinates (Zone 13N, NAD 83)		April 11 to 15, 2021 (ice-cover)	July 24 to 26, 2021 (open-water)	August 14 to 16, 2021 (open water)
		Easting (m)	Northing (m)			
Goose Lake West Bay (GLWB)	BRP-29-1	431343	7269959	WQ, depth profile	-	-
	BRP-29-2	431372	7270008	WQ, TDS near bottom, depth profile	-	-
	BRP-29-3	431335	7269962	WQ, depth profile	-	-
	BRP-29-4	431425	7269938	WQ, depth profile	TDS near surface, TDS near bottom, depth profile	-
	BRP-29-5	431507	7269922	WQ, depth profile	-	-
	BRP-29-6 ^(a)	431425	7269980	TDS near surface, TDS near bottom, depth profile ^(b)	TDS near surface, TDS near bottom, depth profile ^(c)	-
Goose Lake Central Basin (GLCB)	BRP-32-1	433690	7270849	WQ, depth profile	-	-
	BRP-32-2	433681	7270890	WQ, depth profile	TDS near surface, TDS near bottom, depth profile	-
	BRP-32-3	433673	7270944	WQ, TDS near bottom, depth profile	-	-
	BRP-32-4	433652	7270835	WQ, depth profile	-	-
	BRP-32-5	433653	7270898	WQ, depth profile	-	-
Goose Lake Southeast Basin (GLSE) ^(d)	BRP-33-1	434339	7270050	WQ, depth profile	TDS near surface, TDS near bottom, depth profile	-
	BRP-33-2	434332	7270089	WQ, TDS near bottom, depth profile	-	-
	BRP-33-3	434306	7270100	WQ, depth profile	-	-
	BRP-33-4	434310	7270132	WQ, depth profile	-	-
	BRP-33-5	434330	7270116	WQ, depth profile	-	-
Goose Lake Tail	GLTL	434611	7271480	TDS near surface, TDS near bottom, depth profile	TDS near surface, TDS near bottom, depth profile	-
Propeller Lake (PLSB; near center)	BRP-35-1	435191	7274529	WQ, depth profile	-	Depth profile
	BRP-35-2	435121	7274468	WQ, depth profile	-	Depth profile
	BRP-35-3	435214	7274465	WQ, depth profile	-	Depth profile
	BRP-35-4	435168	7274446	WQ, depth profile	-	Depth profile
	BRP-35-5	435202	7274408	WQ, depth profile	-	Depth profile
Propeller Lake (PLSB; near inflow)	BRP-35-1	435261	7272824	-	-	WQ, chla, depth profile
	BRP-35-2	435269	7272857	-	-	WQ, chla, depth profile
	BRP-35-3	435338	7272909	-	-	WQ, chla, depth profile
	BRP-35-4	435340	7272865	-	-	WQ, chla, depth profile
	BRP-35-5	435288	7272889	-	-	WQ, chla, depth profile

Table 2-1: Water Quality Sampling Locations in Lakes, 2021

Lake Area	Station ID	UTM Coordinates (Zone 13N, NAD 83)		April 11 to 15, 2021 (ice-cover)	July 24 to 26, 2021 (open-water)	August 14 to 16, 2021 (open water)
		Easting (m)	Northing (m)			
Propeller Lake (PLNB)	BRP-36-1	434643	7279131	-	-	WQ, chla, depth profile
	BRP-36-2	434753	7278767	-	-	WQ, chla, depth profile
	BRP-36-3	434821	7278579	-	-	WQ, chla, depth profile
	BRP-36-4	434140	7278584	-	-	WQ, chla, depth profile
	BRP-36-5	434615	7279207	-	-	WQ, chla, depth profile
Reference Lake B (REFB)	BRP-40-1	442060	7258569	WQ, depth profile	-	-
	BRP-40-2	442026	7258591	WQ, depth profile	-	-
	BRP-40-3	441978	7258616	WQ, depth profile	-	-
	BRP-40-4	441983	7258658	WQ, depth profile	-	-
	BRP-40-5	441971	7258689	WQ, depth profile	-	-

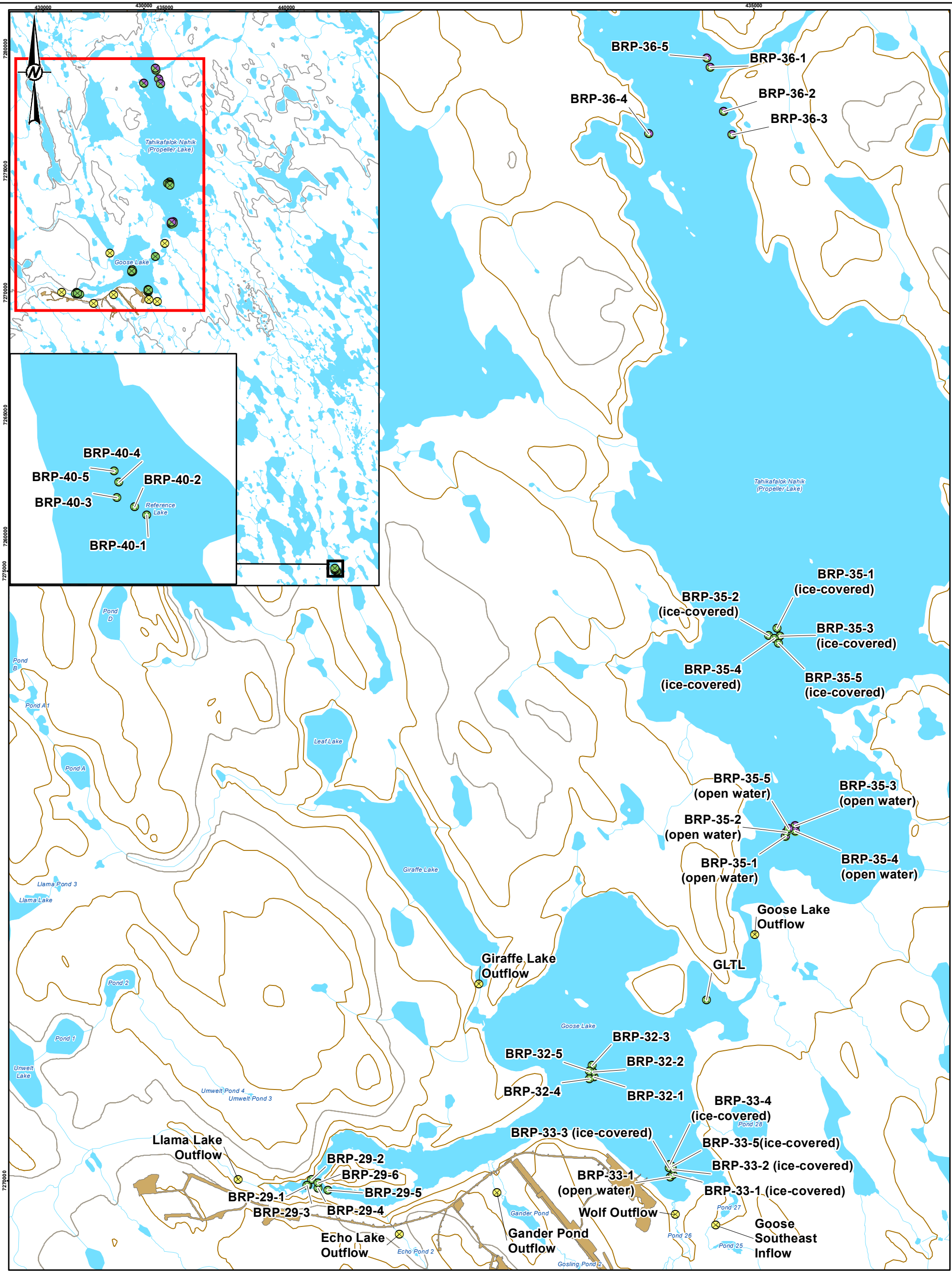
(a) BRP-29-6 is the deepest station in the GLWB area.

(b) Total depth was 30 m (28 m under the ice layer). The sample was collected at 26 m, which was the maximum that could be reached by the sampling equipment.

(c) Given that the July samples were not collected at the targeted deep area, additional samples were collected in September targeting a shallow area.

(d) Sampling locations at GLSE were slightly shifted due to air strip interference (often the case during ice-covered conditions).

WQ = water quality sample collected at 1 m below surface and analyzed for the entire suite of parameters. TDS near bottom = water sample collected at 1 m above the bed for TDS analysis. chla = samples for chlorophyll *a* analysis.



- LEGEND**
- LAKE WATER QUALITY STATION
 - SEDIMENT, BENTHIC, AND WATER QUALITY STATION
 - STREAM WATER QUALITY STATION
 - CONTOUR (10 m)
 - CONTOUR (100 m)
 - WATERCOURSE
 - WATERBODY
 - 2020 FOOTPRINT

0 5 10
1:150,000 KILOMETRES

REFERENCE(S)
HYDROLOGY AND CONTOURS ALBERTA DIGITAL BASE DATA MAY BE OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. HYDROLOGY UPDATED BY GOLDER.
PROJECTION: UTM ZONE 13 DATUM: NAD 83

CLIENT		
Sabina		
PROJECT SABINA BACK RIVER PROJECT		
TITLE AQUATIC EFFECTS MONITORING PROGRAM SAMPLING STATIONS 2021		
CONSULTANT	YYYY-MM-DD	2022-06-06
	DESIGNED	ZC
	PREPARED	SP
	REVIEWED	CA
	APPROVED	RS
PROJECT NO. 20412211	CONTROL -	REV. A



2.2.2 Stream Sampling Locations

Streams were sampled in 2021 during three open-water programs and consisted of in situ physico-chemical measurements and collection of water samples for TDS analysis. Samples were collected from seven streams, consisting of inflows and the outflow of Goose Lake, with the first July program targeting freshet conditions (Table 2-2 and Figure 2-1).

Table 2-2: Streams Water Quality Sampling Locations, 2021

Streams Description	UTM Coordinates (Zone 13N, NAD 83)		July 5, 2021 (freshet)	July 24 to 26, 2021	September 3 and 4, 2021
	Easting (m)	Northing (m)			
Goose Lake Outflow	435007	7272014	Field measurements, TDS sample	Field measurements, TDS sample	Field measurements, TDS sample
Llama Lake Outflow	430772	7270007	Field measurements, TDS sample	Field measurements, TDS sample	Field measurements, TDS sample
Gander Pond Outflow	432895	7269899	Field measurements, TDS sample	Field measurements, TDS sample	Field measurements, TDS sample
Giraffe Lake Outflow	432744	7271610	Field measurements, TDS sample	Field measurements, TDS sample	Field measurements, TDS sample
Echo Lake Outflow	432092	7269560	Field measurements, TDS sample	No flow	No flow
Wolf Outflow	434269	7269719	Field measurements, TDS sample	Field measurements, TDS sample	Field measurements, TDS sample
Goose Southeast Inflow	434688	7269634	Field measurements, TDS sample	No flow	No flow

Notes: Field measurements include pH, dissolved oxygen, water temperature, conductivity, water depth, and flow discharge. TDS = total suspended solids.

2.2.3 Field

Water quality sample collection followed the procedures detailed in the AEMP study design (Sabina 2021) and methods published by the Canadian Council of Ministers of the Environment (CCME 2011).

Water samples were processed on site and those requiring filtration were filtered through a syringe with a 0.45 µm filter head supplied by the laboratory before being preserved (if needed) with laboratory-provided preservative based on the required analysis and as instructed by the laboratory. Low level metals and mercury were not preserved in the field (they were preserved by the laboratory upon receipt). Processed samples were kept on site in a designated refrigerator before shipping and ice packs were added to the coolers to keep the samples as cool as possible (without freezing) during shipping. Samples were shipped by air to ALS Yellowknife as soon as practical after sample collection and processing and taking into consideration the holding time constraints prescribed by the laboratory for each specific parameter. Filters for chlorophyll *a* analysis were kept frozen until end of the program and delivered to ALS Edmonton for analysis.

Lake Sampling

At each lake sampling station, one discrete water quality sample was collected at 1.0 metres (m) below the water or ice surface. At lake stations where TDS samples were collected for the HD model, samples were collected at two depths within the water column (i.e., 1.0 m below surface and 1.0 m above the bottom). During the ice-covered program, an ice auger was used to drill the sampling hole, and snow and loose ice were cleared from the hole using a stainless-steel slotted spoon prior sampling. Snow cover depth (m), ice thickness (m), and effective water depth (m) were recorded at each station. Effective water depth (water depth under the ice layer) was measured using a depth sounder lowered in a slow and controlled manner to minimize disturbance of the water column or mobilizing fine sediment from the lakebed substrate into the water column prior to profiling and

sampling. Ice thickness was measured at each station from the bottom of the ice to the top (excluding the snowpack) using a measuring stick or tape.

During open-water conditions, field measurements and lake samples were collected from a boat. Total water depth (m), Secchi depth (m), sample depth (m), and field depth profiles were recorded at each sampling station. Turbidity measurements were also collected in the field on a sub-sample of the water quality sample using a calibrated LaMotte 2020 turbidity meter.

Samples were collected as grabs using a Kemmerer sampler. A polyvinyl Kemmerer sampler was used to sample water for most analyses, with the exception of ultra-low metals and ultra-low mercury, which were collected using a Teflon Kemmerer sampler. During the ice-covered program, samples at Propeller Lake were collected using the Teflon Kemmerer sampler (PVC Kemmerer would not thaw and be operational due to very cold conditions). The sampler was rinsed with lake water, lowered to the required depth, triggered by the messenger to collect a sample, retrieved to the surface, and used to fill in the laboratory sample bottles.

During open-water conditions, samples for chlorophyll *a* analysis were collected in triplicate using amber bottles and processed (filtered) at the end of the day, back at camp. Chlorophyll *a* samples were kept in dark, away from sunlight, and maintained at low temperature. Each triplicate chlorophyll *a* sample consisted of 1.0 L (2 x 500 mL) of water. Water collected for chlorophyll *a* analysis was filtered using an electric pump and 0.45 micrometer (μm) filters. Filters were then placed in black tubes provided by the laboratory, labelled with the sample ID, date and time, and kept frozen until the end of the program, when they were delivered to the ALS Canada Ltd. (ALS) in Edmonton for analysis.

Lake Depth Profiles

At each lake sampling station, water column profiling was conducted prior to sample collection. In situ measurements of pH, dissolved oxygen (milligrams per litre [mg/L] and percent saturation), water temperature (degrees Celsius [$^{\circ}\text{C}$]), and specific conductivity (microsiemens per centimetre [$\mu\text{S}/\text{cm}$]) were recorded at each station at 0.5 m intervals throughout the water column to approximately 1 m above lakebed using a submersible multi-probe water quality meter. The meter was calibrated prior to use and maintained as required by the manufacturer's operational manual (details about meter calibration are included in Appendix A). During the ice-cover season program, the depth profile started at 0.3 m below the bottom of the ice layer following a brief period (i.e., 10 minutes approximately) of equilibration after ice augering. During open-water conditions, the depth profile started just below the water surface at 0.1 m. Measurements were taken only on the way down, moving slowly to allow the sensors on the meter to stabilize prior recording the measurements. This helped to avoid hysteresis (differences in readings on the way down and the way up) and produced more accurate readings.

Stream Sampling

In situ physico-chemical measurements of specific conductivity, pH, temperature, dissolved oxygen, and turbidity and water samples for analysis of TDS were collected from streams at Goose Lake. Sample depth, total water depth, stream width and flow measurements were also recorded. Stream samples were collected as grabs from within or as close as possible to the centre of the channel, at mid-depth. Discharge measurements are presented in the Supplemental Hydrology and Fish Habitat Data Report (Golder 2021).

2.2.4 Laboratory

Sample bottles were provided by ALS Canada Ltd. (ALS; Yellowknife location), an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Lake water quality samples were analyzed for:

- conventional parameters (i.e., conductivity, hardness, laboratory pH, total suspended solids [TSS], total dissolved solids [TDS], alkalinity)
- major ions (i.e., calcium, chloride, fluoride, potassium, magnesium, sodium, sulphate, sulphide)
- nutrients (i.e., nitrite, nitrate, total ammonia, total Kjeldahl nitrogen, orthophosphate, total dissolved phosphorus [TDP], total phosphorus [TP], dissolved organic carbon [DOC], reactive silica)
- low-level total and dissolved metals (i.e., aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silicon, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc)
- cyanides (total cyanide, free cyanide, and weak acid dissociable cyanide)
- radium-226 and chlorophyll a (August program only)

During the July program, water samples were collected for TDS analysis only. Stream water quality samples were collected for TDS analysis only. Other parameters analyzed to aid in TDS calculations were alkalinity, major ions, and nitrate. Laboratory certificates of analysis (COAs) are provided in Appendix A.

2.3 Quality Assurance/Quality Control

Quality assurance (QA) encompasses management and technical practices designed to generate high quality data and quality control (QC) is a specific aspect of the QA process that incorporates internal techniques used to measure and assess data quality. QA/QC procedures were applied to field sampling, laboratory analyses, data entry, data analyses, and report preparation. Specific work instructions outlining each field task in detail were provided to field personnel and a pre-field meeting was held to review the instructions for the field data collection, and to confirm that all field personnel were familiar with the expectations of the sampling plan. Field equipment were calibrated throughout the field program following manufacturer specifications and all samples were collected by experienced personnel. Detailed field notes were recorded in waterproof field books and on pre-printed waterproof field data sheets in either pencil or indelible ink. Data sheets and sample labels were checked at the end of each field day for completeness and accuracy and were scanned into electronic copies at the completion of the field program. Samples were labelled, preserved, and shipped according to standard protocols. Chain-of-custody (COC) forms were used to track shipment and receipt of samples. Upon entry of the field data into electronic databases, the data were checked against field datasheets by another, independent person to verify the accuracy of data entry and to check for transcription errors.

Quality control samples collected during the 2021 water sampling programs consisted of two field blanks, one travel blank, and seven duplicate samples, which accounted for 18% of the total number of water samples collected. Quality control samples were collected following the QA/QC procedures described in the AEMP study design (Sabina 2021). The QA/QC procedures, assessment criteria, and QC results are presented in detail in Appendix A.

The QC results indicated that, overall, the water quality data collected in 2021 were of high quality. Key outcomes were as follows:

- No issues were identified in analytical methods used or DLs reported by the laboratory.
- Holding times recommended by the laboratory were exceeded for some parameters (i.e., pH, nitrite, nitrate, orthophosphate, turbidity, TSS, TDS, alkalinity, sulphide) due to logistical constraints and/or laboratory inability to initiate testing promptly following sample receipt. Most of the holding time exceedances were of one to six days duration, and although this should be taken into consideration during interpretation of the results, it is not expected to negatively affect data quality.
- The ammonia concentration in the travel blank was notable (value more than five times the DL) and was an order of magnitude higher than the concentration in field samples; however, total ammonia was not detected in the field blanks. Therefore, this notable concentration is not expected to be of concern regarding the results for the surface water quality samples.
- Relative percent differences (RPD)¹ between field and duplicate samples were notable for less than 1% of the entire dataset, and indicate a *high* level of analytical precision based on the assessment criteria detailed in Appendix A.
- Dissolved metal concentrations were greater (notable) than the corresponding total metal concentration for 4% of the metals results, with arsenic and zinc failing to meet this criterion more frequently than the rest of the metals (i.e., for 50% of the arsenic results and 29% of the zinc results). Arsenic and zinc data should be interpreted with this in mind.

The overall quality of the water quality dataset was rated *high* and the results reported are considered reliable and meet the needs of the program; however, caution should be exercised during interpretation of arsenic and zinc results that failed the quality criteria.

The laboratory provided results for measured and calculated TDS. A QC check was done on the calculated TDS provided by the laboratory using the standard method published by APHA (2005), which consists of the sum of the concentrations of all common dissolved ions in freshwaters:

$$TDS_{calc} \left(\frac{mg}{L} \right) = \Sigma [Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, 4.42 * NO_3^- (as \text{nitrogen}), 0.6 * \text{total alkalinity (as } CaCO_3)]$$

Discrepancies between the calculated TDS results provided by the laboratory and the calculations by applying the above equation were observed for some samples but overall, the two results were less than 20% different. The results calculated using the above equation were summarized in Appendix C and were applied to the HD model.

2.4 Results

Depth profiles measured at lake stations are summarized in tables and graphs and presented in Appendix B. Water chemistry data collected at lakes and streams are summarized in Appendix C. Data were compared to the acute and chronic Canadian water quality guidelines for the protection of aquatic life (CCME 1999) and Canadian drinking water quality guidelines (Health Canada 2020). Comparisons to guidelines were done to identify exceedances that exist prior to mine development. Descriptive statistics consisting of the median, mean, 95th percentile, minimum, maximum, standard deviation, sample size, and percentage of samples exceeding

¹ RPD = absolute value of $[100 \times (\text{sample} - \text{duplicate}) / (\text{sample} + \text{duplicate}) / 2]$.

guidelines were calculated for each lake area and by season (i.e., ice-covered, open-water) and are presented in Appendix C.

At Goose Lake stations, guideline exceedances were observed for pH (lower than the recommended chronic pH range for the protection of aquatic life of pH 6.5 and the drinking water aesthetic objective of pH 7.0) and total aluminum and copper (higher than the chronic guideline for the protection of aquatic life of 5 or 100 µg/L for aluminum depending on sample pH, and 2 µg/L for copper). Similar exceedances were observed in data collected in previous years (Golder 2019); however, a higher number of exceedances was observed in 2021 for total copper.

Guideline exceedances for pH and total aluminium were also observed at Propeller Lake (Appendix C; Table C-5).

At Reference B Lake, pH values measured in the field at all stations were lower than the recommended chronic pH for the protection of aquatic life and the drinking water aesthetic objective. Total manganese concentrations were above the drinking water aesthetic objective (the aesthetic objective was recently revised from 50 µg/L to 20 µg/L; Health Canada 2020). Total manganese concentrations were below the maximum acceptable concentration for drinking water and the chronic guideline for the protection of aquatic life.

Water quality data collected at streams in 2021 included conventional parameters and major ions. With the exception of freshet samples, pH values were lower than the guidelines. During freshet, when stream flows were higher, pH values were neutral and within guidelines (Appendix C; Table C-7).

3.0 SEDIMENT QUALITY

3.1 Introduction

Sediment quality sampling in 2021 was conducted at Propeller Lake during two events (a reconnaissance survey in July and a field program in August). The reconnaissance survey was conducted to identify appropriate monitoring stations at Propeller Lake. Sediment samples were collected to provide supporting information for the assessment of benthic invertebrate communities (see Section 4.0).

3.2 Reconnaissance Survey - July

During the reconnaissance survey, the field crew evaluated several locations in Propeller Lake to identify potential monitoring stations. The following criteria were applied:

- water depth between 3 and 5 m
- water column not stratified (determined based on in-situ depth profiles of pH, dissolved oxygen, and temperature)
- substrate consisting of silty fines (visually determined in the field and sample collection for particle size analysis)
- stations a minimum distance of 20 m apart
- stations within the appropriate basin (Figure 2-1)

Sediment samples were collected using a grab sampler (petite Ponar or Ekman) at the five stations at the north and south basin (total of 10 samples) and analyzed for particle size and total organic carbon to confirm substrate type. Other supporting information collected included UTM coordinates, water depth, weather conditions, visual

observation of bottom sediment and/or substrate related information (texture, colour, odour, particle size, vegetation, or coarse substrate), sediment sample related information (sampler used, sampler fullness), any additional pertinent information, and field photographs. The preliminary assessment of the results from the reconnaissance program concluded that sediment locations are suitable as future monitoring locations, and thus these locations were re-visited in August in concert with the benthic invertebrate community survey.

3.3 Sediment Sampling – August

Based on the reconnaissance survey, ten stations were selected in Propeller Lake: five in the south basin (near inflow) and five in the north basin (near the lake outflow) and were sampled during the August program (Table 3-1 and Figure 2-1). These stations were selected to be as similar as possible in terms of substrate type, water depth, and aquatic habitat.

Table 3-1: Propeller Lake Sediment Monitoring Stations, 2021

Area	AEMP Station ID	UTM Coordinates (NAD 83, 13N)		Water Depth (m)
		Easting	Northing	
Propeller Lake (PLSB; near inflow)	BRP-35-1	435261	7272824	3.3
	BRP-35-2	435269	7272857	4.0
	BRP-35-3	435338	7272909	5.0
	BRP-35-4	435340	7272865	4.7
	BRP-35-5	435288	7272889	4.8
Propeller Lake (PLNB; near outflow)	BRP-36-1	434643	7279131	4.6
	BRP-36-2	434753	7278767	3.8
	BRP-36-3	434821	7278579	4.3
	BRP-36-4	434140	7278584	2.9
	BRP-36-5	434615	7279207	4.3

Notes: PLSB = Propeller Lake South Basin; PLNB = Propeller Lake North Basin.

3.3.1 Field

Before sampling, all equipment in contact with sediment (i.e., grab sampler, tubs, spoons) were rinsed with lake water to reduce the likelihood of cross-contamination between stations. Lake bottom sediment was collected with a grab sampler (petite Ponar or Ekman) by slowly lowering it to the lake bottom with tension on the rope to prevent triggering the grab until it reached the bottom. When sampler hit the bottom, the messenger was dropped which triggered the mechanism to close the grab. The grab was then pulled to the surface, and the top flaps were opened to gently siphon off overlying lake water. Using a metal spoon, the top 2 cm of the grab were collected and placed into a labelled sediment container provided by the laboratory (i.e., zip-lock bag or sediment jar). Samples were deemed acceptable when the grab penetration depth was 10 to 15 cm and the sampler was not overfull. If a sample was not acceptable, the process was repeated until sufficient sediment was collected to achieve the required sample amount.

The material sampled from three to four grabs were combined and homogenized into a composite sample. Sampler success rate was recorded on field data sheets. The sediment containers were then closed tight, and excess sediment was washed off the outside of the container. Samples were placed in a cooler with ice packs as soon as they were collected to keep them cool during shipping. Samples were shipped by air to ALS as soon as practical after sample collection and processing and taking into consideration the holding times prescribed by the laboratory for each parameter.

Supporting information on sediment were recorded along with measurements of water depth, field profiles of pH, temperature, dissolved oxygen, and conductivity as described in Section 2.0. Photographs of sediment samples collected during the two programs were included in Appendix D.

3.3.2 Laboratory

Sediment samples were analyzed for the full suite of parameters per the AEMP study design and consisted of:

- particle size² (gravel, sand, silt, clay) and moisture content
- nutrients and carbon (total phosphorus³, total nitrogen, total organic carbon, total inorganic carbon)
- metals (aluminum, antimony, arsenic, beryllium, boron cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc)

Laboratory certificates of analysis (COAs) are provided in Appendix A.

3.4 Quality Assurance/Quality Control

Quality assurance and quality control procedures and results of the 2021 sediment quality program are provided in Appendix A. One duplicate sediment sample was collected in 2021, accounting for 10% the total number of sediment samples submitted to the laboratory for analysis. The RPD values in duplicate samples were less than 24% (USEPA 2017), and were not notable based on the assessment criterion of 35%. The QC results indicate *high* analytical precision and *low* within-station variability for the 2021 sediment quality dataset.

3.5 Results

Results of the sediment quality data collected at Propeller Lake in 2021 are summarized in Appendix E. The sediments were generally silty-sandy in texture. Metal concentrations were compared to the Canadian sediment quality guidelines developed by the CCME (interim sediment quality guidelines [ISQGs] and probable effect levels [PELs]; CCME 1999, 2002). The ISQG is the concentration of a substance below which an adverse effect on aquatic life is unlikely, and the PEL is the concentration of a substance above which adverse effects are expected to occur frequently, but not always. The observation of a sediment concentration above the PEL value for a given parameter should not be interpreted as an indication that actual ecological harm has occurred or will occur, but rather that this is a possibility. Sediment samples collected at the BRP-36 area had concentrations of arsenic, cadmium, copper, and zinc higher than the ISQGs at one or all stations and concentrations of arsenic higher than the PEL at two stations (Appendix E; Table E-1). None of the sediment results measured at the BRP-35 area exceeded the sediment CCME guidelines in 2021.

4.0 BENTHIC INVERTEBRATES

4.1 Introduction

Benthic invertebrate community sampling was undertaken in two areas in Propeller Lake in 2021 during the August field program to provide baseline data to support the benthic invertebrate community component of the AEMP.

² PSA-3 Sieve-SK/PSA-pipet+Gravel-SK [sieve+pipette] as recommended by the *Metal Mining Technical Guidance for Environmental Effects Monitoring* (Environment Canada 2012).

³ Total phosphorus was analyzed using the metals scan method: Collision/Reaction Cell - Inductively Coupled Plasma Mass Spectrometry

4.2 Methods

4.2.1 Field

Benthic invertebrate samples were collected from Propeller Lake at five stations in the north basin and five stations in the south basin. Benthic sampling stations were co-located with the water and sediment quality stations (Table 4-2; Figure 2-1).

Table 4-2: Propeller Lake Benthic Invertebrate Community Monitoring Stations, 2021

Area	AEMP Station ID	UTM Coordinates (NAD 83, 13N)		Water Depth (m)
		Easting	Northing	
Propeller Lake (PLSB; near inflow)	BRP-35-1	435261	7272824	3.3
	BRP-35-2	435269	7272857	4.0
	BRP-35-3	435338	7272909	5.0
	BRP-35-4	435340	7272865	4.7
	BRP-35-5	435288	7272889	4.8
Propeller Lake (PLNB; near outflow)	BRP-36-1	434643	7279131	4.6
	BRP-36-2	434753	7278767	3.8
	BRP-36-3	434821	7278579	4.3
	BRP-36-4	434140	7278584	2.9
	BRP-36-5	434615	7279207	4.3

Notes: PLSB = Propeller Lake South Basin; PLNB = Propeller Lake North Basin.

Benthic invertebrate and sediment sampling methods were similar, with some exceptions. Samples were collected using an Ekman grab with a bottom sampling area of 0.0232 m². Contents of the entire grab were placed in a mesh bag or screen bucket of 500 µm mesh. The sample was sieved through the 500 µm screen, and the remaining material was collected in a sample container and preserved with 10% buffered formalin. Three grabs were taken at each station and composited to make a single sample at four stations within each sampling area. At one station in each sampling area, the grabs were sieved and preserved separately. To collect a representative sample of the benthic invertebrate community, each grab needed to be at least 60% full and have an intact surface area.

Other supporting information was collected, including sample location (as UTM coordinates), water depth, weather condition, habitat description (e.g., presence of aquatic vegetation), bottom sediment characteristics (texture, colour, odour, estimated particle size), type of sampler used, sampler fullness, any additional relevant observations, and field photographs (Section 3.0). Co-located sediment samples were analyzed for particle size and total organic carbon, as part of the full analytical suite for sediment quality. These supporting parameters provide valuable context for the interpretation of benthic invertebrate community data.

4.2.2 Laboratory

Benthic invertebrate samples were shipped to Biologica Environmental Services Ltd. (Biologica) in Victoria, BC, for enumeration and taxonomic identification. Each sample was processed separately and was divided into coarse and fine fractions. Coarse fractions were sorted completely; if necessary due to large amounts of detritus or animals, fine fractions were subsampled independently. Subsamples were selected using a Caton tray. Material was spread evenly in a gridded tray, and quadrats were randomly selected and sorted until the target of 300 organisms was reached.

Invertebrates were identified to the lowest practical taxonomic level (LTL) using current literature and nomenclature. This was typically genus-level, but was higher for some incidental taxa, such as nematodes and flatworms, which were identified to phylum, and ostracods, which were identified to class. Organisms that could not be identified to the desired taxonomic level (e.g., immature or damaged specimens) were reported as a separate category at the lowest level of taxonomic resolution possible. This was typically family level (FL), which is the level recommended by the *Metal Mining Technical Guidance for Environmental Effects Monitoring* (Environment Canada 2012).

The most common taxa were distinguishable based on gross morphology and required only a few slide mounts for verification. Organisms that required detailed microscopic examination for identification were mounted on microscope slides using an appropriate medium. All rare or less commonly occurring taxa were mounted on slides for identification. A reference collection consisting of representative specimens from each taxon was prepared. The reference collection was archived by the taxonomist for possible comparison with benthic invertebrate community data from future studies and for quality control of future taxonomic identifications.

4.3 Quality Assurance/Quality Control

Invertebrate sample sorting efficiency was verified by the taxonomist by spot checks (defined by the taxonomist as QC) and re-sorting (defined by the taxonomist as QA). Spot checks were conducted on 9 of the 14 samples, in which 25% to 100% of the post-sorted debris was re-sorted. A QA resort was completed on 1 of the 14 samples where a random sample was re-sorted in its entirety.

In both cases, sorting efficiency was calculated as follows:

$$\text{Sorting Efficiency} = \frac{\text{Total count} - \text{Organisms recovered in spot check or resort}}{\text{Total count}} \times 100\%$$

The data quality objective was a minimum recovery of 95% of the total organisms for both the spot check and the resort. Spot check samples that failed to meet this criterion were re-sorted and additional checks made as necessary. In addition, if an entire taxonomic group was omitted by the sorter, then all samples were to be re-sorted by a different individual.

Raw invertebrate abundance data were visually screened to identify potentially erroneous values and to assess whether identified taxa were appropriate for the waterbody sampled, to identify potential errors by the taxonomist. If any concerns were identified, the taxonomist was contacted for clarification.

Within each sampling area (i.e., PLNB and PLSB), one station was selected for an assessment of within-station variability. At that station, each of the three grab samples collected were processed separately by the taxonomist (rather than compositing the three grab samples as per the other four stations). These data are reported in this data report; however, the assessment of within station variability will be included in a future AEMP interpretive report and the results will inform when variability has been sufficiently established such that this additional step can be discontinued.

Laboratory spot checks and resort results did not indicate any issues with the dataset for the purpose of AEMP reporting. Average sorting efficiency was 98.8% for spot checks, and 97.3% for the whole re-sort, which met the target of greater than or equal to 95% (Appendix F). Visual assessment of the community data did not reveal any obvious data quality issues.

4.4 Results

Raw benthic invertebrate community data are compiled in Appendix F, Table F-1. Dominant taxa included genera of the families Chironomidae (particularly the tribes of Chironomini and Tanytarsini) and Pisidiidae. Total density was generally higher in the samples collected from the north basin. Further analysis of these baseline data will be completed as part of a future AEMP report, as needed to support the interpretation of AEMP results.

5.0 FISH HEALTH AND TISSUE CHEMISTRY – LAKE TROUT

5.1 Introduction

The objective of the 2021 non-lethal large-bodied sampling program was to collect baseline fish health and fish tissue chemistry data from Goose Lake and Propeller Lake to support future monitoring under the Back River Project AEMP. To meet this objective, 100 Lake Trout (*Salvelinus namaycush*) were targeted from each of three lakes, the proposed exposure areas (i.e., Goose Lake and Propeller Lake) and one reference area (i.e., Reference Lake B), with the intention to collect data for large-bodied fish health and fish tissue chemistry to quantify normal ranges for fish health endpoints and provide a baseline dataset to monitor for Project-related effects.

5.2 Methods

5.2.1 Field

5.2.1.1 Sampling Location and Effort

Lake Trout were collected from Goose Lake and Propeller Lake (i.e., the proposed exposure areas) in 2021. Reference Lake B was not sampled during the 2021 field program due to inclement weather and limited time available in the field (i.e., available effort was allocated to the exposure lakes). Field planning and sample collection in 2021 followed the procedures detailed in the AEMP study design (Sabina 2021) and commitments made to ECCC during the Water Licence Application process regarding the 2021 sampling program.

The 2021 baseline Lake Trout fish health program was conducted from 22 to 31 July 2021 to coincide with the optimal timing for collecting Lake Trout, as they are most active during the spring months. Target sample sizes for the non-lethal large-bodied program were 100 Lake Trout from each of the study lakes.

5.2.1.2 Fish Collection Methods

Angling and gill nets were used to capture Lake Trout from the two study lakes (i.e., Goose Lake and Propeller Lake). Sampling locations for Goose Lake and Propeller Lake are presented in Figure 5-1 and Figure 5-2, respectively. Angling was completed from a boat⁴ by two fishers using two rods. Angling methods included jigging (without bait), and casting or trolling using spoon lures. Sinking-panel gill nets were set for a maximum of two hours to reduce incident mortality. Each gill net was 100 m long, 1 m tall and comprised on two 50 m panels, one with 7.6 centimetre (cm) and the other 11.4 cm stretch mesh.

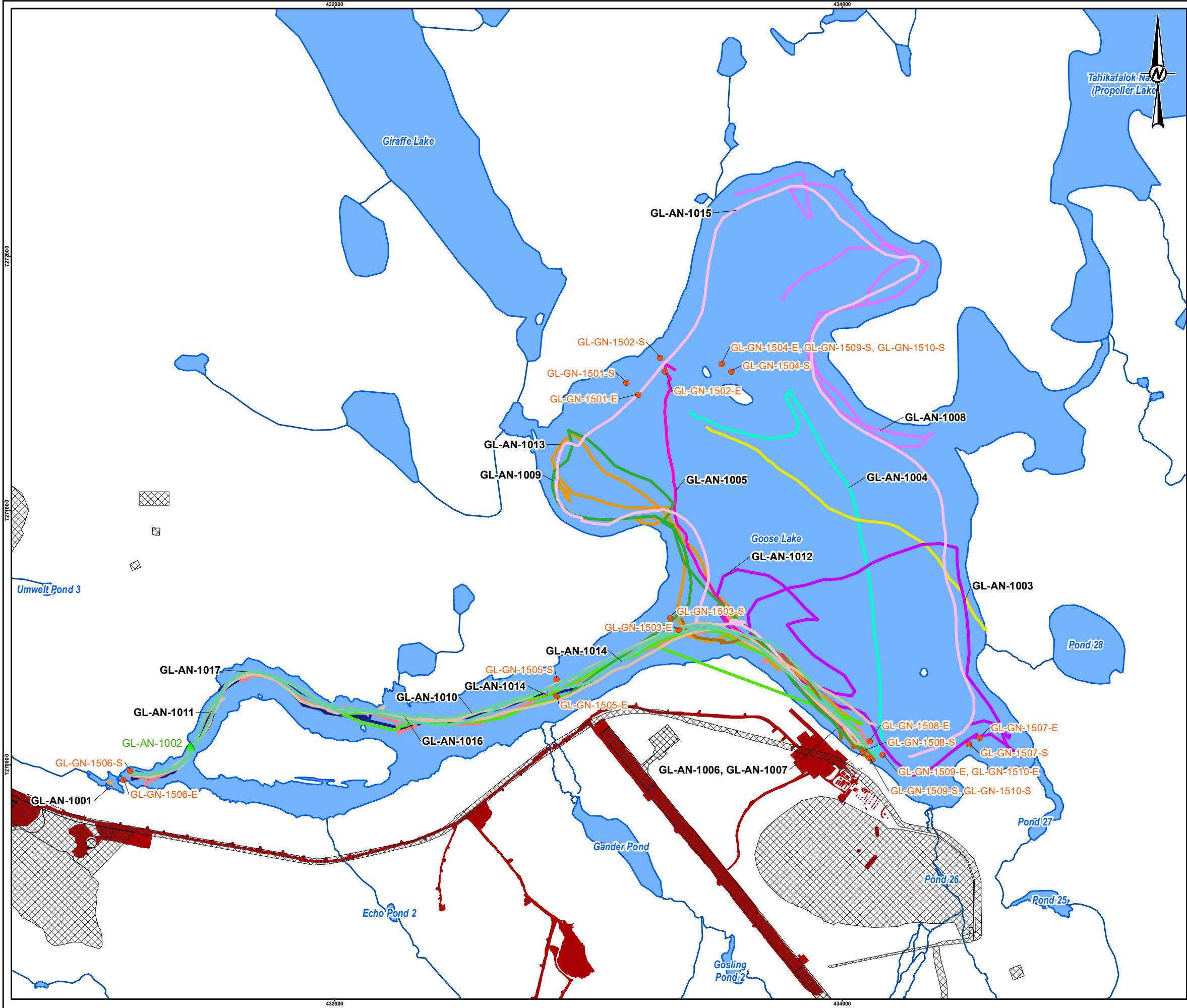
The following information was recorded for each sampling effort:

- sampling area (i.e., lake name)
- effort number (i.e., a unique identification number assigned to each fishing effort)

⁴ During inclement weather when a boat could not be safely used, fishing was conducted from shore.

- start and end UTM coordinates
- gear type (i.e., angling or gill nets)
- sampling effort details (e.g., set duration [for gill nets] or angling hours) and gear-specific parameters (e.g., water depth of gill nets, gill net dimensions, number of anglers)
- start and end date and time
- depth of area sampled
- weather conditions (i.e., air temperature, wind speed and direction)
- general habitat description including major substrate type (e.g., silt, sand, gravel, cobble)
- photographs of representative habitat types and fish species captured
- number and species of target and non-target fish captured or observed

In situ water quality field parameters (i.e., dissolved oxygen, water temperature, pH, and conductivity) were measured at each sampling area once per day.



LEGEND

— WATERCOURSE

■ WATERBODY

⊗ UNDERGROUND PORTAL

▨ PROPOSED GOOSE INFRASTRUCTURE FOOTPRINT

■ 2020 AS-BUILT FOOTPRINT

GILL NET EFFORT

● GL-GN-1501-S, GL-GN-1501-E, GL-GN-1502-S, GL-GN-1502-E, GL-GN-1503-S, GL-GN-1503-E, GL-GN-1504-E, GL-GN-1504-S, GL-GN-1505-S, GL-GN-1505-E, GL-GN-1506-S, GL-GN-1506-E, GL-GN-1507-S, GL-GN-1507-E, GL-GN-1508-S, GL-GN-1508-E, GL-GN-1509-S, GL-GN-1509-E, GL-GN-1510-S, GL-GN-1510-E

ANGLING EFFORT

— GL-AN-1001

— GL-AN-1003

— GL-AN-1004

— GL-AN-1005

— GL-AN-1006, GL-AN-1007

— GL-AN-1008

— GL-AN-1009

— GL-AN-1010

— GL-AN-1011

— GL-AN-1012

— GL-AN-1013

— GL-AN-1014

— GL-AN-1015

— GL-AN-1016

— GL-AN-1017

▲ GL-AN-1002

0 500 1,000

1:15,000 METRES

REFERENCE(S)

FOOTPRINT OBTAINED FROM CLIENT. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.

PROJECTION: UTM ZONE 13N DATUM: NAD 83

YYYY-MM-DD	2022-06-02
DESIGNED	JD
PREPARED	LB
REVIEWED	CA
APPROVED	RS

CLIENT

CONSULTANT

Sabina
GOOSE LAKE DIVISION

GOLDER
MEMBER OF WSP

PROJECT

SABINA BACK RIVER PROJECT

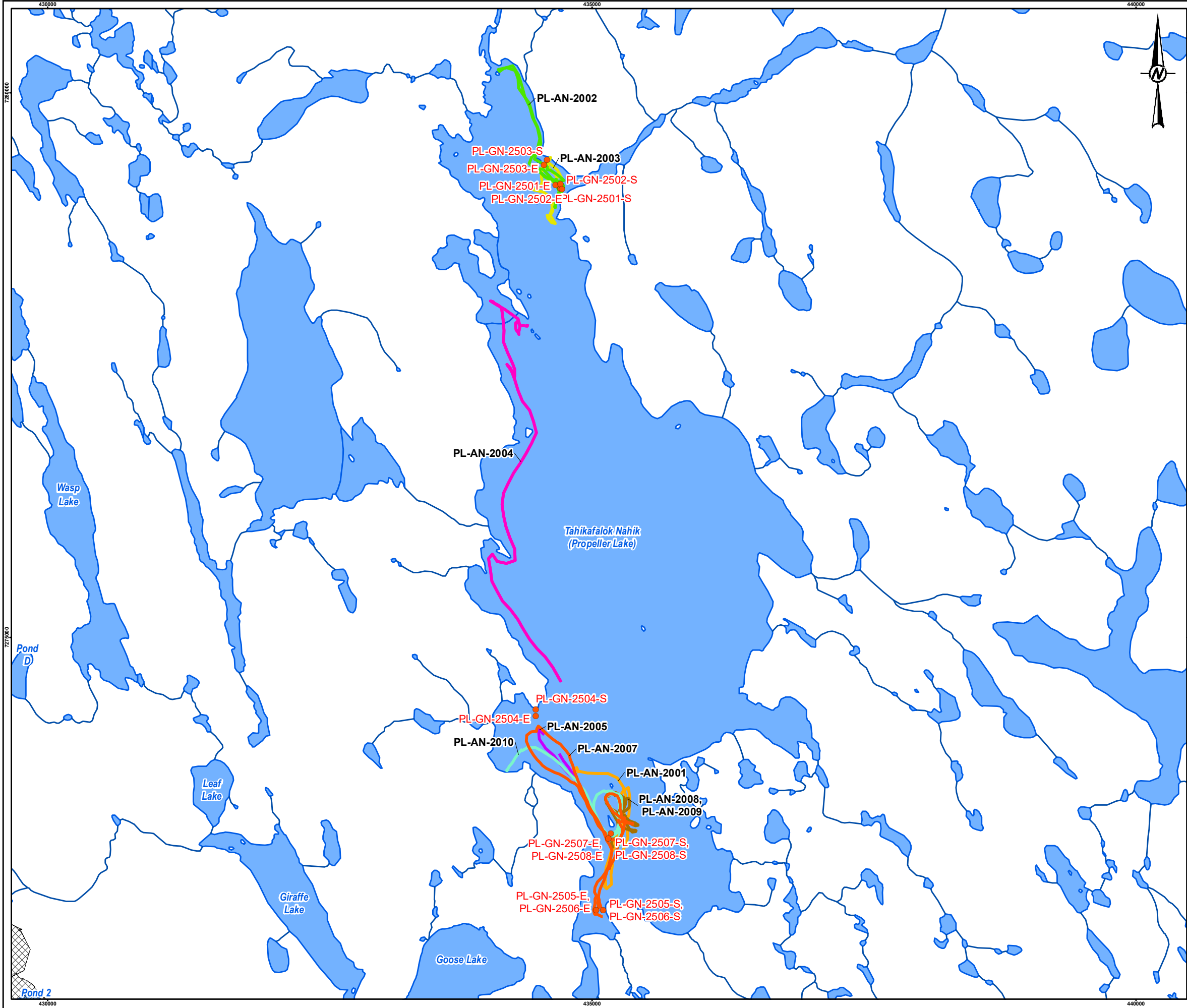
TITLE

GOOSE LAKE FISHING EFFORT, JULY 2021

PROJECT NO.	FIGURE	REV.
20412211	5-1	0

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



LEGEND

— WATERCOURSE

■ WATERBODY

● GILL NET EFFORT

ANGLING EFFORT

— PL-AN-2001

— PL-AN-2002

— PL-AN-2003

— PL-AN-2004

— PL-AN-2005

— PL-AN-2007

— PL-AN-2008, PL-AN-2009

— PL-AN-2010


0 500 1,000

1:35,000 METRES

REFERENCE(S)

FOOTPRINT OBTAINED FROM CLIENT. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.

PROJECTION: UTM ZONE 13N DATUM: NAD 83

YYYY-MM-DD	2022-06-02	CLIENT
DESIGNED	JD	 GOLDER ASSOCIATES
PREPARED	LB	
REVIEWED	CA	
APPROVED	RS	
PROJECT		CONSULTANT
SABINA BACK RIVER PROJECT		 MEMBER OF WSP
TITLE		
PROPELLER LAKE FISHING EFFORT, JULY 2021		
PROJECT NO.	FIGURE	REV.
20412211	5-2	0

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

5.2.1.3 Population Survey

For the non-lethal large-bodied fish survey, 100 Lake Trout were targeted from Goose Lake and Propeller Lake. Captured Lake Trout were held in a fish cradle along the side of the boat until non-lethal measurements were taken, a Floy tag was implanted, and then released alive near the point of capture. Non-target species captured were weighed, measured, and released at the location of capture. Each fish processed was assigned a unique Fish Identification Number (FIN), which was included on all data forms and labels associated with that fish. Any features of a fish that did not appear normal (i.e., wounds, tumours, parasites, fin fraying, gill parasites, or lesions) were reported in detail. Where possible, information on sex, life stage, and overall health were recorded in the field. Photographs were taken of any fish with abnormal external features. Following the external examination, the biological variables and data collected from Lake Trout were:

- fork length (± 0.1 mm)
- total length (± 0.1 mm)
- total body weight (± 1 g)
- external abnormalities (e.g., tumours, surface lesions)
- parasite status (if observed)
- life stage (i.e., adult, juvenile, young-of-the-year)
- sex (if possible)
- Floy tag identification number

Pelvic fin rays and scales were collected for aging analysis from each sampled Lake Trout. Three pelvic fin rays were collected using a pair of wire cutters and scales were collected from the lateral side of the fish. Fin rays and scales were gently patted dry, placed into small envelopes, and labelled with the FIN. Non-lethal tissue biopsy plugs were collected from the dorsal muscle of eight adult Lake Trout of varying sizes from each lake for tissue chemistry analysis. From each fish, two muscle tissue biopsy plugs were collected from the right dorsal side, above the lateral line, with a 4 mm biopsy punch. To avoid cross contamination, a new biopsy punch was used for each fish. The two plugs were placed into a 2 mL cryogenic vial, labelled with sampling information and the sampling date. The wounds were sealed with Vetbond to aid in wound healing and reduce the potential for secondary infection. All Lake Trout that were greater than 150 mm in length were Floy tagged to identify recaptures in future programs. If no tag was found upon the initial inspection, a unique numbered Floy tag was implanted in the dorsal musculature near the base of the dorsal fin, with the tag angled posteriorly to reduce drag while swimming.

5.2.2 Laboratory

Lake Trout tissue samples collected during the non-lethal survey were submitted for laboratory analyses, as follows:

- Pelvic fin rays and scales collected from Lake Trout were submitted to North/South Consultants Inc. (Winnipeg, Manitoba) for fish ageing determination. Ageing structures from individual fish were mounted on slides to estimate age based on the number of annuli observed under a dissection microscope. To confirm that data quality objectives (DQOs) were met, 10% of structures were independently verified by a second biologist.

- Muscle tissue biopsy plugs were analyzed by Flett Research Ltd. (Flett; Winnipeg, MB), a CALA- accredited laboratory, for total mercury by Cold Vapour Atomic Fluorescence Spectroscopy (CVAFS). The minimum laboratory sample volume required for analysis by CVAFS was 10 mg of dry sample. The respective achieved detection limit (DL) for total mercury was 17 nanograms per gram dry weight (ng/g dw).

5.2.3 Data Analysis

5.2.3.1 Catch-Per-Unit-Effort

Catch-per-unit-effort (CPUE) provides an estimate of relative abundance by standardizing catch data according to fishing effort. The CPUE was calculated for each species captured during the fish health program and was summarized by both area and fishing method to provide a measure of relative abundance for each species among the sampling areas. Additionally, CPUE for Lake Trout was used to estimate the amount of effort required to collect the target number of each species. The CPUE for angling was calculated as the number of fish captured per angler hour. The CPUE for gill netting was calculated as the number of fish captured per hour.

5.2.3.2 Comparison to Guidelines

Mercury concentrations in Lake Trout muscle biopsy samples were compared to Health Canada guidelines for commercial sale of 500 ng/g ww (Health Canada 2015).

5.3 Quality Assurance/Quality Control

Quality Assurance and Quality Control (QA/QC) procedures were applied to field sampling, laboratory analyses, data entry, data analyses, and report preparation. Specific work instructions outlining each field task in detail were provided to field personnel and a pre-field meeting was held to review the instructions for the field data collection, and to confirm that all field personnel were familiar with the expectations of the sampling plan. Field equipment were calibrated throughout the field program following manufacturer specifications and all samples were collected by experienced personnel. Detailed field notes were recorded in waterproof field books and on pre-printed waterproof field data sheets in either pencil or indelible ink. Data sheets and sample labels were checked at the end of each field day for completeness and accuracy and were scanned into electronic copies at the completion of the field program. Samples were labelled, preserved, and shipped according to standard protocols. Chain-of-custody (COC) forms were used to track shipment and receipt of samples. Upon entry of the field data into electronic databases, the data were checked against field datasheets by another, independent person to verify the accuracy of data entry and to check for transcription errors.

Data screening was performed prior to completing statistical analyses. Data checks for outliers were performed as follows:

- Fish health data were plotted to visually identify potential data entry errors or unusual data. Plots included total length versus total weight, and fork length versus total length.
- Outliers, as detected by the qualitative screening, were removed from the dataset only if they were determined to be the result of human error (i.e., sampling or measurement error). All outliers were checked with field data sheets and field photos as part of the screening process prior to removal from the dataset.

For mercury analysis, laboratory QA/QC included method blanks, calibration standards, matrix spikes, certified reference materials, ongoing precision & recovery monitoring, and laboratory duplicates. The QC report of the laboratory certificate of analysis was reviewed upon receipt to confirm that the appropriate QA/QC information had been reported and that the laboratory DQOs had been met.

5.4 Results

During the 2021 sampling program, inclement weather (i.e., winds of 60 to 80 km/h and low ceilings) reduced access to the study lakes because it was unsafe to travel by helicopter or be on the water in a boat. During days where it was unsafe to collect fish from a boat or travel by helicopter, fish were captured from the shore of Goose Lake, which was accessible by truck. This resulted in limited sampling effort on all lakes, and a decision was made to prioritize the collection of baseline data from lakes with the potential to be impacted by the Mine (i.e., Goose Lake and Propeller Lake). Therefore, Reference Lake B was not sampled during the 2021 large-bodied fish health program.

5.4.1 Catch Data Summary

A total of 69 fishes consisting of three species were captured during the 2021 large-bodied fish health program. Total catch numbers were 38 from Goose Lake and 31 from Propeller Lake (Table 5-1). Fish capture data are presented in Appendix G.

Captured species included:

- Arctic Grayling (*Thymallus arcticus*)
- Lake Trout (*Salvelinus namaycush*)
- Round Whitefish (*Prosopium cylindraceum*)

Angling was the most effective method for capturing Lake Trout in Goose Lake, whereas gill netting was slightly more effective than angling in Propeller Lake (Table 5-2). Of the two lakes sampled, Lake Trout CPUE for both angling and gill netting was greatest in Propeller Lake.

Table 5-1: Fish Species Captured at Goose Lake and Propeller Lake, 2021

Species	Goose Lake	Propeller Lake	Total
Arctic Grayling	1	0	1
Lake Trout	32	29	61
Round Whitefish	5	2	7
Total	38	31	69

Table 5-2: Catch-Per-Unit Effort for Fish Captured from Goose Lake and Propeller Lake, 2021

Area	Sampling Method	Sampling Effort		ARGR	LKTR	RNWH	Total
Goose Lake	Angling	42.8 h (angler-h)	Abundance	1	23	-	24
			CPUE (#fish/angler-h)	0.023	0.538	-	0.561
	Gill Netting	19.7 h	Abundance	-	9	11	20
			CPUE (#fish/h)	-	0.457	0.559	1.02
Propeller Lake	Angling	17.9 h (angler-h)	Abundance	-	13	-	13
			CPUE (#fish/angler-h)	-	0.725	-	0.725
	Gill Netting	12.2 h	Abundance	-	16	2	18
			CPUE (#fish/h)	-	1.31	0.164	1.47

- = not captured; ARGGR = Arctic Grayling; LKTR = Lake Trout; RNWH = Round Whitefish; CPUE = catch-per-unit-effort.

5.4.2 Lake Trout Population Survey

A total of 61 Lake Trout were captured during the 2021 large-bodied fish health program: 32 from Goose Lake and 29 from Propeller Lake (Table 5-1). Target sample sizes of 100 Lake Trout were not achieved in Goose Lake or Propeller Lake due to low catch rates, access limitations due to inclement weather conditions (i.e., winds of 60 to 80 km/h and low ceilings), and limited sampling effort (i.e., one fishing crew for three to five days per lake). Fish health data, fishing effort data, and environmental supporting data for the fish health survey are presented in Appendix G.

5.4.3 Lake Trout Fish Tissue Results

A total of 23 muscle biopsy samples were analyzed for mercury from 10 Lake Trout from Goose Lake and 13 Lake Trout from Propeller Lake (Table 5-3). The laboratory reported that the samples had thawed during transit but remained in good condition with no obvious signs of decay. The QC analyses met the laboratory DQOs; therefore, the 2021 data quality was considered acceptable. Total mercury concentrations in Lake Trout muscle tissues were similar between the two waterbodies and ranged from 237 to 929 ng/g ww in Goose Lake and 252 to 914 ng/g ww in Propeller Lake (Table 5-3). Mercury concentrations exceeded Health Canada guidelines for commercial sale (i.e., 500 ng/g, Health Canada 2015) in 70% of fish sampled in both Goose Lake and Propeller Lake. The laboratory results are presented in Appendix G, Table G-9.

Table 5-3: Mercury Concentrations in Lake Trout Muscle Biopsy Samples from Goose Lake and Propeller Lake, 2021

Lake	Sample ID	Total Mercury (ng/g dw)	Total Mercury (ng/g ww)
Goose Lake	SB21FH-GL-LKTR-1001	2,430	519
	SB21FH-GL-LKTR-1002	2,580	536
	SB21FH-GL-LKTR-1003 ^(a)	3,120	625
	SB21FH-GL-LKTR-1005	4,630	914
	SB21FH-GL-LKTR-1007	2,110	435
	SB21FH-GL-LKTR-1009	2,710	528
	SB21FH-GL-LKTR-1011	3,360	690
	SB21FH-GL-LKTR-1014	4,310	929
	SB21FH-GL-LKTR-1021	2,050	439
	SB21FH-GL-LKTR-1023	1,110	237
Propeller Lake	SB21FH-PL-LKTR-2001	2,350	496
	SB21FH-PL-LKTR-2002	3,300	697
	SB21FH-PL-LKTR-2003	1,880	377
	SB21FH-PL-LKTR-2004	3,010	601
	SB21FH-PL-LKTR-2005	1,480	326
	SB21FH-PL-LKTR-2006	3,360	684
	SB21FH-PL-LKTR-2007	1,440	302
	SB21FH-PL-LKTR-2008	4,570	914
	SB21FH-PL-LKTR-2009	3,630	794
	SB21FH-PL-LKTR-2012	2,530	503
	SB21FH-PL-LKTR-2013	1,770	354
	SB21FH-PL-LKTR-2014 ^(a)	1,190	256
	SB21FH-PL-LKTR-2015	2,810	593

ng/g dw = nanograms per gram dry weight; ng/g ww = nanograms per gram wet weight.

(a) Average of the total mercury concentration was calculated from the two duplicate samples.

6.0 FISH HEALTH AND TISSUE CHEMISTRY – SLIMY SCULPIN

6.1 Introduction

The objective of the 2021 small-bodied sampling program was to collect baseline fish health and fish tissue chemistry data from Propeller Lake to support future monitoring under the Back River Project AEMP. To obtain data to quantify normal ranges for fish health endpoints, the small-bodied sampling program targeted 20 male and 20 female Slimy Sculpin (*Cottus cognatus*) each from two areas, the North Basin and South Basin, within Propeller Lake.

6.2 Methods

6.2.1 Field

6.2.1.1 Sampling Location and Effort

Slimy Sculpin were collected from the North Basin and South Basin of Propeller Lake in 2021 following the procedures detailed in the AEMP study design (Sabina 2021) and commitments made to ECCC during the Water Licence Application process regarding the 2021 sampling program.

Slimy Sculpin spawn under ice in the spring, and initiate gonad development for the subsequent year's spawning in the late summer and fall of the preceding year. Therefore, the 2021 baseline Slimy Sculpin fish health program was conducted from 12 to 21 August 2021, to target the fish as late during the period of gonadal development as possible, per the *Metal Mining Technical Guidance for Environmental Effects Monitoring* (Environment Canada 2012). Target sample sizes for the 2021 lethal survey were 20 adult male and 20 adult female Slimy Sculpin from each the two sampling areas (i.e., 80 fish total from Propeller Lake). Non-lethal data were collected from additional Slimy Sculpin captured as part of the population survey.

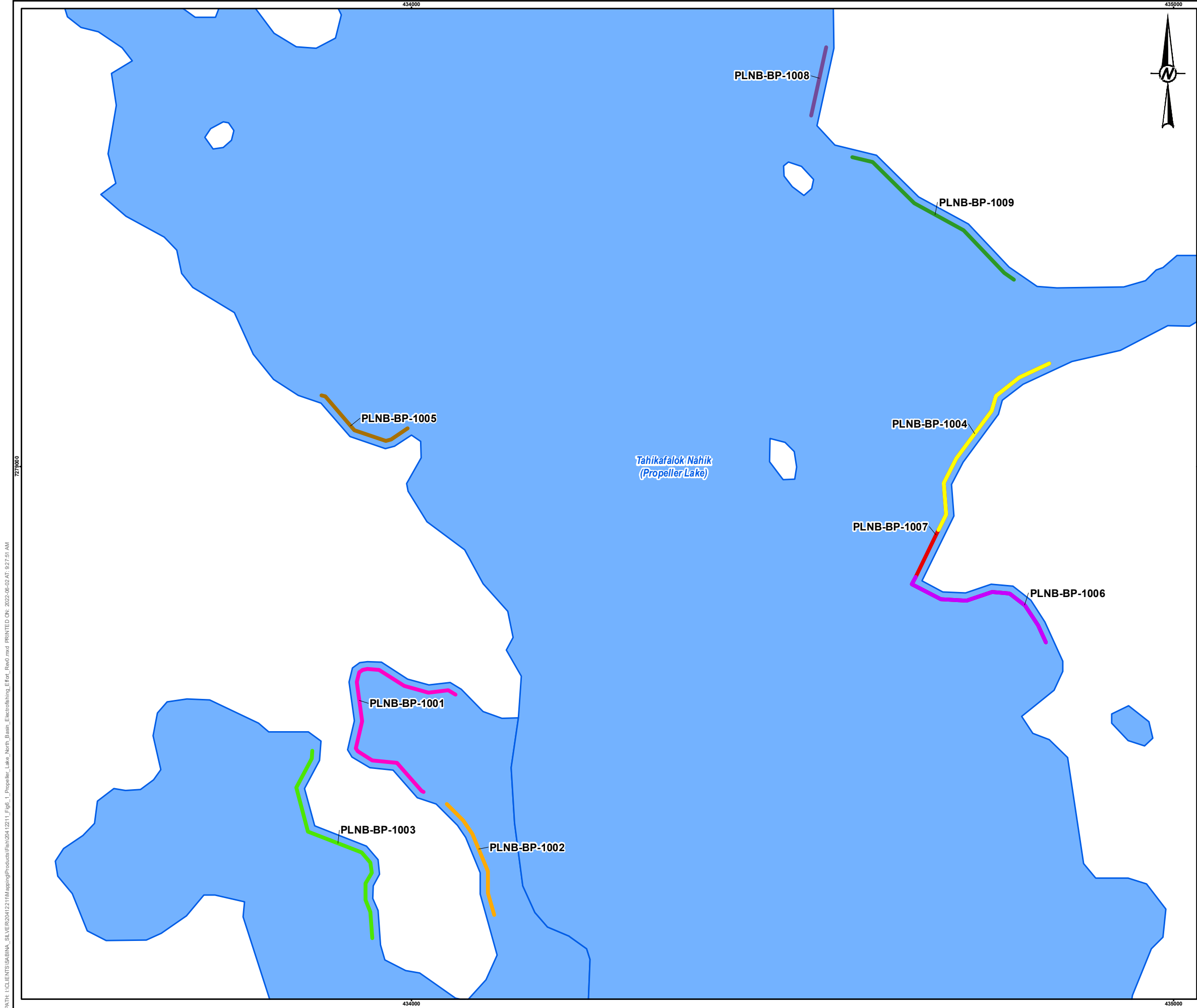
6.2.1.2 Fish Collection Methods

Slimy Sculpin were captured by backpack electrofishing along the shoreline in each area of Propeller Lake. Sampling efforts are presented for Propeller Lake North Basin in Figure 6-1, and Propeller Lake South Basin in Figure 6-2. Electrofishing was performed using a Smith Root Inc. backpack electrofisher with settings of 800 to 900 volts (V), frequency 60 hertz (Hz), and pulse width of 6 milliseconds.

The following information was recorded for each sampling effort:

- sampling area
- UTM coordinates
- effort number (i.e., a unique identification number assigned to each fishing effort)
- sampling effort details (e.g., seconds of electrofishing) and gear-specific parameters (e.g., electrofisher settings)
- start and end date and time
- weather conditions (i.e., air temperature, wind speed and direction)
- general habitat description including major substrate type (e.g., silt, sand, gravel, cobble)
- photographs of representative habitat types and fish species captured
- number and species of target and non-target fish captured or observed

In situ water quality field parameters (i.e., dissolved oxygen, water temperature, pH, and conductivity) were measured at each sampling area once per day.



LEGEND

WATERBODY

ELECTROFISHING EFFORT

PLN-BP-1001

PLN-BP-1002

PLN-BP-1003

PLN-BP-1004

PLN-BP-1005

PLN-BP-1006

PLN-BP-1007

PLN-BP-1008

PLN-BP-1009

0150300

1:5,000METRES

REFERENCE(S)

FOOTPRINT OBTAINED FROM CLIENT. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 13N DATUM: NAD 83

YYYY-MM-DD	2022-06-02	CLIENT
DESIGNED	JD	<div><div>Sabina</div><div>GOLDER ASSOCIATES</div></div> <div><div>GOLDER</div><div>MEMBER OF WSP</div></div>
PREPARED	LB	
REVIEWED	CA	
APPROVED	RS	

PROJECT
SABINA BACK RIVER PROJECT

TITLE
PROPELLER LAKE NORTH BASIN ELECTROFISHING EFFORT, AUGUST 2021

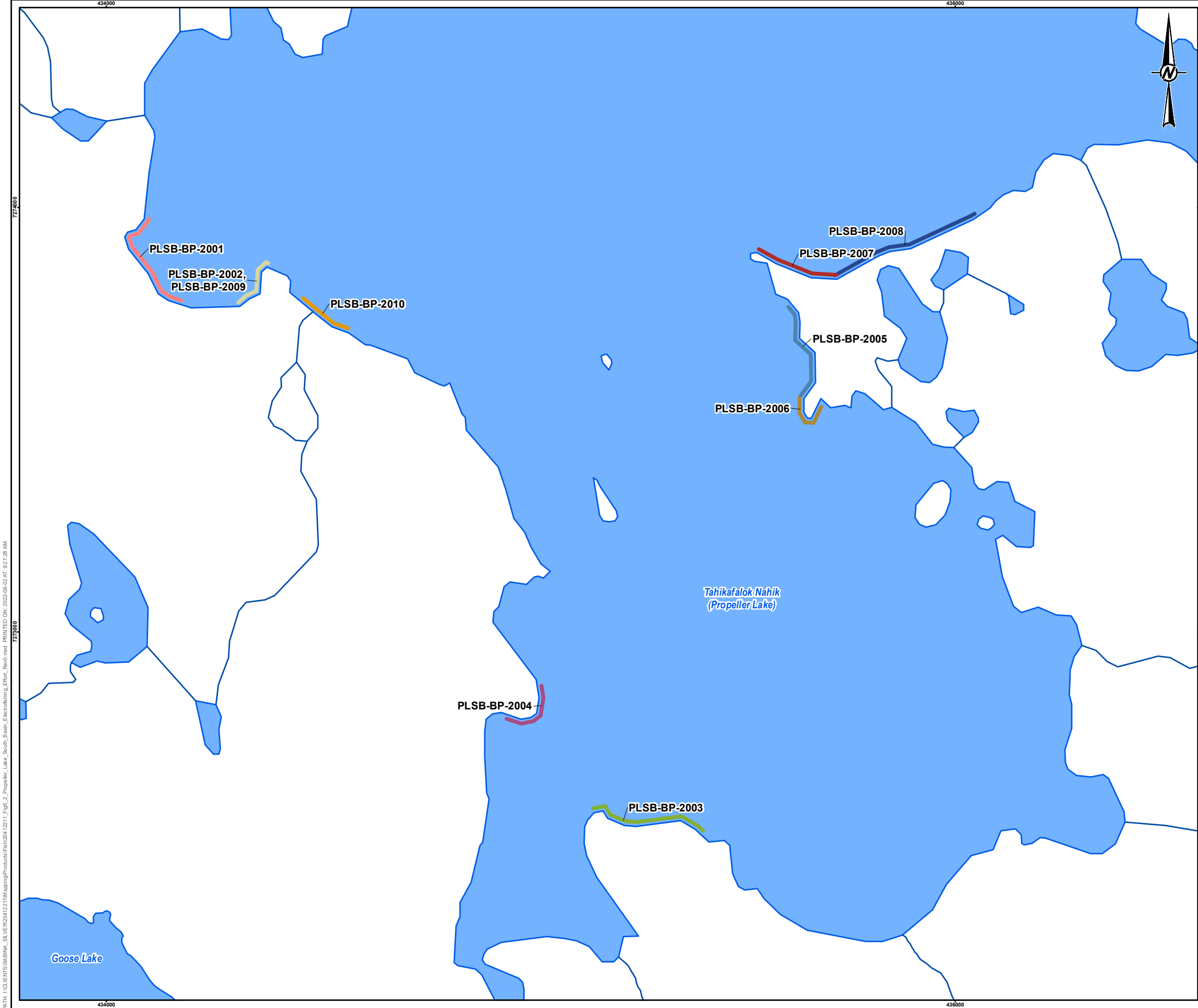
PROJECT NO.
20412211

FIGURE
6-1

REV.
0

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



LEGEND

— WATERCOURSE

■ WATERBODY

PLSB-BP-2001

PLSB-BP-2002, PLSB-BP-2009

PLSB-BP-2003

PLSB-BP-2004

PLSB-BP-2005

PLSB-BP-2006

PLSB-BP-2007

PLSB-BP-2008

PLSB-BP-2010

REFERENCE(S)

FOOTPRINT OBTAINED FROM CLIENT. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 13N DATUM: NAD 83

YYYY-MM-DD	2022-06-02
DESIGNED	JD
PREPARED	LB
REVIEWED	CA
APPROVED	RS

CLIENT

Sabina

GOLDER ASSOCIATES

CONSULTANT

GOLDER

MEMBER OF WSP

PROJECT

SABINA BACK RIVER PROJECT

TITLE

PROPELLER LAKE SOUTH BASIN ELECTROFISHING EFFORT, AUGUST 2021

PROJECT NO.	FIGURE	REV.
20412211	6-2	0

0 150 300

1:9,000 METRES

0 25mm

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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6.2.1.3 Population Survey

All Slimy Sculpin captured during the 2021 fish health program were included in the population survey, which comprised all lethally and non-lethally sampled fish, to best represent the population. Fish sampled using non-lethal methods underwent an external examination, and total length (± 1 mm) and body weight (± 0.01 g) were recorded. If evident, sex and life stage were documented. Any features that did not appear normal (i.e., wounds, tumours, external parasites, fin fraying, or lesions) were documented on a catch record field data sheet. External examinations were completed per the recommendations in the *Metal Mining Technical Guidance for Environmental Effects Monitoring* (Environmental Canada 2012). Fish that were sampled using non-lethal methods were released back into the source waterbody after processing.

6.2.1.4 Lethal Fish Health Survey

Slimy Sculpin captured during the 2021 fish health program to be processed lethally were placed in an aerated bucket and transported to an on-site laboratory at the Mine for further processing. Non-target species captured were weighed, measured and released back into the source waterbody after processing. Incidental mortalities (i.e., fish that did not survive fishing efforts and/or transport to the laboratory) were not included in the lethal fish health survey but were included in the population survey. Each fish to be assessed was assigned a unique FIN, which was included on all data forms and labels associated with that fish. Any features of a fish that did not appear normal (i.e., wounds, tumours, parasites, fin fraying, gill parasites, or lesions) were reported in detail. Where possible, information on maturity, sex, and overall health were recorded in the field; this information was verified during the internal examination. External examinations of the eyes, gills, pseudobranchs, thymus, skin, body form, fins, opercula, and hindgut were conducted on each Slimy Sculpin per the recommendations in Environment Canada (2012). Photographs were taken of any fish with abnormal external features.

Following the external examination, Slimy Sculpin were sacrificed by a sharp blow to the back of the head and cervical dislocation (i.e., cutting the spinal cord immediately behind the head), followed immediately by an internal examination. The biological variables or data collected from lethally sampled Slimy Sculpin included the following:

- external photograph
- standard length (± 0.1 mm)
- total length (± 0.1 mm)
- total body weight (± 0.001 g)
- physical abnormalities (e.g., tumours, lesions, parasites)
- internal pathology (e.g., liver and kidney colour, fat content)
- parasite presence, severity (i.e., low, moderate or severe), and weight (± 0.001 g)
- sex
- stomach contents (% fullness)
- liver weight (± 0.001 g)
- whole gonad weight (± 0.001 g)
- individual gonad lobe weight (adult females only; ± 0.001 g)

- photograph of whole gonad
- state of reproductive development (i.e., maturity categories as outlined in Table 6-1)
- carcass weight (i.e., body weight after removal of internal organs; ± 0.001 g)

Tissue samples were collected during the internal health assessment, labelled with the FIN, and preserved for subsequent specialized analyses, as follows:

- gonads of each adult fish were preserved for histology to determine reproductive stage
- one gonad lobe of each adult female fish was preserved for fecundity estimates
- adult fish carcasses (with head removed) were retained for tissue metals analysis
- otoliths were collected from each fish for ageing analyses

During the internal health assessment, internal condition (e.g., tissue colour) was observed and recorded immediately following the opening of the body cavity. Gonads were removed first and weighed immediately. Fish sex and sexual maturity were then recorded per the maturity stages outlined in Table 6-1. Individual gonad lobes were weighed separately for female fish. Photographs were taken of each gonad through the microscope ocular under 10 \times magnification. For adult males, the total gonad was placed in a labelled vial and preserved in 10% buffered formalin for histology. For adult females, one lobe was processed for histology and the second lobe was processed for fecundity; both lobes were placed in separate, appropriately labelled vials and preserved in 10% buffered formalin. Liver weight was recorded after the gonads had been processed. During excision of the liver, the gall bladder (if observed) and stomach were assessed and recorded for colour or condition, and fullness. Carcass weight was measured following removal of the internal organs, but prior to the removal of the ageing structures. Carcasses consisted of flesh and bone, but not viscera, liver or gonad tissues. Head-free carcasses of all adult male and female Slimy Sculpin from each area were frozen and submitted to the laboratory for tissue analysis. Sagittal otolith pairs were extracted for age determination according to the methods outlined by Mackay et al. (1990). Otoliths were gently patted dry with a gloved finger, placed into small envelopes, and labelled with the unique FIN.

Sample quality integrity was controlled by covering the work area and weigh scale with clean plastic wrap that was changed between dissections, and dissection tools were cleaned with phosphate-free soap and rinsed with 5% nitric acid and deionized ultra filtered water between fish to avoid cross-contamination. Slimy Sculpin carcasses with heads removed were weighed, placed in separate zip-lock bags, and labelled with sample information, including the unique sample ID (i.e., FIN) and the sampling date, prior to storage and shipment to the analytical laboratory.

Table 6-1: Gonad Maturity Stages Used During the 2021 Baseline Fish Health Program

Sex	Stage	Code	Macroscopic Features	Histological Features
Unknown sex		00	Unable to determine sex.	Unable to determine sex.
Female	Unknown stage	10	Unable to determine stage.	Unable to determine stage.
	Immature	11	Small ovaries, often clear, blood vessels indistinct.	Only oogonia and PG oocytes present. No atresia or muscle bundles. Thin ovarian wall and little space between oocytes.
	Early Stage Development	12	Enlarging ovaries, blood vessels more distinct. Granular in appearance.	PG, CA, Vtg1, and Vtg2 oocytes present. No evidence of POFs or Vtg3 oocytes. Some atresia can be present.
	Late Stage Development	13	Large ovaries filling the body cavity, prominent blood vessels. Individual oocytes visible.	Vtg3 oocytes present or POFs in batch spawners. Atresia of vitellogenic and/or hydrated oocytes may be present. Early stages of OM can be present.
	Ripe	14	Eggs released with gentle pressure on abdomen.	Oocytes undergoing late OM including GVM, GVBD and hydration, or ovulation.
	Spent	15	Deflated ovaries, blood vessels prominent.	Presence of oocyte atresia and, in some species, POFs. Few if any Vtg2 or Vtg3 oocytes.
	Reabsorbing	16	Small atretic oocytes throughout the ovaries, which are hard and white.	Advanced stage oocytes are atretic and no POFs are present.
	Resting	17	Small ovaries, blood vessels reduced but present.	Only oogonia and PG oocytes present. Muscle bundles, enlarged blood vessels, thick ovarian wall, atresia and degenerating POFs may be present.
Male	Unknown stage	20	Unable to determine stage.	Unable to determine stage.
	Immature	21	Small testes, often clear and threadlike.	Sg1 only; no lumen in lobules.
	Early Stage Development	22	Small testes, semi-translucent, but easily identified.	Spermatocysts evident along lobules. Sg2, Sc1, Sc2, St and Sz can be present in spermatocysts. Sz not present in lumen of lobules or in sperm ducts. GE continuous throughout.
	Late Stage Development	23	Testes large, firm and lobate. White to purplish in colour. Granular appearance.	Sz in lumen of lobules and/or sperm ducts. All stages of spermatogenesis (Sg2, Sc, St, Sz) can be present. Spermatocysts throughout the testis, active spermatogenesis. GE may be continuous or discontinuous.
	Ripe	24	Milt released with gentle pressure on abdomen.	Based on macroscopic observation only.
	Spent	25	Small and deflated testes. Blood vessels obvious. Violet-pink in colour.	Residual Sz present in lumen of lobules and in sperm ducts. Widely scattered spermatocysts near periphery containing Sc2, St, Sz. Little to no active spermatogenesis. Spermatogonial proliferation and regeneration of GE common in periphery of testes.
	Reabsorbing	26	Not typically observed in males.	Not typically observed in males.
	Resting	27	Small testes, often threadlike.	No spermatocysts. Lumen of lobule often nonexistent. Proliferation of spermatogonia throughout testes. GE continuous throughout. Small amount of residual Sz occasionally present in lumen of lobules and in sperm duct.

Note: Table modified from Brown-Peterson et al. (2011).

CA = cortical alveolar; GVBD = germinal vesicle breakdown, GVM = germinal vesicle migration, OM = oocyte maturation, PG = primary growth, POF = postovulatory follicle complex, Vtg1 = primary vitellogenic, Vtg2 = secondary vitellogenic, Vtg3 = tertiary vitellogenic, GE = germinal epithelium, Sc1 = primary spermatocyte, Sc2 = secondary spermatocyte, Sg1 = primary spermatogonia, Sg2 = secondary spermatogonia, St = spermatid, Sz = spermatozoa.

6.2.2 Laboratory

Slimy Sculpin tissue samples collected during the lethal survey were submitted for specialized laboratory analyses, as follows:

- Fish tissue chemistry samples were analyzed by ALS Burnaby, British Columbia location, a CALA-accredited laboratory, for total metals by ICP-MS and for mercury by CVAFS. Due to the small tissue volumes available for analysis, composite samples were created using fish of the same sex and similar size, with specific details provided in Appendix I, Table I-1. The parameters analyzed in 2021 and their respective DLs are provided in Appendix I, Table I-2. Fish tissue chemistry results are presented herein as wet weight, unless otherwise indicated.
- Gonad samples were submitted to Dr. David Groman at the University of Prince Edward Island, Atlantic Veterinary College (AVC) (Charlottetown, Prince Edward Island) for histology analysis to confirm sex and maturity of lethally sampled fish. Sex and maturity were determined based on histological assessments of gonad tissue with the aid of a light microscope, per the histological features listed in Table 6-1. Prior to interpretation, samples were prepared for histology by fixation, dehydration, clearing, embedding, sectioning, and staining. To verify that DQOs were met, histology results were cross-referenced with field designated sex and maturity stages, external and internal photographs, as well as other relevant biological data. Checks for confirmation of sex and gonad maturation categories were performed as follows:
 - Histology samples submitted to the AVC for sex and gonad maturation categorization were visually screened for outliers by plotting total length versus gonadosomatic index (GSI), and total weight versus gonad weight.
 - The separation of adults and juveniles was determined after consideration of field assessments, gonad weight, and histology results. If there were inconsistencies between field assessments and histology results, gonad histology results were weighed more heavily, with consideration of all available data to assign the final gonad maturity categories and sex determination.
- Fecundity samples were analyzed by qualified Golder technicians in Saskatoon, Saskatchewan. Fecundity (i.e., the number of ripening eggs contained in the ovaries) was estimated by counting the number of ripening eggs present in a subsample of Slimy Sculpin ovarian tissue. Average egg size was estimated by measuring the diameter of 30 eggs per fish with a micrometer under a dissecting microscope. To verify that DQOs were met, 10% of samples were independently verified by a second biologist. Fecundity was calculated using the following formula (weights in grams):

$$Fecundity = \left(\frac{\# \text{ of eggs in sample} \times \text{total gonad weight}}{\text{sample weight}} \right)$$

- Otoliths extracted from Slimy Sculpin were archived for future aging analysis, if that data became valuable (i.e., length-frequency distribution assigned-ages were deemed inadequate or insufficient for aging endpoints under the MDMER).

6.2.3 Data Analysis

6.2.3.1 Catch-Per-Unit-Effort

Catch-per-unit-effort (CPUE) provided an estimate of abundance by standardizing catch data to fishing effort. The CPUE was calculated for each species captured during the fish health program and was summarized by area to provide a measure of relative abundance for each species among the sampling areas. Additionally, CPUE documented the amount of effort expended to collect the required number of Slimy Sculpin. The CPUE for electrofishing was calculated as number of fish per 100 seconds effort.

6.2.3.2 Fish Health Indices

Fish health indices were calculated for lethally sampled Slimy Sculpin, using the following equations:

$$\text{condition factor } (K) = \left(\frac{\text{total body weight}}{\text{total length}^3} \right) \times 100,000$$

$$\text{gonadosomatic index } (GSI) = \left(\frac{\text{gonad weight}}{\text{total body weight}} \right) \times 100$$

$$\text{liver somatic index } (LSI) = \left(\frac{\text{liver weight}}{\text{total body weight}} \right) \times 100$$

Weight and total length measurements were reported in grams and millimetres, respectively.

6.3 Quality Assurance/Quality Control

QA/QC procedures were applied to field sampling, laboratory analyses, data entry, data analyses, and report preparation. Specific work instructions outlining each field task in detail were provided to field personnel and a pre-field meeting was held to review the instructions for the field data collection, and to confirm that field personnel were familiar with the expectations of the sampling plan. Field equipment were calibrated throughout the field program following manufacturer specifications and all samples were collected by experienced personnel. To avoid cross contamination, dissection surfaces were covered in plastic wrap which was changed between samples and dissection tools were cleaned with phosphate-free soap and rinsed with 5% nitric acid and deionized ultra-filtered water between fish. Detailed field notes were recorded in waterproof field notebooks and on pre-printed waterproof field data sheets in either pencil or indelible ink. Data sheets and sample labels were checked at the end of each field day for completeness and accuracy and were scanned into electronic databases at the completion of the field program. Samples were labelled, preserved, and shipped according to standard protocols. Chain-of-custody (COC) forms were used to track shipment and receipt of samples.

Data screening was performed prior to completing statistical analyses. Data checks for outliers and confirmation of sex and reproductive staging were performed as follows:

- Fish health data were plotted as box plots and scatterplots to visually examine data for potential data entry errors or unusual data. Plots included total length versus carcass weight, carcass weight versus gonad weight, standard length versus total length, total length versus total body weight, carcass weight versus liver weight, and total body weight versus carcass weight.
- Outliers, as detected by the qualitative screening, were removed from the dataset only if they were determined to be the result of human error (i.e., sampling or measurement error). All outliers were checked with field data sheets and field photos as part of the screening process prior to removal from the dataset.

- Gonad sex and maturity results from the histology samples submitted to the AVC were visually screened for outliers by plotting the data as total length versus total body weight, total length versus GSI, and total length versus gonad weight.
- The separation of adult and juvenile fish was determined after consideration of field assessments, gonad weight and histology results. If there were inconsistencies between field assessments and histology results, gonad histology results were weighed more heavily, with consideration of all available data to assign the final gonad maturity categories and sex determination.

Laboratory QA/QC included analysis of a series of sample blanks, certified reference materials, and duplicates that were run in parallel with the tissue chemistry samples. Results of the laboratory QA/QC are provided in the Certificate of Analysis Report (Appendix I). Analytical data quality objectives were met with the following exceptions:

- In a laboratory control sample, percent recovery of molybdenum (121%) and zirconium (121%) exceeded the upper limit of the DQO (120%). As the exceedances were marginal (<10%), the data were considered acceptable by the analytical laboratory and the results were considered reliable.
- The percent recovery of lead in the reference material (135%) exceeded the DQO (130%). As all reported lead concentrations were below DL, the exceedance was inconsequential, and results were considered reliable.

These deviations were considered minor, and samples were not submitted for reanalysis.

6.4 Results

6.4.1 Catch Data Summary

A total of 354 fishes were captured by backpack electrofishing in Propeller Lake during the 2021 small-bodied fish health program: 211 were collected from North Basin and 143 were collected from South Basin (Table 6-2). Six fish species were captured during the fish health program:

- Arctic Grayling (*Thymallus arcticus*)
- Burbot (*Lota lota*)
- Lake Trout (*Salvelinus namaycush*)
- Ninespine Stickleback (*Pungitius pungitius*)
- Round Whitefish (*Prosopium cylindraceum*)
- Slimy Sculpin (*Cottus cognatus*)

CPUE for Slimy Sculpin was 1.15 fish/100s in Propeller Lake North Basin and 0.872 fish/100 s in Propeller Lake South Basin (Table 6-3). Fishing effort and supporting environmental data are provided in Appendix H, Table H-1 and H-2, with biological data for non-target species provided in Table H-3.

Table 6-2: Fish Species Captured at Propeller Lake, 2021

Species	Propeller Lake North Basin	Propeller Lake South Basin	Total
Arctic Grayling	0	1	1
Burbot	18	13	31
Lake Trout	5	5	10
Ninespine Stickleback	9	11	20
Round Whitefish	0	3	3
Slimy Sculpin	179	110	289
Total	211	143	354

Table 6-3: Catch-Per-Unit Effort for Fish Captured from Propeller Lake, 2021

Area	Sampling Method	Sampling Effort	Parameter	ARGR	BURB	LKTR	NNST	RNWH	SLSC	Total
Propeller Lake North Basin	Backpack Electrofishing	18,397 s (5.11 h)	Abundance	-	18	5	9	-	179	211
			CPUE (#fish/100s)	-	0.098	0.027	0.049	-	0.973	1.15
Propeller Lake South Basin	Backpack Electrofishing	16,391 s (4.55 h)	Abundance	1	13	5	11	3	110	143
			CPUE (#fish/100s)	0.006	0.079	0.031	0.067	0.018	0.671	0.872

- = no fish captured; ARGR = Arctic Grayling; BURB = Burbot; LKTR = Lake Trout; NNST = Ninespine Stickleback; RNWH = Round Whitefish; SLSC = Slimy Sculpin; CPUE = catch-per-unit-effort.

6.4.2 Slimy Sculpin Fish Health Surveys

6.4.2.1 Population Survey

A total of 289 Slimy Sculpin was captured during the 2021 population survey: 179 from Propeller Lake North Basin and 110 from Propeller Lake South Basin (Table 6-2). Of the total number of Slimy Sculpin captured, 120 were sampled as part of the lethal survey (Appendix H). The target sample sizes per sampling area for the population survey were achieved at both areas in Propeller Lake. No external abnormalities were observed beyond those documented in the lethal survey. The fish health results for Slimy Sculpin captured for the population survey are provided in Appendix H, Table H-4.

6.4.2.2 Lethal Survey

A total of 120 Slimy Sculpin was lethally sampled from Propeller Lake during the 2021 fish health program (Table 6-4). Target sample sizes were achieved for adult males and females in both sampling areas; however, a high prevalence of tapeworms (i.e., 50% of lethally sampled fish) made it difficult to meet sample size targets with parasite-free fish. Fish health data for lethally sampled fish are provided in Appendix H, Tables H-5 to H-8. Descriptive statistics and normal range calculations will be provided in the future AEMP report.

Table 6-4: Sample Size for Slimy Sculpin Lethally Sampled from Propeller Lake During the 2021 Fish Health Survey

Life Stage	Sex	Target Sample Size per Basin	Propeller Lake Achieved Sample Sizes				Total	
			North Basin		South Basin			
			Total	Unparasitized	Total	Unparasitized	Total	Unparasitized
Adult	Male	20	33	23	23	12	56	35
	Female	20	25	9	21	11	46	20
	Unknown ^(a)	-	1	0	1	0	2	0
Juvenile		-	6	1	10	4	16	5
Total			65	33	55	27	120	60

a) Gonad histology data were not available for fish categorized as 'unknown'; these fish could not be confirmed as male, female, or juvenile based on field observations or length. 'Unknown' fish were included in the length-frequency analyses and the pathology assessment, but were excluded from adult male, adult female, and juvenile fish health endpoint analyses.

- = sex was not determined.

6.4.3 Slimy Sculpin Fish Tissue Results

In 2021, a total of 16 composite fish tissue samples were analyzed for metals from Propeller Lake, with eight samples collected from the north basin and eight from the south basin. A total of 36 metals were quantified, with detectable concentrations of 23 metals observed in all samples (i.e., arsenic, barium, cadmium, calcium, cesium, cobalt, copper, iron, magnesium, manganese, mercury, molybdenum, nickel, phosphorus, potassium, rubidium, selenium, sodium, strontium, thallium, uranium, vanadium and zinc), while concentrations were below detection limits for six metals in all samples (i.e., beryllium, bismuth, boron, lead, lithium and tellurium), with the remaining metals including a mixture of concentrations above and below detection limits. Results of the fish tissue analysis and associated detection limits are provided in Appendix I, Table I-2. Descriptive statistics and normal range calculations will be provided in a future AEMP report.

7.0 SUMMARY

The 2021 baseline programs were designed to collect additional baseline data to support the AEMP as well as water quality data to support the HD model. The following baseline information was obtained:

- Water quality during the ice-cover season in four areas in Goose Lake (i.e., West Bay, Central Basin, Southeast Basin, and Goose Lake Tail), one area in Reference B Lake, and one area in Propeller Lake (PLSB, near centre).
- Water quality during the open-water season in four areas in Goose Lake (i.e., West Bay, Central Basin, Southeast Basin, and Goose Lake Tail) and two areas within Propeller Lake (i.e., north and south basins).
- Water quality during the open-water season, including during freshet, at several inflows and outflows of Goose Lake.
- Sediment quality and benthic invertebrate community in two areas in Propeller Lake (i.e., north and south basins).
- Fish health and tissue chemistry (mercury) in Lake Trout from Goose Lake and Propeller Lake.
- Fish health and tissue chemistry (metals) in Slimy Sculpin from two areas in Propeller Lake.

Collection of these data fulfil the commitments made by Sabina for additional baseline data collection to support the AEMP.

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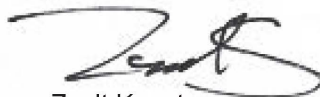
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APPENDIX A

2021 Quality Assurance and Quality Control Methods and Results

Table of Contents

1.0 INTRODUCTION	1
2.0 QUALITY ASSURANCE	1
2.1 Field Operations	1
2.2 Laboratory Analyses	2
2.3 Office Operations	2
3.0 QUALITY CONTROL	2
3.1 Field Operations	2
3.2 Laboratory Analysis	3
3.3 Office Operations	3
3.3.1 Laboratory Data Screening	3
3.3.2 Quality Control Data Evaluation	4
3.3.2.1 Water Blanks	4
3.3.2.2 Duplicate Samples	5
3.3.2.3 Dissolved and Total Concentrations	5
4.0 RESULTS	5
4.1.1 Water Quality Field Measurements	5
4.1.2 Laboratory Report Review	5
4.1.3 Holding Time Exceedances	6
4.1.4 Field Quality Control Results	6
4.1.4.1 Water Blanks	6
4.1.4.2 Lake Duplicate Samples	7
4.1.4.3 Stream Duplicate Samples	7
4.1.4.4 Sediment Duplicate Samples	7
4.1.5 Dissolved to Total Results Comparison	7
4.2 Conclusions	8
5.0 REFERENCES	8

1.0 INTRODUCTION

This appendix describes the quality assurance (QA) and quality control (QC) procedures implemented during the 2021 baseline water quality and sediment quality baseline program completed to support the Aquatic Effects Management Program (AEMP) for the Sabina Back River Project (Project) and the hydrodynamic model for Goose Lake. An evaluation of the QC data and implications for the interpretation of results is also included.

Data integrity is determined by the QA/QC procedures that are applied during all aspects of a monitoring program, from sample collection to data analysis and reporting. Quality assurance procedures include training of personnel, data management, and other technical practices designed to confirm that data of appropriate quality are consistently generated. Quality control procedures include steps to measure and evaluate data quality, as well as the corrective actions that are applied when data quality objectives are not achieved.

2.0 QUALITY ASSURANCE

Quality assurance procedures implemented during the 2021 baseline program are classified into three categories of data management: field operations, laboratory analyses, and office operations.

2.1 Field Operations

Quality assurance procedures for field operations involve field crew training, pre-field meetings, and the use of standardized methods and explicit instructions for collecting and handling field data. Field staff for the Project were trained to be proficient in standardized field sampling procedures, data recording, and equipment operation. Field work was completed according to approved specific work instructions that were developed for the Project based on standardized technical procedures developed by Golder Associates Ltd. (Golder). Golder's technical procedures are consistent with information and field protocols described in relevant scientific literature (e.g., CCME 2011).

The specific work instructions for the water and sediment sampling programs included the exact locations of sampling sites and detailed step-by-step instructions for field tasks such as sample collection, handling, preservation, labelling, storage, and shipping, record keeping and sample tracking.

A multi-probe YSI water quality meter was used to collect in situ measurements of water temperature, pH, dissolved oxygen (concentration and percent saturation), and specific conductivity throughout the water column at each lake sampling station and at the sample depth for streams sampling locations. Turbidity measurements were collected on a sub-sample of the water quality sample using a LaMotte 2020 turbidity meter. The field meters were factory-calibrated once per year and by the field crew at the beginning of each field program. Calibration of the meters was then verified daily using standard calibration solutions. Calibration checks were also done when readings were outside of expected ranges. Calibration records were documented in the field and saved in the Project file.

Field data were recorded on standardized field data sheets or in a bound field notebook. Chain-of-custody forms included a list of parameters requested for analysis, samples identification name, date and time of sample, whether samples were filtered and preserved in the field and the field crew name. After delivery to the laboratory, chain-of-custody were used to track samples sent to the analytical laboratory and confirm the receipt of the samples at the laboratory. The crew lead was responsible for tracking samples to confirm that all required samples were collected, chain-of-custody and analytical request forms were complete and correct, and that labelling, and documentation procedures were followed. Field crews checked in with component leads, as needed, and submitted daily reports to provide updates on completed tasks. Contact information for members of

the Project team and the analytical laboratory were included in the work instructions, along with references to applicable technical procedures.

Quality assurance procedures also included pre-field meetings held with the field crew and project/component manager prior to the start of each field program. The purpose of the field program, role of each crew member, specific details of the work instructions, equipment needs, field logistics, and contingency plans were discussed at each meeting.

2.2 Laboratory Analyses

Water and sediment samples collected in 2021 were submitted for analysis to ALS Environmental, who is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for the analytical suite analyzed for this project; therefore, confidence in the reliability of the analytical data produced by the laboratory is considered high. To receive accreditation, a laboratory must pass an evaluation of its internal procedures, analytical methods, and QC processes. Parameters were analyzed in laboratory by standard methods published by internationally recognized agencies, such as the American Public Health Association (APHA) and the United States Environmental Protection Agency (US EPA).

2.3 Office Operations

Quality assurance procedures implemented for office-based tasks included the following:

- having trained personnel complete data management, analysis, and reporting tasks
- using standardized data storage, manipulation, and summary tools, as required
- establishing a data management system to support consistency, QC, and data retrieval
- senior review of data deliverables at appropriate milestones

A designated member of the Project team was responsible for liaising with the laboratory. Analytical results were uploaded to the EQUIS database directly by the laboratory. Laboratory certificates, field forms, and field notes were stored in the Project file.

3.0 QUALITY CONTROL

Similar to QA procedures, QC procedures implemented during the 2021 water and sediment quality baseline program can be classified into three categories: field operations, laboratory analyses, and office operations.

3.1 Field Operations

Quality control procedures implemented during field operations included the collection of water quality QC samples and are defined as follows:

- **Travel blanks:** These samples were used to detect sample contamination that could have resulted from ambient conditions in the field, during shipping, or at the laboratory. Travel blanks were provided by the laboratory and consisted of sealed sample bottles filled with deionized water. They accompanied the water samples during all stages of storage and transportation but remained unopened.
- **Field blanks:** These samples were used to detect potential sample contamination during sample collection, handling, shipping, and analysis. Field blanks consisted of deionized water provided by the analytical

laboratory; the water was transported to a field sampling site, processed the same as the other surface water quality samples (e.g., filtered, preserved), and then submitted along with the other samples for analysis.

- **Duplicate samples:** These samples were used to check the precision of field sampling methods and laboratory analyses. Duplicate samples consisted of paired water samples collected at the same time and location, using the same methods.

During the 2021 water sampling program, a total of three blank samples (two field blanks and one travel blank) and four duplicate samples were collected. Quality control samples collected in 2021 represented approximately 18% the total number of water samples and 10% the total number of sediment samples submitted for analysis. All QC samples were submitted “blind” to the analytical laboratory and analyzed for the same set of parameters as the other water samples

Sediment QC samples collected in 2021 consisted of one duplicate sample collected as a separate sample of the original homogenized composite sample using the same field methods and analyzed for the same list of parameters. The QC sample was collected from one station within the sampling area to characterize within-station variation and to check the precision of field sampling methods and laboratory analyses.

3.2 Laboratory Analysis

Quality control samples were prepared by the analytical laboratory and analyzed along with the field-collected samples to confirm the quality and reliability of the analytical results. Quality control sample types included duplicate analyses, spiked samples, and method blanks. The laboratory QC results were reviewed to confirm the quality of the data and to determine if the laboratory identified any questionable results or specific parameters.

3.3 Office Operations

Quality control operations implemented in the office focussed on evaluating the quality of in situ measurement data and analytical results, as well as verifying the accuracy of data summaries (i.e., summary statistics and plots). Field data entered into the Project database were compared against the field data sheets and field notebook to confirm their accuracy. Unaltered data files from the laboratory were saved to the Project file and used as a reference to confirm the accuracy of the data entered into the Project EQUIS database. Laboratory data were also screened for quality (Section 3.3.1). Backup files were created before each major data analysis operation and calculations were reviewed to confirm the accuracy of the results.

3.3.1 Laboratory Data Screening

A series of standard data screening steps were completed upon receipt of water and sediment chemistry results from the analytical laboratory to identify potential data quality issues including:

- verification that all requested parameters and samples were analyzed
- verification that the appropriate detection limits (DLs) were used and data were reported in the appropriate units
- verification of holding time exceedances and follow up discussions with the laboratory
- verification that data for measured in situ field and laboratory parameters (e.g., pH, specific conductivity) were similar
- data logic checks (e.g., comparison of measured and calculated results for total dissolved solids; comparison of dissolved to total metals)

- calculate total dissolved solids using the APHA (2005) equation¹ and compared to the calculated total dissolved solids results provided by the laboratory
- identification of anomalous values
- review of blank samples for evidence of contamination (Section 3.3.2.1)
- review of duplicate sample results for unacceptable variation (Section 3.3.2.2)
- review of laboratory QC results (i.e., sample temperature and integrity of containers upon receipt, holding times, laboratory blanks and recoveries from spiked samples, internal duplicates, review of laboratory qualifiers and notes)
- review of the final dataset for completeness, and confirmation that sources of unexpected values and trends have been identified

Prompt completion of the screening steps allowed for potential re-analysis of samples by the laboratory to verify questionable data or to generate data for missing parameters. If samples were re-analyzed by the laboratory and the data were still considered questionable, qualifiers for consideration during data summary and analysis steps were added to the dataset, or the data were excluded from further analyses.

3.3.2 Quality Control Data Evaluation

3.3.2.1 Water Blanks

Analytical results for travel and field blanks were reviewed and considered notable if concentrations were greater than or equal to five times the corresponding DL. This criterion is based on the United States Environmental Protection Agency (US EPA) Practical Quantitation Limit, which accounts for the potential for reduced accuracy when concentrations approach or are below the DL (US EPA 2000). This criterion was not applied to all parameters (e.g., pH, conductivity).

In the event that parameter concentrations in the blank samples exceeded five times the DL, the results were examined to determine if:

- the concentration in a blank QC sample was higher than the concentrations measured in corresponding surface water samples
- the notable result is limited to a single blank sample or if it is apparent in corresponding water samples
- there was a consistent bias in the results for the parameter across all samples
- if the notable result was severe enough to warrant invalidating the affected data

¹ $TDS_{calc} \left(\frac{mg}{L} \right) = \Sigma [Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, 4.42 * NO_3^- (as\ nitrogen), 0.6 * total\ alkalinity\ (as\ CaCO_3)]$

3.3.2.2 Duplicate Samples

Differences between concentrations measured in duplicate water and sediment samples were evaluated based on the relative percent difference (RPD):

$$RPD = \frac{|C1 - C2|}{\left[\frac{(C1 + C2)}{2} \right]} * 100$$

Where: RPD is relative percentage difference

C1 is the concentrations in the first sample

C2 is the concentration in the second or duplicate sample

The RPD was only calculated if both paired concentrations in the duplicate samples were greater than five times the DL. The RPD for a given water quality parameter was flagged if it was greater than 20% and for sediment quality parameters greater than 35% (USEPA 2017). The number of flagged parameters was compared to the total number of analyzed parameters to evaluate analytical precision. Results of the duplicate samples were also used to assess within-station variability and field sampling precision. Analytical precision was rated as follows:

- *high*, if less than 10% of parameters included in the duplicate sample analysis were notably different from one another
- *moderate*, if 10 to 30% of parameters included in the duplicate sample analysis were notably different from one another
- *low*, if more than 30% of parameters included in the duplicate sample analysis were notably different from one another

3.3.2.3 Dissolved and Total Concentrations

Dissolved nutrient and metal concentrations in water samples were compared to their corresponding total concentrations as a measure of analytical precision. Where results of the total and dissolved concentrations were more than five times the DL and the RPD between the dissolved and total concentration was more than or equal to 20%, the dissolved concentration was considered notable.

4.0 RESULTS

4.1.1 Water Quality Field Measurements

In situ field measurements were collected during each field program in 2021 using a calibrated multi-parameter YSI Pro Plus water quality meter and a LaMotte 2020 turbidity meter. Calibration records were documented in the Project file and no issues with the field meters were encountered during the 2021 water quality programs.

4.1.2 Laboratory Report Review

All required parameters were analyzed by the laboratory using the standard analytical methods requested during the program as per the AEMP design. Laboratory QC samples were generally within acceptable limits for parameters analyzed, with some exceptions. The laboratory method blank results indicated that total alkalinity associated with streams samples collected in July 2021 and nitrate associated with lake samples collected in August 2021 did not meet the analytical laboratory's data quality objectives. Total alkalinity and nitrate results in the field sample collected during these events were within expected values and considered acceptable. Copies of

the analytical reports, with a statement of methods and summaries of laboratory quality control results, are attached to this appendix.

4.1.3 Holding Time Exceedances

To maintain sample integrity, water and sediment samples for laboratory analyses were submitted as soon as possible after collection. However, holding time exceedances are a common issue for unpreserved water samples collected during water quality programs in remote areas, because transport of samples to the laboratory is subject to the availability of scheduled charter flights. Most of holding time exceedances were due to the laboratory inability to initiate testing promptly following sample receipt. Analytical holding times were met for sediment samples and most water quality parameters in 2021, with some exceptions:

- Recommended holding time for pH (0.25 hours) was exceeded in all water samples. pH measured in the field is preferred.
- Recommended holding time for nitrite and orthophosphate of 3 days was exceeded for 87% of the water samples.
- Recommended holding time for nitrate of 3 days was exceeded for 78% of the water samples.
- Recommended holding time for turbidity of 3 days was exceeded for 38% of the water samples.
- Recommended holding time for TDS of 7 days was exceeded for 25% of the water samples.
- Recommended holding time for alkalinity of 7 days was exceeded for 17% of the water samples.
- Recommended holding time for TSS and sulphide of 7 days was exceeded for 12% of the water samples.

Most of the holding time exceedances were of one to six days duration. These exceedances were not expected to negatively affect data quality.

4.1.4 Field Quality Control Results

During the 2021 water quality program, three blank samples, four duplicate samples in lakes, and three duplicate samples in streams were collected, and during the 2021 sediment quality program, one duplicate sample was collected.

4.1.4.1 Water Blanks

A total of three QC water blank samples were collected and analyzed during the 2021 water quality monitoring program, consisting of two field blanks and one travel blank (Table A1). Most results for the water blank samples were non-detect. Parameter concentrations in the blank samples that were above the corresponding DL were reviewed individually. Total ammonia concentration in the travel blank sample collected in April 2021 was notable (i.e., higher than five times the DL), with a value of 0.236 mg/L as nitrogen. This concentration is an order of magnitude higher than the values measured in the field samples, and concentrations in the 2021 field samples were within the range of values measured in previous years. Total ammonia concentrations in the field blanks were not detected at the DL of 0.005 mg/L. The notable detection accounts for less than 1% of results in blank samples. The notable total ammonia concentration in the travel blank most likely represents contamination limited to the travel blank, and is not of concern regarding the results for the surface water quality samples.

4.1.4.2 Lake Duplicate Samples

Four duplicate samples were collected during the 2021 sampling program (Table A.2). All four paired duplicate samples had *high* analytical precision (i.e., between 1% and 6% of RPD results were notable).

Parameters that had notable results (i.e., concentrations higher than five times the DL in both duplicate samples and RPD greater than 20%) were:

- total aluminum and total iron with a notable RPD of 27% and 33%, respectively, in the duplicate sample collected at Goose Lake (BRP-32-1) in April
- dissolved arsenic and dissolved zinc with two notable RPDs each, ranging from 26% to 81%, in the duplicate samples collected in April
- dissolved lithium with a notable RPD of 53% in the duplicate sample collected at Propeller Lake (BRP-35-1) in April
- total zinc with three notable RPDs ranging from 20% to 48% in duplicate samples collected in April and August

Notable RPDs were limited to metals and were observed during all field programs. The percentage of RPD values over 20% in the 2021 water quality dataset was less than 1%. Therefore, based on the assessment criteria described in Section 3.3.2.2, analytical precision is classified as *high*.

4.1.4.3 Stream Duplicate Samples

Three duplicate pairs of samples were collected from outlet streams. None of the parameters had the RPD values over 20% (Table A.3).

4.1.4.4 Sediment Duplicate Samples

One duplicate sample was collected as a separate sample during the August sampling program at Propeller Lake. Parameter concentrations in the duplicate samples differed by less than 35%, and therefore within-station variability was rated *low* and analytical precision was rated *high* for the 2021 sediment quality dataset (Table A4).

4.1.5 Dissolved to Total Results Comparison

It is reasonable to assume that where total and dissolved parameter concentrations are measured in a water sample, the dissolved fraction should be less than or equal to the corresponding total concentration. However, there are instances when the dissolved concentration of a parameter may be higher than the total concentration. These can be attributed to low concentrations, analytical procedures and sensitivity, inconsistency or inadequate sampling, and sample handling processes (e.g., filtering and preserving outside the required timeframe, or filtering-related contamination).

During the 2021 water quality sampling programs, 4% of the metals results in the dataset failed to meet quality criteria (i.e., total and dissolved concentrations were more than five times the DL and dissolved concentrations were more than 20% higher than total concentrations). This was predominantly observed for arsenic and zinc in 50% and 29% of the samples, respectively, and was noted throughout the year. Other metals such as antimony, bismuth, copper, lead, lithium, manganese, mercury, molybdenum, tin, and zirconium had occasional (typically only once) dissolved concentrations above the total concentrations. In 2021, dissolved metals samples were filtered in the field using syringes and filter heads provided by laboratory, and were preserved in the laboratory

upon sample receipt. Dissolved metals data that failed the quality control criteria were highlighted in Table A5 and should be interpreted with caution.

4.2 Conclusions

Review of field and laboratory data indicated that field measurements and laboratory data are of high quality. Key findings from the 2021 QA/QC results are as follows:

- No issues were identified in analytical methods used or DLs reported by the laboratory.
- Holding times recommended by the laboratory were exceeded for some parameters (i.e., pH, nitrite, nitrate, orthophosphate, turbidity, TSS, TDS, alkalinity, sulphide) due to logistical constraints and/or laboratory inability to initiate testing promptly following sample receipt. Most of the holding time exceedances were of one to six days duration, and although this should be taken into consideration during interpretation of the results, it is not expected to negatively affect data quality.
- The ammonia concentration in the travel blank was notable (i.e., more than five times the DL) and an order of magnitude greater than the concentrations measured in the field samples; however, total ammonia was not detected in the field blanks. Therefore, this notable concentration is not expected to be of concern regarding the results for the surface water quality samples.
- Analytical precision in water duplicate samples was rated as *high*.
- Analytical precision in sediment duplicate samples was rated as *high*.
- Dissolved metal concentrations were greater (notable) than the corresponding total metal concentration for 4% of the metals results, with arsenic and zinc failing to meet the quality criteria more frequently than the rest of the metals (i.e., for 50% of the arsenic results and 29% of the zinc results). Arsenic and zinc data should be interpreted with this in mind.

The overall quality of the water and sediment quality data was rated *high* and most results reported are considered reliable for use in future AEMP interpretation. Consideration should be applied to the parameters that exceeded the recommended holding times, and the interpretation of arsenic and zinc results that failed the quality criteria should be conducted with caution.

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TABLES

Table A-1: Field and Travel Blank Sample Results, 2021

Table A-2: Summary of Field Duplicate Sample Results from Lakes, 2021

Table A-3: Summary of Field Duplicate Sample Results from Streams, 2021

Table A-4: Summary of Field Duplicate Sediment Sample Results, 2021

Table A-5: Comparison of Total Metals to Dissolved Metals in Water, 2021

Table A-1: Field and Travel Blank Sample Results, 2021

Parameter	Unit	DL	Travel Blank	Field Blank	Field Blank
			14-Apr-21	11-Apr-21	15-Aug-21
			Under Ice	Under Ice	Open Water
Conventional Parameters					
pH	-	1	5.57	5.64	5.28
Specific conductivity	µS/cm	2	<2	<2	<2
Hardness, as CaCO ₃	mg/L	0.5	<0.5	<0.5	<0.5
Total alkalinity, as CaCO ₃	mg/L	1	<1	<1	<1
Total dissolved solids	mg/L	10	<10	<10	<10
Total dissolved solids (calculated)	mg/L	1	<1	<1	<1
Total suspended solids	mg/L	3	<3	<3	<3
Total organic carbon	mg/L	0.5	<0.5	<0.5	<0.5
Dissolved organic carbon	mg/L	0.5	<0.5	<0.5	<0.5
Turbidity	NTU	0.1	<0.1	<0.1	<0.1
Radium-226	Bq/l	0.011	-	-	<0.0055
Major Ions					
Calcium	mg/L	0.01	<0.01	<0.01	<0.01
Chloride	mg/L	0.5	<0.5	<0.5	<0.5
Cyanide (free)	mg/L	0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	<0.005
Cyanide	mg/L	0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	0.02	<0.02	<0.02	<0.02
Magnesium	mg/L	0.01	<0.001	<0.001	<0.001
Potassium	mg/L	0.005	<0.005	<0.005	<0.005
Sodium	mg/L	0.01	<0.01	<0.01	<0.01
Sulphate	mg/L	0.05	<0.05	<0.05	<0.05
Sulphide	mg/L	0.0019	0.0024	<0.0019	<0.0015
Silica	mg/L	0.5	<0.5	<0.5	<0.5
Nutrients and Chlorophyll a					
Nitrate	mg-N/L	0.005	<0.005	<0.005	<0.005
Nitrite	mg-N/L	0.001	<0.001	<0.001	<0.001
Total ammonia	mg-N/L	0.005	0.236 ^(a)	<0.005	<0.005
Total Kjeldahl nitrogen	mg-N/L	0.05/0.2	0.193	<0.2	<0.2
Total phosphorus	mg-P/L	0.001	<0.001	<0.001	<0.001
Dissolved phosphorus	mg-P/L	0.001	<0.001	<0.001	<0.001
Orthophosphate	mg-P/L	0.001	<0.001	<0.001	<0.001
Chlorophyll a (avg of triplicate)	µg/L	0.001	-	-	-
Total Metals					
Aluminum	µg/L	0.2	<0.2	<0.2	<0.2
Antimony	µg/L	0.005	<0.005	<0.005	<0.005
Arsenic	µg/L	0.01	<0.01	<0.01	<0.01
Barium	µg/L	0.02	<0.02	<0.02	<0.02
Beryllium	µg/L	0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5
Cadmium	µg/L	0.0025	<0.0025	<0.0025	<0.0025
Calcium	µg/L	10	<10	<10	<10
Chromium	µg/L	0.04	<0.04	<0.04	<0.04
Cobalt	µg/L	0.005	<0.005	<0.005	<0.005
Copper	µg/L	0.05	<0.05	<0.05	<0.05
Iron	µg/L	0.5	<0.5	<0.5	<0.5
Lanthanum	µg/L	0.01	<0.01	<0.01	<0.01
Lead	µg/L	0.005	<0.005	<0.005	<0.005
Lithium	µg/L	0.1	<0.1	<0.1	<0.1
Magnesium	µg/L	1	<1	<1	<1
Manganese	µg/L	0.005	<0.005	<0.005	<0.005
Mercury	µg/L	0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.01	<0.01	<0.01	<0.01
Nickel	µg/L	0.02	<0.02	<0.02	<0.02
Potassium	µg/L	5	<5	<5	<5
Selenium	µg/L	0.025	<0.025	<0.025	<0.025
Silicon	µg/L	50	<50	<50	<50
Silver	µg/L	0.002	<0.002	<0.002	<0.002
Sodium	µg/L	10	<10	<10	<10
Strontium	µg/L	0.02	<0.02	<0.02	<0.02
Sulphur	µg/L	500	<500	<500	<500
Thallium	µg/L	0.001	<0.001	<0.001	<0.001
Tin	µg/L	0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.05	<0.05	<0.05	<0.05
Uranium	µg/L	0.001	<0.001	<0.001	<0.001
Vanadium	µg/L	0.01	<0.01	<0.01	<0.01
Zinc	µg/L	0.1	<0.1	<0.1	<0.1
Zirconium	µg/L	0.01	<0.01	<0.01	<0.01
Dissolved Metals					
Aluminum	µg/L	0.2	0.59	<0.2	<0.2
Antimony	µg/L	0.005	<0.005	<0.005	<0.005
Arsenic	µg/L	0.01	<0.01	<0.01	<0.01
Barium	µg/L	0.042	0.042	<0.02	<0.02
Beryllium	µg/L	0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5
Cadmium	µg/L	0.0025	<0.0025	<0.0025	<0.0025
Chromium	µg/L	0.04	<0.04	<0.04	<0.04
Cobalt	µg/L	0.005	<0.005	<0.005	<0.005
Copper	µg/L	0.05	<0.05	<0.05	<0.05
Iron	µg/L	0.5	<0.5	<0.5	<0.5
Lead	µg/L	0.005	<0.005	<0.005	<0.005
Lithium	µg/L	0.1	<0.1	<0.1	<0.1
Manganese	µg/L	0.005	<0.005	<0.005	0.012
Mercury	µg/L	0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.01	<0.01	<0.01	0.048
Nickel	µg/L	0.02	<0.02	<0.02	<0.02
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005
Selenium	µg/L	0.025	<0.025	<0.025	<0.025
Silicon	µg/L	50	<50	<50	<50
Silver	µg/L	0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	<0.02	<0.02	<0.02
Sulphur	µg/L	500	<500	<500	<500
Thallium	µg/L	0.01	<0.001	<0.001	<0.001
Tin	µg/L	0.1	<0.01	<0.01	<0.01
Titanium	µg/L	0.3	<0.05	<0.05	<0.05
Uranium	µg/L	0.001	<0.001	<0.001	<0.001
Vanadium	µg/L	0.01	<0.01	<0.01	<0.01
Zinc	µg/L	0.1	<0.1	<0.1	0.13
Zirconium	µg/L	0.01	<0.01	<0.01	<0.01
Calculated Quantities					
Values over five times the MDL	%	-	1.1	0	0

Notes:

^(a) = value exceeds the corresponding field sample value by 10% or more and is greater than five times the method detection limit.

The percentage of values over five times the MDL for the entire dataset is 0.3%.

µS/cm = microsiemens per centimetre; mg/L = milligrams per litre; NTU= nephelometric turbidity unit; mg-N/L = milligrams per litre as nitrogen; mg-P/L = milligrams per litre as phosphorus; µg/L = micrograms per litre; Bq/L = becquerel per litre;- = no data.

Table A-2: Summary of Field Duplicate Sample Results from Lakes, 2021

Parameter	Unit	DL	Propeller Lake (BRP-35-1)		RPD	Goose Lake (BRP-32-1)		RPD	Goose Lake (BRP-33-T)		RPD	Propeller Lake (BRP-35-1)		RPD
			Sample	Duplicate		Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
			12-Apr-21	12-Apr-21		15-Apr-21	15-Apr-21		26-Jul-21	26-Jul-21		16-Aug-21	16-Aug-21	
Conventional Parameters														
pH	-	1	6.88	6.93	12%	6.71	6.73	5%	-	-	-	6.76	6.74	5%
Specific conductivity	µS/cm	2	47.1	45.3	4%	65.3	70.2	7%	-	-	-	25.7	26.1	2%
Hardness, as CaCO ₃	mg/L	0.5	18.4	18.2	1%	27.2	25.6	6%	-	-	-	9.16	9.03	1%
Total alkalinity, as CaCO ₃	mg/L	1	7.3	7.4	1%	7.8	8.6	10%	4.7	4.8	-	3.7	3.8	-
Total dissolved solids	mg/L	10	36	37	-	51	59	15%	23	28	-	21	19	-
Total dissolved solids (calculated)	mg/L	1	31.2	30.7	2%	42.2	43.4	3%	15.1	15.2	0.7%	16.5	16.3	1%
Total suspended solids	mg/L	3	<3	<3	-	<3	<3	-	-	-	-	<3	<3	-
Total organic carbon	mg/L	0.5	6.07	6.08	0%	6.36	6.92	8%	-	-	-	4.63	4.41	5%
Dissolved organic carbon	mg/L	0.5	7.24	6.76	7%	6.17	6.27	2%	-	-	-	4.61	4.48	3%
Turbidity	NTU	0.1	0.16	0.13	-	<0.1	0.12	-	-	-	-	0.24	0.26	-
Radium-226	Bq/l	0.011	-	-	-	-	-	-	-	-	-	<0.0086	0.0041	-
Major Ions														
Bromide	mg/L	0.05	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	mg/L	0.01	3.46	3.41	1%	5.26	5.01	5%	2.26	2.26	0.0%	1.77	1.72	3%
Chloride	mg/L	0.5	2	1.97	-	3.71	4.06	9%	1.36	1.36	-	1.06	1.06	-
Cyanide (free)	mg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Cyanide (WAD)	mg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-
Cyanide	mg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	-	-	-	0.0087	<0.005	-
Fluoride	mg/L	0.02	0.026	0.03	-	0.03	0.035	-	-	-	-	<0.02	<0.02	-
Magnesium	mg/L	0.01	2.38	2.35	1%	3.43	3.17	8%	1.36	1.38	1.5%	1.15	1.15	0%
Potassium	mg/L	0.005	0.486	0.488	0%	0.603	0.561	7%	0.301	0.312	3.6%	0.289	0.283	2%
Sodium	mg/L	0.01	0.955	1	5%	1.26	1.15	9%	0.514	0.523	1.7%	0.461	0.458	1%
Sulphate	mg/L	0.05	9.12	9.03	1%	14	15	7%	5.86	5.85	0.2%	4.59	4.55	1%
Sulphide	mg/L	0.0019	<0.0019	<0.0019	-	0.0022	0.0016	-	-	-	-	<0.0015	<0.0015	-
Silica	mg/L	0.5	0.86	0.84	-	2.09	2.32	-	-	-	-	<0.5	<0.5	-
Nutrients and Chlorophyll a														
Nitrate	mg-N/L	0.005	0.0098	0.01	-	0.0469	0.0391	18%	<0.005	<0.005	-	<0.005	<0.005	-
Nitrite	mg-N/L	0.001	<0.001	0.0012	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-
Total ammonia	mg-N/L	0.005	0.0277	0.0270	3%	0.0394	0.0412	4%	-	-	-	<0.005	<0.005	-
Total Kjeldahl nitrogen	mg-N/L	0.2	0.287	0.294	-	0.260	0.341	-	-	-	-	<0.2	<0.2	-
Total phosphorus	mg-P/L	0.001	0.0049	0.0049	-	0.0034	0.0036	-	-	-	-	0.0154	0.0037	-
Dissolved phosphorus	mg-P/L	0.001	0.0039	0.0037	-	0.0018	0.0016	-	-	-	-	0.0021	0.0017	-
Orthophosphate	mg-P/L	0.001	<0.001	0.0011	-	<0.001	<0.001	-	-	-	-	0.0012	<0.001	-
Total Metals														
Aluminum	µg/L	0.2	13	13.7	5%	29.2	22.2	27%	-	-	-	8.06	8.32	3%
Antimony	µg/L	0.005	0.0239	0.0383	-	0.0874	0.0225	-	-	-	-	<0.005	0.0055	-
Arsenic	µg/L	0.01	0.251	0.259	3%	0.366	0.319	14%	-	-	-	0.156	0.155	1%
Barium	µg/L	0.02	6.59	6.77	3%	11	9.71	12%	-	-	-	3.44	3.44	0%
Beryllium	µg/L	0.002	0.0028	0.0033	-	0.0053	0.0046	-	-	-	-	<0.002	<0.002	-
Bismuth	µg/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	-
Boron	µg/L	5	<5	<5	-	<5	<5	-	-	-	-	<5	<5	-
Cadmium	µg/L	0.0025	0.0032	0.0044	-	0.0081	0.006	-	-	-	-	<0.0025	<0.0025	-
Calcium	µg/L	10	3480	3590	3%	5550	5100	8%	-	-	-	1700	1780	5%
Chromium	µg/L	0.04	0.139	0.147	-	0.193	0.154	-	-	-	-	0.054	0.056	-
Cobalt	µg/L	0.005	0.0528	0.0568	7%	0.15	0.146	3%	-	-	-	0.0661	0.0695	5%
Copper	µg/L	0.05	1.72	1.81	5%	3.24	2.86	12%	-	-	-	0.868	0.9	4%
Iron	µg/L	0.5	18.9	19.6	4%	28.4	20.3	33%	-	-	-	27.7	29.2	5%
Lead	µg/L	0.005	0.0205	0.0251	-	0.0473	0.0113	-	-	-	-	<0.005	0.0058	-
Lithium	µg/L	0.1	0.83	0.84	1%	1.19	1.06	12%	-	-	-	0.43	0.42	-
Magnesium	µg/L	1	2360	2450	4%	3550	3320	7%	-	-	-	1120	1150	3%
Manganese	µg/L	0.005	2.84	2.83	0%	7.01	7.88	12%	-	-	-	3.46	3.53	2%
Mercury	µg/L	0.0005	<0.0005	0.00058	-	0.00419	0.0047	11%	-	-	-	0.00061	0.00065	-
Molybdenum	µg/L	0.01	0.014	0.015	-	0.021	0.012	-	-	-	-	<0.01	<0.01	-
Nickel	µg/L	0.02	4.22	4.36	3%	8.92	8.33	7%	-	-	-	1.98	2.06	4%
Potassium	µg/L	5	496	519	5%	636	566	12%	-	-	-	274	288	5%
Selenium	µg/L	0.025	0.028	0.033	-	0.045	0.039	-	-	-	-	<0.025	<0.025	-
Silicon	µg/L	50	394	395	0%	1040	951	9%	-	-	-	119	120	-
Silver	µg/L	0.002	<0.002	<0.002	-	<0.002	<0.002	-	-	-	-	<0.002	<0.002	-
Sodium	µg/L	10	991	1010	2%	1370	1200	13%	-	-	-	436	453	4%
Strontium	µg/L	0.02	15.4	15.7	2%	27	25.1	7%	-	-	-	7.19	7.4	3%
Sulphur	µg/L	500	3080	3110	1%	5240	4910	7%	-	-	-	1580	1580	-
Thallium	µg/L	0.001	0.0013	0.0016	-	0.003	0.002	-	-	-	-	0.0013	<0.001	-
Tin	µg/L	0.01	<0.01	0.013	-	0.125	0.024	-	-	-	-	<0.01	<0.01	-
Titanium	µg/L	0.05	0.086	0.145	-	0.339	0.079	-	-	-	-	<0.05	0.053	-
Uranium	µg/L	0.001	0.0093	0.0079	16%	0.0157	0.0138	13%	-	-	-	0.0037	0.0042	-
Vanadium	µg/L	0.01	0.033	0.033	-	0.055	0.04	-	-	-	-	0.025	0.027	-
Zinc	µg/L	0.1	1.26	1.66	27%	2.09	1.28	48%	-	-	-	0.65	0.53	20%
Zirconium	µg/L	0.01	0.064	0.066	3%	0.134	0.12	11%	-	-	-	0.027	0.027	-
Dissolved Metals														
Aluminum	µg/L	0.2	12.1	12.1	0%	22.1	20.4	8%	-	-	-	6.14	5.9	4%
Antimony	µg/L	0.005	0.0179	0.0235	-	0.0507	0.025	-	-	-	-	0.0082	0.0051	-
Arsenic	µg/L	0.01	0.331	0.43	26%	0.421	0.99	81%	-	-	-	0.147	0.148	1%
Barium	µg/L	0.042	6.43	6.6	3%	10.3	9.54	8%	-	-	-	3.37	3.38	0%
Beryllium	µg/L	0.002	0.0057	0.002	-	0.0057	0.0056	-	-	-	-	<0.002	0.0021	-
Bismuth	µg/L	0.001	<0.001	<0.001	-	<0.001	0.0161 ^(b)	-	-	-	-	<0.001	<0.001	-
Boron	µg/L	5	<5	<5	-	<5	<5	-	-	-	-	<5	<5	-
Cadmium	µg/L	0.0025	0.0039	0.0036	-	0.0082	0.0065	-	-	-	-	0.0026	<0.0025	-
Chromium	µg/L	0.04	0.128	0.133	-	0.156	0.145	-	-	-	-	0.053	0.052	-
Cobalt	µg/L	0.005	0.0433	0.044	2%	0.0957								

Table A-3: Summary of Field Duplicate Sample Results from Streams, 2021

Parameter	Unit	DL	YL2100716-002		RPD	YL2100852-004		RPD	YL2101200-006		RPD
			Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
			5-Jul-21	5-Jul-21		25-Jul-21	25-Jul-21		4-Sep-21	4-Sep-21	
Conventional Parameters											
Total alkalinity, as CaCO ₃	mg/L	1	6.7	6.3	6%	4.2	4.1	-	7.4	7.2	3%
Total dissolved solids	mg/L	10	30	34	-	24	27	-	29	26	-
Total dissolved solids (calculated)	mg/L	1	21.4	21.2	0.9%	16.5	16.3	1%	15.4	15.2	1%
Major Ions											
Bromide	mg/L	0.05	<0.05	<0.05	-	-	-	-	-	-	-
Calcium	mg/L	0.01	3.7	3.6	3%	1.97	1.99	1%	2.21	2.19	0.9%
Chloride	mg/L	0.5	3.71	3.73	0.5%	0.51	0.5	-	0.68	0.68	-
Fluoride	mg/L	0.02	<0.02	<0.02	-	-	-	-	-	-	-
Magnesium	mg/L	0.01	1.71	1.73	1%	1.56	1.55	0.6%	1.56	1.56	0%
Potassium	mg/L	0.005	0.454	0.461	2%	0.308	0.31	0.6%	0.326	0.332	2%
Sodium	mg/L	0.01	0.665	0.675	1%	0.605	0.607	0.3%	0.583	0.596	2%
Sulphate	mg/L	0.05	6.2	6.27	1%	8.22	8.17	0.6%	4.76	4.75	0.2%
Nutrients and Chlorophyll a											
Nitrate	mg-N/L	0.005	0.0657	0.0688	5%	<0.005	<0.005	-	0.0417	0.0414	0.7%
Nitrite	mg-N/L	0.001	<0.001	<0.001	-	-	-	-	-	-	-
Calculated Quantities											
RPD values over 20%	%	-	-	-	0	-	-	0	-	-	0
RPD values over 20%	#	-	-	-	0	-	-	0	-	-	0

Notes:
RPDs greater than 20% with concentrations in both samples greater than five times the DL are shown in **bold**.
The percentage of RPD values over 20% for the entire dataset is 0%.
mg/L = milligrams per litre; mg-N/L = milligrams per litre as nitrogen; - = no data.

Table A-4: Summary of Field Duplicate Sediment Sample Results, 2021

Parameter	Units	DL			RPD
			BRP-35-1	BRP-QC-1	
			16-Aug-2021	16-Aug-2021	
Carbon and Nitrogen					
Total organic carbon	mg/kg	1320	21000	20600	2%
Total inorganic carbon	mg/kg	500	< 500	< 500	-
Inorganic carbon as calcium carbonate equivalent	%	0.4	< 0.40	< 0.40	-
Total Carbon	%	0.05	2.1	2.06	2%
Total Nitrogen	%	0.02	0.178	0.178	0%
Organic Matter	%	0.132	3.62	3.55	2%
pH	pH units	0.1	6.04	6.00	0.7%
Particle Size					-
Grain size >2 mm	%	1	< 1.0	< 1.0	-
Grain size 0.2 mm - 2 mm (coarse sand)	%	1	16.6	16.2	2%
Grain size 0.063 - 2 mm (sand)	%	1	46.8	44.6	5%
Grain size 0.004 - 0.063 mm (silt)	%	1	49.7	51.9	4%
Clay Content <0.004 mm	%	1	2.6	2.9	-
Fine Sand Content	%	1	30.2	28.3	6%
Metals					
Aluminum	mg/kg	50	5110	4200	20%
Antimony	mg/kg	0.1	< 0.10	< 0.10	-
Arsenic	mg/kg	0.1	3.15	2.64	18%
Barium	mg/kg	0.5	35	29.1	18%
Beryllium	mg/kg	0.1	0.2	0.14	-
Bismuth	mg/kg	0.2	< 0.20	< 0.20	-
Boron	mg/kg	5	< 5.0	< 5.0	-
Cadmium	mg/kg	0.02	0.073	0.062	-
Calcium	mg/kg	50	2010	1610	22%
Chromium	mg/kg	0.5	15.6	15.6	0%
Cobalt	mg/kg	0.1	5.61	4.6	20%
Copper	mg/kg	0.5	21.2	16.7	24%
Iron	mg/kg	50	8570	7050	19%
Lead	mg/kg	0.5	2.69	2.22	-
Lithium	mg/kg	2	7.8	6.2	-
Magnesium	mg/kg	20	2210	1890	16%
Manganese	mg/kg	1	69.5	58.1	18%
Mercury	mg/kg	0.0050	0.0214	0.0187	-
Molybdenum	mg/kg	0.1	0.28	0.27	-
Nickel	mg/kg	0.5	22.4	19.6	13%
Phosphorus	mg/kg	50	429	429	0%
Potassium	mg/kg	100	470	390	-
Selenium	mg/kg	0.2	< 0.20	< 0.20	-
Silver	mg/kg	0.1	< 0.10	< 0.10	-
Sodium	mg/kg	50	108	96	-
Strontium	mg/kg	0.5	10.1	8.33	19%
Thallium	mg/kg	0.05	< 0.050	< 0.050	-
Tin	mg/kg	2	< 2.0	< 2.0	-
Titanium	mg/kg	1	216	202	7%
Uranium	mg/kg	0.05	0.618	0.528	16%
Vanadium	mg/kg	0.2	18.8	15.4	20%
Zinc	mg/kg	2	32.1	25.6	23%
Zirconium	mg/kg	1	< 1.0	< 1.0	-
Tungsten	mg/kg	0.5	< 0.50	< 0.50	-
RPD values over 35%	-	-			0
% values over 35%	-	-			0%

Notes:
% = percent; < = less than; > = greater than; RDL= reportable detection limit; mg/kg = milligram per kilogram; mm = millimetre; µm = micrometre; RPD = relative percent difference.
Results are expressed as milligrams per killogram dry weight except where noted.
If both values were < detection limit, or if values were ≤5 times the DL, the RPD was not calculated ("-").
RPD = absolute value[100 x (sample - duplicate)/(sample + duplicate)/2].

Parameter	Unit	DL	YL2100283-001	YL2100283-002	YL2100283-004	YL2100283-005	YL2100283-006	YL2100283-015	YL2100283-020	YL2100283-016	YL2100283-017	YL2100283-018	YL2100283-019	YL2100283-015	YL2100261-001	YL2100261-002	YL2100261-003	YL2100261-004	YL2100261-005	YL2100261-007
			BRP-29-1	BRP-29-2	BRP-29-3	BRP-29-4	BRP-29-5	BRP-32-1	DUP-2	BRP-32-2	BRP-32-3	BRP-32-4	BRP-32-5	BRP-33-1	BRP-33-2	BRP-33-3	BRP-33-4	BRP-33-5		
			2021-04-13	2021-04-13	2021-04-13	2021-04-13	2021-04-13	2021-04-15	2021-04-15	2021-04-15	2021-04-15	2021-04-15	2021-04-15	2021-04-11	2021-04-11	2021-04-11	2021-04-11	2021-04-12		
			Sample	Sample	Sample	Sample	Sample	Sample	Duplicate (YL2100283-015)	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample		
Total Metals																				
Aluminum	µg/L	0.2	26.6	30	28.7	28.9	31	29.2	22.2	21.1	22.2	22.2	21.4	36.1	29.7	29.2	25.7	26.1	13	
Antimony	µg/L	0.005	0.0199	0.0138	0.0462	0.0232	0.0246	0.0874	0.0225	0.0168	0.034	0.0185	0.0153	0.0758	0.0248	0.0444	0.0382	0.0216	0.0239	
Arsenic	µg/L	0.01	0.295	0.3	0.296	0.312	0.331	0.366	0.319	0.331	0.344	0.336	0.319	0.526	0.366	0.39	0.35	0.356	0.251	
Barium	µg/L	0.02	12.4	13	12.4	13.2	13.6	11	9.71	9.8	10.2	10.2	9.9	15.8	12.1	12.9	11.7	12.4	6.59	
Beryllium	µg/L	0.002	0.0062	0.0068	0.0079	0.0082	0.009	0.0053	0.0046	0.0047	0.0062	0.0058	0.0057	0.0068	0.0062	0.0064	0.007	0.0068	0.0028	
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Cadmium	µg/L	0.0025	0.0149	0.0178	0.0181	0.019	0.0191	0.0081	0.006	0.0096	0.0096	0.0081	0.0089	0.0248	0.0163	0.0115	0.0094	0.0079	0.0032	
Calcium	µg/L	10	6160	7080	6410	6660	7160	5550	5100	5090	5140	5280	5160	7940	6060	6300	5820	6150	3480	
Chromium	µg/L	0.04	0.132	0.152	0.149	0.156	0.16	0.193	0.154	0.15	0.162	0.166	0.151	0.337	0.252	0.235	0.239	0.198	0.139	
Cobalt	µg/L	0.005	0.411	0.509	0.419	0.489	0.502	0.15	0.146	0.13	0.126	0.132	0.128	0.25	0.278	0.282	0.248	0.239	0.0528	
Copper	µg/L	0.05	2.74	3.08	2.96	3.02	3.32	3.24	2.86	2.84	3.16	2.96	2.86	5.2	3.78	3.7	3.34	3.36	1.72	
Iron	µg/L	0.5	16.7	19.8	17.1	19.5	21.2	28.4	20.3	19.6	18.9	18.9	18.1	49.6	40	38.3	35.9	37.1	18.9	
Lanthanum	µg/L	0.01	0.516	0.528	0.511	0.532	0.552	0.428	0.345	0.34	0.345	0.352	0.332	0.525	0.38	0.394	0.377	0.394	0.114	
Lead	µg/L	0.005	0.0061	<0.005	0.015	0.0284	0.0477	0.0473	0.0113	0.0084	0.0299	<0.005	<0.005	0.217	0.0755	0.0993	0.047	0.0212	0.0205	
Lithium	µg/L	0.1	1.05	1.09	1.07	1.11	1.13	1.19	1.06	1.12	1.19	1.19	1.13	1.7	1.31	1.36	1.28	1.36	0.83	
Magnesium	µg/L	1	3190	3740	3440	3570	3750	3550	3320	3270	3									

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5

Parameter	Unit	DL	YL2100261-012	YL2100261-008	YL2100261-009	YL2100261-010	YL2100261-011	YL2100283-009	YL2100283-010	YL2100283-011	YL2100283-012	YL2100283-013	YL2101054-001	YL2101054-011	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	YL2101054-006	
			DUP-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-40-1	BRP-40-2	BRP-40-3	BRP-40-4	BRP-40-5	BRP-35-1	BRP-QC-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-36-1	
			2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-14	2021-04-14	2021-04-14	2021-04-14	2021-04-14	2021-04-14	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-16	
			Duplicate (YL2100261-007)	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Duplicate (YL2101054-001)	Sample	Sample	Sample	Sample	Sample	
Total Metals																				
Aluminum	µg/L	0.2	13.7	13.1	12.6	14	12.3	3.11	2.44	2.65	2.83	2.66	8.06	8.32	8.24	9.19	8.85	8.07	8.46	
Antimony	µg/L	0.005	0.0383	0.0164	0.0216	0.0144	0.0178	0.0234	0.0147	0.0096	0.018	0.013	<0.005	0.0055	0.0051	0.0087	0.0075	0.0054	0.0054	
Arsenic	µg/L	0.01	0.259	0.251	0.25	0.24	0.237	0.274	0.258	0.264	0.271	0.272	0.156	0.155	0.147	0.147	0.147	0.15	0.147	
Barium	µg/L	0.02	6.77	6.63	6.34	6.34	6.3	7.88	7.57	8.03	8.57	8.53	3.44	3.44	3.43	3.46	3.52	3.41	3.44	
Beryllium	µg/L	0.002	0.0033	0.0028	0.0026	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0021	0.0022	<0.002	
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Cadmium	µg/L	0.0025	0.0044	0.004	0.0031	0.0041	<0.0025	0.0034	<0.0025	0.0028	0.0041	<0.0025	<0.0025	<0.0025	<0.0025	0.0025	0.0032	<0.0025	0.0028	
Calcium	µg/L	10	3590	3600	3470	3320	3840	3320	3840	3940	4010	4040	1790	1790	1770	1780	1780	1760	1700	
Chromium	µg/L	0.04	0.147	0.126	0.121	0.115	0.113	0.059	0.058	0.058	0.057	0.058	0.054	0.056	0.057	0.06	0.06	0.056	0.06	
Cobalt	µg/L	0.005	0.0568	0.052	0.0538	0.0535	0.0519	0.168	0.124	0.147	0.254	0.195	0.0661	0.0695	0.0726	0.0706	0.0706	0.0705	0.0756	
Copper	µg/L	0.05	1.81	1.72	1.65	1.64	1.62	0.948	0.916	0.948	0.953	0.952	0.868	0.9	0.888	0.918	0.915	0.879	0.894	
Iron	µg/L	0.5	19.6	13.8	13.5	13.8	14	54.8	46.1	49.1	62.9	70.5	27.7	29.2	28	28.6	29.2	28.6	28.5	
Lanthanum	µg/L	0.01	0.119	0.115	0.115	0.115	0.11	0.043	0.037	0.042	0.044	0.043	0.064	0.065	0.066	0.066	0.07	0.067	0.071	
Lead	µg/L	0.005	0.0251	0.0102	0.0113	0.0137	0.0205	0.0064	<0.005	<0.005	0.0139	0.0055	<0.005	0.0058	<0.005	0.011	0.0131	<0.005	0.0069	
Lithium	µg/L	0.1	0.84	0.82	0.82	0.78	0.8	0.78	0.77	0.86	0.79	0.82	0.43	0.42	0.42	0.43	0.42	0.43	0.4	

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6

Table A-5: Comparison of Total Metals to Dissolved Metals in Water, 2021

Parameter	Unit	DL	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010	YL2100283-014	YL2100261-006	YL2101054-012
			BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5	TB-1	FB-1	FB
			2021-08-14	2021-08-14	2021-08-14	2021-08-14	2021-04-14	2021-04-11	2021-08-15
			Sample	Sample	Sample	Sample	Field Blank	Field Blank	Field Blank
Total Metals									
Aluminum	µg/L	0.2	8.44	8.22	7.99	8.16	<0.2	<0.2	<0.2
Antimony	µg/L	0.005	0.0053	0.0056	0.0058	0.0066	<0.005	<0.005	<0.005
Arsenic	µg/L	0.01	0.149	0.137	0.15	0.145	<0.01	<0.01	<0.01
Barium	µg/L	0.02	3.62	3.54	3.41	3.43	<0.02	<0.02	<0.02
Beryllium	µg/L	0.002	<0.002	0.0023	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5
Cadmium	µg/L	0.0025	<0.0025	<0.0025	0.0042	0.0032	<0.0025	<0.0025	<0.0025
Calcium	µg/L	10	1750	1720	1730	1740	<10	<10	<10
Chromium	µg/L	0.04	0.059	0.06	0.062	0.061	<0.04	<0.04	<0.04
Cobalt	µg/L	0.005	0.0773	0.0776	0.0773	0.08	<0.005	<0.005	<0.005
Copper	µg/L	0.05	0.895	0.914	0.887	0.945	<0.05	<0.05	<0.05
Iron	µg/L	0.5	29.9	30.5	29.5	28.6	<0.5	<0.5	<0.5
Lanthanum	µg/L	0.01	0.066	0.068	0.071	0.069	<0.01	<0.01	<0.01
Lead	µg/L	0.005	0.0069	0.0072	0.0114	0.0108	<0.005	<0.005	<0.005
Lithium	µg/L	0.1	0.43	0.43	0.42	0.42	<0.1	<0.1	<0.1
Magnesium	µg/L	1	1150	1140	1120	1120	<1	<1	<1
Manganese	µg/L	0.005	4.41	4.55	4.3	4.38	<0.005	<0.005	<0.005
Mercury	µg/L	0.0005	0.00107	0.00079	0.00076	0.00072	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	µg/L	0.02	2.16	2.14	2.15	2.17	<0.02	<0.02	<0.02
Potassium	µg/L	5	284	282	279	280	<5	<5	<5
Selenium	µg/L	0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Silicon	µg/L	50	143	141	139	137	<50	<50	<50
Silver	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	µg/L	10	455	455	441	468	<10	<10	<10
Strontium	µg/L	0.02	7.37	7.3	7.2	7.31	<0.02	<0.02	<0.02
Sulphur	µg/L	500	1580	1560	1550	1550	<500	<500	<500
Thallium	µg/L	0.001	0.0011	0.0011	0.0013	0.0011	<0.001	<0.001	<0.001
Tin	µg/L	0.01	0.02	0.027	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Uranium	µg/L	0.001	0.0059	0.0057	0.0064	0.0039	<0.001	<0.001	<0.001
Vanadium	µg/L	0.01	0.027	0.023	0.024	0.024	<0.01	<0.01	<0.01
Zinc	µg/L	0.1	0.74	0.66	0.86	1.28	<0.1	<0.1	<0.1
Zirconium	µg/L	0.01	0.027	0.029	0.026	0.029	<0.01	<0.01	<0.01
Dissolved Metals									
Aluminum	µg/L	0.2	5.56	5.5	5.67	6.8	0.59	<0.2	<0.2
Antimony	µg/L	0.005	0.0055	0.0052	0.0054	0.0078	<0.005	<0.005	<0.005
Arsenic	µg/L	0.01	0.144	0.144	0.143	0.148	<0.01	<0.01	<0.01
Barium	µg/L	0.042	3.4	3.54	3.41	3.46	0.042	<0.02	<0.02
Beryllium	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5
Cadmium	µg/L	0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Chromium	µg/L	0.04	0.05	0.052	0.052	0.066	<0.04	<0.04	<0.04
Cobalt	µg/L	0.005	0.0177	0.0197	0.021	0.0214	<0.005	<0.005	<0.005
Copper	µg/L	0.05	0.866	0.869	0.863	0.915	<0.05	<0.05	<0.05
Iron	µg/L	0.5	7.45	7.31	7.49	9.12	<0.5	<0.5	<0.5
Lead	µg/L	0.005	<0.005	<0.005	0.0067	0.0104	<0.005	<0.005	<0.005
Lithium	µg/L	0.1	0.4	0.41	0.42	0.4	<0.1	<0.1	<0.1
Manganese	µg/L	0.005	0.412	0.366	0.468	0.61	<0.005	<0.005	0.012
Mercury	µg/L	0.0005	0.00054	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.048
Nickel	µg/L	0.02	2.07	2.1	2.13	2.1	<0.02	<0.02	<0.02
Selenium	µg/L	0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Silicon	µg/L	50	138	138	139	138	<50	<50	<50
Silver	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	7.26	7.24	7.26	7.29	<0.02	<0.02	<0.02
Sulphur	µg/L	500	1560	1530	1560	1560	<500	<500	<500
Thallium	µg/L	0.01	<0.001	0.0011	0.0012	0.001	<0.001	<0.001	<0.001
Tin	µg/L	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.3	<0.05	<0.05	<0.05	0.057	<0.05	<0.05	<0.05
Uranium	µg/L	0.001	0.0053	0.0066	0.0039	0.005^(m)	<0.001	<0.001	<0.001
Vanadium	µg/L	0.01	0.017	0.019	0.018	0.02	<0.01	<0.01	<0.01
Zinc	µg/L	0.1	0.52	0.57	0.67	1.4	<0.1	<0.1	0.13
Zirconium	µg/L	0.01	0.026	0.029	0.027	0.029	<0.01	<0.01	<0.01

Notes:
- = no data or not applicable.
Bolded values failed to pass one or more quality control checks.
^(m) = value exceeds the corresponding total metal value by 20% or more.

ATTACHMENT

Certificate of Analysis




GOLDER ASSOCIATES LTD
ATTN: Zenovia Craciunescu
16820 107 Ave NW
EDMONTON AB T5P 4C3

Date Received: 24-AUG-21
Report Date: 02-SEP-21 16:03 (MT)
Version: FINAL

Client Phone: 780-222-0587

Certificate of Analysis

Lab Work Order #: L2630754
Project P.O. #: NOT SUBMITTED
Job Reference: 20412211/2500/2520
C of C Numbers:
Legal Site Desc: SABINA FACILITY CODE: 176233659


Harman Bhullar
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2630754-1 BRP-35-1-A Sampled By: GO on 16-AUG-21 @ 09:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.946		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-2 BRP-35-1-B Sampled By: GO on 16-AUG-21 @ 09:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.896		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-3 BRP-35-1-C Sampled By: GO on 16-AUG-21 @ 09:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.934		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-4 BRP-35-2-A Sampled By: GO on 16-AUG-21 @ 11:05 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.23		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-5 BRP-35-2-B Sampled By: GO on 16-AUG-21 @ 11:05 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.07		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-6 BRP-35-2-C Sampled By: GO on 16-AUG-21 @ 11:05 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.881		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-7 BRP-35-3-A Sampled By: GO on 16-AUG-21 @ 13:25 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.956		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-8 BRP-35-3-B Sampled By: GO on 16-AUG-21 @ 13:25 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.847		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-9 BRP-35-3-C Sampled By: GO on 16-AUG-21 @ 13:25 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.597		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-10 BRP-35-4-A Sampled By: GO on 16-AUG-21 @ 14:40 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.972		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2630754-11 BRP-35-4-B Sampled By: GO on 16-AUG-21 @ 14:40 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.897		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-12 BRP-35-4-C Sampled By: GO on 16-AUG-21 @ 14:40 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.951		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-13 BRP-36-5-A Sampled By: GO on 14-AUG-21 @ 11:05 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.902		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-14 BRP-36-5-B Sampled By: GO on 14-AUG-21 @ 11:05 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.996		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-15 BRP-36-5-C Sampled By: GO on 14-AUG-21 @ 11:05 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.888		0.010	ug/L	16-AUG-21	01-SEP-21	R5573692
L2630754-16 BRP-35-5-A Sampled By: GO on 16-AUG-21 @ 12:15 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.990		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-17 BRP-35-5-B Sampled By: GO on 16-AUG-21 @ 12:15 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.896		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-18 BRP-35-5-C Sampled By: GO on 16-AUG-21 @ 12:15 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.996		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-19 BRP-36-1-A Sampled By: GO on 14-AUG-21 @ 12:45 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.590		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-20 BRP-36-1-B Sampled By: GO on 14-AUG-21 @ 12:45 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.857		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2630754-21 BRP-36-1-C Sampled By: GO on 14-AUG-21 @ 12:45 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.821		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-22 BRP-36-2-A Sampled By: GO on 14-AUG-21 @ 13:50 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.02		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-23 BRP-36-2-B Sampled By: GO on 14-AUG-21 @ 13:50 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.06		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-24 BRP-36-2-C Sampled By: GO on 14-AUG-21 @ 13:50 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.849		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-25 BRP-36-3-A Sampled By: GO on 14-AUG-21 @ 14:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.06		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-26 BRP-36-3-B Sampled By: GO on 14-AUG-21 @ 14:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.10		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-27 BRP-36-3-C Sampled By: GO on 14-AUG-21 @ 14:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	1.17		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-28 BRP-36-4-A Sampled By: GO on 14-AUG-21 @ 17:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.983		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-29 BRP-36-4-B Sampled By: GO on 14-AUG-21 @ 17:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.980		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692
L2630754-30 BRP-36-4-C Sampled By: GO on 14-AUG-21 @ 17:30 Matrix: WHATMAN FILTER Miscellaneous Parameters Chlorophyll a	0.886		0.010	ug/L	14-AUG-21	01-SEP-21	R5573692

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CHLOROA-F-VA	Water	Chlorophyll a by Fluorometer	EPA 445.0
This analysis is done using procedures modified from EPA Method 445.0. Chlorophyll-a is determined by a routine acetone extraction followed with analysis by fluorometry using the non-acidification procedure. This method is not subject to interferences from chlorophyll b.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

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

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2630754

Report Date: 02-SEP-21

Page 1 of 3

Client: GOLDER ASSOCIATES LTD
16820 107 Ave NW
EDMONTON AB T5P 4C3

Contact: Zenovia Craciunescu

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CHLOROA-F-VA		Water						
Batch	R5573692							
WG3608899-2	LCS							
Chlorophyll a			95.6		%		80-120	01-SEP-21
WG3608899-1	MB							
Chlorophyll a			<0.010		ug		0.01	01-SEP-21

Quality Control Report

Workorder: L2630754

Report Date: 02-SEP-21

Page 2 of 3

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Quality Control Report

Workorder: L2630754

Report Date: 02-SEP-21

Page 3 of 3

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Plant Pigments							
Chlorophyll a by Fluorometer							
	13	14-AUG-21 11:05	16-AUG-21 12:15	48	49	hours	EHTR
	14	14-AUG-21 11:05	16-AUG-21 12:15	48	49	hours	EHTR
	15	14-AUG-21 11:05	16-AUG-21 12:15	48	49	hours	EHTR

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2630754 were received on 24-AUG-21 14:11.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Canada Toll Free: 1 800 668 9878



Page 1 of 3

Report To Company: Golder Associates Ltd. Contact: Zenovia Craciunescu Phone: 780-222-0587 (cell) Company address below will appear on the final report			Report Format / Distribution Select Report Format: <input type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax ZCraciunescu@golder.com Email 2 KSerben@golder.com Email 3 mkeefe@sabinagoldsilver.com			Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply) Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply EMERGENCY 4 day [P4-20%] <input type="checkbox"/> 3 day [P3-25%] <input type="checkbox"/> 2 day [P2-50%] <input type="checkbox"/> 1 Business day [E - 100%] <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E2 -200%] <input type="checkbox"/> (Laboratory opening fees may apply)] Date and Time Required for all E&P TATs: For tests that can not be performed according to the service level selected, you will be contacted.																																											
Street: 16820 107 Ave NW City/Province: Edmonton, AB Postal Code: T5P 4C3			Invoice To: Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Company: Sabina Gold And Silver Corp Contact: Merte Keefe (604 998 4190) mkeefe@sabinagoldsilver.com			Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below F Samples for Archive SUSPECTED HAZARD (see Special Instructions)																																											
Project Information ALS Account # / Quote #: YL2021SAB10000001_v2 Job #: 20412211/2500/2520 PO / AFE: LSD: Sabina Facility Code: 176233659			Oil and Gas Required Fields (client use) AFE/Cost Center: Major/Minor Code: Requisitioner: Location:			NUMBER OF CONTAINERS Archive #1 Chlorophyll a (see attached)																																											
ALS Lab Work Order # (lab use only):			ALS Contact: Oliver Gregg			Sampler: Golder																																											
ALS Sample # (lab use only)										Sample Identification and/or Coordinates (This description will appear on the report)										Date (dd-mmm-yy)										Time (hh:mm)										Sample Type									
BRP-35-1-A																				16-Aug-21										9:30										Whatman Filter									
BRP-35-1-B																				16-Aug-21										9:30										Whatman Filter									
BRP-35-1-C																				16-Aug-21										9:30										Whatman Filter									
BRP-35-2-A																				16-Aug-21										11:05										Whatman Filter									
BRP-35-2-B																				16-Aug-21										11:05										Whatman Filter									
BRP-35-2-C																				16-Aug-21										11:05										Whatman Filter									
BRP-35-3-A																				16-Aug-21										13:25										Whatman Filter									
BRP-35-3-B																				16-Aug-21										13:25										Whatman Filter									
BRP-35-3-C																				16-Aug-21										13:25										Whatman Filter									
BRP-35-4-A																				16-Aug-21										14:40										Whatman Filter									
BRP-35-4-B																				16-Aug-21										14:40										Whatman Filter									
BRP-35-4-C																				16-Aug-21										14:40										Whatman Filter									
Drinking Water (DW) Samples¹ (client use)										Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)										SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input checked="" type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C -6.8 FINAL COOLER TEMPERATURES °C																													
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO										Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO										SHIPMENT RELEASE (client use) Released by: Christina Campbell Date: 24-Aug-21 Time: 1430										INITIAL SHIPMENT RECEPTION (lab use only) Received by: [Signature] Date: 24/08/2021 Time: 2:11pm										FINAL SHIPMENT RECEPTION (lab use only) Received by: [Signature] Date: [Blank] Time: [Blank]									

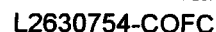
NOV 2018 FRONT

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**.



Canada Toll Free: 1 800 668 9878



COC Number: 1

Page 2 of 2

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

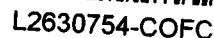
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Canada Toll Free: 1 800 668 9878



COC Number: 1

Page 3 of 3

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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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**.

CERTIFICATE OF ANALYSIS

Work Order : **YL2100261**
Amendment : **2**
Client : **Sabina Gold & Silver Corporation**
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2500/20
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 13
No. of samples analysed : 13

Page : 1 of 14

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 13-Apr-2021 14:30
Date Analysis Commenced : 16-Apr-2021
Issue Date : 01-Sep-2021 16:12

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Richard Chong		Metals, Burnaby, British Columbia
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
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.
SFP	Sample was filtered and preserved at the laboratory.



Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					BRP-33-1	BRP-33-2	BRP-33-3	BRP-33-4	BRP-33-5
Client sampling date / time					11-Apr-2021 09:30	11-Apr-2021 11:00	11-Apr-2021 12:45	11-Apr-2021 14:00	11-Apr-2021 15:10
Analyte	CAS Number	Method	LOR	Unit	YL2100261-001	YL2100261-002	YL2100261-003	YL2100261-004	YL2100261-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	11.0	9.2	9.1	8.5	9.8
conductivity	----	E100	2.0	µS/cm	86.2	73.1	74.8	69.5	75.9
hardness (as CaCO ₃), dissolved	----	EC100	0.50	mg/L	35.5	33.3	32.7	31.0	33.4
pH	----	E108	0.10	pH units	6.90	6.87	6.85	6.86	7.02
solids, total dissolved [TDS]	----	E162	10	mg/L	69	55	62	58	58
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	56.7	49.4	50.3	46.7	51.0
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU	0.18	0.17	0.25	0.13	0.27
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0339	0.0241	0.0245	0.0214	0.0283
chloride	16887-00-6	E235.Cl	0.50	mg/L	5.21	4.39	4.46	4.08	4.61
fluoride	16984-48-8	E235.F	0.020	mg/L	0.038	0.037	0.031	0.030	0.035
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0778	0.0788	0.0786	0.0742	0.0780
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0014	<0.0010	<0.0010	<0.0010	<0.0010
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0021	<0.0010	0.0013	<0.0010	<0.0010
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0046	0.0041	0.0052	0.0039	0.0034
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0025 ^{SFP}	0.0035 ^{SFP}	0.0029 ^{SFP}	0.0095 ^{SFP}	0.0050 ^{SFP}
silicate (as SiO ₂)	7631-86-9	E392	0.50	mg/L	2.56	2.30	2.20	2.09	2.30
sulfate (as SO ₄)	14808-79-8	E235.SO4-L	0.050	mg/L	17.9	15.2	15.6	14.5	15.9
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.422	0.337	0.389	0.333	0.349
Cyanides									
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	8.95	7.77	8.59	7.66	8.12
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	8.56	7.59	7.80	7.16	8.12
Total Metals									
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00917	0.00089	0.00366	0.00075	0.00142



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-33-1	BRP-33-2	BRP-33-3	BRP-33-4	BRP-33-5
Client sampling date / time					11-Apr-2021 09:30	11-Apr-2021 11:00	11-Apr-2021 12:45	11-Apr-2021 14:00	11-Apr-2021 15:10	
Analyte	CAS Number	Method	LOR	Unit	YL2100261-001	YL2100261-002	YL2100261-003	YL2100261-004	YL2100261-005	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0361	0.0297	0.0292	0.0257	0.0261	
antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000758	0.0000248	0.0000444	0.0000382	0.0000216	
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000526	0.000366	0.000390	0.000350	0.000356	
barium, total	7440-39-3	E466	0.000020	mg/L	0.0158	0.0121	0.0129	0.0117	0.0124	
beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000068	0.0000062	0.0000064	0.0000070	0.0000068	
bismuth, total	7440-69-9	E466	0.0000010	mg/L	0.0000010	<0.0000010	0.0000010	<0.0000010	<0.0000010	
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000248	0.0000163	0.0000115	0.0000094	0.0000079	
calcium, total	7440-70-2	E466	0.010	mg/L	7.94	6.06	6.30	5.82	6.15	
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000337	0.000252	0.000235	0.000239	0.000198	
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000250	0.000278	0.000282	0.000248	0.000239	
copper, total	7440-50-8	E466	0.000050	mg/L	0.00520	0.00378	0.00370	0.00334	0.00336	
iron, total	7439-89-6	E466	0.00050	mg/L	0.0496	0.0400	0.0383	0.0359	0.0371	
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000525	0.000380	0.000394	0.000377	0.000394	
lead, total	7439-92-1	E466	0.0000050	mg/L	0.000217	0.0000755	0.0000993	0.0000470	0.0000212	
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00170	0.00131	0.00136	0.00128	0.00136	
magnesium, total	7439-95-4	E466	0.0010	mg/L	5.10	3.92	4.02	3.74	3.96	
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00981	0.00955	0.0107	0.0103	0.00969	
molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000052	0.000050	0.000047	0.000027	0.000020	
nickel, total	7440-02-0	E466	0.000020	mg/L	0.0126	0.00967	0.00995	0.00938	0.00971	
potassium, total	7440-09-7	E466	0.0050	mg/L	0.929	0.660	0.684	0.632	0.671	
selenium, total	7782-49-2	E466	0.000025	mg/L	0.000067	0.000049	0.000051	0.000047	0.000040	
silicon, total	7440-21-3	E466	0.050	mg/L	1.47	1.06	1.10	1.02	1.08	
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	
sodium, total	17341-25-2	E466	0.010	mg/L	2.46	1.41	1.48	1.36	1.43	
strontium, total	7440-24-6	E466	0.000020	mg/L	0.0390	0.0296	0.0307	0.0287	0.0300	
sulfur, total	7704-34-9	E466	0.50	mg/L	7.89	5.51	5.76	5.24	5.48	
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000031	0.0000021	0.0000025	0.0000025	0.0000028	
tin, total	7440-31-5	E466	0.000010	mg/L	0.000450	0.000099	0.000206	0.000024	0.000030	
titanium, total	7440-32-6	E466	0.000050	mg/L	0.000244	0.000104	0.000179	0.000124	0.000098	
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000225	0.0000143	0.0000133	0.0000160	0.0000202	



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-33-1	BRP-33-2	BRP-33-3	BRP-33-4	BRP-33-5
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2100261-001	YL2100261-002	YL2100261-003	YL2100261-004	YL2100261-005	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000082	0.000064	0.000054	0.000050	0.000051	
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00634	0.00338	0.00286	0.00202	0.00240	
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000198	0.000138	0.000145	0.000141	0.000137	
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0291	0.0258	0.0251	0.0241	0.0256	
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000409	0.0000275	0.0000276	0.0000251	0.0000256	
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000445	0.000392	0.000418	0.000425	0.000429	
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.0140	0.0121	0.0120	0.0118	0.0125	
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000082	0.0000069	0.0000046	0.0000050	0.0000076	
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000191	0.0000112	0.0000087	0.0000084	0.0000111	
calcium, dissolved	7440-70-2	E465	0.010	mg/L	6.98	6.44	6.34	5.97	6.53	
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000254	0.000204	0.000201	0.000202	0.000207	
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000176	0.000174	0.000215	0.000194	0.000170	
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00432	0.00356	0.00347	0.00331	0.00352	
dissolved metals filtration location	----	EP465	-	-	Field	Field	Field	Field	Field	
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0238	0.0238	0.0218	0.0216	0.0232	
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000758	0.0000195	0.0000198	0.0000107	0.0000076	
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00166	0.00142	0.00138	0.00129	0.00139	
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	4.40	4.18	4.09	3.90	4.15	
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00644	0.00676	0.00889	0.00816	0.00715	
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	0.00314	0.00076	0.00208	0.00094	0.00061	
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000032	0.000019	0.000179	0.000028	0.000398	
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.0111	0.0101	0.00990	0.00956	0.0101	
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.812	0.712	0.682	0.646	0.704	
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000048	0.000051	0.000049	0.000045	0.000044	
silicon, dissolved	7440-21-3	E465	0.050	mg/L	1.24	1.16	1.14	1.09	1.15	
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-33-1	BRP-33-2	BRP-33-3	BRP-33-4	BRP-33-5
(Matrix: Water)										
					Client sampling date / time	11-Apr-2021 09:30	11-Apr-2021 11:00	11-Apr-2021 12:45	11-Apr-2021 14:00	11-Apr-2021 15:10
Analyte	CAS Number	Method	LOR	Unit	YL2100261-001	YL2100261-002	YL2100261-003	YL2100261-004	YL2100261-005	
					Result	Result	Result	Result	Result	
Dissolved Metals										
sodium, dissolved	17341-25-2	E465	0.010	mg/L	2.02	1.54	1.51	1.41	1.51	
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0338	0.0318	0.0312	0.0297	0.0316	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	6.59	5.82	5.71	5.41	5.76	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000029	0.0000027	0.0000022	0.0000024	0.0000024	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	0.000227	0.000011	0.000148	0.000016	<0.000010	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000091	0.000078	0.000075	0.000074	0.000076	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000203	0.0000158	0.0000157	0.0000177	0.0000164	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000060	0.000049	0.000048	0.000043	0.000047	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00629	0.00256	0.00242	0.00168	0.00252	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000170	0.000153	0.000145	0.000136	0.000144	
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	Field	Field	Field	

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

Sub-Matrix: Water					Client sample ID	FB-1	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4
(Matrix: Water)										
Client sampling date / time					11-Apr-2021 15:30	12-Apr-2021 10:30	12-Apr-2021 12:45	12-Apr-2021 16:40	12-Apr-2021 14:20	
Analyte	CAS Number	Method	LOR	Unit	YL2100261-006	YL2100261-007	YL2100261-008	YL2100261-009	YL2100261-010	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	<1.0	7.3	7.3	7.3	7.3	
conductivity	----	E100	2.0	µS/cm	<2.0	47.1	48.1	46.0	44.4	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	<0.50	18.4	18.5	17.4	17.7	
pH	----	E108	0.10	pH units	5.64	6.88	6.95	6.92	6.89	
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	36	38	30	30	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	<1.0	31.2	30.6	29.9	29.5	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	<0.10	0.16	0.21	0.11	0.12	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0277	0.0248	0.0270	0.0251	
chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	2.00	2.01	1.98	1.92	
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	0.026	0.029	0.029	0.029	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	0.0098	0.0136	0.0107	0.0100	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	<0.0010	0.0049	0.0036	0.0038	0.0035	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	<0.0010 ^{SFP}	0.0039 ^{SFP}	0.0026 ^{SFP}	0.0021 ^{SFP}	0.0019 ^{SFP}	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	0.86	0.87	0.88	0.83	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	<0.050	9.12	9.20	9.12	8.86	
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	<0.200	0.287	0.252	0.300	0.266	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	7.24	6.41	6.33	6.16	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	6.07	5.69	5.92	5.57	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	<0.00050	<0.00050	0.00053	0.00054	<0.00050	
Total Metals (Undigested)										



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	FB-1	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4
Client sampling date / time					11-Apr-2021 15:30	12-Apr-2021 10:30	12-Apr-2021 12:45	12-Apr-2021 16:40	12-Apr-2021 14:20	
Analyte	CAS Number	Method	LOR	Unit	YL2100261-006	YL2100261-007	YL2100261-008	YL2100261-009	YL2100261-010	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	<0.00020	0.0130	0.0131	0.0126	0.0140	
antimony, total	7440-36-0	E466	0.0000050	mg/L	<0.0000050	0.0000239	0.0000164	0.0000216	0.0000144	
arsenic, total	7440-38-2	E466	0.000010	mg/L	<0.000010	0.000251	0.000251	0.000250	0.000240	
barium, total	7440-39-3	E466	0.000020	mg/L	<0.000020	0.00659	0.00663	0.00634	0.00634	
beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	0.0000028	0.0000028	0.0000026	<0.0000020	
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	0.0000032	0.0000040	0.0000031	0.0000041	
calcium, total	7440-70-2	E466	0.010	mg/L	<0.010	3.48	3.60	3.47	3.32	
chromium, total	7440-47-3	E466	0.000040	mg/L	<0.000040	0.000139	0.000126	0.000121	0.000115	
cobalt, total	7440-48-4	E466	0.0000050	mg/L	<0.0000050	0.0000528	0.0000520	0.0000538	0.0000535	
copper, total	7440-50-8	E466	0.000050	mg/L	<0.000050	0.00172	0.00172	0.00165	0.00164	
iron, total	7439-89-6	E466	0.00050	mg/L	<0.00050	0.0189	0.0138	0.0135	0.0138	
lanthanum, total	7439-91-0	E466	0.000010	mg/L	<0.000010	0.000114	0.000115	0.000115	0.000115	
lead, total	7439-92-1	E466	0.0000050	mg/L	<0.0000050	0.0000205	0.0000102	0.0000113	0.0000137	
lithium, total	7439-93-2	E466	0.00010	mg/L	<0.00010	0.00083	0.00082	0.00082	0.00078	
magnesium, total	7439-95-4	E466	0.0010	mg/L	<0.0010	2.36	2.41	2.35	2.29	
manganese, total	7439-96-5	E466	0.0000050	mg/L	<0.0000050	0.00284	0.00271	0.00256	0.00272	
molybdenum, total	7439-98-7	E466	0.000010	mg/L	<0.000010	0.000014	0.000011	<0.000010	0.000013	
nickel, total	7440-02-0	E466	0.000020	mg/L	<0.000020	0.00422	0.00431	0.00409	0.00399	
potassium, total	7440-09-7	E466	0.0050	mg/L	<0.0050	0.496	0.506	0.478	0.460	
selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	0.000028	0.000032	0.000030	0.000033	
silicon, total	7440-21-3	E466	0.050	mg/L	<0.050	0.394	0.394	0.393	0.381	
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	
sodium, total	17341-25-2	E466	0.010	mg/L	<0.010	0.991	0.960	0.930	0.903	
strontium, total	7440-24-6	E466	0.000020	mg/L	<0.000020	0.0154	0.0157	0.0151	0.0147	
sulfur, total	7704-34-9	E466	0.50	mg/L	<0.50	3.08	3.16	3.15	3.01	
thallium, total	7440-28-0	E466	0.0000010	mg/L	<0.0000010	0.0000013	0.0000018	0.0000016	0.0000014	
tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
titanium, total	7440-32-6	E466	0.000050	mg/L	<0.000050	0.000086	0.000588	<0.000050	0.000050	
uranium, total	7440-61-1	E466	0.0000010	mg/L	<0.0000010	0.0000093	0.0000081	0.0000092	0.0000087	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	FB-1	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4
Client sampling date / time					11-Apr-2021 15:30	12-Apr-2021 10:30	12-Apr-2021 12:45	12-Apr-2021 16:40	12-Apr-2021 14:20	
Analyte	CAS Number	Method	LOR	Unit	YL2100261-006	YL2100261-007	YL2100261-008	YL2100261-009	YL2100261-010	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L	<0.000010	0.000033	0.000035	0.000033	0.000029	
zinc, total	7440-66-6	E466	0.00010	mg/L	<0.00010	0.00126	0.00089	0.00075	0.00079	
zirconium, total	7440-67-7	E466	0.000010	mg/L	<0.000010	0.000064	0.000060	0.000076	0.000057	
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	<0.00020	0.0121	0.0122	0.0114	0.0120	
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	<0.0000050	0.0000179	0.0000129	0.000376	0.0000134	
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	<0.000010	0.000331	0.000320	0.000328	0.000514	
barium, dissolved	7440-39-3	E465	0.000020	mg/L	<0.000020	0.00643	0.00666	0.00626	0.00640	
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	0.0000057	0.0000027	0.0000031	0.0000022	
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	0.0000039	0.0000038	<0.0000025	0.0000028	
calcium, dissolved	7440-70-2	E465	0.010	mg/L	<0.010	3.46	3.50	3.28	3.35	
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	<0.000040	0.000128	0.000118	0.000107	0.000109	
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	<0.0000050	0.0000433	0.0000392	0.0000398	0.0000427	
copper, dissolved	7440-50-8	E465	0.000050	mg/L	<0.000050	0.00170	0.00169	0.00158	0.00162	
dissolved metals filtration location	----	EP465	-	-	Field	Field	Field	Field	Field	
iron, dissolved	7439-89-6	E465	0.00050	mg/L	<0.00050	0.00944	0.00928	0.00867	0.00952	
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	<0.0000050	0.0000230	0.0000069	0.0000062	0.0000089	
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	<0.00010	0.00152	0.00083	0.00077	0.00081	
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	<0.0010	2.38	2.37	2.23	2.26	
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	<0.0000050	0.00209	0.00204	0.00181	0.00199	
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	<0.00050	0.00060	<0.00050	<0.00050	<0.00050	
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	<0.000010	0.000014	<0.000010	0.000017	0.000011	
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	<0.000020	0.00420	0.00420	0.00402	0.00402	
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	<0.0050	0.486	0.498	0.456	0.461	
rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	0.000032	0.000029	<0.000025	0.000041	
silicon, dissolved	7440-21-3	E465	0.050	mg/L	<0.050	0.404	0.418	0.399	0.405	
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	FB-1	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4
Client sampling date / time						11-Apr-2021 15:30	12-Apr-2021 10:30	12-Apr-2021 12:45	12-Apr-2021 16:40	12-Apr-2021 14:20
Analyte	CAS Number	Method	LOR	Unit	YL2100261-006	YL2100261-007	YL2100261-008	YL2100261-009	YL2100261-010	
					Result	Result	Result	Result	Result	
Dissolved Metals										
sodium, dissolved	17341-25-2	E465	0.010	mg/L	<0.010	0.955	0.952	0.878	0.916	
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	<0.000020	0.0153	0.0154	0.0144	0.0148	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	<0.50	3.12	3.26	3.09	3.12	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	<0.0000010	0.0000016	0.0000017	0.0000011	0.0000014	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	0.000053	<0.000050	0.000077	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	<0.0000010	0.0000081	0.0000076	0.0000078	0.0000087	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	<0.000010	0.000032	0.000029	0.000030	0.000030	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	<0.00010	0.00115	0.00085	0.00098	0.00099	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	<0.000010	0.000063	0.000064	0.000061	0.000071	
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	Field	Field	Field	

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

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-35-5	DUP-1	BRP-33-2B	----	----
Client sampling date / time					12-Apr-2021 17:45	12-Apr-2021 11:00	11-Apr-2021 11:00	----	----	
Analyte	CAS Number	Method	LOR	Unit	YL2100261-011	YL2100261-012	YL2100261-013	-----	-----	
					Result	Result	Result	----	----	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	7.0	7.4	----	----	----	
conductivity	----	E100	2.0	µS/cm	44.4	45.3	----	----	----	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	17.4	18.2	----	----	----	
pH	----	E108	0.10	pH units	6.95	6.93	----	----	----	
solids, total dissolved [TDS]	----	E162	10	mg/L	26	37	57	----	----	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	29.4	30.7	40.0	----	----	
solids, total dissolved [TDS], calculated (APHA)	----	EC103.APHA	1.0	mg/L	----	----	38.4	----	----	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	----	----	----	
turbidity	----	E121	0.10	NTU	0.11	0.13	----	----	----	
alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	----	----	9.4	----	----	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0263	0.0270	----	----	----	
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.91	1.97	4.37	----	----	
fluoride	16984-48-8	E235.F	0.020	mg/L	0.026	0.030	0.035	----	----	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0105	0.0100	0.0781	----	----	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0012	<0.0010	----	----	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	0.0011	----	----	----	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0038	0.0049	----	----	----	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0026 ^{SFP}	0.0037 ^{SFP}	----	----	----	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	0.83	0.84	----	----	----	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	8.85	9.03	15.2	----	----	
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	<0.0019	<0.0019	----	----	----	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.277	0.294	----	----	----	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	6.36	6.76	----	----	----	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	5.97	6.08	----	----	----	
Total Metals										



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-35-5	DUP-1	BRP-33-2B	----	----
Client sampling date / time						12-Apr-2021 17:45	12-Apr-2021 11:00	11-Apr-2021 11:00	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2100261-011	YL2100261-012	YL2100261-013	-----	-----	-----
					Result	Result	Result	----	----	----
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00058	0.00058 ^{DTC}	----	----	----	----
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0123	0.0137	----	----	----	----
antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000178	0.0000383	----	----	----	----
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000237	0.000259	----	----	----	----
barium, total	7440-39-3	E466	0.000020	mg/L	0.00630	0.00677	----	----	----	----
beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	0.0000033	----	----	----	----
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	----	----	----	----
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	----	----	----	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	0.0000044	----	----	----	----
calcium, total	7440-70-2	E466	0.010	mg/L	3.32	3.59	----	----	----	----
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000113	0.000147	----	----	----	----
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.0000519	0.0000568	----	----	----	----
copper, total	7440-50-8	E466	0.000050	mg/L	0.00162	0.00181	----	----	----	----
iron, total	7439-89-6	E466	0.00050	mg/L	0.0140	0.0196	----	----	----	----
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000110	0.000119	----	----	----	----
lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000205	0.0000251	----	----	----	----
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00080	0.00084	----	----	----	----
magnesium, total	7439-95-4	E466	0.0010	mg/L	2.28	2.45	----	----	----	----
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00265	0.00283	----	----	----	----
molybdenum, total	7439-98-7	E466	0.000010	mg/L	<0.000010	0.000015	----	----	----	----
nickel, total	7440-02-0	E466	0.000020	mg/L	0.00405	0.00436	----	----	----	----
potassium, total	7440-09-7	E466	0.0050	mg/L	0.456	0.519	----	----	----	----
selenium, total	7782-49-2	E466	0.000025	mg/L	0.000032	0.000033	----	----	----	----
silicon, total	7440-21-3	E466	0.050	mg/L	0.382	0.395	----	----	----	----
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	----	----	----	----
sodium, total	17341-25-2	E466	0.010	mg/L	0.892	1.01	----	----	----	----
strontium, total	7440-24-6	E466	0.000020	mg/L	0.0147	0.0157	----	----	----	----
sulfur, total	7704-34-9	E466	0.50	mg/L	3.06	3.11	----	----	----	----
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000019	0.0000016	----	----	----	----
tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	0.000013	----	----	----	----



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-35-5	DUP-1	BRP-33-2B	----	----
(Matrix: Water)										
Client sampling date / time					12-Apr-2021 17:45	12-Apr-2021 11:00	11-Apr-2021 11:00	----	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2100261-011	YL2100261-012	YL2100261-013	-----	-----	-----
					Result	Result	Result	----	----	----
Total Metals (Undigested)										
titanium, total	7440-32-6	E466	0.000050	mg/L	0.000054	0.000145	----	----	----	----
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000067	0.0000079	----	----	----	----
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000034	0.000033	----	----	----	----
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00080	0.00166	----	----	----	----
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000057	0.000066	----	----	----	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0118	0.0121	----	----	----	----
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000119	0.0000235	----	----	----	----
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000340	0.000430	----	----	----	----
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00639	0.00660	----	----	----	----
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000020	0.0000020	----	----	----	----
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	----	----	----	----
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	----	----	----	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000046	0.0000036	----	----	----	----
calcium, dissolved	7440-70-2	E465	0.010	mg/L	3.29	3.41	----	----	----	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L	----	----	5.92	----	----	----
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000108	0.000133	----	----	----	----
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000410	0.0000440	----	----	----	----
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00159	0.00177	----	----	----	----
dissolved metals filtration location	----	EP465	-	-	Field	Field	----	----	----	----
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.00865	0.0102	----	----	----	----
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000057	0.0000180	----	----	----	----
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00082	0.00088	----	----	----	----
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	2.23	2.35	----	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	----	----	3.63	----	----	----
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00189	0.00208	----	----	----	----
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	<0.00050	0.00267 ^{DTC}	----	----	----	----
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	<0.000010	0.000015	----	----	----	----
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00397	0.00423	----	----	----	----
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	----	----	----	----
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.458	0.488	----	----	----	----



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-35-5	DUP-1	BRP-33-2B	----	----
Client sampling date / time						12-Apr-2021 17:45	12-Apr-2021 11:00	11-Apr-2021 11:00	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2100261-011	YL2100261-012	YL2100261-013	-----	-----	-----
					Result	Result	Result	----	----	----
Dissolved Metals										
potassium, dissolved	7440-09-7	E421	0.050	mg/L	----	----	0.607	----	----	----
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000029	0.000034	----	----	----	----
silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.397	0.406	----	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L	----	----	1.11	----	----	----
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	----	----	----	----
sodium, dissolved	17341-25-2	E465	0.010	mg/L	0.881	1.00	----	----	----	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L	----	----	1.26	----	----	----
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0144	0.0156	----	----	----	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	----	----	0.0274	----	----	----
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	3.10	3.15	----	----	----	----
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000014	0.0000012	----	----	----	----
tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	0.00277	----	----	----	----
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	0.000484	----	----	----	----
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000075	0.0000085	----	----	----	----
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000031	0.000035	----	----	----	----
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00077	0.00248	----	----	----	----
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000061	0.000072	----	----	----	----
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	----	----	----	----
dissolved metals filtration location	----	EP421	-	-	----	----	Laboratory	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2100261	Page	: 1 of 47
Amendment	: 2		
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 20412211/2500/20	Date Samples Received	: 13-Apr-2021 14:30
PO	: ----	Issue Date	: 01-Sep-2021 16:13
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 13		
No. of samples analysed	: 13		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Holding and Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-1	E298	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-2	E298	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-3	E298	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-4	E298	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-5	E298	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-1	E298	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-33-1	E298	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-33-2	E298	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-33-3	E298	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-33-4	E298	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-33-5	E298	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) FB-1	E298	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-1	E235.Cl	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-2	E235.Cl	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-3	E235.Cl	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-4	E235.Cl	12-Apr-2021	----	----	----		16-Apr-2021	28 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-5	E235.Cl	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE DUP-1	E235.Cl	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-33-1	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-33-2	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-33-2B	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-33-3	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-33-4	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-33-5	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE FB-1	E235.Cl	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-1	E378-U	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-2	E378-U	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-3	E378-U	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-4	E378-U	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-5	E378-U	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE DUP-1	E378-U	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-33-1	E378-U	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-33-2	E378-U	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-33-3	E378-U	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-33-4	E378-U	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-33-5	E378-U	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE FB-1	E378-U	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-1	E235.F	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-2	E235.F	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-3	E235.F	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-4	E235.F	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-5	E235.F	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE DUP-1	E235.F	12-Apr-2021	----	----	----		16-Apr-2021	28 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-33-1	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-33-2	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-33-2B	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-33-3	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-33-4	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-33-5	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE FB-1	E235.F	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-1	E235.NO3-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-2	E235.NO3-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-3	E235.NO3-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-4	E235.NO3-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-5	E235.NO3-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE DUP-1	E235.NO3-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-33-1	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-33-2	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-33-2B	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-33-3	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-33-4	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-33-5	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE FB-1	E235.NO3-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-1	E235.NO2-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-2	E235.NO2-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-3	E235.NO2-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-4	E235.NO2-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-5	E235.NO2-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE DUP-1	E235.NO2-L	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-33-1	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	* EHT



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-33-2	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-33-2B	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-33-3	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-33-4	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-33-5	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE FB-1	E235.NO2-L	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-1	E392	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-2	E392	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-3	E392	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-4	E392	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-5	E392	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE DUP-1	E392	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-33-1	E392	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-33-2	E392	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-33-3	E392	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-33-4	E392	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-33-5	E392	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE FB-1	E392	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-1	E235.SO4-L	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-2	E235.SO4-L	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-3	E235.SO4-L	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-4	E235.SO4-L	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-5	E235.SO4-L	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE DUP-1	E235.SO4-L	12-Apr-2021	----	----	----		16-Apr-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-33-1	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-33-2	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-33-2B	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-33-3	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-33-4	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-33-5	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE FB-1	E235.SO4-L	11-Apr-2021	----	----	----		16-Apr-2021	28 days	5 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-1	E375-U	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-2	E375-U	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-3	E375-U	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-4	E375-U	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-5	E375-U	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) DUP-1	E375-U	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-33-1	E375-U	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-33-2	E375-U	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-33-3	E375-U	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-33-4	E375-U	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-33-5	E375-U	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) FB-1	E375-U	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-1	E318	12-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-2	E318	12-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-3	E318	12-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-4	E318	12-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-5	E318	12-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) DUP-1	E318	12-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-33-1	E318	11-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-33-2	E318	11-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-33-3	E318	11-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-33-4	E318	11-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-33-5	E318	11-Apr-2021	16-Apr-2021	----	----		19-Apr-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) FB-1	E318	11-Apr-2021	16-Apr-2021	----	----		19-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-1	E372-S	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-2	E372-S	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-3	E372-S	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-4	E372-S	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-5	E372-S	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) DUP-1	E372-S	12-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-33-1	E372-S	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-33-2	E372-S	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-33-3	E372-S	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-33-4	E372-S	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-33-5	E372-S	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) FB-1	E372-S	11-Apr-2021	17-Apr-2021	----	----		18-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-33-1	E396-L	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-33-2	E396-L	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-33-3	E396-L	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-33-4	E396-L	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-33-5	E396-L	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) FB-1	E396-L	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-1	E396-L	12-Apr-2021	----	----	----		19-Apr-2021	7 days	7 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-2	E396-L	12-Apr-2021	----	----	----		19-Apr-2021	7 days	7 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-3	E396-L	12-Apr-2021	----	----	----		19-Apr-2021	7 days	7 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-4	E396-L	12-Apr-2021	----	----	----		19-Apr-2021	7 days	7 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-5	E396-L	12-Apr-2021	----	----	----		19-Apr-2021	7 days	7 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Manual) (Low Level)										
HDPE total (zinc acetate+sodium hydroxide) DUP-1	E396-L	12-Apr-2021	----	----	----		19-Apr-2021	7 days	7 days	✔
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-1	E339	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✔
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-2	E339	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-3	E339	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-4	E339	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-5	E339	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) DUP-1	E339	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-1	E339	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-2	E339	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-3	E339	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-4	E339	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-5	E339	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) FB-1	E339	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-1	E333	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-2	E333	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-3	E333	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-4	E333	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-5	E333	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) DUP-1	E333	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-1	E333	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-2	E333	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-3	E333	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-4	E333	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-5	E333	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) FB-1	E333	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-1	E336	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-2	E336	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-3	E336	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-4	E336	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-5	E336	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) DUP-1	E336	12-Apr-2021	----	----	----		17-Apr-2021	14 days	5 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-1	E336	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-2	E336	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-3	E336	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-4	E336	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-33-5	E336	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) FB-1	E336	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-1	E509-L	12-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	8 days	✔
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-2	E509-L	12-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	8 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-3	E509-L	12-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-4	E509-L	12-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-5	E509-L	12-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) DUP-1	E509-L	12-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-33-1	E509-L	11-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-33-2	E509-L	11-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-33-3	E509-L	11-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-33-4	E509-L	11-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-33-5	E509-L	11-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) FB-1	E509-L	11-Apr-2021	20-Apr-2021	----	----		20-Apr-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-1	E465	12-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-2	E465	12-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-3	E465	12-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-4	E465	12-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-5	E465	12-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) DUP-1	E465	12-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	6 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-33-1	E465	11-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	7 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-33-2	E465	11-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-33-3	E465	11-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-33-4	E465	11-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-33-5	E465	11-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) FB-1	E465	11-Apr-2021	18-Apr-2021	----	----		18-Apr-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) BRP-33-2B	E421	11-Apr-2021	19-Apr-2021	----	----		19-Apr-2021	180 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-1	E358-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-2	E358-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-3	E358-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-4	E358-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-5	E358-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) DUP-1	E358-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-33-1	E358-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-33-2	E358-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-33-3	E358-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-33-4	E358-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-33-5	E358-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) FB-1	E358-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-1	E355-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-2	E355-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-3	E355-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-4	E355-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-5	E355-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP-1	E355-L	12-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-33-1	E355-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-33-2	E355-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-33-3	E355-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-33-4	E355-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-33-5	E355-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) FB-1	E355-L	11-Apr-2021	16-Apr-2021	----	----		16-Apr-2021	28 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-1	E290	12-Apr-2021	----	----	----		10-Jun-2021	14 days	59 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-2	E290	12-Apr-2021	----	----	----		10-Jun-2021	14 days	59 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-3	E290	12-Apr-2021	----	----	----		10-Jun-2021	14 days	59 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-4	E290	12-Apr-2021	----	----	----		10-Jun-2021	14 days	59 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-5	E290	12-Apr-2021	----	----	----		10-Jun-2021	14 days	59 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE DUP-1	E290	12-Apr-2021	----	----	----		10-Jun-2021	14 days	59 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-33-2B	E290	11-Apr-2021	----	----	----		17-Apr-2021	14 days	6 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-33-1	E290	11-Apr-2021	----	----	----		10-Jun-2021	14 days	60 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-33-2	E290	11-Apr-2021	----	----	----		10-Jun-2021	14 days	60 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-33-3	E290	11-Apr-2021	----	----	----		10-Jun-2021	14 days	60 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-33-4	E290	11-Apr-2021	----	----	----		10-Jun-2021	14 days	60 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-33-5	E290	11-Apr-2021	----	----	----		10-Jun-2021	14 days	60 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE FB-1	E290	11-Apr-2021	----	----	----		10-Jun-2021	14 days	60 days	✖ EHT
Physical Tests : Conductivity in Water										
HDPE BRP-35-1	E100	12-Apr-2021	----	----	----		17-Apr-2021	28 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE BRP-35-2	E100	12-Apr-2021	----	----	----		17-Apr-2021	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-3	E100	12-Apr-2021	----	----	----		17-Apr-2021	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-4	E100	12-Apr-2021	----	----	----		17-Apr-2021	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-5	E100	12-Apr-2021	----	----	----		17-Apr-2021	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE DUP-1	E100	12-Apr-2021	----	----	----		17-Apr-2021	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-33-1	E100	11-Apr-2021	----	----	----		17-Apr-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-33-2	E100	11-Apr-2021	----	----	----		17-Apr-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-33-3	E100	11-Apr-2021	----	----	----		17-Apr-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-33-4	E100	11-Apr-2021	----	----	----		17-Apr-2021	28 days	6 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE BRP-33-5	E100	11-Apr-2021	----	----	----		17-Apr-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE FB-1	E100	11-Apr-2021	----	----	----		17-Apr-2021	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE BRP-35-5	E108	12-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	112 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-3	E108	12-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	113 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-4	E108	12-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	115 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-2	E108	12-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	117 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-1	E108	12-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	119 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE DUP-1	E108	12-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	119 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-33-5	E108	11-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	138 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE FB-1	E108	11-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	138 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-33-4	E108	11-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	140 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-33-3	E108	11-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	141 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-33-2	E108	11-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	143 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-33-1	E108	11-Apr-2021	----	----	----		17-Apr-2021	0.25 hrs	144 hrs	<div>✖</div> EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-1	E162	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-2	E162	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-3	E162	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-4	E162	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	<div>✔</div>



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-5	E162	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE DUP-1	E162	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-33-1	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-33-2	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-33-2B	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-33-3	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-33-4	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-33-5	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE FB-1	E162	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-1	E160-H	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-2	E160-H	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-3	E160-H	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-4	E160-H	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-5	E160-H	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE DUP-1	E160-H	12-Apr-2021	----	----	----		16-Apr-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-33-1	E160-H	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-33-2	E160-H	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-33-3	E160-H	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE BRP-33-4	E160-H	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-33-5	E160-H	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE FB-1	E160-H	11-Apr-2021	----	----	----		16-Apr-2021	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-1	E121	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-2	E121	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-3	E121	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-4	E121	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-5	E121	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-1	E121	12-Apr-2021	----	----	----		16-Apr-2021	3 days	4 days	✖



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-33-1	E121	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-33-2	E121	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-33-3	E121	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-33-4	E121	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-33-5	E121	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE FB-1	E121	11-Apr-2021	----	----	----		16-Apr-2021	3 days	5 days	✖ EHT
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-1	E466	12-Apr-2021	----	----	----		18-Apr-2021	180 days	6 days	✔
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-2	E466	12-Apr-2021	----	----	----		18-Apr-2021	180 days	6 days	✔
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-3	E466	12-Apr-2021	----	----	----		18-Apr-2021	180 days	6 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-4	E466	12-Apr-2021	----	----	----		18-Apr-2021	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-5	E466	12-Apr-2021	----	----	----		18-Apr-2021	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) DUP-1	E466	12-Apr-2021	----	----	----		18-Apr-2021	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-33-1	E466	11-Apr-2021	----	----	----		18-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-33-2	E466	11-Apr-2021	----	----	----		18-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-33-3	E466	11-Apr-2021	----	----	----		18-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-33-4	E466	11-Apr-2021	----	----	----		18-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-33-5	E466	11-Apr-2021	----	----	----		18-Apr-2021	180 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) FB-1	E466	11-Apr-2021	----	----	----		18-Apr-2021	180 days	7 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-1	E508-L	12-Apr-2021	----	----	----		20-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-2	E508-L	12-Apr-2021	----	----	----		20-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-3	E508-L	12-Apr-2021	----	----	----		20-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-4	E508-L	12-Apr-2021	----	----	----		20-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-5	E508-L	12-Apr-2021	----	----	----		20-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) DUP-1	E508-L	12-Apr-2021	----	----	----		20-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-33-1	E508-L	11-Apr-2021	----	----	----		20-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-33-2	E508-L	11-Apr-2021	----	----	----		20-Apr-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-33-3	E508-L	11-Apr-2021	----	----	----		20-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-33-4	E508-L	11-Apr-2021	----	----	----		20-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-33-5	E508-L	11-Apr-2021	----	----	----		20-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) FB-1	E508-L	11-Apr-2021	----	----	----		20-Apr-2021	28 days	9 days	✓

Legend & Qualifier Definitions

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

EHT: Exceeded ALS recommended hold time prior to analysis.

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	180124	2	21	9.5	5.0	✓
Ammonia by Fluorescence	E298	180119	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	180133	1	19	5.2	5.0	✓
Conductivity in Water	E100	180125	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	181767	1	12	8.3	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	180952	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	181112	1	7	14.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	180173	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	180137	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	180132	1	19	5.2	5.0	✓
Free Cyanide by CFA	E339	180626	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	180134	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	180128	1	20	5.0	5.0	✓
pH by Meter	E108	180123	1	19	5.2	5.0	✓
Reactive Silica by Colourimetry	E392	180221	1	20	5.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	180131	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	180115	1	16	6.2	5.0	✓
Total Cyanide by CFA	E333	180624	1	19	5.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	180665	1	12	8.3	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	180120	1	13	7.6	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	181790	1	12	8.3	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	180951	1	12	8.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	180174	1	14	7.1	5.0	✓
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	180753	1	12	8.3	5.0	✓
TSS by Gravimetry	E160-H	180117	1	13	7.6	5.0	✓
Turbidity by Nephelometry	E121	180103	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	180625	1	13	7.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	180124	2	21	9.5	5.0	✓
Ammonia by Fluorescence	E298	180119	1	14	7.1	5.0	✓
Chloride in Water by IC	E235.Cl	180133	1	19	5.2	5.0	✓
Conductivity in Water	E100	180125	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	181767	1	12	8.3	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	180952	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	181112	1	7	14.2	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	180173	1	12	8.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	180137	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	180132	1	19	5.2	5.0	✔
Free Cyanide by CFA	E339	180626	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	180134	1	19	5.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	180128	1	20	5.0	5.0	✔
pH by Meter	E108	180123	1	19	5.2	5.0	✔
Reactive Silica by Colourimetry	E392	180221	1	20	5.0	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	180131	1	14	7.1	5.0	✔
TDS by Gravimetry	E162	180115	1	16	6.2	5.0	✔
Total Cyanide by CFA	E333	180624	1	19	5.2	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	180665	1	12	8.3	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	180120	1	13	7.6	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	181790	1	12	8.3	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	180951	1	12	8.3	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	180174	1	14	7.1	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	180753	1	12	8.3	5.0	✔
Total Sulfide by Colourimetry (Manual) (Low Level)	E396-L	180105	2	12	16.6	5.0	✔
TSS by Gravimetry	E160-H	180117	1	13	7.6	5.0	✔
Turbidity by Nephelometry	E121	180103	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	180625	1	13	7.6	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	180124	2	21	9.5	5.0	✔
Ammonia by Fluorescence	E298	180119	1	14	7.1	5.0	✔
Chloride in Water by IC	E235.Cl	180133	1	19	5.2	5.0	✔
Conductivity in Water	E100	180125	1	19	5.2	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	181767	1	12	8.3	5.0	✔
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	180952	1	12	8.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	181112	1	7	14.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	180173	1	12	8.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	180137	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	180132	1	19	5.2	5.0	✔
Free Cyanide by CFA	E339	180626	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	180134	1	19	5.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	180128	1	20	5.0	5.0	✔
Reactive Silica by Colourimetry	E392	180221	1	20	5.0	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	180131	1	14	7.1	5.0	✔
TDS by Gravimetry	E162	180115	1	16	6.2	5.0	✔
Total Cyanide by CFA	E333	180624	1	19	5.2	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	180665	1	12	8.3	5.0	✔



Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	180120	1	13	7.6	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	181790	1	12	8.3	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	180951	1	12	8.3	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	180174	1	14	7.1	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	180753	1	12	8.3	5.0	✔
Total Sulfide by Colourimetry (Manual) (Low Level)	E396-L	180105	2	12	16.6	5.0	✔
TSS by Gravimetry	E160-H	180117	1	13	7.6	5.0	✔
Turbidity by Nephelometry	E121	180103	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	180625	1	13	7.6	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	180119	1	14	7.1	5.0	✔
Chloride in Water by IC	E235.Cl	180133	1	19	5.2	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	181767	1	12	8.3	5.0	✔
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	180952	1	12	8.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	181112	1	7	14.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	180173	1	12	8.3	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	180137	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	180132	1	19	5.2	5.0	✔
Free Cyanide by CFA	E339	180626	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	180134	1	19	5.2	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	180128	1	20	5.0	5.0	✔
Reactive Silica by Colourimetry	E392	180221	1	20	5.0	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	180131	1	14	7.1	5.0	✔
Total Cyanide by CFA	E333	180624	1	19	5.2	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	180665	1	12	8.3	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	180120	1	13	7.6	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	181790	1	12	8.3	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	180951	1	12	8.3	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	180174	1	14	7.1	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	180753	1	12	8.3	5.0	✔
WAD Cyanide by CFA	E336	180625	1	13	7.6	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 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 $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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 (Low Level)	E235.SO4-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Free Cyanide by CFA	E339 Vancouver - Environmental	Water	ASTM D7237 (mod)	Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L 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 CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 Vancouver - Environmental	Water	APHA 4500-SiO ₂ E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Manual) (Low Level)	E396-L Vancouver - Environmental	Water	APHA 4500-S ₂ D (mod)	Total Sulfide is determined by spectrophotometer using the methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample.
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 (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
TDS in Water (Calculation) Using APHA Analyte List	EC103.APHA Vancouver - Environmental	Water	APHA 1030E	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .

Page : 47 of 47
Work Order : YL2100261 Amendment 2
Client : Sabina Gold & Silver Corporation
Project : 20412211/2500/20



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 Vancouver - Environmental	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Dissolved Mercury Water Filtration (Low Level)	EP509-L Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order : **YL2100261**

Page : 1 of 18

Amendment : **2**

Client : Sabina Gold & Silver Corporation
 Contact : Merle Keefe
 Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
 Telephone : 604 240 6619
 Project : 20412211/2500/20
 PO : ----
 C-O-C number : ----
 Sampler : ----
 Site : ----
 Quote number : 2021 Under-Ice Field Program
 No. of samples received : 13
 No. of samples analysed : 13

Laboratory : Yellowknife - Environmental
 Account Manager : Oliver Gregg
 Address : 314 Old Airport Road, Unit 116
 Yellowknife, Northwest Territories Canada X1A 3T3
 Telephone : 1 867 446 5593
 Date Samples Received : 13-Apr-2021 14:30
 Date Analysis Commenced : 16-Apr-2021
 Issue Date : 01-Sep-2021 16:12

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
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Richard Chong		Metals, Burnaby, British Columbia
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts 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: 180103)											
YL2100257-001	Anonymous	turbidity	----	E121	0.10	NTU	0.80	0.79	0.01	Diff <2x LOR	----
Physical Tests (QC Lot: 180115)											
YL2100257-001	Anonymous	solids, total dissolved [TDS]	----	E162	20	mg/L	4050	4160	2.75%	20%	----
Physical Tests (QC Lot: 180117)											
YL2100260-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	37.5	32.9	13.1%	20%	----
Physical Tests (QC Lot: 180123)											
YL2100260-001	Anonymous	pH	----	E108	0.10	pH units	7.38	7.36	0.271%	4%	----
Physical Tests (QC Lot: 180124)											
YL2100260-001	Anonymous	alkalinity, total (as CaCO ₃)	----	E290	25.0	mg/L	3630	3520	3.00%	20%	----
Physical Tests (QC Lot: 180125)											
YL2100260-001	Anonymous	conductivity	----	E100	2.0	µS/cm	8510	8490	0.235%	10%	----
Physical Tests (QC Lot: 216944)											
VA21B1033-001	Anonymous	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	72.2	72.4	0.277%	20%	----
Anions and Nutrients (QC Lot: 180119)											
FJ2100179-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180120)											
VA21A6706-021	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180128)											
YL2100260-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180131)											
YL2100260-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO4-L	2.50	mg/L	7.12	7.27	0.148	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180132)											
YL2100261-001	BRP-33-1	fluoride	16984-48-8	E235.F	0.020	mg/L	0.038	0.039	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180133)											
YL2100261-001	BRP-33-1	chloride	16887-00-6	E235.Cl	0.50	mg/L	5.21	5.20	0.130%	20%	----
Anions and Nutrients (QC Lot: 180134)											
YL2100261-001	BRP-33-1	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0778	0.0777	0.130%	20%	----
Anions and Nutrients (QC Lot: 180137)											
YL2100261-001	BRP-33-1	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0021	<0.0010	0.0011	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180221)											
YL2100261-001	BRP-33-1	silicate (as SiO ₂)	7631-86-9	E392	0.50	mg/L	2.56	2.53	0.03	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: 180665)											
YL2100261-001	BRP-33-1	phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0025	0.0026	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 180753)											
YL2100261-001	BRP-33-1	phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0046	0.0046	0	Diff <2x LOR	----
Cyanides (QC Lot: 180624)											
YL2100261-001	BRP-33-1	cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 180625)											
YL2100261-001	BRP-33-1	cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 180626)											
YL2100261-001	BRP-33-1	cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 180173)											
YL2100261-001	BRP-33-1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	8.95	9.15	2.22%	20%	----
Organic / Inorganic Carbon (QC Lot: 180174)											
YL2100257-001	Anonymous	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.46	2.57	0.11	Diff <2x LOR	----
Total Metals (QC Lot: 181790)											
YL2100261-001	BRP-33-1	mercury, total	7439-97-6	E508-L	0.00050	ng/L	0.00917 µg/L	9.15	0.218%	20%	----
Total Metals (Undigested) (QC Lot: 180951)											
YL2100261-001	BRP-33-1	aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0361	0.0328	9.64%	20%	----
		antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000758	0.0000721	4.98%	20%	----
		arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000526	0.000441	17.6%	20%	----
		barium, total	7440-39-3	E466	0.000020	mg/L	0.0158	0.0146	8.00%	20%	----
		beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000068	0.0000069	0.0000002	Diff <2x LOR	----
		bismuth, total	7440-69-9	E466	0.0000010	mg/L	0.0000010	<0.0000010	0.00000003	Diff <2x LOR	----
		boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000248	0.0000218	0.0000030	Diff <2x LOR	----
		calcium, total	7440-70-2	E466	0.010	mg/L	7.94	7.21	9.75%	20%	----
		chromium, total	7440-47-3	E466	0.000040	mg/L	0.000337	0.000300	0.000037	Diff <2x LOR	----
		cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000250	0.000240	3.95%	20%	----
		copper, total	7440-50-8	E466	0.000050	mg/L	0.00520	0.00466	10.8%	20%	----
		iron, total	7439-89-6	E466	0.00050	mg/L	0.0496	0.0440	12.0%	20%	----
		lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000525	0.000437	18.2%	20%	----
		lead, total	7439-92-1	E466	0.0000050	mg/L	0.000217	0.000195	10.3%	20%	----
		lithium, total	7439-93-2	E466	0.00010	mg/L	0.00170	0.00168	1.42%	20%	----
		magnesium, total	7439-95-4	E466	0.0010	mg/L	5.10	4.69	8.38%	20%	----
		manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00981	0.00904	8.07%	20%	----
		molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000052	0.000043	0.000009	Diff <2x LOR	----



Sub-Matrix: **Water**

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 (Undigested) (QC Lot: 180951) - continued											
YL2100261-001	BRP-33-1	nickel, total	7440-02-0	E466	0.000020	mg/L	0.0126	0.0115	9.14%	20%	----
		potassium, total	7440-09-7	E466	0.0050	mg/L	0.929	0.870	6.54%	20%	----
		selenium, total	7782-49-2	E466	0.000025	mg/L	0.000067	0.000054	0.000012	Diff <2x LOR	----
		silicon, total	7440-21-3	E466	0.050	mg/L	1.47	1.23	18.0%	20%	----
		silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E466	0.010	mg/L	2.46	2.28	7.64%	20%	----
		strontium, total	7440-24-6	E466	0.000020	mg/L	0.0390	0.0354	9.73%	20%	----
		sulfur, total	7704-34-9	E466	0.50	mg/L	7.89	6.61	17.6%	20%	----
		thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000031	0.0000025	0.0000006	Diff <2x LOR	----
		tin, total	7440-31-5	E466	0.000010	mg/L	0.000450	0.000385	15.5%	20%	----
		titanium, total	7440-32-6	E466	0.000050	mg/L	0.000244	0.000208	0.000036	Diff <2x LOR	----
		uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000225	0.0000207	8.25%	20%	----
		vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000082	0.000071	0.000012	Diff <2x LOR	----
		zinc, total	7440-66-6	E466	0.00010	mg/L	0.00634	0.00543	15.4%	20%	----
		zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000198	0.000164	18.6%	20%	----
Dissolved Metals (QC Lot: 180952)											
YL2100261-001	BRP-33-1	aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0291	0.0284	2.22%	20%	----
		antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000409	0.0000401	0.0000008	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000445	0.000440	1.07%	20%	----
		barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.0140	0.0140	0.0388%	20%	----
		beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000082	0.0000054	0.0000027	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000191	0.0000167	0.0000024	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E465	0.010	mg/L	6.98	7.02	0.602%	20%	----
		chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000254	0.000247	0.000007	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000176	0.000174	1.13%	20%	----
		copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00432	0.00426	1.38%	20%	----
		iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0238	0.0236	0.896%	20%	----
		lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000758	0.0000646	16.0%	20%	----
		lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00166	0.00167	0.675%	20%	----
		magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	4.40	4.45	1.03%	20%	----
		manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00644	0.00654	1.58%	20%	----
		molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000032	0.000031	0.0000006	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.0111	0.0110	1.08%	20%	----



Sub-Matrix: **Water**

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: 180952) - continued											
YL2100261-001	BRP-33-1	phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.812	0.828	1.86%	20%	----
		rhenum, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000048	0.000053	0.000006	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E465	0.050	mg/L	1.24	1.24	0.222%	20%	----
		silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E465	0.010	mg/L	2.02	2.06	1.86%	20%	----
		strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0338	0.0345	2.18%	20%	----
		sulfur, dissolved	7704-34-9	E465	0.50	mg/L	6.59	6.60	0.111%	20%	----
		thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000029	0.0000028	0.0000001	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E465	0.000010	mg/L	0.000227	0.000232	2.05%	20%	----
		titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000091	0.000077	0.000014	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000203	0.0000181	11.6%	20%	----
		vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000060	0.000065	0.000005	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00629	0.00522	18.7%	20%	----
		zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000170	0.000172	1.57%	20%	----
Dissolved Metals (QC Lot: 181112)											
CG2100788-020	Anonymous	calcium, dissolved	7440-70-2	E421	0.100	mg/L	265	262	1.24%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	156	153	1.64%	20%	----
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	6.85	6.71	2.05%	20%	----
		silicon, dissolved	7440-21-3	E421	0.100	mg/L	2.87	2.80	2.62%	20%	----
		sodium, dissolved	17341-25-2	E421	0.100	mg/L	16.8	16.5	1.67%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00040	mg/L	0.555	0.568	2.26%	20%	----
Dissolved Metals (QC Lot: 181767)											
YL2100261-001	BRP-33-1	mercury, dissolved	7439-97-6	E509-L	0.00050	ng/L	0.00314 µg/L	3.11	0.03	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: 180103)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 180115)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 180117)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 180124)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 180125)						
conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 216944)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 180105)						
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	<0.0019	----
Anions and Nutrients (QCLot: 180119)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 180120)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 180128)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 180131)						
sulfate (as SO ₄)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 180132)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 180133)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 180134)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 180137)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 180221)						
silicate (as SiO ₂)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 180665)						
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 180753)						
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 181144)						
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	<0.0019	----
Cyanides (QCLot: 180624)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 180625)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 180626)						
cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 180173)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 180174)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 181790)						
mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 180951)						
aluminum, total	7429-90-5	E466	0.0002	mg/L	<0.00020	----
antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----
lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 180951) - continued						
potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
sodium, total	17341-25-2	E466	0.01	mg/L	<0.010	----
strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 180952)						
aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 180952) - continued						
rhodium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
sodium, dissolved	17341-25-2	E465	0.01	mg/L	<0.010	----
strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 181112)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 181767)						
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

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

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: 180103)									
turbidity	----	E121	0.1	NTU	200 NTU	99.0	85.0	115	----
Physical Tests (QCLot: 180115)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Physical Tests (QCLot: 180117)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	95.2	85.0	115	----
Physical Tests (QCLot: 180123)									
pH	----	E108	----	pH units	7 pH units	99.7	98.0	102	----
Physical Tests (QCLot: 180124)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.9	85.0	115	----
Physical Tests (QCLot: 180125)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 216944)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	94.2	85.0	115	----
Anions and Nutrients (QCLot: 180105)									
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	0.01 mg/L	90.0	75.0	125	----
Anions and Nutrients (QCLot: 180119)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 180120)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	93.0	75.0	125	----
Anions and Nutrients (QCLot: 180128)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 180131)									
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 180132)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 180133)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 180134)									
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: 180137)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	97.4	80.0	120	----
Anions and Nutrients (QCLot: 180221)									



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: 180221) - continued									
silicate (as SiO ₂)	7631-86-9	E392	0.5	mg/L	10 mg/L	97.0	85.0	115	----
Anions and Nutrients (QCLot: 180665)									
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	104	80.0	120	----
Anions and Nutrients (QCLot: 180753)									
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	104	80.0	120	----
Anions and Nutrients (QCLot: 181144)									
sulfide, total (as S)	18496-25-8	E396-L	0.0019	mg/L	0.01 mg/L	95.0	75.0	125	----
Cyanides (QCLot: 180624)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	88.6	80.0	120	----
Cyanides (QCLot: 180625)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	100	80.0	120	----
Cyanides (QCLot: 180626)									
cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	98.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 180173)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	108	80.0	120	----
Organic / Inorganic Carbon (QCLot: 180174)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Metals (QCLot: 181790)									
mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	96.2	80.0	120	----
Total Metals (Undigested) (QCLot: 180951)									
aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	98.7	80.0	120	----
antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	104	80.0	120	----
arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	101	80.0	120	----
barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	98.4	80.0	120	----
bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	109	80.0	120	----
boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	94.3	80.0	120	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	97.7	80.0	120	----
calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	97.2	80.0	120	----
chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	101	80.0	120	----
cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	100	80.0	120	----
copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	98.7	80.0	120	----
iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	103	80.0	120	----
lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	101	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 180951) - continued									
lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	106	80.0	120	----
lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	95.6	80.0	120	----
magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	100	80.0	120	----
manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	101	80.0	120	----
molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	102	80.0	120	----
nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	99.2	80.0	120	----
potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	99.2	80.0	120	----
selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	105	80.0	120	----
silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	98.3	80.0	120	----
silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
sodium, total	17341-25-2	E466	0.01	mg/L	50 mg/L	101	80.0	120	----
strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	100	80.0	120	----
sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	104	80.0	120	----
thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	110	80.0	120	----
tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	----
uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	104	80.0	120	----
vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	100	80.0	120	----
zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 180952)									
aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	99.1	80.0	120	----
antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	104	80.0	120	----
arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	100	80.0	120	----
barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	101	80.0	120	----
bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	110	80.0	120	----
boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	98.7	80.0	120	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	99.4	80.0	120	----
calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	94.6	80.0	120	----
chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	99.8	80.0	120	----
cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	99.8	80.0	120	----
copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	98.8	80.0	120	----
iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	101	80.0	120	----
lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	105	80.0	120	----
lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	97.7	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: 180952) - continued									
manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	98.0	80.0	120	----
molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	102	80.0	120	----
nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	97.7	80.0	120	----
phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	104	80.0	120	----
potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	97.9	80.0	120	----
rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	102	80.0	120	----
silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	97.0	80.0	120	----
silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
sodium, dissolved	17341-25-2	E465	0.01	mg/L	50 mg/L	99.0	80.0	120	----
strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	98.0	80.0	120	----
sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	102	80.0	120	----
thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	108	80.0	120	----
tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	----
uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	104	80.0	120	----
vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	99.6	80.0	120	----
zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 181112)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	100	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	96.2	80.0	120	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level $\geq 1 \times$ 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: 180119)										
VA21A6706-021	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.207 mg/L	0.2 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 180120)										
YL2100261-001	BRP-33-1	Kjeldahl nitrogen, total [TKN]	----	E318	2.34 mg/L	2.5 mg/L	93.7	70.0	130	----
Anions and Nutrients (QCLot: 180128)										
YL2100261-001	BRP-33-1	nitrite (as N)	14797-65-0	E235.NO2-L	0.503 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 180131)										
YL2100261-001	BRP-33-1	sulfate (as SO ₄)	14808-79-8	E235.SO4-L	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 180132)										
YL2100261-001	BRP-33-1	fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 180133)										
YL2100261-001	BRP-33-1	chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 180134)										
YL2100261-001	BRP-33-1	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: 180137)										
YL2100261-002	BRP-33-2	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0316 mg/L	0.03 mg/L	105	70.0	130	----
Anions and Nutrients (QCLot: 180221)										
YL2100261-002	BRP-33-2	silicate (as SiO ₂)	7631-86-9	E392	12.5 mg/L	10 mg/L	125	75.0	125	----
Anions and Nutrients (QCLot: 180665)										
YL2100261-002	BRP-33-2	phosphorus, total dissolved	7723-14-0	E375-U	0.0714 mg/L	0.067 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 180753)										
YL2100261-002	BRP-33-2	phosphorus, total	7723-14-0	E372-S	0.0719 mg/L	0.067 mg/L	107	70.0	130	----
Cyanides (QCLot: 180624)										
YL2100261-002	BRP-33-2	cyanide, strong acid dissociable (total)	----	E333	0.223 mg/L	0.25 mg/L	89.3	75.0	125	----
Cyanides (QCLot: 180625)										
YL2100261-002	BRP-33-2	cyanide, weak acid dissociable	----	E336	0.127 mg/L	0.125 mg/L	101	75.0	125	----
Cyanides (QCLot: 180626)										
YL2100261-002	BRP-33-2	cyanide, free	----	E339	0.124 mg/L	0.125 mg/L	98.8	75.0	125	----



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
Organic / Inorganic Carbon (QCLot: 180173)										
YL2100261-002	BRP-33-2	carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 180174)										
YL2100257-002	Anonymous	carbon, total organic [TOC]	----	E355-L	5.48 mg/L	5 mg/L	110	70.0	130	----
Total Metals (QCLot: 181790)										
YL2100261-002	BRP-33-2	mercury, total	7439-97-6	E508-L	3.92 ng/L	5 ng/L	78.4	70.0	130	----
Total Metals (Undigested) (QCLot: 180951)										
YL2100261-001	BRP-33-1	aluminum, total	7429-90-5	E466	0.212 mg/L	0.2 mg/L	106	70.0	130	----
		antimony, total	7440-36-0	E466	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		arsenic, total	7440-38-2	E466	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		barium, total	7440-39-3	E466	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		beryllium, total	7440-41-7	E466	0.0417 mg/L	0.04 mg/L	104	70.0	130	----
		bismuth, total	7440-69-9	E466	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		boron, total	7440-42-8	E466	0.116 mg/L	0.1 mg/L	116	70.0	130	----
		cadmium, total	7440-43-9	E466	0.00407 mg/L	0.004 mg/L	102	70.0	130	----
		calcium, total	7440-70-2	E466	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, total	7440-47-3	E466	0.0456 mg/L	0.04 mg/L	114	70.0	130	----
		cobalt, total	7440-48-4	E466	0.0213 mg/L	0.02 mg/L	106	70.0	130	----
		copper, total	7440-50-8	E466	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		iron, total	7439-89-6	E466	2.13 mg/L	2 mg/L	107	70.0	130	----
		lanthanum, total	7439-91-0	E466	0.00251 mg/L	0.0025 mg/L	100	70.0	130	----
		lead, total	7439-92-1	E466	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		lithium, total	7439-93-2	E466	0.104 mg/L	0.1 mg/L	104	70.0	130	----
		magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E466	0.0214 mg/L	0.02 mg/L	107	70.0	130	----
		molybdenum, total	7439-98-7	E466	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		nickel, total	7440-02-0	E466	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		potassium, total	7440-09-7	E466	4.16 mg/L	4 mg/L	104	70.0	130	----
		selenium, total	7782-49-2	E466	0.0457 mg/L	0.04 mg/L	114	70.0	130	----
		silicon, total	7440-21-3	E466	7.71 mg/L	10 mg/L	77.1	70.0	130	----
		silver, total	7440-22-4	E466	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		sodium, total	17341-25-2	E466	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E466	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E466	19.3 mg/L	20 mg/L	96.5	70.0	130	----
		thallium, total	7440-28-0	E466	0.00416 mg/L	0.004 mg/L	104	70.0	130	----
		tin, total	7440-31-5	E466	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		titanium, total	7440-32-6	E466	0.0410 mg/L	0.04 mg/L	102	70.0	130	----



Sub-Matrix: **Water**

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 (Undigested) (QCLot: 180951) - continued										
YL2100261-001	BRP-33-1	uranium, total	7440-61-1	E466	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		vanadium, total	7440-62-2	E466	0.114 mg/L	0.1 mg/L	114	70.0	130	----
		zinc, total	7440-66-6	E466	0.466 mg/L	0.4 mg/L	116	70.0	130	----
		zirconium, total	7440-67-7	E466	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 180952)										
YL2100261-001	BRP-33-1	aluminum, dissolved	7429-90-5	E465	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		antimony, dissolved	7440-36-0	E465	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		arsenic, dissolved	7440-38-2	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		barium, dissolved	7440-39-3	E465	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		beryllium, dissolved	7440-41-7	E465	0.0422 mg/L	0.04 mg/L	105	70.0	130	----
		bismuth, dissolved	7440-69-9	E465	0.00986 mg/L	0.01 mg/L	98.6	70.0	130	----
		boron, dissolved	7440-42-8	E465	0.121 mg/L	0.1 mg/L	121	70.0	130	----
		cadmium, dissolved	7440-43-9	E465	0.00405 mg/L	0.004 mg/L	101	70.0	130	----
		calcium, dissolved	7440-70-2	E465	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, dissolved	7440-47-3	E465	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		cobalt, dissolved	7440-48-4	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		copper, dissolved	7440-50-8	E465	0.0198 mg/L	0.02 mg/L	99.3	70.0	130	----
		iron, dissolved	7439-89-6	E465	2.02 mg/L	2 mg/L	101	70.0	130	----
		lead, dissolved	7439-92-1	E465	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		lithium, dissolved	7439-93-2	E465	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E465	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		molybdenum, dissolved	7439-98-7	E465	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		nickel, dissolved	7440-02-0	E465	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	----
		phosphorus, dissolved	7723-14-0	E465	11.8 mg/L	10 mg/L	118	70.0	130	----
		potassium, dissolved	7440-09-7	E465	3.96 mg/L	4 mg/L	98.9	70.0	130	----
		rhenium, dissolved	7440-15-5	E465	0.00257 mg/L	0.0025 mg/L	103	70.0	130	----
		selenium, dissolved	7782-49-2	E465	0.0445 mg/L	0.04 mg/L	111	70.0	130	----
		silicon, dissolved	7440-21-3	E465	7.89 mg/L	10 mg/L	78.9	70.0	130	----
		silver, dissolved	7440-22-4	E465	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		sodium, dissolved	17341-25-2	E465	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E465	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E465	20.0 mg/L	20 mg/L	99.8	70.0	130	----
		thallium, dissolved	7440-28-0	E465	0.00401 mg/L	0.004 mg/L	100	70.0	130	----
		titanium, dissolved	7440-32-6	E465	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
				uranium, dissolved	7440-61-1	E465	0.00414 mg/L	0.004 mg/L	104	70.0



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: 180952) - continued										
YL2100261-001	BRP-33-1	vanadium, dissolved	7440-62-2	E465	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		zinc, dissolved	7440-66-6	E465	0.439 mg/L	0.4 mg/L	110	70.0	130	----
		zirconium, dissolved	7440-67-7	E465	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
Dissolved Metals (QCLot: 181112)										
CG2100788-020	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	8 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		potassium, dissolved	7440-09-7	E421	7.52 mg/L	8 mg/L	94.0	70.0	130	----
		silicon, dissolved	7440-21-3	E421	18.4 mg/L	20 mg/L	92.2	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.04 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 181767)										
YL2100261-002	BRP-33-2	mercury, dissolved	7439-97-6	E509-L	4.11 ng/L	5 ng/L	82.3	70.0	130	----



(lab use only)

Page 1 of 1

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Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																									
Company:	Golder Associates Ltd.	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)	Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																									
Contact:	Zenovia Craciunescu (Yellowknife)	Quality Control (QC) Report with Report	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	4 day [P4-20%] <input type="checkbox"/> 1 Business day [E - 100%] <input type="checkbox"/>																																									
Phone:	780-222-0587 (cell)	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E2 -200%] <input type="checkbox"/>																																									
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	2 day [P2-50%] <input type="checkbox"/> (Laboratory opening fees may apply) <input type="checkbox"/>																																									
Street:	16820 107 Ave NW	Email 1 or Fax	ZCraciunescu@golder.com	Date and Time Required for all E&P TATs:																																									
City/Province:	Edmonton, AB	Email 2	KSerben@golder.com	For tests that can not be performed according to the service level selected, you will be contacted.																																									
Postal Code:	T5P 4C3	Email 3	mkeefe@sabinagoldsilver.com	Analysis Request																																									
Invoice To	Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Invoice Distribution		<table border="1"> <tr> <th colspan="10">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</th> </tr> <tr> <th>P</th> <th>F/P</th> <th>F</th> <th>F</th> <th>P</th> <th>P</th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below										P	F/P	F	F	P	P																								
Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																													
P	F/P	F	F			P	P																																						
Copy of Invoice with Report	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX																																										
Company:	Sabina Gold And Silver Corp	Email 1 or Fax	mkeefe@sabinagoldsilver.com																																										
Contact:	Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com	Email 2	ZCraciunescu@golder.com																																										
Project Information		Oil and Gas Required Fields (client use)																																											
ALS Account # / Quote #:	YL2021SAB10000001	AFE/Cost Center:	PO#																																										
Job #:	20412211/2500/20	Major/Minor Code:	Routing Code:																																										
PO / AFE:		Requisitioner:																																											
LSD:	Sabina Facility Code: 176233659	Location:																																											
ALS Lab Work Order # (lab use only): YL2100261		ALS Contact:	Oliver Gregg	Sampler:																																									
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type																																									
	BRP-33-1	11-Apr-21	09:30	Water																																									
	BRP-33-2	11-Apr-21	11:00	Water																																									
	BRP-33-3	11-Apr-21	12:45	Water																																									
	BRP-33-4	11-Apr-21	14:00	Water																																									
	BRP-33-5	11-Apr-21	15:10	Water																																									
	FB-1	11-Apr-21	15:30	Water																																									
	BRP-35-1	12-Apr-21	10:30	Water																																									
	BRP-35-2	12-Apr-21	12:45	Water																																									
	BRP-35-3	12-Apr-21	16:40	Water																																									
	BRP-35-4	12-Apr-21	14:20	Water																																									
	BRP-35-5	12-Apr-21	17:45	Water																																									
	DUP-1	12-Apr-21	11:00	Water																																									
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)																																											
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Samples marked archive long term - please hold for a minimum of 120 days or until further notice.																																											
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO																																													
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)																																									
Released by: A. Car... Date: 13-Apr-2021 Time: 8:00	Received by: [Signature] Date: 13-Apr-21 Time: 4:30																																												

YL2100261



Telephone: +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	: YL2100283	Page	: 1 of 22
Amendment	: 3		
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Zenovia Craciunescu	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 446 5593
Project	: 20412211/2500/20	Date Samples Received	: 16-Apr-2021 14:15
PO	: ----	Date Analysis Commenced	: 21-Apr-2021
C-O-C number	: ----	Issue Date	: 01-Jun-2021 08:43
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 23		
No. of samples analysed	: 23		

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Angeli Marzan	Lab Analyst	Inorganics, Edmonton, Alberta
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Ann Ho	Laboratory Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Team Leader - Metals preparation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

<i>Unit</i>	<i>Description</i>
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
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

<i>Qualifier</i>	<i>Description</i>
RRV	Reported result verified by repeat analysis.
SP	Sample was preserved at the laboratory.
SRU	Sample Received Unpreserved. Results may be biased low for indicated parameter(s).

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

Client sample ID

Sub-Matrix: Water					Client sample ID	BRP-29-1	BRP-29-2	BRP-29-2B	BRP-29-3	BRP-29-4
(Matrix: Water)										
Client sampling date / time					13-Apr-2021 10:30	13-Apr-2021 13:00	13-Apr-2021 13:00	13-Apr-2021 11:40	13-Apr-2021 16:15	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	6.9	7.0	7.5	6.8	7.2	
conductivity	----	E100	2.0	µS/cm	82.9	86.4	----	87.5	88.3	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	30.8	32.7	----	31.6	33.2	
pH	----	E108	0.10	pH units	6.59	6.55	----	6.60	6.51	
solids, total dissolved [TDS]	----	E162	10	mg/L	70	70	70	72	76	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	49.0	50.5	46.0	50.3	52.0	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	----	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	<0.10	<0.10	----	<0.10	<0.10	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0181	0.0209	----	0.0208	0.0219	
chloride	16887-00-6	E235.Cl	0.50	mg/L	9.68	10.1	10.1	10.2	10.4	
fluoride	16984-48-8	E235.F	0.020	mg/L	0.023	0.028	----	0.028	0.024	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.122	0.133	0.135	0.133	0.140	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0015	----	<0.0010	<0.0010	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	----	0.0013	0.0013	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0027	0.0028	----	0.0026	0.0029	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0019	0.0020	----	0.0021	0.0023	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	2.98	3.10	----	2.96	2.99	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	13.7	14.1	----	14.2	14.4	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	----	----	14.2	----	----	
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0018	0.0016	----	0.0020	0.0023	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.210	0.224	----	0.218	0.218	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	----	<0.0050	<0.0050	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	----	<0.0050	<0.0050	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	----	<0.0050	<0.0050	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.60	5.25	----	5.50	5.77	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	5.56	5.80	----	5.68	5.85	
Total Metals										



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-1	BRP-29-2	BRP-29-2B	BRP-29-3	BRP-29-4
Client sampling date / time					13-Apr-2021 10:30	13-Apr-2021 13:00	13-Apr-2021 13:00	13-Apr-2021 11:40	13-Apr-2021 16:15	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	
					Result	Result	Result	Result	Result	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00106	0.00089	----	0.00198	0.00423	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0266	0.0300	----	0.0287	0.0289	
antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000199	0.0000138	----	0.0000462	0.0000232	
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000295	0.000300	----	0.000296	0.000312	
barium, total	7440-39-3	E466	0.000020	mg/L	0.0124	0.0130	----	0.0124	0.0132	
beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000062	0.0000068	----	0.0000079	0.0000082	
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	----	<0.0000010	<0.0000010	
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	----	<0.0050	<0.0050	
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000149	0.0000178	----	0.0000181	0.0000190	
calcium, total	7440-70-2	E466	0.010	mg/L	6.16	7.08	----	6.41	6.66	
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000132	0.000152	----	0.000149	0.000156	
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000411	0.000509	----	0.000419	0.000489	
copper, total	7440-50-8	E466	0.000050	mg/L	0.00274	0.00308	----	0.00296	0.00302	
iron, total	7439-89-6	E466	0.00050	mg/L	0.0167	0.0198	----	0.0171	0.0195	
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000516	0.000528	----	0.000511	0.000532	
lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000061	<0.0000050	----	0.0000150	0.0000284	
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00105	0.00109	----	0.00107	0.00111	
magnesium, total	7439-95-4	E466	0.0010	mg/L	3.19	3.74	----	3.44	3.57	
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00510	0.00733	----	0.00517	0.00669	
molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000011	0.000010	----	0.000012	0.000015	
nickel, total	7440-02-0	E466	0.000020	mg/L	0.00836	0.00974	----	0.00892	0.00925	
potassium, total	7440-09-7	E466	0.0050	mg/L	0.503	0.583	----	0.534	0.554	
selenium, total	7782-49-2	E466	0.000025	mg/L	0.000032	0.000039	----	0.000032	0.000034	
silicon, total	7440-21-3	E466	0.050	mg/L	1.29	1.35	----	1.33	1.36	
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	----	<0.0000020	<0.0000020	
sodium, total	17341-25-2	E466	0.010	mg/L	1.08	1.23	----	1.14	1.20	
strontium, total	7440-24-6	E466	0.000020	mg/L	0.0315	0.0363	----	0.0332	0.0344	
sulfur, total	7704-34-9	E466	0.50	mg/L	4.52	4.66	----	4.70	4.84	
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000022	0.0000027	----	0.0000027	0.0000025	
tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	----	0.000072	0.000102	



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-29-1	BRP-29-2	BRP-29-2B	BRP-29-3	BRP-29-4
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
titanium, total	7440-32-6	E466	0.000050	mg/L	0.000063	0.000064	----	0.000535	0.000084	
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000160	0.0000134	----	0.0000153	0.0000119	
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000036	0.000040	----	0.000039	0.000036	
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00250	0.00267	----	0.00276	0.00295	
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000141	0.000144	----	0.000145	0.000148	
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0287	0.0299	----	0.0297	0.0301	
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	----	----	0.0263	----	----	
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000143	0.0000157	----	0.0000325	0.0000394	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	----	----	<0.00010	----	----	
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000397	0.000502	----	0.0490	0.0768	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	----	----	0.00033	----	----	
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.0122	0.0126	----	0.0122	0.0128	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	----	----	0.0133	----	----	
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000064	0.0000083	----	0.0000073	0.0000070	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	----	----	<0.000020	----	----	
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	----	<0.0000010	<0.0000010	
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	----	----	<0.000050	----	----	
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	----	<0.0050	<0.0050	
boron, dissolved	7440-42-8	E421	0.010	mg/L	----	----	<0.010	----	----	
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000165	0.0000144	----	0.0000157	0.0000161	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	----	----	0.0000171	----	----	
calcium, dissolved	7440-70-2	E465	0.010	mg/L	6.59	6.96	----	6.64	6.96	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	----	----	7.13	----	----	
cesium, dissolved	7440-46-2	E421	0.000010	mg/L	----	----	<0.000010	----	----	
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000142	0.000152	----	0.000148	0.000158	
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	----	----	<0.00050	----	----	
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000413	0.000472	----	0.000413	0.000471	
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	----	----	0.00038	----	----	
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00289	0.00305	----	0.00296	0.00306	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	----	----	0.00282	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-1	BRP-29-2	BRP-29-2B	BRP-29-3	BRP-29-4
Client sampling date / time						13-Apr-2021 10:30	13-Apr-2021 13:00	13-Apr-2021 13:00	13-Apr-2021 11:40	13-Apr-2021 16:15
Analyte	CAS Number	Method	LOR	Unit		YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005
						Result	Result	Result	Result	Result
Dissolved Metals										
dissolved metals filtration location	----	EP465	-	-	Field	Field	----	----	Field	Field
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0126	0.0143	----	0.0195	0.0154	
iron, dissolved	7439-89-6	E421	0.010	mg/L	----	----	0.010	----	----	----
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000053	<0.0000050	----	0.0000095	0.0000057	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	----	----	<0.000050	----	----	----
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00105	0.00109	----	0.00109	0.00117	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	----	----	0.0012	----	----	----
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	3.48	3.73	----	3.66	3.83	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	----	----	3.86	----	----	----
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00514	0.00685	----	0.00545	0.00824	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	----	----	0.00530	----	----	----
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	0.00098	0.00119	----	0.00164	0.00243	
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000014	0.000013	----	0.000014	0.000015	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	----	----	0.000302	----	----	----
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00899	0.00951	----	0.00899	0.00950	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	----	----	0.00957	----	----	----
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	----	<0.010	<0.010	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	----	----	<0.050	----	----	----
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.549	0.572	----	0.561	0.583	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	----	----	0.561	----	----	----
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	----	<0.0000050	<0.0000050	
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	----	----	0.00129	----	----	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000033	0.000035	----	0.000033	0.000033	
selenium, dissolved	7782-49-2	E421	0.000050	mg/L	----	----	<0.000050	----	----	----
silicon, dissolved	7440-21-3	E465	0.050	mg/L	1.28	1.35	----	1.29	1.37	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	----	----	1.39	----	----	----
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	----	<0.0000020	<0.0000020	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	----	----	<0.000010	----	----	----
sodium, dissolved	17341-25-2	E465	0.010	mg/L	1.16	1.22	----	1.27	1.31	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	----	----	1.19	----	----	----
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0336	0.0350	----	0.0342	0.0357	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-1	BRP-29-2	BRP-29-2B	BRP-29-3	BRP-29-4
Client sampling date / time					13-Apr-2021 10:30	13-Apr-2021 13:00	13-Apr-2021 13:00	13-Apr-2021 11:40	13-Apr-2021 16:15	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	
					Result	Result	Result	Result	Result	
Dissolved Metals										
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	----	----	0.0370	----	----	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	4.49	4.74	----	4.51	4.85	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	----	----	4.68	----	----	
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	----	----	<0.00020	----	----	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000021	0.0000019	----	0.0000022	0.0000021	
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	E465	0.000010	mg/L	<0.000010	<0.000010	----	0.000083	0.000094	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	----	----	0.00038	----	----	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000066	0.000073	----	0.000080	0.000065	
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	E465	0.0000010	mg/L	0.0000150	0.0000137	----	0.0000140	0.0000171	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	----	----	0.000014	----	----	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000034	0.000038	----	0.000039	0.000037	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	----	----	<0.00050	----	----	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00252	0.00250	----	0.00257	0.00274	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	----	----	0.0028	----	----	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000139	0.000144	----	0.000136	0.000146	
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	----	----	<0.00030	----	----	
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	----	Field	Field	
dissolved metals filtration location	----	EP421	-	-	----	----	Laboratory	----	----	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-5	BRP-29-6-BOTT OM	BRP-29-6-TOP	BRP-40-1	BRP-40-2
Client sampling date / time					13-Apr-2021 17:00	13-Apr-2021 14:15	13-Apr-2021 14:15	14-Apr-2021 11:30	14-Apr-2021 12:30	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-006	YL2100283-007	YL2100283-008	YL2100283-009	YL2100283-010	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	7.2	6.3	7.5	14.3	14.7	
conductivity	----	E100	2.0	µS/cm	87.9	----	----	54.1	55.3	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	33.7	----	----	21.6	20.6	
pH	----	E108	0.10	pH units	6.57	----	----	6.79	6.91	
solids, total dissolved [TDS]	----	E162	10	mg/L	74	50	74	47	38	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	52.4	42.0	45.1	33.6	33.6	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	----	----	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	<0.10	----	----	0.19	0.18	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0220	----	----	0.0869	0.0846	
chloride	16887-00-6	E235.Cl	0.50	mg/L	10.3	9.99	9.86	1.00	1.00	
fluoride	16984-48-8	E235.F	0.020	mg/L	0.025	----	----	0.031	0.031	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.130	0.124	0.135	<0.0050	<0.0050	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	----	----	<0.0010	<0.0010	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	----	----	<0.0010	0.0023	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0035	----	----	0.0050	0.0038	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0019	----	----	0.0028	0.0020	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	3.14	----	----	1.51	1.56	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	14.5	----	----	8.35	8.52	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	----	12.4	13.9	----	----	
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0024	----	----	0.0020	0.0021	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.240	----	----	0.332	0.349	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	----	----	<0.0050	<0.0050	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	----	----	<0.0050	<0.0050	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	----	----	<0.0050	<0.0050	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.86	----	----	5.23	5.35	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	5.92	----	----	5.32	5.24	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.0120	----	----	<0.00050	<0.00050	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-5	BRP-29-6-BOTT OM	BRP-29-6-TOP	BRP-40-1	BRP-40-2
Client sampling date / time					13-Apr-2021 17:00	13-Apr-2021 14:15	13-Apr-2021 14:15	14-Apr-2021 11:30	14-Apr-2021 12:30	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-006	YL2100283-007	YL2100283-008	YL2100283-009	YL2100283-010	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0310	----	----	0.00311	0.00244	
antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000246	----	----	0.0000234	0.0000147	
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000331	----	----	0.000274	0.000258	
barium, total	7440-39-3	E466	0.000020	mg/L	0.0136	----	----	0.00788	0.00757	
beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000090	----	----	<0.0000020	<0.0000020	
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	----	----	<0.0000010	<0.0000010	
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	----	----	<0.0050	<0.0050	
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000191	----	----	0.0000034	<0.0000025	
calcium, total	7440-70-2	E466	0.010	mg/L	7.16	----	----	3.84	3.82	
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000160	----	----	0.000059	0.000058	
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000502	----	----	0.000168	0.000124	
copper, total	7440-50-8	E466	0.000050	mg/L	0.00332	----	----	0.000948	0.000916	
iron, total	7439-89-6	E466	0.00050	mg/L	0.0212	----	----	0.0548	0.0461	
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000552	----	----	0.000043	0.000037	
lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000477	----	----	0.0000064	<0.0000050	
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00113	----	----	0.00078	0.00077	
magnesium, total	7439-95-4	E466	0.0010	mg/L	3.75	----	----	2.90	2.87	
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00676	----	----	0.0291	0.0235	
molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000015	----	----	<0.000010	<0.000010	
nickel, total	7440-02-0	E466	0.000020	mg/L	0.00974	----	----	0.00212	0.00208	
potassium, total	7440-09-7	E466	0.0050	mg/L	0.591	----	----	0.592	0.573	
selenium, total	7782-49-2	E466	0.000025	mg/L	0.000039	----	----	0.000033	0.000040	
silicon, total	7440-21-3	E466	0.050	mg/L	1.39	----	----	0.675	0.661	
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	----	----	<0.0000020	<0.0000020	
sodium, total	17341-25-2	E466	0.010	mg/L	1.27	----	----	1.08	1.04	
strontium, total	7440-24-6	E466	0.000020	mg/L	0.0366	----	----	0.0139	0.0136	
sulfur, total	7704-34-9	E466	0.50	mg/L	4.93	----	----	2.82	2.85	
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000021	----	----	0.0000013	0.0000018	
tin, total	7440-31-5	E466	0.000010	mg/L	0.000565	----	----	<0.000010	<0.000010	
titanium, total	7440-32-6	E466	0.000050	mg/L	0.000107	----	----	<0.000050	<0.000050	
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000172	----	----	0.0000032	0.0000040	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-5	BRP-29-6-BOTT OM	BRP-29-6-TOP	BRP-40-1	BRP-40-2
Client sampling date / time					13-Apr-2021 17:00	13-Apr-2021 14:15	13-Apr-2021 14:15	14-Apr-2021 11:30	14-Apr-2021 12:30	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-006	YL2100283-007	YL2100283-008	YL2100283-009	YL2100283-010	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000041	----	----	0.000023	0.000021	
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00376	----	----	0.00049	0.00023	
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000156	----	----	0.000032	0.000032	
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0313	----	----	0.00309	0.00214	
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	----	0.0247	0.0241	----	----	
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000195	----	----	0.0000101	0.0000109	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	----	<0.00010	<0.00010	----	----	
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000449	----	----	0.000329	0.000419	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	----	0.00031	0.00035	----	----	
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.0131	----	----	0.00752	0.00754	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	----	0.0118	0.0125	----	----	
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000063	----	----	<0.0000020	<0.0000020	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	----	<0.000020	<0.000020	----	----	
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	----	----	<0.0000010	<0.0000010	
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	----	<0.000050	<0.000050	----	----	
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	----	----	<0.0050	<0.0050	
boron, dissolved	7440-42-8	E421	0.010	mg/L	----	<0.010	<0.010	----	----	
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000183	----	----	<0.0000025	<0.0000025	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	----	0.0000150	0.0000099	----	----	
calcium, dissolved	7440-70-2	E465	0.010	mg/L	7.21	----	----	3.84	3.68	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	----	6.75	7.20	----	----	
cesium, dissolved	7440-46-2	E421	0.000010	mg/L	----	<0.000010	<0.000010	----	----	
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000157	----	----	0.000057	0.000047	
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	----	<0.00050	<0.00050	----	----	
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000464	----	----	0.0000899	0.000129	
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	----	0.00037	0.00024	----	----	
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00314	----	----	0.00157	0.000863	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	----	0.00275	0.00282	----	----	
dissolved metals filtration location	----	EP465	-	-	Field	----	----	Field	Field	
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0149	----	----	0.0152	0.0161	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-5	BRP-29-6-BOTT OM	BRP-29-6-TOP	BRP-40-1	BRP-40-2
Client sampling date / time						13-Apr-2021 17:00	13-Apr-2021 14:15	13-Apr-2021 14:15	14-Apr-2021 11:30	14-Apr-2021 12:30
Analyte	CAS Number	Method	LOR	Unit		YL2100283-006	YL2100283-007	YL2100283-008	YL2100283-009	YL2100283-010
						Result	Result	Result	Result	Result
Dissolved Metals										
iron, dissolved	7439-89-6	E421	0.010	mg/L		----	<0.010	<0.010	----	----
lead, dissolved	7439-92-1	E465	0.0000050	mg/L		0.0000168	----	----	0.0000323	<0.0000050
lead, dissolved	7439-92-1	E421	0.000050	mg/L		----	<0.000050	<0.000050	----	----
lithium, dissolved	7439-93-2	E465	0.00010	mg/L		0.00113	----	----	0.00076	0.00073
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		----	0.0011	0.0012	----	----
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L		3.82	----	----	2.92	2.76
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L		----	3.57	3.55	----	----
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L		0.00641	----	----	0.0232	0.0249
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		----	0.00393	0.00281	----	----
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L		0.00866	----	----	0.00053	0.00059
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L		0.000014	----	----	<0.000010	<0.000010
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		----	<0.000050	<0.000050	----	----
nickel, dissolved	7440-02-0	E465	0.000020	mg/L		0.00974	----	----	0.00207	0.00198
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		----	0.00863	0.00937	----	----
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L		<0.010	----	----	<0.010	<0.010
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		----	<0.050	<0.050	----	----
potassium, dissolved	7440-09-7	E465	0.0050	mg/L		0.598	----	----	0.592	0.547
potassium, dissolved	7440-09-7	E421	0.050	mg/L		----	0.489	0.526	----	----
rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L		<0.0000050	----	----	<0.0000050	<0.0000050
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L		----	0.00115	0.00115	----	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L		0.000038	----	----	0.000030	0.000029
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		----	<0.000050	<0.000050	----	----
silicon, dissolved	7440-21-3	E465	0.050	mg/L		1.39	----	----	0.665	0.664
silicon, dissolved	7440-21-3	E421	0.050	mg/L		----	1.25	1.41	----	----
silver, dissolved	7440-22-4	E465	0.0000020	mg/L		<0.0000020	----	----	<0.0000020	<0.0000020
silver, dissolved	7440-22-4	E421	0.000010	mg/L		----	<0.000010	<0.000010	----	----
sodium, dissolved	17341-25-2	E465	0.010	mg/L		1.34	----	----	1.11	0.994
sodium, dissolved	17341-25-2	E421	0.050	mg/L		----	1.05	1.10	----	----
strontium, dissolved	7440-24-6	E465	0.000020	mg/L		0.0360	----	----	0.0138	0.0132
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		----	0.0337	0.0338	----	----
sulfur, dissolved	7704-34-9	E465	0.50	mg/L		4.87	----	----	2.77	2.68



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-29-5	BRP-29-6-BOTT OM	BRP-29-6-TOP	BRP-40-1	BRP-40-2
Client sampling date / time					13-Apr-2021 17:00	13-Apr-2021 14:15	13-Apr-2021 14:15	14-Apr-2021 11:30	14-Apr-2021 12:30	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-006	YL2100283-007	YL2100283-008	YL2100283-009	YL2100283-010	
					Result	Result	Result	Result	Result	
Dissolved Metals										
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	----	4.00	4.99	----	----	
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	----	<0.00020	<0.00020	----	----	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000019	----	----	0.0000011	0.0000015	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	----	<0.000010	<0.000010	----	----	
thorium, dissolved	7440-29-1	E421	0.00010	mg/L	----	<0.00010	<0.00010	----	----	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	0.000506	----	----	<0.000010	<0.000010	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	----	0.00027	<0.00010	----	----	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000074	----	----	<0.000050	<0.000050	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	----	<0.00030	<0.00030	----	----	
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	----	<0.00010	<0.00010	----	----	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000156	----	----	0.0000031	0.0000026	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	----	0.000012	0.000014	----	----	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000038	----	----	0.000022	0.000021	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	----	<0.00050	<0.00050	----	----	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00330	----	----	0.00138	0.00103	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	----	0.0027	0.0032	----	----	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000151	----	----	0.000028	0.000030	
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	----	<0.00030	<0.00030	----	----	
dissolved mercury filtration location	----	EP509-L	-	-	Field	----	----	Field	Field	
dissolved metals filtration location	----	EP421	-	-	----	Laboratory	Laboratory	----	----	

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

Client sampling date / time					14-Apr-2021 13:30	14-Apr-2021 14:30	14-Apr-2021 15:45	14-Apr-2021 16:00	15-Apr-2021 10:30
Analyte	CAS Number	Method	LOR	Unit	YL2100283-011	YL2100283-012	YL2100283-013	YL2100283-014	YL2100283-015
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	14.1	15.5	15.9	<1.0	7.8
conductivity	----	E100	2.0	µS/cm	52.8	58.7	58.4	<2.0	65.3
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	22.6	21.7	22.1	<0.50	27.2
pH	----	E108	0.10	pH units	6.93	6.93	6.94	5.57	6.71
solids, total dissolved [TDS]	----	E162	10	mg/L	42	44	42	<10	51
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	33.1	35.2	35.8	<1.0	42.2
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU	0.19	0.24	0.23	<0.10	<0.10
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0995	0.108	0.113	0.236	0.0394
chloride	16887-00-6	E235.Cl	0.50	mg/L	0.92	1.04	1.05	<0.50	3.71
fluoride	16984-48-8	E235.F	0.020	mg/L	0.028	0.034	0.030	<0.020	0.030
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	0.0113	0.0052	<0.0050	0.0469
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0012	<0.0010	<0.0010	<0.0010	<0.0010
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0039	0.0043	0.0052	<0.0010	0.0034
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0020	0.0022	0.0018	<0.0010	0.0018
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	1.53	1.74	1.74	<0.50	2.09
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	7.97	8.80	8.93	<0.050	14.0
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0017	0.0021	0.0022	0.0024	0.0022
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.344	0.384	0.399	0.193	0.260
Cyanides									
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.84	5.42	5.39	<0.50	6.17
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.92	5.48	5.56	<0.50	6.36
Total Metals									
mercury, total	7439-97-6	E508-L	0.00050	µg/L	<0.00050	0.00357	<0.00050	<0.00050	0.00419
Total Metals (Undigested)									



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-40-3	BRP-40-4	BRP-40-5	TB-1	BRP-32-1
Client sampling date / time						14-Apr-2021 13:30	14-Apr-2021 14:30	14-Apr-2021 15:45	14-Apr-2021 16:00	15-Apr-2021 10:30
Analyte	CAS Number	Method	LOR	Unit	YL2100283-011	YL2100283-012	YL2100283-013	YL2100283-014	YL2100283-015	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.00265	0.00283	0.00266	<0.00020		0.0292
antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000096	0.0000180	0.0000130	<0.0000050		0.0000874
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000264	0.000271	0.000272	<0.000010		0.000366
barium, total	7440-39-3	E466	0.000020	mg/L	0.00803	0.00857	0.00853	<0.000020		0.0110
beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020		0.0000053
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010		<0.0000010
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050		<0.0050
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000028	0.0000041	<0.0000025	<0.0000025		0.0000081
calcium, total	7440-70-2	E466	0.010	mg/L	3.94	4.01	4.04	<0.010		5.55
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000058	0.000057	0.000058	<0.000040		0.000193
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000147	0.000254	0.000195	<0.0000050		0.000150
copper, total	7440-50-8	E466	0.000050	mg/L	0.000948	0.000953	0.000952	<0.000050		0.00324
iron, total	7439-89-6	E466	0.00050	mg/L	0.0491	0.0629	0.0705	<0.00050		0.0284
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000042	0.000044	0.000043	<0.000010		0.000428
lead, total	7439-92-1	E466	0.0000050	mg/L	<0.0000050	0.0000139	0.0000055	<0.0000050		0.0000473
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00086	0.00079	0.00082	<0.00010		0.00119
magnesium, total	7439-95-4	E466	0.0010	mg/L	2.93	2.97	3.02	<0.0010		3.55
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.0250	0.0382	0.0286	<0.0000050		0.00701
molybdenum, total	7439-98-7	E466	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010		0.000021
nickel, total	7440-02-0	E466	0.000020	mg/L	0.00213	0.00220	0.00222	<0.000020		0.00892
potassium, total	7440-09-7	E466	0.0050	mg/L	0.597	0.616	0.611	<0.0050		0.636
selenium, total	7782-49-2	E466	0.000025	mg/L	0.000030	0.000038	0.000034	<0.000025		0.000045
silicon, total	7440-21-3	E466	0.050	mg/L	0.685	0.726	0.754	<0.050		1.04
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020		<0.0000020
sodium, total	17341-25-2	E466	0.010	mg/L	1.06	1.09	1.12	<0.010		1.37
strontium, total	7440-24-6	E466	0.000020	mg/L	0.0141	0.0145	0.0145	<0.000020		0.0270
sulfur, total	7704-34-9	E466	0.50	mg/L	2.88	2.89	3.02	<0.50		5.24
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000017	0.0000018	0.0000014	<0.0000010		0.0000030
tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	0.000092	<0.000010	<0.000010		0.000125
titanium, total	7440-32-6	E466	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050		0.000339
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000035	0.0000036	0.0000030	<0.0000010		0.0000157



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-40-3	BRP-40-4	BRP-40-5	TB-1	BRP-32-1
Client sampling date / time						14-Apr-2021 13:30	14-Apr-2021 14:30	14-Apr-2021 15:45	14-Apr-2021 16:00	15-Apr-2021 10:30
Analyte	CAS Number	Method	LOR	Unit	YL2100283-011	YL2100283-012	YL2100283-013	YL2100283-014	YL2100283-015	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000020	0.000023	0.000023	<0.000010		0.000055
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00031	0.00054	0.00044	<0.00010		0.00209
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000031	0.000033	0.000031	<0.000010		0.000134
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00235	0.00216	0.00225	0.00059 ^{RRV}		0.0221
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000136	0.0000118	0.0000074	<0.0000050		0.0000507
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000370	0.000399	0.000478	<0.000010		0.000421
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00804	0.00822	0.00848	0.000042 ^{RRV}		0.0103
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020		0.0000057
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010		<0.0000010
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050		<0.0050
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	<0.0000025	<0.0000025	<0.0000025		0.0000082
calcium, dissolved	7440-70-2	E465	0.010	mg/L	4.08	3.92	3.95	<0.010		5.26
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000059	0.000051	0.000058	<0.000040		0.000156
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000113	0.000183	0.000138	<0.0000050		0.0000957
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.000960	0.000897	0.000928	<0.000050		0.00296
dissolved metals filtration location	----	EP465	-	-	Field	Field	Field	Field		Field
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0165	0.0182	0.0214	<0.00050		0.0137
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050		0.0000157
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00079	0.00076	0.00079	<0.00010		0.00120
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	3.01	2.89	2.98	<0.0010		3.43
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.0233	0.0337	0.0247	<0.0000050		0.00487
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	<0.00050	0.00126	<0.00050	<0.00050		0.00342
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010		0.000018
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00220	0.00212	0.00220	<0.000020		0.00840
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	<0.010	<0.010		<0.010
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.634	0.594	0.600	<0.0050		0.603
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050		<0.0000050
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000030	0.000036	0.000032	<0.000025		0.000033
silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.692	0.714	0.752	<0.050		1.01
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020		<0.0000020



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-40-3	BRP-40-4	BRP-40-5	TB-1	BRP-32-1
Client sampling date / time						14-Apr-2021 13:30	14-Apr-2021 14:30	14-Apr-2021 15:45	14-Apr-2021 16:00	15-Apr-2021 10:30
Analyte	CAS Number	Method	LOR	Unit	YL2100283-011	YL2100283-012	YL2100283-013	YL2100283-014	YL2100283-015	
					Result	Result	Result	Result	Result	
Dissolved Metals										
sodium, dissolved	17341-25-2	E465	0.010	mg/L	1.12	1.06	1.08	<0.010		1.26
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0145	0.0140	0.0143	<0.000020		0.0253
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	3.02	2.76	2.95	<0.50		5.02
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000015	0.0000014	0.0000016	<0.0000010		0.0000025
tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	0.000072	<0.000010	<0.000010		0.000124
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050		0.000142
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000035	0.0000016	0.0000046	<0.0000010		0.0000123
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000025	0.000018	0.000020	<0.000010		0.000043
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00161	0.00040	0.00032	<0.00010		0.00188
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000033	0.000029	0.000029	<0.000010		0.000127
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	Field	Field		Field

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

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-32-2	BRP-32-3	BRP-32-4	BRP-32-5	DUP-2
Client sampling date / time					15-Apr-2021 13:10	15-Apr-2021 15:45	15-Apr-2021 12:00	15-Apr-2021 14:30	15-Apr-2021 10:45	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-016	YL2100283-017	YL2100283-018	YL2100283-019	YL2100283-020	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	8.4	8.7	8.5	8.1	8.6	
conductivity	----	E100	2.0	µS/cm	68.4	69.0	69.2	66.1	70.2	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	25.6	27.0	27.5	25.6	25.6	
pH	----	E108	0.10	pH units	6.73	6.82	6.71	6.71	6.73	
solids, total dissolved [TDS]	----	E162	10	mg/L	55	56	54	52	59	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	43.2	44.1	44.4	42.3	43.4	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	0.11	0.13	0.19	0.10	0.12	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0458	0.0412	0.0395	0.0371	0.0412	
chloride	16887-00-6	E235.Cl	0.50	mg/L	3.95	3.99	4.00	3.80	4.06	
fluoride	16984-48-8	E235.F	0.020	mg/L	0.031	0.032	0.031	0.030	0.035	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0391	0.0377	0.0437	0.0434	0.0391	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0038	0.0035	0.0041	0.0037	0.0036	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0022	0.0021	0.0025	0.0027	0.0016	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	2.21	2.20	2.27	2.13	2.32	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	14.6	14.8	14.8	14.2	15.0	
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	0.0024	<0.0015 ^{SP, SRU}	0.0023	0.0016	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.317	0.330	0.352	0.301	0.341	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	6.72	6.64	6.75	6.60	6.27	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	6.77	6.78	6.99	6.85	6.92	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00077	0.00796	0.00075	0.00071	0.00470	
Total Metals (Undigested)										



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-32-2	BRP-32-3	BRP-32-4	BRP-32-5	DUP-2
Client sampling date / time					15-Apr-2021 13:10	15-Apr-2021 15:45	15-Apr-2021 12:00	15-Apr-2021 14:30	15-Apr-2021 10:45	
Analyte	CAS Number	Method	LOR	Unit	YL2100283-016	YL2100283-017	YL2100283-018	YL2100283-019	YL2100283-020	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0211	0.0222	0.0222	0.0214	0.0222	
antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000168	0.0000340	0.0000185	0.0000153	0.0000225	
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000331	0.000344	0.000336	0.000319	0.000319	
barium, total	7440-39-3	E466	0.000020	mg/L	0.00980	0.0102	0.0102	0.00990	0.00971	
beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000047	0.0000062	0.0000058	0.0000057	0.0000046	
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000096	0.0000096	0.0000081	0.0000089	0.0000060	
calcium, total	7440-70-2	E466	0.010	mg/L	5.09	5.14	5.28	5.16	5.10	
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000150	0.000162	0.000166	0.000151	0.000154	
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000130	0.000126	0.000132	0.000128	0.000146	
copper, total	7440-50-8	E466	0.000050	mg/L	0.00284	0.00316	0.00296	0.00286	0.00286	
iron, total	7439-89-6	E466	0.00050	mg/L	0.0196	0.0189	0.0189	0.0181	0.0203	
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000340	0.000345	0.000352	0.000332	0.000345	
lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000084	0.0000299	<0.0000050	<0.0000050	0.0000113	
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00112	0.00119	0.00119	0.00113	0.00106	
magnesium, total	7439-95-4	E466	0.0010	mg/L	3.27	3.36	3.44	3.32	3.32	
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00654	0.00642	0.00693	0.00655	0.00788	
molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000012	0.000016	0.000013	0.000012	0.000012	
nickel, total	7440-02-0	E466	0.000020	mg/L	0.00820	0.00834	0.00853	0.00834	0.00833	
potassium, total	7440-09-7	E466	0.0050	mg/L	0.567	0.584	0.607	0.573	0.566	
selenium, total	7782-49-2	E466	0.000025	mg/L	0.000041	0.000042	0.000035	0.000038	0.000039	
silicon, total	7440-21-3	E466	0.050	mg/L	0.981	1.01	1.02	0.969	0.951	
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	
sodium, total	17341-25-2	E466	0.010	mg/L	1.16	1.22	1.24	1.21	1.20	
strontium, total	7440-24-6	E466	0.000020	mg/L	0.0251	0.0256	0.0258	0.0253	0.0251	
sulfur, total	7704-34-9	E466	0.50	mg/L	4.98	5.15	5.12	4.94	4.91	
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000025	0.0000024	0.0000025	0.0000026	0.0000020	
tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	0.000289	<0.000010	<0.000010	0.000024	
titanium, total	7440-32-6	E466	0.000050	mg/L	0.000054	0.000078	0.000059	0.000070	0.000079	
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000148	0.0000131	0.0000131	0.0000136	0.0000138	



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-32-2	BRP-32-3	BRP-32-4	BRP-32-5	DUP-2
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2100283-016	YL2100283-017	YL2100283-018	YL2100283-019	YL2100283-020	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000038	0.000041	0.000039	0.000040	0.000040	0.000040
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00144	0.00242	0.00127	0.00136	0.00128	0.00128
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000124	0.000129	0.000126	0.000117	0.000120	0.000120
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0204	0.0218	0.0213	0.0207	0.0204	0.0204
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000135	0.0000218	0.0000347	0.0000201	0.0000250	0.0000250
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000540	0.000436	0.0742	0.000488	0.000990	0.000990
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00953	0.00987	0.00996	0.00967	0.00954	0.00954
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000056	0.0000048	0.0000035	0.0000060	0.0000056	0.0000056
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	0.0000031	0.0000161	0.0000161
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000044	0.0000062	0.0000069	0.0000061	0.0000065	0.0000065
calcium, dissolved	7440-70-2	E465	0.010	mg/L	4.96	5.22	5.22	4.96	5.01	5.01
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000139	0.000159	0.000158	0.000149	0.000145	0.000145
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000886	0.0000969	0.000106	0.0000920	0.0000958	0.0000958
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00275	0.00311	0.00288	0.00279	0.00275	0.00275
dissolved metals filtration location	----	EP465	-	-	Field	Field	Field	Field	Field	Field
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0117	0.0125	0.0133	0.0118	0.0128	0.0128
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	<0.0000050	0.0000107	<0.0000050	<0.0000050	<0.0000050	<0.0000050
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00111	0.00115	0.00122	0.00113	0.00113	0.00113
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	3.21	3.38	3.52	3.22	3.17	3.17
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00444	0.00475	0.00524	0.00435	0.00502	0.00502
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	0.00096	0.00517	0.00087	0.00080	0.00133	0.00133
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000011	0.000017	0.000015	0.000014	0.000015	0.000015
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00798	0.00843	0.00833	0.00802	0.00801	0.00801
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.553	0.590	0.596	0.570	0.561	0.561
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000028	0.000035	0.000042	0.000040	0.000036	0.000036
silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.984	0.998	1.01	0.976	0.995	0.995
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-32-2	BRP-32-3	BRP-32-4	BRP-32-5	DUP-2
(Matrix: Water)										
					Client sampling date / time	15-Apr-2021 13:10	15-Apr-2021 15:45	15-Apr-2021 12:00	15-Apr-2021 14:30	15-Apr-2021 10:45
Analyte	CAS Number	Method	LOR	Unit	YL2100283-016	YL2100283-017	YL2100283-018	YL2100283-019	YL2100283-020	
					Result	Result	Result	Result	Result	
Dissolved Metals										
sodium, dissolved	17341-25-2	E465	0.010	mg/L	1.18	1.29	1.33	1.18	1.15	
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0243	0.0254	0.0257	0.0249	0.0239	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	4.95	5.04	5.00	4.86	4.85	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000024	0.0000019	0.0000020	0.0000017	0.0000020	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	0.000190	<0.000010	<0.000010	0.000040	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	0.000058	0.000050	0.000052	0.000064	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000130	0.0000125	0.0000162	0.0000136	0.0000119	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000036	0.000042	0.000042	0.000035	0.000040	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00163	0.00212	0.00197	0.00180	0.00144	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000119	0.000126	0.000124	0.000121	0.000121	
dissolved mercury filtration location	----	EP509-L	-	-	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)					Client sample ID	GLTL-TOP	GLTL-BOTTOM	BRP-32-3B	----	----
Client sampling date / time						15-Apr-2021 17:10	15-Apr-2021 17:10	15-Apr-2021 15:45	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2100283-022	YL2100283-023	YL2100283-024	-----	-----	-----
					Result	Result	Result	----	----	----
Physical Tests										
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	11.5	11.5	8.2	----	----	----
solids, total dissolved [TDS]	----	E162	10	mg/L	62	61	49	----	----	----
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	43.4	44.3	36.1	----	----	----
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	4.41	4.59	3.82	----	----	----
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0566	0.0878	0.0678	----	----	----
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	16.4	16.7	14.4	----	----	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0196	0.0177	0.0178	----	----	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00036	0.00032	0.00031	----	----	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0119	0.0134	0.0101	----	----	----
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	----	----	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	----
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	<0.010	----	----	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000079	0.0000085	0.0000059	----	----	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L	6.47	6.38	5.09	----	----	----
cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	----
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	0.00011	<0.00010	----	----	----
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00293	0.00267	0.00256	----	----	----
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.016	0.023	0.012	----	----	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0014	0.0014	0.0012	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	3.96	4.12	3.22	----	----	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00337	0.0105	0.00166	----	----	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	----
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00903	0.00916	0.00808	----	----	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.670	0.670	0.546	----	----	----
rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00171	0.00169	0.00136	----	----	----



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLTL-TOP	GLTL-BOTTOM	BRP-32-3B	----	----
Client sampling date / time						15-Apr-2021 17:10	15-Apr-2021 17:10	15-Apr-2021 15:45	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2100283-022	YL2100283-023	YL2100283-024	-----	-----	-----
					Result	Result	Result	----	----	----
Dissolved Metals										
selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.11	1.17	0.989	----	----	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L	1.34	1.34	1.10	----	----	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0319	0.0319	0.0250	----	----	----
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	5.47	4.96	4.35	----	----	----
tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	----
thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L	0.00012	0.00030	<0.00010	----	----	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	----
tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000013	0.000011	0.000012	----	----	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0012	0.0015	0.0011	----	----	----
zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	----
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2100283	Page	: 1 of 66
Amendment	: 3		
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Zenovia Craciunescu	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 446 5593
Project	: 20412211/2500/20	Date Samples Received	: 16-Apr-2021 14:15
PO	: ----	Issue Date	: 01-Jun-2021 08:44
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 23		
No. of samples analysed	: 23		

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

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Water

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Dissolved Metals	QC-MRG2-183729002	----	sulfur, dissolved	7704-34-9	E421	121 % ^{MES}	80.0-120%	Recovery greater than upper 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	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-32-1	E298	15-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-32-2	E298	15-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-32-3	E298	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-32-5	E298	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-40-4	E298	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-40-5	E298	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) TB-1	E298	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-29-4	E298	13-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-29-5	E298	13-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-32-4	E298	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-40-1	E298	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-40-2	E298	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-40-3	E298	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-2	E298	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-29-1	E298	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-29-2	E298	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-29-3	E298	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-1	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-2	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-2B	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-3	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-6-BOTTOM	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-6-TOP	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-BOTTOM	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-TOP	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-32-1	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-32-2	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-32-3	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-32-3B	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-32-4	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-32-5	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE DUP-2	E235.Cl	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-4	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-29-5	E235.Cl	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-40-1	E235.Cl	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-40-2	E235.Cl	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-40-3	E235.Cl	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-40-4	E235.Cl	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-40-5	E235.Cl	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE TB-1	E235.Cl	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-29-1	E378-U	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-29-2	E378-U	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-29-3	E378-U	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-32-1	E378-U	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-32-2	E378-U	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-32-3	E378-U	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-32-4	E378-U	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-32-5	E378-U	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE DUP-2	E378-U	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-40-1	E378-U	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-40-2	E378-U	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-40-3	E378-U	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-40-4	E378-U	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-40-5	E378-U	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-29-4	E378-U	13-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-29-5	E378-U	13-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE TB-1	E378-U	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-29-1	E235.F	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-29-2	E235.F	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-29-3	E235.F	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-32-1	E235.F	15-Apr-2021	----	----	----		22-Apr-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-32-2	E235.F	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-32-3	E235.F	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-32-4	E235.F	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-32-5	E235.F	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE DUP-2	E235.F	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-29-4	E235.F	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-29-5	E235.F	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-40-1	E235.F	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-40-2	E235.F	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-40-3	E235.F	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-40-4	E235.F	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-40-5	E235.F	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE TB-1	E235.F	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-1	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-2	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-2B	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-3	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-6-BOTTOM	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-6-TOP	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-BOTTOM	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-TOP	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-32-1	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-32-2	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-32-3	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-32-3B	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-32-4	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-32-5	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	✖ EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE DUP-2	E235.NO3-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-40-1	E235.NO3-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-40-2	E235.NO3-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-40-3	E235.NO3-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-40-4	E235.NO3-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-40-5	E235.NO3-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-4	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-29-5	E235.NO3-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE TB-1	E235.NO3-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	* EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-29-1	E235.NO2-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-29-2	E235.NO2-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-29-3	E235.NO2-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	10 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-32-1	E235.NO2-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-32-2	E235.NO2-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-32-3	E235.NO2-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-32-4	E235.NO2-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-32-5	E235.NO2-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE DUP-2	E235.NO2-L	15-Apr-2021	----	----	----		22-Apr-2021	3 days	8 days	* EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-40-1	E235.NO2-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-40-2	E235.NO2-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-40-3	E235.NO2-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-40-4	E235.NO2-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-40-5	E235.NO2-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-29-4	E235.NO2-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-29-5	E235.NO2-L	13-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE TB-1	E235.NO2-L	14-Apr-2021	----	----	----		22-Apr-2021	3 days	9 days	✖ EHT
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-29-1	E392	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-29-2	E392	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-29-3	E392	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-32-2	E392	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-32-3	E392	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-32-5	E392	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-32-1	E392	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-32-4	E392	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-40-3	E392	14-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-40-4	E392	14-Apr-2021	----	----	----		22-Apr-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-40-5	E392	14-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE DUP-2	E392	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE TB-1	E392	14-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-29-4	E392	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-29-5	E392	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-40-1	E392	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-40-2	E392	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-29-1	E235.SO4-L	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-29-2	E235.SO4-L	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-29-3	E235.SO4-L	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-32-1	E235.SO4-L	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-32-2	E235.SO4-L	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-32-3	E235.SO4-L	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-32-4	E235.SO4-L	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-32-5	E235.SO4-L	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE DUP-2	E235.SO4-L	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-29-4	E235.SO4-L	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-29-5	E235.SO4-L	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-40-1	E235.SO4-L	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-40-2	E235.SO4-L	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-40-3	E235.SO4-L	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-40-4	E235.SO4-L	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-40-5	E235.SO4-L	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE TB-1	E235.SO4-L	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE BRP-29-2B	E235.SO4	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE BRP-29-6-BOTTOM	E235.SO4	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE BRP-29-6-TOP	E235.SO4	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-BOTTOM	E235.SO4	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-TOP	E235.SO4	15-Apr-2021	----	----	----		22-Apr-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE BRP-32-3B	E235.SO4	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-29-1	E375-U	13-Apr-2021	22-Apr-2021	----	10 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-32-2	E375-U	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-32-3	E375-U	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-32-4	E375-U	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-32-5	E375-U	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-32-1	E375-U	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-40-2	E375-U	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-40-3	E375-U	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-40-4	E375-U	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-40-5	E375-U	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) DUP-2	E375-U	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) TB-1	E375-U	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-29-2	E375-U	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-29-3	E375-U	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-29-4	E375-U	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-29-5	E375-U	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-40-1	E375-U	14-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-32-1	E318	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-32-2	E318	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-32-3	E318	15-Apr-2021	22-Apr-2021	----	7 days	✓	23-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-32-5	E318	15-Apr-2021	22-Apr-2021	----	7 days	✓	23-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-40-4	E318	14-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-40-5	E318	14-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) TB-1	E318	14-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-29-4	E318	13-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-29-5	E318	13-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-32-4	E318	15-Apr-2021	22-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-40-1	E318	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-40-2	E318	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-40-3	E318	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) DUP-2	E318	15-Apr-2021	22-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-29-1	E318	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-29-2	E318	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓



Matrix: **Water**

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-29-3	E318	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-29-1	E372-S	13-Apr-2021	22-Apr-2021	----	10 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-32-2	E372-S	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-32-3	E372-S	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-32-4	E372-S	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-32-5	E372-S	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-32-1	E372-S	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-40-2	E372-S	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-40-3	E372-S	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-40-4	E372-S	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-40-5	E372-S	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) DUP-2	E372-S	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) TB-1	E372-S	14-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-29-2	E372-S	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-29-3	E372-S	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-29-4	E372-S	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-29-5	E372-S	13-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-40-1	E372-S	14-Apr-2021	22-Apr-2021	----	9 days	✓	22-Apr-2021	28 days	1 days	✓



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-32-3	E395	15-Apr-2021	----	----	----		21-Apr-2021	7 days	6 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-32-1	E395	15-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-32-2	E395	15-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-32-4	E395	15-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-32-5	E395	15-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-40-5	E395	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) DUP-2	E395	15-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) TB-1	E395	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-29-4	E395	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-29-5	E395	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-40-1	E395	14-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-40-2	E395	14-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-40-3	E395	14-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-40-4	E395	14-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✔
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-29-1	E395	13-Apr-2021	----	----	----		21-Apr-2021	7 days	9 days	✖ EHT
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-29-2	E395	13-Apr-2021	----	----	----		21-Apr-2021	7 days	9 days	✖ EHT
Anions and Nutrients : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-29-3	E395	13-Apr-2021	----	----	----		21-Apr-2021	7 days	9 days	✖ EHT
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-1	E339	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✔



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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-2	E339	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-3	E339	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-4	E339	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-5	E339	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-1	E339	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-2	E339	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-3	E339	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-4	E339	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-5	E339	15-Apr-2021	----	----	----		22-Apr-2021	14 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) DUP-2	E339	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-1	E339	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-2	E339	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-3	E339	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-4	E339	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-5	E339	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) TB-1	E339	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-1	E333	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-2	E333	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-3	E333	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-4	E333	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-5	E333	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-1	E333	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-2	E333	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-3	E333	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-4	E333	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-5	E333	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) DUP-2	E333	15-Apr-2021	----	----	----		22-Apr-2021	14 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-1	E333	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-2	E333	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-3	E333	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-4	E333	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-5	E333	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) TB-1	E333	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-1	E336	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-2	E336	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-3	E336	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-4	E336	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-29-5	E336	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-1	E336	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-2	E336	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-3	E336	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-4	E336	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-32-5	E336	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) DUP-2	E336	15-Apr-2021	----	----	----		22-Apr-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-1	E336	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-2	E336	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-3	E336	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-4	E336	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-40-5	E336	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) TB-1	E336	14-Apr-2021	----	----	----		22-Apr-2021	14 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - dissolved (lab preserved) BRP-29-1	E509-L	13-Apr-2021	23-Apr-2021	----	10 days	✓	23-Apr-2021	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - dissolved (lab preserved) BRP-29-2	E509-L	13-Apr-2021	23-Apr-2021	----	10 days	✓	23-Apr-2021	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - dissolved (lab preserved) BRP-29-3	E509-L	13-Apr-2021	23-Apr-2021	----	10 days	✓	23-Apr-2021	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - dissolved (lab preserved) BRP-29-4	E509-L	13-Apr-2021	23-Apr-2021	----	10 days	✓	23-Apr-2021	28 days	1 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-29-5	E509-L	13-Apr-2021	23-Apr-2021	----	10 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-32-1	E509-L	15-Apr-2021	23-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-32-2	E509-L	15-Apr-2021	23-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-32-3	E509-L	15-Apr-2021	23-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-32-4	E509-L	15-Apr-2021	23-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-32-5	E509-L	15-Apr-2021	23-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) DUP-2	E509-L	15-Apr-2021	23-Apr-2021	----	8 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-40-1	E509-L	14-Apr-2021	23-Apr-2021	----	9 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-40-2	E509-L	14-Apr-2021	23-Apr-2021	----	9 days	✓	23-Apr-2021	28 days	1 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		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-40-3	E509-L	14-Apr-2021	23-Apr-2021	----	9 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-40-4	E509-L	14-Apr-2021	23-Apr-2021	----	9 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) BRP-40-5	E509-L	14-Apr-2021	23-Apr-2021	----	9 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)											
FLPE - dissolved (lab preserved) TB-1	E509-L	14-Apr-2021	23-Apr-2021	----	9 days	✓	23-Apr-2021	28 days	1 days	✓	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)											
HDPE - dissolved (lab preserved) BRP-32-1	E465	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)											
HDPE - dissolved (lab preserved) BRP-32-2	E465	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)											
HDPE - dissolved (lab preserved) BRP-32-3	E465	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)											
HDPE - dissolved (lab preserved) BRP-32-4	E465	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓	



Matrix: **Water**

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-32-5	E465	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) DUP-2	E465	15-Apr-2021	21-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-40-1	E465	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-40-2	E465	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-40-3	E465	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-40-4	E465	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-40-5	E465	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) TB-1	E465	14-Apr-2021	21-Apr-2021	----	8 days	✓	22-Apr-2021	180 days	1 days	✓



Matrix: **Water**

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-29-1	E465	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-29-2	E465	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-29-3	E465	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-29-4	E465	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-29-5	E465	13-Apr-2021	21-Apr-2021	----	9 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) BRP-29-2B	E421	13-Apr-2021	22-Apr-2021	----	10 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) BRP-29-6-BOTTOM	E421	13-Apr-2021	22-Apr-2021	----	10 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) BRP-29-6-TOP	E421	13-Apr-2021	23-Apr-2021	----	10 days	✓	23-Apr-2021	180 days	1 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) BRP-32-3B	E421	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) GLTL-BOTTOM	E421	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) GLTL-TOP	E421	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	180 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-32-1	E358-L	15-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-32-2	E358-L	15-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-32-3	E358-L	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-32-4	E358-L	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-32-5	E358-L	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-40-5	E358-L	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓



Matrix: **Water**

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) DUP-2	E358-L	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) TB-1	E358-L	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-29-4	E358-L	13-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-29-5	E358-L	13-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-40-1	E358-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-40-2	E358-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-40-3	E358-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-40-4	E358-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-29-1	E358-L	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓



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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-29-2	E358-L	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-29-3	E358-L	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-32-1	E355-L	15-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-32-2	E355-L	15-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-32-3	E355-L	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-32-5	E355-L	15-Apr-2021	22-Apr-2021	----	7 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-40-4	E355-L	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-40-5	E355-L	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) TB-1	E355-L	14-Apr-2021	21-Apr-2021	----	7 days	✓	21-Apr-2021	28 days	1 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-29-4	E355-L	13-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-29-5	E355-L	13-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-32-4	E355-L	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-40-1	E355-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-40-2	E355-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-40-3	E355-L	14-Apr-2021	21-Apr-2021	----	8 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP-2	E355-L	15-Apr-2021	22-Apr-2021	----	8 days	✓	22-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-29-1	E355-L	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-29-2	E355-L	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-29-3	E355-L	13-Apr-2021	21-Apr-2021	----	9 days	✓	21-Apr-2021	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-2B	E290	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-6-BOTTOM	E290	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-6-TOP	E290	13-Apr-2021	----	----	----		22-Apr-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-32-1	E290	15-Apr-2021	----	----	----		28-May-2021	14 days	43 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-32-2	E290	15-Apr-2021	----	----	----		28-May-2021	14 days	43 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-32-3	E290	15-Apr-2021	----	----	----		28-May-2021	14 days	43 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-32-4	E290	15-Apr-2021	----	----	----		28-May-2021	14 days	43 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-32-5	E290	15-Apr-2021	----	----	----		28-May-2021	14 days	43 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE DUP-2	E290	15-Apr-2021	----	----	----		28-May-2021	14 days	43 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-40-1	E290	14-Apr-2021	----	----	----		28-May-2021	14 days	44 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-40-2	E290	14-Apr-2021	----	----	----		28-May-2021	14 days	44 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-40-3	E290	14-Apr-2021	----	----	----		28-May-2021	14 days	44 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-40-4	E290	14-Apr-2021	----	----	----		28-May-2021	14 days	44 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-40-5	E290	14-Apr-2021	----	----	----		28-May-2021	14 days	44 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE TB-1	E290	14-Apr-2021	----	----	----		28-May-2021	14 days	44 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-1	E290	13-Apr-2021	----	----	----		28-May-2021	14 days	45 days	✖ EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-2	E290	13-Apr-2021	----	----	----		28-May-2021	14 days	45 days	✖ EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-3	E290	13-Apr-2021	----	----	----		28-May-2021	14 days	45 days	* EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-4	E290	13-Apr-2021	----	----	----		28-May-2021	14 days	45 days	* EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-29-5	E290	13-Apr-2021	----	----	----		28-May-2021	14 days	45 days	* EHT
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-32-3B	E290	15-Apr-2021	----	----	----		22-Apr-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-BOTTOM	E290	15-Apr-2021	----	----	----		22-Apr-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-TOP	E290	15-Apr-2021	----	----	----		22-Apr-2021	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-29-1	E100	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-29-2	E100	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-29-3	E100	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE BRP-29-4	E100	13-Apr-2021	----	----	----		22-Apr-2021	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-32-1	E100	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-32-2	E100	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-32-3	E100	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-32-4	E100	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-32-5	E100	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE DUP-2	E100	15-Apr-2021	----	----	----		22-Apr-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-29-5	E100	13-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-40-1	E100	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE BRP-40-2	E100	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-40-3	E100	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-40-4	E100	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-40-5	E100	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE TB-1	E100	14-Apr-2021	----	----	----		22-Apr-2021	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE BRP-32-3	E108	15-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	168 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-32-5	E108	15-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	170 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-32-2	E108	15-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	171 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-32-4	E108	15-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	172 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE DUP-2	E108	15-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	173 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-32-1	E108	15-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	174 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-40-5	E108	14-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	192 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE TB-1	E108	14-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	192 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-40-4	E108	14-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	194 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-40-3	E108	14-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	195 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-40-2	E108	14-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	196 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-40-1	E108	14-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	197 hrs	<div>✖</div> EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-29-5	E108	13-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	215 hrs	<div>✖</div> EHTR-FM



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE BRP-29-4	E108	13-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	216 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE BRP-29-2	E108	13-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	219 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE BRP-29-3	E108	13-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	220 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE BRP-29-1	E108	13-Apr-2021	----	----	----		22-Apr-2021	0.25 hrs	222 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-32-1	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-32-2	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-32-3	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-32-3B	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-32-4	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	<div>✔</div>



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE BRP-32-5	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-40-1	E162	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-40-2	E162	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-40-3	E162	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-40-4	E162	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-40-5	E162	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE DUP-2	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GLTL-BOTTOM	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GLTL-TOP	E162	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE TB-1	E162	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-1	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-2	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-2B	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-3	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-4	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-5	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-6-BOTTOM	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-29-6-TOP	E162	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE BRP-32-1	E160-H	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-32-2	E160-H	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-32-3	E160-H	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-32-4	E160-H	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-32-5	E160-H	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-40-1	E160-H	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-40-2	E160-H	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-40-3	E160-H	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-40-4	E160-H	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE BRP-40-5	E160-H	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE DUP-2	E160-H	15-Apr-2021	----	----	----		22-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE TB-1	E160-H	14-Apr-2021	----	----	----		21-Apr-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-29-1	E160-H	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-29-2	E160-H	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-29-3	E160-H	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-29-4	E160-H	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-29-5	E160-H	13-Apr-2021	----	----	----		21-Apr-2021	7 days	8 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-32-2	E121	15-Apr-2021	----	----	----		21-Apr-2021	3 days	6 days	✖ EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-32-3	E121	15-Apr-2021	----	----	----		21-Apr-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-32-5	E121	15-Apr-2021	----	----	----		21-Apr-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-32-1	E121	15-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-32-4	E121	15-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-40-3	E121	14-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-40-4	E121	14-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-40-5	E121	14-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-2	E121	15-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE TB-1	E121	14-Apr-2021	----	----	----		21-Apr-2021	3 days	7 days	* EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-40-1	E121	14-Apr-2021	----	----	----		21-Apr-2021	3 days	8 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-40-2	E121	14-Apr-2021	----	----	----		21-Apr-2021	3 days	8 days	✖ EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-29-2	E121	13-Apr-2021	----	----	----		21-Apr-2021	3 days	8 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-29-4	E121	13-Apr-2021	----	----	----		21-Apr-2021	3 days	8 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-29-5	E121	13-Apr-2021	----	----	----		21-Apr-2021	3 days	8 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-29-1	E121	13-Apr-2021	----	----	----		21-Apr-2021	3 days	9 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-29-3	E121	13-Apr-2021	----	----	----		21-Apr-2021	3 days	9 days	✖ EHTL
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-32-1	E466	15-Apr-2021	----	----	----		21-Apr-2021	180 days	7 days	✔
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-32-2	E466	15-Apr-2021	----	----	----		21-Apr-2021	180 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-32-3	E466	15-Apr-2021	----	----	----		21-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-32-4	E466	15-Apr-2021	----	----	----		21-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-32-5	E466	15-Apr-2021	----	----	----		21-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) DUP-2	E466	15-Apr-2021	----	----	----		21-Apr-2021	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-40-1	E466	14-Apr-2021	----	----	----		21-Apr-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-40-2	E466	14-Apr-2021	----	----	----		21-Apr-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-40-3	E466	14-Apr-2021	----	----	----		21-Apr-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-40-4	E466	14-Apr-2021	----	----	----		21-Apr-2021	180 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-40-5	E466	14-Apr-2021	----	----	----		21-Apr-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) TB-1	E466	14-Apr-2021	----	----	----		21-Apr-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-29-1	E466	13-Apr-2021	----	----	----		21-Apr-2021	180 days	9 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-29-2	E466	13-Apr-2021	----	----	----		21-Apr-2021	180 days	9 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-29-3	E466	13-Apr-2021	----	----	----		21-Apr-2021	180 days	9 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-29-4	E466	13-Apr-2021	----	----	----		21-Apr-2021	180 days	9 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-29-5	E466	13-Apr-2021	----	----	----		21-Apr-2021	180 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-29-1	E508-L	13-Apr-2021	----	----	----		23-Apr-2021	28 days	10 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-29-2	E508-L	13-Apr-2021	----	----	----		23-Apr-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-29-3	E508-L	13-Apr-2021	----	----	----		23-Apr-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-29-4	E508-L	13-Apr-2021	----	----	----		23-Apr-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-29-5	E508-L	13-Apr-2021	----	----	----		23-Apr-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-32-1	E508-L	15-Apr-2021	----	----	----		23-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-32-2	E508-L	15-Apr-2021	----	----	----		23-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-32-3	E508-L	15-Apr-2021	----	----	----		23-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-32-4	E508-L	15-Apr-2021	----	----	----		23-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-32-5	E508-L	15-Apr-2021	----	----	----		23-Apr-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				Eval	Analysis		
			Preparation Date	Holding Times		Analysis Date		Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) DUP-2	E508-L	15-Apr-2021	----	----	----		23-Apr-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-40-1	E508-L	14-Apr-2021	----	----	----		23-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-40-2	E508-L	14-Apr-2021	----	----	----		23-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-40-3	E508-L	14-Apr-2021	----	----	----		23-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-40-4	E508-L	14-Apr-2021	----	----	----		23-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) BRP-40-5	E508-L	14-Apr-2021	----	----	----		23-Apr-2021	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
FLPE - total (lab preserved) TB-1	E508-L	14-Apr-2021	----	----	----		23-Apr-2021	28 days	9 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended
 EHTR: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
 EHT: Exceeded ALS recommended hold time prior to analysis.
 Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	183260	3	25	12.0	5.0	✔
Ammonia by Fluorescence	E298	182440	2	38	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	183262	2	26	7.6	5.0	✔
Conductivity in Water	E100	183259	1	17	5.8	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	183973	1	17	5.8	5.0	✔
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	182828	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	183091	2	25	8.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	182444	2	33	6.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	183267	1	17	5.8	5.0	✔
Fluoride in Water by IC	E235.F	183261	1	17	5.8	5.0	✔
Free Cyanide by CFA	E339	183848	1	17	5.8	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	183265	2	26	7.6	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	183263	1	17	5.8	5.0	✔
pH by Meter	E108	183258	1	17	5.8	5.0	✔
Reactive Silica by Colourimetry	E392	183422	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	183266	2	9	22.2	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	183264	1	17	5.8	5.0	✔
TDS by Gravimetry	E162	182298	3	37	8.1	5.0	✔
Total Cyanide by CFA	E333	183849	1	17	5.8	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	183097	2	26	7.6	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	182446	2	17	11.7	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	183972	1	17	5.8	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	182823	1	17	5.8	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	182445	2	17	11.7	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	183066	2	26	7.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	182734	1	20	5.0	5.0	✔
TSS by Gravimetry	E160-H	182302	2	29	6.9	5.0	✔
Turbidity by Nephelometry	E121	182660	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	183847	1	17	5.8	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	183260	3	25	12.0	5.0	✔
Ammonia by Fluorescence	E298	182440	2	38	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	183262	2	26	7.6	5.0	✔
Conductivity in Water	E100	183259	1	17	5.8	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	183973	1	17	5.8	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	182828	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	183091	2	25	8.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	182444	2	33	6.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	183267	1	17	5.8	5.0	✔
Fluoride in Water by IC	E235.F	183261	1	17	5.8	5.0	✔
Free Cyanide by CFA	E339	183848	1	17	5.8	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	183265	2	26	7.6	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	183263	1	17	5.8	5.0	✔
pH by Meter	E108	183258	1	17	5.8	5.0	✔
Reactive Silica by Colourimetry	E392	183422	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	183266	2	9	22.2	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	183264	1	17	5.8	5.0	✔
TDS by Gravimetry	E162	182298	3	37	8.1	5.0	✔
Total Cyanide by CFA	E333	183849	1	17	5.8	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	183097	2	26	7.6	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	182446	2	17	11.7	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	183972	1	17	5.8	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	182823	1	17	5.8	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	182445	2	17	11.7	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	183066	2	26	7.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	182734	1	20	5.0	5.0	✔
TSS by Gravimetry	E160-H	182302	2	29	6.9	5.0	✔
Turbidity by Nephelometry	E121	182660	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	183847	1	17	5.8	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	183260	3	25	12.0	5.0	✔
Ammonia by Fluorescence	E298	182440	2	38	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	183262	2	26	7.6	5.0	✔
Conductivity in Water	E100	183259	1	17	5.8	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	183973	1	17	5.8	5.0	✔
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	182828	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	183091	2	25	8.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	182444	2	33	6.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	183267	1	17	5.8	5.0	✔
Fluoride in Water by IC	E235.F	183261	1	17	5.8	5.0	✔
Free Cyanide by CFA	E339	183848	1	17	5.8	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	183265	2	26	7.6	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	183263	1	17	5.8	5.0	✔
Reactive Silica by Colourimetry	E392	183422	1	17	5.8	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							
Sulfate in Water by IC	E235.SO4	183266	2	9	22.2	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	183264	1	17	5.8	5.0	✔
TDS by Gravimetry	E162	182298	3	37	8.1	5.0	✔
Total Cyanide by CFA	E333	183849	1	17	5.8	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	183097	2	26	7.6	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	182446	2	17	11.7	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	183972	1	17	5.8	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	182823	1	17	5.8	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	182445	2	17	11.7	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	183066	2	26	7.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	182734	1	20	5.0	5.0	✔
TSS by Gravimetry	E160-H	182302	2	29	6.9	5.0	✔
Turbidity by Nephelometry	E121	182660	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	183847	1	17	5.8	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	182440	2	38	5.2	5.0	✔
Chloride in Water by IC	E235.Cl	183262	2	26	7.6	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	183973	1	17	5.8	5.0	✔
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	182828	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	183091	2	25	8.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	182444	2	33	6.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	183267	1	17	5.8	5.0	✔
Fluoride in Water by IC	E235.F	183261	1	17	5.8	5.0	✔
Free Cyanide by CFA	E339	183848	1	17	5.8	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	183265	2	26	7.6	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	183263	1	17	5.8	5.0	✔
Reactive Silica by Colourimetry	E392	183422	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	183266	2	9	22.2	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	183264	1	17	5.8	5.0	✔
Total Cyanide by CFA	E333	183849	1	17	5.8	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	183097	2	26	7.6	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	182446	2	17	11.7	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	183972	1	17	5.8	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	182823	1	17	5.8	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	182445	2	17	11.7	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	183066	2	26	7.6	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	182734	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	183847	1	17	5.8	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 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 $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC (Low Level)	E235.SO4-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
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.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Free Cyanide by CFA	E339 Vancouver - Environmental	Water	ASTM D7237 (mod)	Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L 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 CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 Vancouver - Environmental	Water	APHA 4500-SiO ₂ E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 Vancouver - Environmental	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ -) and reports it as Total Sulphide as (H ₂ S)
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 (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAFS.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO ₃ .

Page : 66 of 66
Work Order : YL2100283 Amendment 3
Client : Sabina Gold & Silver Corporation
Project : 20412211/2500/20



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 Vancouver - Environmental	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Dissolved Mercury Water Filtration (Low Level)	EP509-L Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order : **YL2100283**

Page : 1 of 30

Amendment : **3**

Client : Sabina Gold & Silver Corporation
 Contact : Zenovia Craciunescu
 Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
 Telephone : ----
 Project : 20412211/2500/20
 PO : ----
 C-O-C number : ----
 Sampler : ----
 Site : ----
 Quote number : 2021 Under-Ice Field Program
 No. of samples received : 23
 No. of samples analysed : 23

Laboratory : Yellowknife - Environmental
 Account Manager : Oliver Gregg
 Address : 314 Old Airport Road, Unit 116
 Yellowknife, Northwest Territories Canada X1A 3T3
 Telephone : 1 867 446 5593
 Date Samples Received : 16-Apr-2021 14:15
 Date Analysis Commenced : 21-Apr-2021
 Issue Date : 01-Jun-2021 08:44

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
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Angeli Marzan	Lab Analyst	Inorganics, Edmonton, Alberta
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Ann Ho	Laboratory Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Team Leader - Metals preparation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia



General Comments

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

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts 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: 182298)											
WR2100330-002	Anonymous	solids, total dissolved [TDS]	----	E162	13	mg/L	70	70	0	Diff <2x LOR	----
Physical Tests (QC Lot: 182302)											
KS2101101-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	11.5	10.7	0.8	Diff <2x LOR	----
Physical Tests (QC Lot: 182660)											
FJ2100189-006	Anonymous	turbidity	----	E121	0.10	NTU	3.50	3.54	1.14%	15%	----
Physical Tests (QC Lot: 183031)											
VA21A7153-008	Anonymous	solids, total dissolved [TDS]	----	E162	13	mg/L	66	71	5	Diff <2x LOR	----
Physical Tests (QC Lot: 183032)											
YL2100283-023	GLTL-BOTTOM	solids, total dissolved [TDS]	----	E162	13	mg/L	61	66	5	Diff <2x LOR	----
Physical Tests (QC Lot: 183033)											
VA21A7161-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 183258)											
YL2100283-001	BRP-29-1	pH	----	E108	0.10	pH units	6.59	6.60	0.152%	4%	----
Physical Tests (QC Lot: 183259)											
YL2100283-001	BRP-29-1	conductivity	----	E100	2.0	µS/cm	82.9	83.3	0.481%	10%	----
Physical Tests (QC Lot: 183260)											
YL2100283-008	BRP-29-6-TOP	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	7.5	7.2	0.3	Diff <2x LOR	----
Physical Tests (QC Lot: 183271)											
YL2100283-024	BRP-32-3B	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	8.2	8.5	0.3	Diff <2x LOR	----
Physical Tests (QC Lot: 206448)											
YL2100283-004	BRP-29-3	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	6.8	7.0	0.2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 182440)											
VA21A7083-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.100	mg/L	21.2	21.0	1.02%	20%	----
Anions and Nutrients (QC Lot: 182446)											
YL2100283-001	BRP-29-1	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.210	0.222	0.013	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183065)											
EO2100669-001	Anonymous	phosphorus, total	7723-14-0	E372-S	0.0060	mg/L	0.167	0.166	0.840%	20%	----
Anions and Nutrients (QC Lot: 183066)											
YL2100283-015	BRP-32-1	phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0034	0.0033	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183096)											
EO2100669-001	Anonymous	phosphorus, total dissolved	7723-14-0	E375-U	0.0030	mg/L	0.0041	0.0047	0.0006	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: 183097)											
YL2100283-015	BRP-32-1	phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0018	0.0018	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183261)											
YL2100283-001	BRP-29-1	fluoride	16984-48-8	E235.F	0.020	mg/L	0.023	0.023	0.00007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183262)											
YL2100283-001	BRP-29-1	chloride	16887-00-6	E235.Cl	0.50	mg/L	9.68	9.68	0.103%	20%	----
Anions and Nutrients (QC Lot: 183263)											
YL2100283-001	BRP-29-1	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183264)											
YL2100283-001	BRP-29-1	sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	13.7	13.6	0.106%	20%	----
Anions and Nutrients (QC Lot: 183265)											
YL2100283-001	BRP-29-1	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.122	0.127	3.95%	20%	----
Anions and Nutrients (QC Lot: 183266)											
YL2100283-003	BRP-29-2B	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	14.2	14.2	0.0583%	20%	----
Anions and Nutrients (QC Lot: 183267)											
YL2100283-001	BRP-29-1	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183274)											
VA21A7352-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	3.00	mg/L	530	525	0.952%	20%	----
Anions and Nutrients (QC Lot: 183275)											
VA21A7352-001	Anonymous	chloride	16887-00-6	E235.Cl	5.00	mg/L	295	291	1.50%	20%	----
Anions and Nutrients (QC Lot: 183278)											
VA21A7352-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0500	mg/L	1.91	1.90	0.345%	20%	----
Anions and Nutrients (QC Lot: 183341)											
FJ2100180-003	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0250	mg/L	0.551	0.552	0.207%	20%	----
Anions and Nutrients (QC Lot: 183343)											
YL2100283-017	BRP-32-3	Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	0.330	0.333	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 183422)											
YL2100283-001	BRP-29-1	silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	2.98	2.90	0.07	Diff <2x LOR	----
Cyanides (QC Lot: 183847)											
YL2100283-001	BRP-29-1	cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 183848)											
YL2100283-001	BRP-29-1	cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 183849)											
YL2100283-001	BRP-29-1	cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 182444)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Organic / Inorganic Carbon (QC Lot: 182444) - continued											
YL2100283-001	BRP-29-1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.60	5.62	0.268%	20%	----
Organic / Inorganic Carbon (QC Lot: 182445)											
YL2100283-001	BRP-29-1	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	5.56	5.50	1.05%	20%	----
Organic / Inorganic Carbon (QC Lot: 183256)											
FJ2100183-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.35	1.19	0.16	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 183342)											
YL2100283-017	BRP-32-3	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	6.78	7.08	4.41%	20%	----
Total Sulfides (QC Lot: 182734)											
VA21A7108-001	Anonymous	sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0038	0.0036	0.0002	Diff <2x LOR	----
Total Metals (QC Lot: 183972)											
YL2100283-001	BRP-29-1	mercury, total	7439-97-6	E508-L	0.00050	ng/L	0.00106 µg/L	1.00	0.06	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 182823)											
YL2100283-001	BRP-29-1	aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0266	0.0289	8.25%	20%	----
		antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000199	0.0000189	0.0000010	Diff <2x LOR	----
		arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000295	0.000300	1.77%	20%	----
		barium, total	7440-39-3	E466	0.000020	mg/L	0.0124	0.0129	3.64%	20%	----
		beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000062	0.0000072	0.0000010	Diff <2x LOR	----
		bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000149	0.0000133	0.0000016	Diff <2x LOR	----
		calcium, total	7440-70-2	E466	0.010	mg/L	6.16	6.48	5.12%	20%	----
		chromium, total	7440-47-3	E466	0.000040	mg/L	0.000132	0.000142	0.000010	Diff <2x LOR	----
		cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000411	0.000433	5.18%	20%	----
		copper, total	7440-50-8	E466	0.000050	mg/L	0.00274	0.00294	7.06%	20%	----
		iron, total	7439-89-6	E466	0.00050	mg/L	0.0167	0.0180	7.56%	20%	----
		lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000516	0.000520	0.784%	20%	----
		lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000061	0.0000071	0.0000010	Diff <2x LOR	----
		lithium, total	7439-93-2	E466	0.00010	mg/L	0.00105	0.00106	1.25%	20%	----
		magnesium, total	7439-95-4	E466	0.0010	mg/L	3.19	3.46	8.10%	20%	----
		manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00510	0.00549	7.22%	20%	----
		molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000011	0.000012	0.000001	Diff <2x LOR	----
		nickel, total	7440-02-0	E466	0.000020	mg/L	0.00836	0.00899	7.20%	20%	----
		potassium, total	7440-09-7	E466	0.0050	mg/L	0.503	0.534	5.90%	20%	----
		selenium, total	7782-49-2	E466	0.000025	mg/L	0.000032	0.000034	0.000002	Diff <2x LOR	----
		silicon, total	7440-21-3	E466	0.050	mg/L	1.29	1.31	1.71%	20%	----



Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (Undigested) (QC Lot: 182823) - continued											
YL2100283-001	BRP-29-1	silver, total	7440-22-4	E466	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E466	0.010	mg/L	1.08	1.14	5.69%	20%	----
		strontium, total	7440-24-6	E466	0.000020	mg/L	0.0315	0.0332	5.45%	20%	----
		sulfur, total	7704-34-9	E466	0.50	mg/L	4.52	4.66	0.14	Diff <2x LOR	----
		thallium, total	7440-28-0	E466	0.000010	mg/L	0.000022	0.000028	0.000005	Diff <2x LOR	----
		tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E466	0.000050	mg/L	0.000063	0.000084	0.000021	Diff <2x LOR	----
		uranium, total	7440-61-1	E466	0.000010	mg/L	0.0000160	0.0000156	2.29%	20%	----
		vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000036	0.000036	0.0000002	Diff <2x LOR	----
		zinc, total	7440-66-6	E466	0.00010	mg/L	0.00250	0.00273	8.74%	20%	----
		zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000141	0.000141	0.0825%	20%	----
Dissolved Metals (QC Lot: 182828)											
YL2100283-001	BRP-29-1	aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0287	0.0300	4.54%	20%	----
		antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000143	0.0000137	0.0000007	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000397	0.000392	1.33%	20%	----
		barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.0122	0.0123	0.851%	20%	----
		beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000064	0.0000060	0.0000004	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000165	0.0000122	0.0000043	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E465	0.010	mg/L	6.59	6.76	2.62%	20%	----
		chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000142	0.000150	0.000008	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000413	0.000417	0.801%	20%	----
		copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00289	0.00301	3.87%	20%	----
		iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0126	0.0130	2.78%	20%	----
		lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000053	0.0000054	0.00000009	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00105	0.00105	0.169%	20%	----
		magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	3.48	3.62	3.85%	20%	----
		manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00514	0.00534	3.96%	20%	----
		molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000014	0.000012	0.000001	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00899	0.00928	3.15%	20%	----
		phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.549	0.559	1.84%	20%	----
		rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E465	0.000025	mg/L	0.000033	0.000035	0.000002	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: 182828) - continued											
YL2100283-001	BRP-29-1	silicon, dissolved	7440-21-3	E465	0.050	mg/L	1.28	1.34	4.89%	20%	----
		silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E465	0.010	mg/L	1.16	1.19	2.24%	20%	----
		strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0336	0.0351	4.37%	20%	----
		sulfur, dissolved	7704-34-9	E465	0.50	mg/L	4.49	4.66	0.17	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000021	0.0000019	0.0000002	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000066	0.000070	0.000004	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000150	0.0000154	2.82%	20%	----
		vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000034	0.000033	0.0000009	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00252	0.00257	1.71%	20%	----
		zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000139	0.000138	0.873%	20%	----
Dissolved Metals (QC Lot: 183091)											
VA21A7229-001	Anonymous	aluminum, dissolved	7429-90-5	E421	2.0	mg/L	7.2 µg/L	0.0053	0.0020	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E421	0.20	mg/L	2.55 µg/L	0.00252	1.11%	20%	----
		arsenic, dissolved	7440-38-2	E421	0.20	mg/L	60.3 µg/L	0.0542	10.6%	20%	----
		barium, dissolved	7440-39-3	E421	0.20	mg/L	33.8 µg/L	0.0307	9.42%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.200	mg/L	<0.200 µg/L	<0.000200	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.250	mg/L	<0.250 µg/L	<0.000250	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	20	mg/L	266 µg/L	0.268	0.826%	20%	----
		cadmium, dissolved	7440-43-9	E421	0.0600	mg/L	<0.0600 µg/L	<0.0000600	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	100	mg/L	42500 µg/L	43.7	2.75%	20%	----
		cesium, dissolved	7440-46-2	E421	0.020	mg/L	0.245 µg/L	0.000239	2.50%	20%	----
		chromium, dissolved	7440-47-3	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.20	mg/L	0.46 µg/L	0.00044	0.00002	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.40	mg/L	0.98 µg/L	0.00092	0.00006	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	20	mg/L	<20 µg/L	<0.020	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E421	0.100	mg/L	0.310 µg/L	0.000304	0.000005	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	2.0	mg/L	54.8 µg/L	0.0574	4.54%	20%	----
		magnesium, dissolved	7439-95-4	E421	10.0	mg/L	5130 µg/L	4.68	9.16%	20%	----
		manganese, dissolved	7439-96-5	E421	0.20	mg/L	282 µg/L	0.255	9.81%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.100	mg/L	98.4 µg/L	0.0996	1.12%	20%	----
		nickel, dissolved	7440-02-0	E421	1.00	mg/L	3.09 µg/L	0.00283	0.00026	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	100	mg/L	<100 µg/L	<0.100	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	100	mg/L	5230 µg/L	4.77	9.31%	20%	----



Sub-Matrix: **Water**

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: 183091) - continued											
VA21A7229-001	Anonymous	rubidium, dissolved	7440-17-7	E421	0.40	mg/L	4.81 µg/L	0.00438	9.34%	20%	----
		selenium, dissolved	7782-49-2	E421	0.100	mg/L	3.89 µg/L	0.00382	1.81%	20%	----
		silicon, dissolved	7440-21-3	E421	100	mg/L	4720 µg/L	4.71	0.130%	20%	----
		silver, dissolved	7440-22-4	E421	0.050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	100	mg/L	859000 µg/L	782	9.36%	20%	----
		strontium, dissolved	7440-24-6	E421	0.40	mg/L	352 µg/L	0.354	0.732%	20%	----
		sulfur, dissolved	7704-34-9	E421	1000	mg/L	492000 µg/L	490	0.606%	20%	----
		tellurium, dissolved	13494-80-9	E421	0.40	mg/L	<0.40 µg/L	<0.00040	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.020	mg/L	0.033 µg/L	0.000035	0.000002	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E421	0.20	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.20	mg/L	0.41 µg/L	0.00038	0.00003	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.60	mg/L	<0.60 µg/L	<0.00060	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E421	0.20	mg/L	0.74 µg/L	0.00071	0.00002	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.020	mg/L	54.5 µg/L	0.0542	0.685%	20%	----
		vanadium, dissolved	7440-62-2	E421	1.00	mg/L	8.16 µg/L	0.00744	0.00072	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	2.0	mg/L	<2.0 µg/L	<0.0020	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.40	mg/L	<0.40 µg/L	<0.00040	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 183730)											
FJ2100194-003	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0200	0.0191	4.85%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00012	0.00013	0.000010	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00058	0.00055	0.00003	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.135	0.131	3.26%	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	0.015	0.016	0.0005	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000162	0.0000088	0.0000075	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	39.3	39.1	0.616%	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	0.00032	0.00027	0.00004	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00108	0.00101	0.00006	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.275	0.263	4.49%	20%	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000119	0.000116	0.000003	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0036	0.0036	0.00003	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	12.5	11.8	5.75%	20%	----



Sub-Matrix: **Water**

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: 183730) - continued											
FJ2100194-003	Anonymous	manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0462	0.0425	8.37%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000682	0.000708	3.69%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00200	0.00192	0.00009	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	4.02	3.79	5.91%	20%	----
		rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00064	0.00061	0.00003	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000238	0.000184	0.000054	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.90	2.86	1.51%	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	4.19	3.86	8.32%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.118	0.121	3.01%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.27	2.24	0.02	Diff <2x LOR	----
		tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	0.00197	0.00167	0.00030	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	0.000602	0.000596	0.939%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00074	0.00068	0.00006	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0019	0.0014	0.0005	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	0.00032	0.00020	0.00012	Diff <2x LOR	----
Dissolved Metals (QC Lot: 183973)											
YL2100283-001	BRP-29-1	mercury, dissolved	7439-97-6	E509-L	0.00050	ng/L	0.00098 µg/L	0.95	0.03	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: 182298)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 182302)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 182660)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 183031)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 183032)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 183033)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 183259)						
conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 183260)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	1.0	----
Physical Tests (QCLot: 183271)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 206448)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 182440)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 182446)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 183065)						
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 183066)						
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 183096)						
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 183097)						
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 183261)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 183262)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 183263)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 183264)						
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 183265)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 183266)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 183267)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 183274)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 183275)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 183278)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 183341)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 183343)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 183422)						
silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Cyanides (QCLot: 183847)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 183848)						
cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 183849)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 182444)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 182445)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 183256)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 183342)						



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 183342) - continued						
carbon, total organic [TOC]	---	E355-L	0.5	mg/L	<0.50	---
Total Sulfides (QCLot: 182734)						
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	---
Total Metals (QCLot: 183972)						
mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	---
Total Metals (Undigested) (QCLot: 182823)						
aluminum, total	7429-90-5	E466	0.0002	mg/L	<0.00020	---
antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	---
arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	---
barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	---
beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	---
bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	---
boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	---
cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	---
calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	---
chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	---
cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	---
copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	---
iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	---
lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	---
lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	---
lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	---
magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	---
manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	---
molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	---
nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	---
potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	---
selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	---
silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	---
silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	---
sodium, total	17341-25-2	E466	0.01	mg/L	<0.010	---
strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	---
sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	---
thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	---
tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	---
titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 182823) - continued						
uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 182828)						
aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
sodium, dissolved	17341-25-2	E465	0.01	mg/L	<0.010	----
strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 182828) - continued						
uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 183091)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	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	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 183091) - continued						
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: 183730)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 183730) - continued						
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: 183973)						
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

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

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: 182298)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Physical Tests (QCLot: 182302)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	108	85.0	115	----
Physical Tests (QCLot: 182660)									
turbidity	----	E121	0.1	NTU	200 NTU	102	85.0	115	----
Physical Tests (QCLot: 183031)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Physical Tests (QCLot: 183032)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	105	85.0	115	----
Physical Tests (QCLot: 183033)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	103	85.0	115	----
Physical Tests (QCLot: 183258)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 183259)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 183260)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.6	85.0	115	----
Physical Tests (QCLot: 183271)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	100	85.0	115	----
Physical Tests (QCLot: 206448)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.9	85.0	115	----
Anions and Nutrients (QCLot: 182440)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 182446)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	95.1	75.0	125	----
Anions and Nutrients (QCLot: 183065)									
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	104	80.0	120	----
Anions and Nutrients (QCLot: 183066)									
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 183096)									
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	104	80.0	120	----
Anions and Nutrients (QCLot: 183097)									



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: 183097) - continued									
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 183261)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 183262)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 183263)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 183264)									
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 183265)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 183266)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 183267)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	94.6	80.0	120	----
Anions and Nutrients (QCLot: 183274)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 183275)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 183278)									
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: 183341)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 183343)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	91.3	75.0	125	----
Anions and Nutrients (QCLot: 183422)									
silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	98.8	85.0	115	----
Cyanides (QCLot: 183847)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	104	80.0	120	----
Cyanides (QCLot: 183848)									
cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	99.6	80.0	120	----
Cyanides (QCLot: 183849)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	90.7	80.0	120	----
Organic / Inorganic Carbon (QCLot: 182444)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 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
Organic / Inorganic Carbon (QCLot: 182445)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 183256)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 183342)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Total Sulfides (QCLot: 182734)									
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	98.6	80.0	120	----
Total Metals (QCLot: 183972)									
mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	97.0	80.0	120	----
Total Metals (Undigested) (QCLot: 182823)									
aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	99.5	80.0	120	----
antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	98.7	80.0	120	----
arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	98.9	80.0	120	----
barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	98.1	80.0	120	----
beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	95.5	80.0	120	----
bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	102	80.0	120	----
boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	84.6	80.0	120	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	96.4	80.0	120	----
calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	92.9	80.0	120	----
chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	98.4	80.0	120	----
cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	95.8	80.0	120	----
copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	96.4	80.0	120	----
iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	99.4	80.0	120	----
lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	98.3	80.0	120	----
lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	100	80.0	120	----
lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	92.0	80.0	120	----
magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	97.6	80.0	120	----
manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	98.1	80.0	120	----
molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	99.9	80.0	120	----
nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	95.4	80.0	120	----
potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	98.2	80.0	120	----
selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	99.7	80.0	120	----
silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	94.8	80.0	120	----
silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	100	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 182823) - continued									
sodium, total	17341-25-2	E466	0.01	mg/L	50 mg/L	98.2	80.0	120	----
strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	98.2	80.0	120	----
sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	101	80.0	120	----
thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	104	80.0	120	----
tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	99.3	80.0	120	----
titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	89.0	80.0	120	----
vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	98.2	80.0	120	----
zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	95.7	80.0	120	----
zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	97.0	80.0	120	----
Dissolved Metals (QCLot: 182828)									
aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	98.2	80.0	120	----
antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	101	80.0	120	----
arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	99.6	80.0	120	----
barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	99.9	80.0	120	----
beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	97.4	80.0	120	----
bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	103	80.0	120	----
boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	86.5	80.0	120	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	97.5	80.0	120	----
calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	94.1	80.0	120	----
chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	97.8	80.0	120	----
cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	98.0	80.0	120	----
copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	98.5	80.0	120	----
iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	98.0	80.0	120	----
lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	101	80.0	120	----
lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	94.2	80.0	120	----
magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	95.9	80.0	120	----
manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	99.3	80.0	120	----
molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	101	80.0	120	----
nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	97.0	80.0	120	----
phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	102	80.0	120	----
potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	99.6	80.0	120	----
rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	96.3	80.0	120	----
silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	96.5	80.0	120	----
silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	100	80.0	120	----
sodium, dissolved	17341-25-2	E465	0.01	mg/L	50 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
Dissolved Metals (QCLot: 182828) - continued									
strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	100.0	80.0	120	----
sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	102	80.0	120	----
thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	106	80.0	120	----
tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	99.8	80.0	120	----
titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	99.5	80.0	120	----
uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	96.7	80.0	120	----
vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	100	80.0	120	----
zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	97.3	80.0	120	----
zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	98.8	80.0	120	----
Dissolved Metals (QCLot: 183091)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	97.1	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	108	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	95.6	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.2	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	100.0	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	93.6	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	----
cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.9	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.1	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.3	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.6	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.0	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.8	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.7	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	98.1	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	98.6	70.0	130	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.2	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	102	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	103	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: 183091) - continued									
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	109	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	106	80.0	120	----
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	101	80.0	120	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	91.3	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.5	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	96.6	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	108	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.7	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	99.2	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.5	80.0	120	----
Dissolved Metals (QCLot: 183730)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.7	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	109	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	114	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	117	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	99.2	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	103	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	107	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	108	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	110	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	115	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	115	70.0	130	----
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	116	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	110	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: 183730) - continued									
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	109	80.0	120	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	112	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	110	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	109	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	# 121	80.0	120	MES
tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	109	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	107	80.0	120	----
thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	107	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	103	80.0	120	----
tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	110	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	109	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	109	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	109	80.0	120	----
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	102	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: 182440)										
VA21A7089-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.204 mg/L	0.2 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 182446)										
YL2100283-002	BRP-29-2	Kjeldahl nitrogen, total [TKN]	----	E318	2.24 mg/L	2.5 mg/L	89.4	70.0	130	----
Anions and Nutrients (QCLot: 183065)										
EO2100669-002	Anonymous	phosphorus, total	7723-14-0	E372-S	ND mg/L	0.067 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 183066)										
YL2100283-016	BRP-32-2	phosphorus, total	7723-14-0	E372-S	0.0696 mg/L	0.067 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 183096)										
EO2100669-002	Anonymous	phosphorus, total dissolved	7723-14-0	E375-U	ND mg/L	0.067 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 183097)										
YL2100283-016	BRP-32-2	phosphorus, total dissolved	7723-14-0	E375-U	0.0685 mg/L	0.067 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 183261)										
YL2100283-002	BRP-29-2	fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 183262)										
YL2100283-002	BRP-29-2	chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 183263)										
YL2100283-002	BRP-29-2	nitrite (as N)	14797-65-0	E235.NO2-L	0.508 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 183264)										
YL2100283-002	BRP-29-2	sulfate (as SO4)	14808-79-8	E235.SO4-L	111 mg/L	100 mg/L	111	75.0	125	----
Anions and Nutrients (QCLot: 183265)										
YL2100283-002	BRP-29-2	nitrate (as N)	14797-55-8	E235.NO3-L	2.65 mg/L	2.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 183266)										
YL2100283-007	BRP-29-6-BOTTOM	sulfate (as SO4)	14808-79-8	E235.SO4	111 mg/L	100 mg/L	111	75.0	125	----
Anions and Nutrients (QCLot: 183267)										
YL2100283-002	BRP-29-2	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0321 mg/L	0.03 mg/L	107	70.0	130	----
Anions and Nutrients (QCLot: 183274)										
YL2100284-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	111 mg/L	100 mg/L	111	75.0	125	----

Sub-Matrix: **Water**

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: 183275)										
YL2100284-001	Anonymous	chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 183278)										
YL2100284-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.65 mg/L	2.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 183341)										
FJ2100180-004	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.988 mg/L	1 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 183343)										
YL2100283-018	BRP-32-4	Kjeldahl nitrogen, total [TKN]	----	E318	2.28 mg/L	2.5 mg/L	91.3	70.0	130	----
Anions and Nutrients (QCLot: 183422)										
YL2100283-002	BRP-29-2	silicate (as SiO2)	7631-86-9	E392	10.3 mg/L	10 mg/L	103	75.0	125	----
Cyanides (QCLot: 183847)										
YL2100283-002	BRP-29-2	cyanide, weak acid dissociable	----	E336	0.125 mg/L	0.125 mg/L	99.7	75.0	125	----
Cyanides (QCLot: 183848)										
YL2100283-002	BRP-29-2	cyanide, free	----	E339	0.123 mg/L	0.125 mg/L	98.2	75.0	125	----
Cyanides (QCLot: 183849)										
YL2100283-002	BRP-29-2	cyanide, strong acid dissociable (total)	----	E333	0.226 mg/L	0.25 mg/L	90.2	75.0	125	----
Organic / Inorganic Carbon (QCLot: 182444)										
YL2100283-002	BRP-29-2	carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 182445)										
YL2100283-002	BRP-29-2	carbon, total organic [TOC]	----	E355-L	ND mg/L	5 mg/L	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 183256)										
FJ2100183-002	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	5.42 mg/L	5 mg/L	108	70.0	130	----
Organic / Inorganic Carbon (QCLot: 183342)										
YL2100283-018	BRP-32-4	carbon, total organic [TOC]	----	E355-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 182734)										
VA21A7108-002	Anonymous	sulfide, total (as S)	18496-25-8	E395	0.228 mg/L	0.2 mg/L	114	75.0	125	----
Total Metals (QCLot: 183972)										
YL2100283-002	BRP-29-2	mercury, total	7439-97-6	E508-L	4.74 ng/L	5 ng/L	94.7	70.0	130	----
Total Metals (Undigested) (QCLot: 182823)										
YL2100283-002	BRP-29-2	aluminum, total	7429-90-5	E466	0.203 mg/L	0.2 mg/L	101	70.0	130	----
		antimony, total	7440-36-0	E466	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		arsenic, total	7440-38-2	E466	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		barium, total	7440-39-3	E466	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 182823) - continued										
YL2100283-002	BRP-29-2	beryllium, total	7440-41-7	E466	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		bismuth, total	7440-69-9	E466	0.00946 mg/L	0.01 mg/L	94.6	70.0	130	----
		boron, total	7440-42-8	E466	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		cadmium, total	7440-43-9	E466	0.00390 mg/L	0.004 mg/L	97.4	70.0	130	----
		calcium, total	7440-70-2	E466	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, total	7440-47-3	E466	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
		cobalt, total	7440-48-4	E466	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		copper, total	7440-50-8	E466	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----
		iron, total	7439-89-6	E466	2.00 mg/L	2 mg/L	100	70.0	130	----
		lanthanum, total	7439-91-0	E466	0.00242 mg/L	0.0025 mg/L	97.0	70.0	130	----
		lead, total	7439-92-1	E466	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		lithium, total	7439-93-2	E466	0.0965 mg/L	0.1 mg/L	96.5	70.0	130	----
		magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E466	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		molybdenum, total	7439-98-7	E466	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		nickel, total	7440-02-0	E466	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		potassium, total	7440-09-7	E466	4.02 mg/L	4 mg/L	100	70.0	130	----
		selenium, total	7782-49-2	E466	0.0418 mg/L	0.04 mg/L	105	70.0	130	----
		silicon, total	7440-21-3	E466	7.71 mg/L	10 mg/L	77.1	70.0	130	----
		silver, total	7440-22-4	E466	0.00392 mg/L	0.004 mg/L	98.0	70.0	130	----
		sodium, total	17341-25-2	E466	1.97 mg/L	2 mg/L	98.7	70.0	130	----
		strontium, total	7440-24-6	E466	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E466	20.2 mg/L	20 mg/L	101	70.0	130	----
		thallium, total	7440-28-0	E466	0.00387 mg/L	0.004 mg/L	96.7	70.0	130	----
		tin, total	7440-31-5	E466	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		titanium, total	7440-32-6	E466	0.0406 mg/L	0.04 mg/L	102	70.0	130	----
		uranium, total	7440-61-1	E466	0.00369 mg/L	0.004 mg/L	92.2	70.0	130	----
		vanadium, total	7440-62-2	E466	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		zinc, total	7440-66-6	E466	0.429 mg/L	0.4 mg/L	107	70.0	130	----
		zirconium, total	7440-67-7	E466	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
Dissolved Metals (QCLot: 182828)										
YL2100283-002	BRP-29-2	aluminum, dissolved	7429-90-5	E465	0.201 mg/L	0.2 mg/L	100	70.0	130	----
		antimony, dissolved	7440-36-0	E465	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		arsenic, dissolved	7440-38-2	E465	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	----
		barium, dissolved	7440-39-3	E465	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		beryllium, dissolved	7440-41-7	E465	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Dissolved Metals (QCLot: 182828) - continued										
YL2100283-002	BRP-29-2	bismuth, dissolved	7440-69-9	E465	0.00955 mg/L	0.01 mg/L	95.5	70.0	130	----
		boron, dissolved	7440-42-8	E465	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		cadmium, dissolved	7440-43-9	E465	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		calcium, dissolved	7440-70-2	E465	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, dissolved	7440-47-3	E465	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		cobalt, dissolved	7440-48-4	E465	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		copper, dissolved	7440-50-8	E465	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		iron, dissolved	7439-89-6	E465	2.00 mg/L	2 mg/L	100	70.0	130	----
		lead, dissolved	7439-92-1	E465	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		lithium, dissolved	7439-93-2	E465	0.0986 mg/L	0.1 mg/L	98.6	70.0	130	----
		magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E465	0.0211 mg/L	0.02 mg/L	106	70.0	130	----
		molybdenum, dissolved	7439-98-7	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		nickel, dissolved	7440-02-0	E465	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	----
		phosphorus, dissolved	7723-14-0	E465	11.2 mg/L	10 mg/L	112	70.0	130	----
		potassium, dissolved	7440-09-7	E465	4.07 mg/L	4 mg/L	102	70.0	130	----
		rhenium, dissolved	7440-15-5	E465	0.00251 mg/L	0.0025 mg/L	100	70.0	130	----
		selenium, dissolved	7782-49-2	E465	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		silicon, dissolved	7440-21-3	E465	8.01 mg/L	10 mg/L	80.1	70.0	130	----
		silver, dissolved	7440-22-4	E465	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		sodium, dissolved	17341-25-2	E465	1.96 mg/L	2 mg/L	98.1	70.0	130	----
		strontium, dissolved	7440-24-6	E465	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E465	20.2 mg/L	20 mg/L	101	70.0	130	----
		thallium, dissolved	7440-28-0	E465	0.00388 mg/L	0.004 mg/L	97.1	70.0	130	----
		tin, dissolved	7440-31-5	E465	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		titanium, dissolved	7440-32-6	E465	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		uranium, dissolved	7440-61-1	E465	0.00382 mg/L	0.004 mg/L	95.6	70.0	130	----
		vanadium, dissolved	7440-62-2	E465	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		zinc, dissolved	7440-66-6	E465	0.406 mg/L	0.4 mg/L	101	70.0	130	----
		zirconium, dissolved	7440-67-7	E465	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 183091)										
VA21A7229-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.324 mg/L	0.4 mg/L	80.9	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0320 mg/L	0.04 mg/L	80.0	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	ND mg/L	0.04 mg/L	ND	70.0	130	----
		barium, dissolved	7440-39-3	E421	0.0307 mg/L	0.04 mg/L	76.7	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0621 mg/L	0.08 mg/L	77.6	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 183091) - continued										
VA21A7229-001	Anonymous	bismuth, dissolved	7440-69-9	E421	0.0470 mg/L	0.05 mg/L	94.0	70.0	130	----
		boron, dissolved	7440-42-8	E421	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00570 mg/L	0.008 mg/L	71.3	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E421	0.0155 mg/L	0.02 mg/L	77.5	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0633 mg/L	0.08 mg/L	79.1	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0309 mg/L	0.04 mg/L	77.3	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0292 mg/L	0.04 mg/L	73.0	70.0	130	----
		iron, dissolved	7439-89-6	E421	3.10 mg/L	4 mg/L	77.6	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0282 mg/L	0.04 mg/L	70.5	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.151 mg/L	0.2 mg/L	75.6	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.04 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.04 mg/L	ND	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0646 mg/L	0.08 mg/L	80.8	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	17.0 mg/L	20 mg/L	84.9	70.0	130	----
		potassium, dissolved	7440-09-7	E421	5.98 mg/L	8 mg/L	74.8	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.0330 mg/L	0.04 mg/L	82.6	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0686 mg/L	0.08 mg/L	85.8	70.0	130	----
		silicon, dissolved	7440-21-3	E421	15.9 mg/L	20 mg/L	79.4	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.0176 mg/L	0.02 mg/L	88.3	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E421	0.0630 mg/L	0.08 mg/L	78.7	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00573 mg/L	0.008 mg/L	71.6	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.0320 mg/L	0.04 mg/L	80.1	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0297 mg/L	0.04 mg/L	74.2	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0678 mg/L	0.08 mg/L	84.8	70.0	130	----
		tungsten, dissolved	7440-33-7	E421	0.0300 mg/L	0.04 mg/L	75.1	70.0	130	----
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.008 mg/L	ND	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.164 mg/L	0.2 mg/L	81.8	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.604 mg/L	0.8 mg/L	75.4	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0681 mg/L	0.08 mg/L	85.1	70.0	130	----
Dissolved Metals (QCLot: 183730)										
FJ2100194-004	Anonymous	aluminum, dissolved	7429-90-5	E421	0.180 mg/L	0.2 mg/L	90.0	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 183730) - continued										
FJ2100194-004	Anonymous	antimony, dissolved	7440-36-0	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0223 mg/L	0.02 mg/L	111	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	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00893 mg/L	0.01 mg/L	89.3	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00393 mg/L	0.004 mg/L	98.3	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	0.00976 mg/L	0.01 mg/L	97.6	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	97.8	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.106 mg/L	0.1 mg/L	106	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	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	11.0 mg/L	10 mg/L	110	70.0	130	----
		potassium, dissolved	7440-09-7	E421	4.64 mg/L	4 mg/L	116	70.0	130	----
		rubidium, dissolved	7440-17-7	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0808 mg/L	0.08 mg/L	101	70.0	130	----
		silicon, dissolved	7440-21-3	E421	9.05 mg/L	10 mg/L	90.5	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00378 mg/L	0.004 mg/L	94.6	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	22.6 mg/L	20 mg/L	113	70.0	130	----
		tellurium, dissolved	13494-80-9	E421	0.0460 mg/L	0.04 mg/L	115	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	----
		thorium, dissolved	7440-29-1	E421	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		tungsten, dissolved	7440-33-7	E421	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00393 mg/L	0.004 mg/L	98.3	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.0998 mg/L	0.1 mg/L	99.8	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.396 mg/L	0.4 mg/L	99.0	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 183730) - continued										
FJ2100194-004	Anonymous	zirconium, dissolved	7440-67-7	E421	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 183973)										
YL2100283-002	BRP-29-2	mercury, dissolved	7439-97-6	E509-L	4.76 ng/L	5 ng/L	95.2	70.0	130	----



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Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 1

Page 1 of 2

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Company:	Golder Associates Ltd.	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)	Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply	
Contact:	Zenovia Craciunescu (Yellowknife)	Quality Control (QC) Report with Report	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	4 day [P4-20%] <input type="checkbox"/>	
Phone:	780-222-0587 (cell)	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/>	
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	2 day [P2-50%] <input type="checkbox"/>	
Street:	16820 107 Ave NW	Email 1 or Fax	ZCraciunescu@golder.com	1 Business day [E - 100%] <input type="checkbox"/>	
City/Province:	Edmonton, AB	Email 2	KSerben@golder.com	Same Day, Weekend or Statutory holiday [E2 - 200%] <input type="checkbox"/>	
Postal Code:	T5P 4C3	Email 3	mkeefe@sabinagoldsilver.com	(Laboratory opening fees may apply)	
Invoice To	Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Invoice Distribution		Date and Time Required for all E&P TATs:	
	Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	For tests that can not be performed according to the service level selected, you will be contacted.	
Company:	Sabina Gold And Silver Corp	Email 1 or Fax	mkeefe@sabinagoldsilver.com	Analysis Request	
Contact:	Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com	Email 2	ZCraciunescu@golder.com	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Project Information		Oil and Gas Required Fields (client use)		NUMBER OF CONTAINERS	
ALS Account # / Quote #:	YL2021SABI10000001	AFE/Cost Center:	PO#	Routine (including organic phosphorus, reactive silica)	
Job #:	20412211/2500/20	Major/Minor Code:	Routing Code:	Total Nutrients (including total nitrogen)	
PO / AFE:		Requisitioner:		Dissolved Nutrients (including DOC)	
LSD:	Sabina Facility Code: 176233659	Location:		Total Ultra Metals	
ALS Lab Work Order # (lab use only):		ALS Contact:	Oliver Gregg	Dissolved Ultra Metals	
		Sampler:		Total Mercury	
				Dissolved Mercury	
				Total Sulfide	
				Cyanide	
				TDS (measured and calculated)	
				Samples for Archive	
				SUSPECTED HAZARD (see Special Instructions)	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
	BRP-29-1	13-Apr-21	10:30	Water	9
	BRP-29-2	13-Apr-21	13:00	Water	9
	BRP-29-2B	13-Apr-21	13:00	Water	1
	BRP-29-3	13-Apr-21	11:40	Water	9
	BRP-29-4	13-Apr-21	16:15	Water	9
	BRP-29-5	13-Apr-21	17:00	Water	9
	BRP-29-6- Bottom	13-Apr-21	14:15	Water	1
	BRP-29-6- Top	13-Apr-21	14:15	Water	1
	BRP-40-1	14-Apr-21	11:30	Water	9
	BRP-40-2	14-Apr-21	12:30	Water	9
	BRP-40-3	14-Apr-21	13:30	Water	9
	BRP-40-4	14-Apr-21	14:30	Water	9
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)	
Are samples taken from a Regulated DW System?				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are samples for human consumption/ use?				Cooling Initiated <input type="checkbox"/>	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				INITIAL COOLER TEMPERATURES °C	
				FINAL COOLER TEMPERATURES °C	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)	
Released by:	Date:	Received by:	Date:	Received by:	Date:
A. Craciunescu	16-Apr-2021				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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YELLOW - CLIENT COPY

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 to the Terms and Conditions as specified on the back page of the white - report copy.

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

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Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here

(lab use only)

COC Number: 1

Page 2 of 2

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																											
Company: Golder Associates Ltd.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																											
Contact: Zenovia Craciunescu (Yellowknife)		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		4 day [P4-20%] <input type="checkbox"/>				1 Business day [E - 100%]				<input type="checkbox"/>																																			
Phone: 780-222-0587 (cell)		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] <input type="checkbox"/>				Same Day, Weekend or Statutory holiday [E2 -200%]				<input type="checkbox"/>																																			
Company address below will appear on the final report		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		2 day [P2-50%] <input type="checkbox"/>				Same Day, Weekend or Statutory holiday [E2 -200%]				(Laboratory opening fees may apply) <input type="checkbox"/>																																			
Street: 16820 107 Ave NW		Email 1 or Fax: ZCraciunescu@golder.com		Date and Time Required for all E&P TATs:																																											
City/Province: Edmonton, AB		Email 2: KSerben@golder.com		For tests that can not be performed according to the service level selected, you will be contacted.																																											
Postal Code: T5P 4C3		Email 3: mkeefe@sabinagoldsilver.com		Analysis Request																																											
Invoice To: Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																											
Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		<table border="1"> <tr> <th>P</th> <th>F/P</th> <th>F</th> <th>F</th> <th>P</th> <th>P</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>												P	F/P	F	F	P	P																										
P	F/P	F	F	P	P																																										
Company: Sabina Gold And Silver Corp		Email 1 or Fax: mkeefe@sabinagoldsilver.com		NUMBER OF CONTAINERS Routine (including organic phosphorus, reactive silica) Total Nutrients (including total nitrogen) Dissolved Nutrients (including DOC) Total Ultra Metals Dissolved Ultra Metals Total Mercury Dissolved Mercury Total Sulfide Cyanide TDS (measured and calculated)																																											
Contact: Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com		Email 2: ZCraciunescu@golder.com																																													
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PO / AFE:		Requisitioner:																																													
LSD: Sabina Facility Code: 176233659		Location:																																													
ALS Lab Work Order # (lab use only):		ALS Contact: Oliver Gregg Sampler:																																													
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type																																											
	BAP-40-5	14-Apr-21	15:45	Water	9	X	X	X	X	X	X	X	X	X																																	
	TB-1	14-Apr-21	16:00	Water	9	X	X	X	X	X	X	X	X	X																																	
	BAP-32-1	15-Apr-21	15:10	Water	9	X	X	X	X	X	X	X	X	X																																	
	BAP-32-2	15-Apr-21	13:10	Water	9	X	X	X	X	X	X	X	X	X																																	
	BAP-32-3	15-Apr-21	15:45	Water	9	X	X	X	X	X	X	X	X	X																																	
	BAP-32-4	15-Apr-21	12:00	Water	9	X	X	X	X	X	X	X	X	X																																	
	BAP-32-5	15-Apr-21	14:30	Water	9	X	X	X	X	X	X	X	X	X																																	
	DUP-2	15-Apr-21	10:45	Water	9	X	X	X	X	X	X	X	X	X																																	
	GLTL-TOP	15-Apr-21	17:10	Water	1										X																																
	GLTL-Bottom	15-Apr-21	17:10	Water	1										X																																
	BAP-32-3B	15-Apr-21	15:45	Water	1										X																																
				Water																																											
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)				SAMPLE CONDITION AS RECEIVED (lab use only)																																									
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Samples marked archive long term - please hold for a minimum of 120 days or until further notice				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>																																									
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>																																									
						Cooling Initiated <input type="checkbox"/>																																									
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)																																									
Released by: [Signature] Date: 16-Apr-2021 Time: 18:00		Received by: [Signature] Date: [] Time: []				Received by: [Signature] Date: [] Time: []																																									

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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 to the Terms and Conditions as specified on the back page of the white - report copy.

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

CERTIFICATE OF ANALYSIS

Work Order	: YL2100716	Page	: 1 of 4
Amendment	: 1		
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Zenovia Craciunescu	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 446 5593
Project	: 20412211/2700	Date Samples Received	: 08-Jul-2021 09:00
PO	: ----	Date Analysis Commenced	: 12-Jul-2021
C-O-C number	:	Issue Date	: 16-Jul-2021 10:27
Sampler	: C.Chesworth		
Site	: ----		
Quote number	: Sediment and Water Samples		
No. of samples received	: 8		
No. of samples analysed	: 8		

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Saron Kim	Analyst	Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Water					Client sample ID	PN03	PN04	PN05	PN06	PN07
(Matrix: Water)										
					Client sampling date / time	05-Jul-2021 01:30	05-Jul-2021 10:16	05-Jul-2021 12:10	05-Jul-2021 09:16	05-Jul-2021 11:03
Analyte	CAS Number	Method	LOR	Unit	YL2100716-001	YL2100716-002	YL2100716-003	YL2100716-004	YL2100716-005	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	4.7	6.7	5.5	4.3	5.4	
solids, total dissolved [TDS]	----	E162	10	mg/L	27	30	25	24	46	
solids, total dissolved [TDS], calculated (APHA)	----	EC103.APHA	1.0	mg/L	15.1	21.4	14.4	13.0	19.4	
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	1.39	3.71	1.23	<0.50	5.08	
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	0.022	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0077	0.0657	0.191	<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	5.92	6.20	4.48	6.53	3.83	
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.37	3.70	2.38	1.67	3.60	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.35	1.71	1.30	1.17	1.89	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.309	0.454	0.304	0.249	0.061	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.273	0.538	0.085	0.295	0.588	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.542	0.665	0.493	0.442	0.890	
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	PN04-DUP	----	----
Client sampling date / time					05-Jul-2021 15:45	05-Jul-2021 15:15	05-Jul-2021 10:16	----	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2100716-006	YL2100716-007	YL2100716-008	-----	-----	-----
					Result	Result	Result	----	----	----
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	5.5	9.6	6.3	----	----	----
solids, total dissolved [TDS]	----	E162	10	mg/L	22	43	34	----	----	----
solids, total dissolved [TDS], calculated (APHA)	----	EC103.APHA	1.0	mg/L	10.7	14.1	21.2	----	----	----
Anions and Nutrients										
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	----	----	----
chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	3.73	----	----	----
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	0.024	<0.020	----	----	----
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0082	<0.0050	0.0688	----	----	----
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	----
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.84	2.81	6.27	----	----	----
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	1.76	2.62	3.60	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.09	1.57	1.73	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.251	0.111	0.461	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L	<0.050	0.254	0.529	----	----	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.432	0.872	0.675	----	----	----
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2100716	Page	: 1 of 13
Amendment	: 1		
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Zenovia Craciunescu	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 446 5593
Project	: 20412211/2700	Date Samples Received	: 08-Jul-2021 09:00
PO	: ----	Issue Date	: 16-Jul-2021 10:27
C-O-C number	:		
Sampler	: C.Chesworth		
Site	: ----		
Quote number	: Sediment and Water Samples		
No. of samples received	: 8		
No. of samples analysed	: 8		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water** Evaluation: **✖** = Holding time exceedance ; **✔** = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN03	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN04	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN04-DUP	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN05	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN06	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN07	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN08	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN09	E235.Br-L	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN03	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04-DUP	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN05	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN06	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN07	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN08	E235.Cl	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN09	E235.Cl	05-Jul-2021	----	----	----		13-Jul-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN03	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN04	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN04-DUP	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN05	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN06	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN07	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN08	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN09	E235.F	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN03	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04-DUP	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN05	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN06	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN07	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN08	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN09	E235.NO3-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN03	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN04	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	<div>✖ EHTL</div>



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN04-DUP	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN05	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN06	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN07	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN08	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN09	E235.NO2-L	05-Jul-2021	----	----	----		13-Jul-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN03	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04-DUP	E235.SO4	05-Jul-2021	----	----	----		13-Jul-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN05	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN06	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN07	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN08	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN09	E235.SO4	05-Jul-2021	----	----	----		13-Jul-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN03	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN04	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN04-DUP	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN06	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN07	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN05	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN08	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN09	E421	05-Jul-2021	13-Jul-2021	----	----		14-Jul-2021	180 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN04	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN04-DUP	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN05	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN06	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN07	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE PN08	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN09	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN03	E290	05-Jul-2021	----	----	----		13-Jul-2021	14 days	9 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN04	E162	05-Jul-2021	----	----	----		12-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN04-DUP	E162	05-Jul-2021	----	----	----		12-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN05	E162	05-Jul-2021	----	----	----		12-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN06	E162	05-Jul-2021	----	----	----		12-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN07	E162	05-Jul-2021	----	----	----		12-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN08	E162	05-Jul-2021	----	----	----		12-Jul-2021	7 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE PN09	E162	05-Jul-2021	---	---	---		12-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN03	E162	05-Jul-2021	---	---	---		12-Jul-2021	7 days	8 days	✓

Legend & Qualifier Definitions

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

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	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	241887	1	13	7.6	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	241893	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	241892	1	10	10.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	242823	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	241891	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	241894	1	10	10.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	241895	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	241896	1	10	10.0	5.0	✔
TDS by Gravimetry	E162	241560	1	19	5.2	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	241887	1	13	7.6	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	241893	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	241892	1	10	10.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	242823	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	241891	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	241894	1	10	10.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	241895	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	241896	1	10	10.0	5.0	✔
TDS by Gravimetry	E162	241560	1	19	5.2	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	241887	1	13	7.6	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	241893	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	241892	1	10	10.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	242823	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	241891	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	241894	1	10	10.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	241895	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	241896	1	10	10.0	5.0	✔
TDS by Gravimetry	E162	241560	1	19	5.2	5.0	✔
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	241893	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	241892	1	10	10.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	242823	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	241891	1	13	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	241894	1	10	10.0	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	241895	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	241896	1	10	10.0	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.
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.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 μm), 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.
TDS in Water (Calculation) Using APHA Analyte List	EC103.APHA Vancouver - Environmental	Water	APHA 1030E	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis).

Page : 13 of 13
Work Order : YL2100716 Amendment 1
Client : Sabina Gold & Silver Corporation
Project : 20412211/2700



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

QUALITY CONTROL REPORT

Work Order : **YL2100716**

Page : 1 of 6

Amendment : **1**

Client : Sabina Gold & Silver Corporation
Contact : Zenovia Craciunescu
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : ----
Project : 20412211/2700
PO : ----
C-O-C number :
Sampler : C.Chesworth
Site : ----
Quote number : Sediment and Water Samples
No. of samples received : 8
No. of samples analysed : 8

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 08-Jul-2021 09:00
Date Analysis Commenced : 12-Jul-2021
Issue Date : 16-Jul-2021 10:27

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Saron Kim	Analyst	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: 241560)											
VA21B3916-001	Anonymous	solids, total dissolved [TDS]	----	E162	20	mg/L	602	606	0.662%	20%	----
Physical Tests (QC Lot: 241887)											
YL2100707-001	Anonymous	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	397	398	0.201%	20%	----
Anions and Nutrients (QC Lot: 241891)											
YL2100707-001	Anonymous	fluoride	16984-48-8	E235.F	0.100	mg/L	0.197	0.194	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 241892)											
YL2100707-001	Anonymous	chloride	16887-00-6	E235.Cl	2.50	mg/L	32.2	32.0	0.586%	20%	----
Anions and Nutrients (QC Lot: 241893)											
YL2100707-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 241894)											
YL2100707-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 241895)											
YL2100707-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 241896)											
YL2100707-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	373	370	0.847%	20%	----
Dissolved Metals (QC Lot: 242823)											
FJ2100518-001	Anonymous	calcium, dissolved	7440-70-2	E421	0.050	mg/L	64.2	65.1	1.52%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	27.6	31.7	13.7%	20%	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.62	1.84	12.7%	20%	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.603	0.619	2.64%	20%	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.664	0.743	11.2%	20%	----



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: 241560)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 241887)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 241891)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 241892)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 241893)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 241894)						
nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 241895)						
nitrite (as N)	14797-65-0	E235.NO ₂ -L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 241896)						
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.3	mg/L	<0.30	----
Dissolved Metals (QCLot: 242823)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----



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: 241560)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Physical Tests (QCLot: 241887)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 241891)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 241892)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 241893)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 241894)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 241895)									
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: 241896)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	106	90.0	110	----
Dissolved Metals (QCLot: 242823)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.8	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	94.8	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	100	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 241891)										
YL2100707-002	Anonymous	fluoride	16984-48-8	E235.F	4.89 mg/L	5 mg/L	97.9	75.0	125	----
Anions and Nutrients (QCLot: 241892)										
YL2100707-002	Anonymous	chloride	16887-00-6	E235.Cl	520 mg/L	500 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 241893)										
YL2100707-002	Anonymous	bromide	24959-67-9	E235.Br-L	2.51 mg/L	2.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 241894)										
YL2100707-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	13.0 mg/L	12.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 241895)										
YL2100707-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	2.47 mg/L	2.5 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 241896)										
YL2100707-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	510 mg/L	500 mg/L	102	75.0	125	----
Dissolved Metals (QCLot: 242823)										
FJ2100518-002	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		potassium, dissolved	7440-09-7	E421	3.84 mg/L	4 mg/L	96.0	70.0	130	----
		silicon, dissolved	7440-21-3	E421	9.47 mg/L	10 mg/L	94.7	70.0	130	----
		sodium, dissolved	17341-25-2	E421	1.96 mg/L	2 mg/L	97.9	70.0	130	----



Request Form

Page 1 of 1

Conclusion

Canada Toll Free: 1 800 668 9878

NOV 25 11 15 AM '94

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Group's Environmental Division and the party named in the Offer (the "Client").

1. Definitions. Capitalized terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. The Services. ALS will provide the Services to the Client as described in the Offer and in any chain of custody form provided with any sample. Unless otherwise agreed, ALS may elect to re-allocate testing, without prior notice, to other ALS Canada laboratories with equivalent services and applicable accreditations and licenses, if required to prevent hold time or due date exceedance due to unanticipated over-capacity situations.
3. Prices. ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations expire after three years.
4. Payment Terms. The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. Quotation Numbers. The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. Taxes. Applicable taxes are not included in prices. Applicable surcharges and additional fees will be added at the time of invoicing.
7. Quality Control. ALS has an extensive QA/QC program. Clients' samples are analyzed using approved, referenced procedures followed by thorough data validation prior to reporting of the analytical results.
8. Test Results. Results are obtained from analytical measurements that are subject to inherent variability. Measurement results reflect characteristics of submitted test samples at time of analysis. The Client is responsible for informing itself on the limitation of test results and acknowledges that test results are not guaranteed. When statements of conformity are requested on test reports (e.g. within Criteria Reports), measurement uncertainty is not applied to test results prior to the evaluation.
9. Standard of Care. ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. Storage. Where possible, ALS will store: soil and water samples for 45 days from date of receipt, tissue/biota samples for 6 months from date of receipt, air samples or re-usable media for 14 days from date of receipt, and microbiological samples for 3 days from date of receipt.
11. Holds. If the Client requests a sample to be placed on hold, ALS will store the samples according to paragraph 10, after which ALS will invoice the Client and discard the sample. Each sample is subject to a minimum \$5.00 hold fee. Longer hold periods are available upon request. See paragraph 12.
12. Archives. If the Client requests for a sample to be archived, ALS will invoice in advance and will store the sample for the period requested, after which ALS may discard the sample.
13. Legal Sample Handling Protocol. Legal sample handling protocol must be arranged before samples are collected. ALS charges a surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Additional charges will apply for samples that require storage by ALS.
14. Samples. The quality, condition, content, and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. Risk of Loss. ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged, or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. Environmental. The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with GHS and TDG regulations, and must provide appropriate Safety Data that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. Hazardous Materials Disposal. ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. Hazardous Materials Surcharge. ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, cyanide, etc.
19. Sample Containers. ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. Additional Charges. ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pickup and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. Holding Times. Samples and chain of custody forms should be submitted to ALS as soon as possible after sampling, with a minimum of half the analytical hold time remaining, unless prior arrangements are made.
22. Re-Tests. ALS reserves the right to re-test any samples that remain in its possession. Re-tests requested by the Client may be subject to charges.
23. Waiver. The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
24. Limitation of Liability. In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary, or punitive damages, whether foreseeable or unforeseeable (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets), incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 23 and 25, as applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
25. Notice of Liability. Notwithstanding paragraph 24, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
26. Third Party Service Provider Indemnity. For testing not performed at ALS, and where the Client requires ALS to forward samples to a third party service provider, the Client indemnifies ALS against any breach of this Agreement, all liabilities or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
27. Third Party Service Provider Indemnity. If ALS is required to engage a third party service provider for whatever reason, the Client indemnifies ALS against any breach of this Agreement, liabilities, or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
28. Entire Agreement. The Agreement is the entire agreement between the parties and supersedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.
29. Term. Providing the first batch of samples to which this tender refers is submitted within three months of the starting date of this quotation, the following prices, terms and conditions will remain firm until the closing date. This offer, and its terms and conditions will automatically lapse if the offer has not been accepted and samples not delivered to ALS by the Closing Date.
30. Termination. (a) Either party may terminate this Agreement for any reason by giving the other party thirty (30) days written notice (Notice Period). (b) If the Agreement is terminated pursuant to clause (a), then the Client must pay ALS for all fees performed up to the expiry of the Notice Period.

CERTIFICATE OF ANALYSIS

Work Order : **YL2100852**
Client : **Sabina Gold & Silver Corporation**
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2400/2440
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 8
No. of samples analysed : 8

Page : 1 of 4
Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 26-Jul-2021 15:30
Date Analysis Commenced : 30-Jul-2021
Issue Date : 04-Aug-2021 17:56

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Jay Jang	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Water					Client sample ID	PN03	PN04	PN05	PN06	PN07
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2100852-001	YL2100852-002	YL2100852-003	YL2100852-004	YL2100852-005	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	4.5	7.0	8.2	4.2	12.3	
solids, total dissolved [TDS]	----	E162	10	mg/L	24	44	25	24	60	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	15.0	28.4	17.0	16.5	27.7	
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.56	4.75	1.36	0.51	5.59	
nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.0050	mg/L	0.0059	0.324	0.140	<0.0050	0.0278	
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.30	mg/L	5.92	7.78	4.44	8.22	2.96	
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	1.98	4.51	2.63	1.97	4.73	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.42	2.22	1.60	1.56	2.72	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.328	0.490	0.279	0.308	0.123	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.607	0.822	0.590	0.605	1.01	
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	QC	---	---
Client sampling date / time						25-Jul-2021 17:30	25-Jul-2021 17:23	25-Jul-2021 16:54	---	---
Analyte	CAS Number	Method	LOR	Unit	YL2100852-006	YL2100852-007	YL2100852-008	-----	-----	---
					Result	Result	Result	---	---	---
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	6.3	16.9	4.1	---	---	---
solids, total dissolved [TDS]	----	E162	10	mg/L	21	64	27	---	---	---
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	13.2	21.8	16.3	---	---	---
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	0.56	<0.50	0.50	---	---	---
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0266	<0.0050	<0.0050	---	---	---
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.38	1.38	8.17	---	---	---
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	1.74	3.71	1.99	---	---	---
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.23	2.45	1.55	---	---	---
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.261	0.332	0.310	---	---	---
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.543	1.27	0.607	---	---	---
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	---	---	---

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2100852	Page	: 1 of 10
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 20412211/2400/2440	Date Samples Received	: 26-Jul-2021 15:30
PO	: ----	Issue Date	: 04-Aug-2021 17:51
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 8		
No. of samples analysed	: 8		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Page : 2 of 10
Work Order : YL2100852
Client : Sabina Gold & Silver Corporation
Project : 20412211/2400/2440



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Physical Tests	QC-MRG2-2558640 01	----	alkalinity, total (as CaCO ₃)	----	E290	1.8 mg/L ^B	1.5 mg/L	Blank result exceeds permitted value
Dissolved Metals	QC-MRG3-2559430 01	----	sodium, dissolved	17341-25-2	E421	0.051 ^B mg/L	0.05 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier *Description*

B *Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE PN08	E235.Cl	25-Jul-2021	----	----	----		31-Jul-2021	28 days	5 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE PN09	E235.Cl	25-Jul-2021	----	----	----		31-Jul-2021	28 days	5 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE PN06	E235.Cl	25-Jul-2021	----	----	----		31-Jul-2021	28 days	6 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE QC	E235.Cl	25-Jul-2021	----	----	----		31-Jul-2021	28 days	6 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE PN03	E235.Cl	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04	E235.Cl	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✔
Anions and Nutrients : Chloride in Water by IC										
HDPE PN05	E235.Cl	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✔



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE PN07	E235.Cl	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN08	E235.NO3-L	25-Jul-2021	----	----	----		31-Jul-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN09	E235.NO3-L	25-Jul-2021	----	----	----		31-Jul-2021	3 days	5 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN06	E235.NO3-L	25-Jul-2021	----	----	----		31-Jul-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE QC	E235.NO3-L	25-Jul-2021	----	----	----		31-Jul-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN03	E235.NO3-L	24-Jul-2021	----	----	----		31-Jul-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04	E235.NO3-L	24-Jul-2021	----	----	----		31-Jul-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN05	E235.NO3-L	24-Jul-2021	----	----	----		31-Jul-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN07	E235.NO3-L	24-Jul-2021	----	----	----		31-Jul-2021	3 days	7 days	✖ EHT



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN08	E235.SO4	25-Jul-2021	----	----	----		31-Jul-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN09	E235.SO4	25-Jul-2021	----	----	----		31-Jul-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN06	E235.SO4	25-Jul-2021	----	----	----		31-Jul-2021	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE QC	E235.SO4	25-Jul-2021	----	----	----		31-Jul-2021	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN03	E235.SO4	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04	E235.SO4	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN05	E235.SO4	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN07	E235.SO4	24-Jul-2021	----	----	----		31-Jul-2021	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN06	E421	25-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN08	E421	25-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	6 days	✔
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN09	E421	25-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	6 days	✔
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) QC	E421	25-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	6 days	✔
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN03	E421	24-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN05	E421	24-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN07	E421	24-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN04	E421	24-Jul-2021	30-Jul-2021	----	----		31-Jul-2021	180 days	8 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE PN06	E290	25-Jul-2021	----	----	----		30-Jul-2021	14 days	5 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE PN08	E290	25-Jul-2021	----	----	----		30-Jul-2021	14 days	5 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE PN09	E290	25-Jul-2021	----	----	----		30-Jul-2021	14 days	5 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE QC	E290	25-Jul-2021	----	----	----		30-Jul-2021	14 days	5 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE PN03	E290	24-Jul-2021	----	----	----		30-Jul-2021	14 days	6 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE PN04	E290	24-Jul-2021	----	----	----		30-Jul-2021	14 days	6 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE PN05	E290	24-Jul-2021	----	----	----		30-Jul-2021	14 days	6 days	✔
Physical Tests : Alkalinity Species by Titration										
HDPE PN07	E290	24-Jul-2021	----	----	----		30-Jul-2021	14 days	6 days	✔
Physical Tests : TDS by Gravimetry										
HDPE PN06	E162	25-Jul-2021	----	----	----		31-Jul-2021	7 days	5 days	✔
Physical Tests : TDS by Gravimetry										
HDPE PN08	E162	25-Jul-2021	----	----	----		31-Jul-2021	7 days	5 days	✔
Physical Tests : TDS by Gravimetry										
HDPE PN09	E162	25-Jul-2021	----	----	----		31-Jul-2021	7 days	5 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE QC	E162	25-Jul-2021	----	----	----		31-Jul-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN03	E162	24-Jul-2021	----	----	----		31-Jul-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN04	E162	24-Jul-2021	----	----	----		31-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN05	E162	24-Jul-2021	----	----	----		31-Jul-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN07	E162	24-Jul-2021	----	----	----		31-Jul-2021	7 days	7 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	255865	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	255970	1	16	6.2	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	255943	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	255971	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	255973	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	256113	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	255865	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	255970	1	16	6.2	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	255943	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	255971	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	255973	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	256113	1	20	5.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	255865	1	10	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	255970	1	16	6.2	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	255943	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	255971	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	255973	1	16	6.2	5.0	✔
TDS by Gravimetry	E162	256113	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	255970	1	16	6.2	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	255943	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	255971	1	16	6.2	5.0	✔
Sulfate in Water by IC	E235.SO4	255973	1	16	6.2	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.
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.
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.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 μm), 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.
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 μm), and preserved with HNO_3 .



QUALITY CONTROL REPORT

Work Order : **YL2100852**

Page : 1 of 5

Client : Sabina Gold & Silver Corporation
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2400/2440
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 8
No. of samples analysed : 8

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 26-Jul-2021 15:30
Date Analysis Commenced : 30-Jul-2021
Issue Date : 04-Aug-2021 17:52

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
Jay Jang	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts 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: 255865)											
YL2100848-006	Anonymous	alkalinity, total (as CaCO ₃)	----	E290	2.0	mg/L	26.2	25.4	3.10%	20%	----
Physical Tests (QC Lot: 256113)											
VA21B5779-002	Anonymous	solids, total dissolved [TDS]	----	E162	20	mg/L	957	957	0.00%	20%	----
Anions and Nutrients (QC Lot: 255970)											
YL2100848-001	Anonymous	chloride	16887-00-6	E235.Cl	2.50	mg/L	38.9	38.8	0.208%	20%	----
Anions and Nutrients (QC Lot: 255971)											
YL2100848-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.0250	mg/L	13.3	13.2	0.209%	20%	----
Anions and Nutrients (QC Lot: 255973)											
YL2100848-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO ₄	1.50	mg/L	174	173	0.0856%	20%	----
Dissolved Metals (QC Lot: 255943)											
YL2100848-004	Anonymous	calcium, dissolved	7440-70-2	E421	0.050	mg/L	51.9	52.6	1.35%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	29.4	28.7	2.50%	20%	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	9.22	8.76	5.04%	20%	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	28.2	28.4	0.819%	20%	----



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: 255865)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	# 1.8	B
Physical Tests (QCLot: 256113)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 255970)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 255971)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 255973)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Dissolved Metals (QCLot: 255943)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	# 0.051	B

Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



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: 255865)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	110	85.0	115	----
Physical Tests (QCLot: 256113)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 255970)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 255971)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 255973)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Dissolved Metals (QCLot: 255943)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.4	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	106	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method						
Anions and Nutrients (QCLot: 255970)										
YL2100848-002	Anonymous	chloride	16887-00-6	E235.Cl	505 mg/L	500 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 255971)										
YL2100848-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	ND mg/L	12.5 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 255973)										
YL2100848-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	502 mg/L	500 mg/L	100	75.0	125	----
Dissolved Metals (QCLot: 255943)										
YL2100851-001	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	8 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		potassium, dissolved	7440-09-7	E421	ND mg/L	8 mg/L	ND	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----



Canada Toll Free: 1 800 668 9878

(lab use only)

10

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

CERTIFICATE OF ANALYSIS

Work Order : **YL2100896**
Client : **Sabina Gold & Silver Corporation**
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2400/2440
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 11
No. of samples analysed : 11

Page : 1 of 5
Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 30-Jul-2021 15:15
Date Analysis Commenced : 04-Aug-2021
Issue Date : 09-Aug-2021 16:10

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Water					Client sample ID	GLWB (shallow) -T	GLWB (shallow) -B	GLWB (deep)-T	GLWB (deep)-B	GLCB-T
(Matrix: Water)										
					Client sampling date / time	26-Jul-2021 08:48	26-Jul-2021 08:55	26-Jul-2021 09:30	26-Jul-2021 09:36	26-Jul-2021 16:03
Analyte	CAS Number	Method	LOR	Unit	YL2100896-001	YL2100896-002	YL2100896-003	YL2100896-004	YL2100896-005	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	4.8	6.7	4.8	7.2	4.5	
solids, total dissolved [TDS]	----	E162	10	mg/L	32	58	32	63	29	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	17.6	37.7	16.8	39.5	15.0	
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	2.38	8.19	2.25	8.74	1.40	
nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.0050	mg/L	0.0205	0.113	0.0155	0.123	<0.0050	
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.30	mg/L	5.89	10.9	5.81	11.5	5.87	
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.70	6.05	2.72	6.41	2.23	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.64	3.22	1.41	3.15	1.38	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.406	0.539	0.355	0.500	0.303	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.838	1.07	0.552	1.00	0.519	
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLCB-B	GLSE-T	GLSE-B	GLTL-T	GLTL-B
Client sampling date / time					26-Jul-2021 16:06	26-Jul-2021 17:16	26-Jul-2021 17:20	26-Jul-2021 16:45	26-Jul-2021 16:49	
Analyte	CAS Number	Method	LOR	Unit	YL2100896-006	YL2100896-007	YL2100896-008	YL2100896-009	YL2100896-010	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	4.2	4.7	4.2	4.4	4.3	
solids, total dissolved [TDS]	----	E162	10	mg/L	27	23	29	27	24	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	14.8	15.1	14.8	14.8	14.8	
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.37	1.36	1.39	1.39	1.41	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	5.86	5.86	5.87	5.83	5.85	
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.24	2.26	2.24	2.22	2.22	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.37	1.36	1.38	1.37	1.40	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.313	0.301	0.312	0.315	0.327	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.520	0.514	0.531	0.534	0.541	
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

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



Analytical Results

Sub-Matrix: Water					Client sample ID	QC	---	---	---	---
(Matrix: Water)										
					Client sampling date / time	26-Jul-2021 17:16	---	---	---	---
Analyte	CAS Number	Method	LOR	Unit	YL2100896-011	-----	-----	-----	-----	-----
					Result	---	---	---	---	---
Physical Tests										
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	4.8	---	---	---	---	---
solids, total dissolved [TDS]	----	E162	10	mg/L	28	---	---	---	---	---
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	15.2	---	---	---	---	---
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.36	---	---	---	---	---
nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.0050	mg/L	<0.0050	---	---	---	---	---
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.30	mg/L	5.85	---	---	---	---	---
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.26	---	---	---	---	---
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.38	---	---	---	---	---
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.312	---	---	---	---	---
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.523	---	---	---	---	---
dissolved metals filtration location	----	EP421	-	-	Laboratory	---	---	---	---	---

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2100896	Page	: 1 of 11
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 20412211/2400/2440	Date Samples Received	: 30-Jul-2021 15:15
PO	: ----	Issue Date	: 09-Aug-2021 16:11
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 11		
No. of samples analysed	: 11		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE GLCB-B	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLCB-T	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-B	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-T	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-B	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-T	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB (deep)-B	E235.CI	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB (deep)-T	E235.Cl	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB (shallow)-B	E235.Cl	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB (shallow)-T	E235.Cl	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE QC	E235.Cl	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-B	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	✖ EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-T	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	✖ EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-B	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	✖ EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-T	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	✖ EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-B	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	✖ EHTR



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-T	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB (deep)-B	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB (deep)-T	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB (shallow)-B	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB (shallow)-T	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE QC	E235.NO3-L	26-Jul-2021	----	----	----		04-Aug-2021	3 days	9 days	<div>✖ EHTR</div>
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLCB-B	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	<div>✔</div>
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLCB-T	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	<div>✔</div>
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-B	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	<div>✔</div>



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-T	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-B	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-T	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB (deep)-B	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB (deep)-T	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB (shallow)-B	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB (shallow)-T	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE QC	E235.SO4	26-Jul-2021	----	----	----		04-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLSE-B	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	10 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLSE-T	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLTL-B	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLTL-T	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLWB (shallow)-B	E421	26-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLWB (shallow)-T	E421	26-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) QC	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLCB-B	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLCB-T	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLWB (deep)-B	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	11 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLWB (deep)-T	E421	26-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	180 days	11 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLCB-B	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLCB-T	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-B	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-T	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-B	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-T	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB (deep)-B	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB (deep)-T	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB (shallow)-B	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB (shallow)-T	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE QC	E290	26-Jul-2021	----	----	----		05-Aug-2021	14 days	10 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GLCB-B	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLCB-T	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLSE-B	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLSE-T	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLTL-B	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLTL-T	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE GLWB (deep)-B	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLWB (deep)-T	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLWB (shallow)-B	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE GLWB (shallow)-T	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE QC	E162	26-Jul-2021	----	----	----		04-Aug-2021	7 days	9 days	✖ EHT

Legend & Qualifier Definitions

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHT: Exceeded ALS recommended hold time prior to analysis.

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	258026	1	12	8.3	5.0	✔
Chloride in Water by IC	E235.Cl	258035	1	12	8.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	258057	2	26	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	258037	1	12	8.3	5.0	✔
Sulfate in Water by IC	E235.SO4	258039	1	12	8.3	5.0	✔
TDS by Gravimetry	E162	258024	1	15	6.6	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	258026	1	12	8.3	5.0	✔
Chloride in Water by IC	E235.Cl	258035	1	12	8.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	258057	2	26	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	258037	1	12	8.3	5.0	✔
Sulfate in Water by IC	E235.SO4	258039	1	12	8.3	5.0	✔
TDS by Gravimetry	E162	258024	1	15	6.6	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	258026	1	12	8.3	5.0	✔
Chloride in Water by IC	E235.Cl	258035	1	12	8.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	258057	2	26	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	258037	1	12	8.3	5.0	✔
Sulfate in Water by IC	E235.SO4	258039	1	12	8.3	5.0	✔
TDS by Gravimetry	E162	258024	1	15	6.6	5.0	✔
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	258035	1	12	8.3	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	258057	2	26	7.6	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	258037	1	12	8.3	5.0	✔
Sulfate in Water by IC	E235.SO4	258039	1	12	8.3	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.
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.
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.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 μm), 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.
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 μm), and preserved with HNO_3 .

QUALITY CONTROL REPORT

Work Order : **YL2100896**

Page : 1 of 6

Client : Sabina Gold & Silver Corporation
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2400/2440
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 11
No. of samples analysed : 11

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 30-Jul-2021 15:15
Date Analysis Commenced : 04-Aug-2021
Issue Date : 09-Aug-2021 16:11

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

Page : 2 of 6
Work Order : YL2100896
Client : Sabina Gold & Silver Corporation
Project : 20412211/2400/2440



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: 258024)											
VA21B5911-001	Anonymous	solids, total dissolved [TDS]	----	E162	13	mg/L	33	38	5	Diff <2x LOR	----
Physical Tests (QC Lot: 258026)											
YL2100893-001	Anonymous	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	390	390	0.179%	20%	----
Anions and Nutrients (QC Lot: 258035)											
YL2100893-001	Anonymous	chloride	16887-00-6	E235.Cl	2.50	mg/L	44.7	44.9	0.386%	20%	----
Anions and Nutrients (QC Lot: 258037)											
YL2100893-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258039)											
YL2100893-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	635	637	0.424%	20%	----
Dissolved Metals (QC Lot: 258052)											
VA21B5927-001	Anonymous	calcium, dissolved	7440-70-2	E421	0.050	mg/L	55.5	56.6	2.00%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	19.2	19.7	2.64%	20%	----
		potassium, dissolved	7440-09-7	E421	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	2.00	mg/L	2.32	2.35	0.034	Diff <2x LOR	----
Dissolved Metals (QC Lot: 258057)											
VA21B5925-001	Anonymous	calcium, dissolved	7440-70-2	E421	0.050	mg/L	168	165	2.39%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	8.84	8.45	4.48%	20%	----
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	6.22	6.01	3.41%	20%	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.816	0.788	3.50%	20%	----



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: 258024)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 258026)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.1	----
Anions and Nutrients (QCLot: 258035)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 258037)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 258039)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Dissolved Metals (QCLot: 258052)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
Dissolved Metals (QCLot: 258057)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----



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: 258024)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Physical Tests (QCLot: 258026)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	100.0	85.0	115	----
Anions and Nutrients (QCLot: 258035)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 258037)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 258039)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Dissolved Metals (QCLot: 258052)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	104	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	99.6	80.0	120	----
Dissolved Metals (QCLot: 258057)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	103	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	104	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 258035)										
YL2100896-001	GLWB (shallow)-T	chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 258037)										
YL2100896-001	GLWB (shallow)-T	nitrate (as N)	14797-55-8	E235.NO3-L	2.55 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 258039)										
YL2100896-001	GLWB (shallow)-T	sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
Dissolved Metals (QCLot: 258052)										
VA21B5928-001	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		potassium, dissolved	7440-09-7	E421	3.88 mg/L	4 mg/L	97.0	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 258057)										
VA21B5925-002	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		sodium, dissolved	17341-25-2	E421	2.03 mg/L	2 mg/L	101	70.0	130	----



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 1

Page 1 of 1

Contact and company name below will appear on the final report

Report Format / Distribution

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

Company: Golden Associates Ltd.

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

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

Contact: Zanovia Craciunescu (Yellowknife)

Quality Control (QC) Report with Report ☒ YES ☐ NO

1 Business day [E - 100%]

Phone: 780-222-0507 (cell)

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

Same Day, Weekend or Statutory holiday [E2 - 200%]
(Laboratory opening fees may apply)

Company address below will appear on the final report

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Emergency ☐

Date and Time Required for all E&P TATs:

Street: 16820 107 Ave NW

Email 1 or Fax: ZCraciunescu@golder.com

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

City/Province: Edmonton, AB

Email 2: saad_pashia@golder.com

Analysis Request

Postal Code: T5P 4C3

Email 3: mkeefe@sabinagoldsilver.com

Invoice To: Same as Report To ☐ YES ☒ NO

Invoice Distribution

Company: Sabina Gold And Silver Corp

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Contact: Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com

Email 1 or Fax: mkeefe@sabinagoldsilver.com

Project Information

Email 2: ZCraciunescu@golder.com

ALS Account # / Quote #: YL2021SAB10000001

Oil and Gas Required Fields (client use)

Job #: 204122112400/2440

A/E/Cost Center: Major/Minor Code: Routing Code:

PO / AFE: Sabina Facility Code: 176233659

Requestioner: Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Oliver Gregg

Sampler: CARTER MCNAUGHT

ALS Sample # (lab use only)

Sample Identification and/or Coordinates (This description will appear on the report)

NUMBER OF CONTAINERS

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

GLWB (shallow)-T

Date: 26 JUL 21 Time: 0848 Sample Type: Water

TDS measured

TDS calculated

GLWB (shallow)-B

Date: 26 JUL 21 Time: 0855 Sample Type: Water

TDS measured

TDS calculated

GLWB (deep)-T

Date: 26 JUL 21 Time: 0930 Sample Type: Water

TDS measured

TDS calculated

GLWB (deep)-B

Date: 26 JUL 21 Time: 0936 Sample Type: Water

TDS measured

TDS calculated

GLCB-T

Date: 26 JUL 21 Time: 1603 Sample Type: Water

TDS measured

TDS calculated

GLCB-B

Date: 26 JUL 21 Time: 1606 Sample Type: Water

TDS measured

TDS calculated

GLSE-T

Date: 26 JUL 21 Time: 1716 Sample Type: Water

TDS measured

TDS calculated

GLSE-B

Date: 26 JUL 21 Time: 1720 Sample Type: Water

TDS measured

TDS calculated

GLTL-T

Date: 26 JUL 21 Time: 1645 Sample Type: Water

TDS measured

TDS calculated

GLTL-B

Date: 26 JUL 21 Time: 1649 Sample Type: Water

TDS measured

TDS calculated

QC

Date: 26 JUL 21 Time: 1716 Sample Type: Water

TDS measured

TDS calculated

Drinking Water (DW) Samples (client use)

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Are samples taken from a Regulated DW System?

☐ YES ☒ NO

Are samples for human consumption/ use?

☐ YES ☒ NO

SHIPMENT RELEASE (client use)

Samples marked archive long term - please hold for a minimum of 120 days or until further notice.

Released by: CARTER MCNAUGHT

Date: 30 JULY 2021

Time: 1000

Received by: [Signature]

Date: 30 JUL 21

Time: 1515

Received by: [Signature]

FINAL SHIPMENT RECEPTION (lab use only)

Time:

SHIPMENT RELEASE (client use)

Date: 30 JULY 2021

Time: 1000

Received by: [Signature]

Date: 30 JUL 21

Time: 1515

Received by: [Signature]

FINAL SHIPMENT RECEPTION (lab use only)

Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

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.

Environmental Division
Yellowknife
Work Order Reference
YL2100896



Telephone: - 1 867 873 5593

Samples for Archive

SUSPECTED HAZARD (see Special Instructions)

ALS-2021-1000



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **YL2100897**
Client : **Sabina Gold & Silver Corporation**
Contact : Kerrie Serben
Address : 375 - 555 Burrard St. Box 220, Bentall 2
Vancouver BC Canada V7X 1M7
Telephone : ----
Project : 20412211/2500/2570
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Sediment and Water Samples
No. of samples received : 10
No. of samples analysed : 10

Page : 1 of 4
Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 30-Jul-2021 15:15
Date Analysis Commenced : 03-Aug-2021
Issue Date : 06-Aug-2021 16:22

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan



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).

<i>Unit</i>	<i>Description</i>
%	percent

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Sediment

Client sample ID

(Matrix: Soil/Solid)

					SB21-U-PLSB-1	SB21-U-PLSB-2	SB21-U-PLSB-3	SB21-U-PLSB-4	SB21-U-PLSB-5
Client sampling date / time					28-Jul-2021 14:45	28-Jul-2021 10:00	28-Jul-2021 10:15	28-Jul-2021 10:23	28-Jul-2021 09:50
Analyte	CAS Number	Method	LOR	Unit	YL2100897-001	YL2100897-002	YL2100897-003	YL2100897-004	YL2100897-005
					Result	Result	Result	Result	Result
Particle Size									
clay (<0.004mm)	----	EC184E	1.0	%	2.6	10.2	9.6	7.6	8.0
silt (0.063mm - 0.004mm)	----	EC184E	1.0	%	45.7	75.1	78.4	68.1	75.4
sand (0.2mm - 0.063mm)	----	EC184E	1.0	%	33.9	8.5	8.0	11.2	11.0
sand (2.0mm - 0.2mm)	----	EC184E	1.0	%	16.2	5.9	4.0	12.8	5.5
sand (2.0mm - 0.063mm)	----	EC184E	1.0	%	50.1	14.4	12.0	24.0	16.5
gravel (>2mm)	----	EC184E	1.0	%	1.6	<1.0	<1.0	<1.0	<1.0
Organic / Inorganic Carbon									
carbon, total [TC]	----	E351	0.050	%	1.51	4.35	5.30	4.19	4.60
carbon, inorganic [IC]	----	E354	0.050	%	<0.050	0.054	0.065	<0.050	<0.050
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%	<0.40	0.45	0.54	<0.40	<0.40
carbon, total organic [TOC]	----	EC356	0.050	%	1.51	4.30	5.24	4.19	4.60
organic matter	----	EC356	0.10	%	2.60	7.41	9.03	7.22	7.93

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



Analytical Results

Sub-Matrix: Sediment

Client sample ID

(Matrix: Soil/Solid)					SB21-U-PLSB-6	SB21-U-PLSB-7	SB21-U-PLSB-8	SB21-U-PLSB-9	SB21-U-PLSB-10
Client sampling date / time					28-Jul-2021 10:50	28-Jul-2021 11:15	28-Jul-2021 11:30	28-Jul-2021 11:45	28-Jul-2021 13:20
Analyte	CAS Number	Method	LOR	Unit	YL2100897-006	YL2100897-007	YL2100897-008	YL2100897-009	YL2100897-010
					Result	Result	Result	Result	Result
Particle Size									
clay (<0.004mm)	----	EC184E	1.0	%	11.7	7.8	5.9	5.8	15.3
silt (0.063mm - 0.004mm)	----	EC184E	1.0	%	76.4	75.4	71.8	69.9	79.2
sand (0.2mm - 0.063mm)	----	EC184E	1.0	%	6.4	14.4	19.2	19.5	3.3
sand (2.0mm - 0.2mm)	----	EC184E	1.0	%	5.0	2.4	3.1	4.8	2.0
sand (2.0mm - 0.063mm)	----	EC184E	1.0	%	11.5	16.8	22.3	24.3	5.3
gravel (>2mm)	----	EC184E	1.0	%	<1.0	<1.0	<1.0	<1.0	<1.0
Organic / Inorganic Carbon									
carbon, total [TC]	----	E351	0.050	%	5.27	6.38	6.25	4.09	7.52
carbon, inorganic [IC]	----	E354	0.050	%	0.070	0.065	0.054	<0.050	0.088
carbon, inorganic [IC], (as CaCO ₃ equivalent)	----	E354	0.40	%	0.59	0.54	0.45	<0.40	0.74
carbon, total organic [TOC]	----	EC356	0.050	%	5.20	6.32	6.20	4.09	7.43
organic matter	----	EC356	0.10	%	8.96	10.9	10.7	7.05	12.8

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2100897	Page	: 1 of 6
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Kerrie Serben	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 446 5593
Project	: 20412211/2500/2570	Date Samples Received	: 30-Jul-2021 15:15
PO	: ----	Issue Date	: 06-Aug-2021 16:22
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Sediment and Water Samples		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-1	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-10	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-2	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-3	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-4	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-5	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-6	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-7	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-8	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag SB21-U-PLSB-9	E351	28-Jul-2021	----	----	----		05-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-1	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-10	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-2	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-3	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-4	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-5	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-6	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-7	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-8	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag SB21-U-PLSB-9	E354	28-Jul-2021	----	----	----		04-Aug-2021	----	----	

Legend & Qualifier Definitions

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Total Carbon by Combustion	E351	259578	1	10	10.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	257941	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Total Carbon by Combustion	E351	259578	2	10	20.0	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	257941	2	10	20.0	10.0	✓
Method Blanks (MB)							
Total Carbon by Combustion	E351	259578	1	10	10.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	257941	1	10	10.0	5.0	✓



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Carbon by Combustion	E351 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Particle Size Analysis (Pipette) - MMER Classification	EC184E Saskatoon - Environmental	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dry and Grind	EPP442 Saskatoon - Environmental	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.



QUALITY CONTROL REPORT

Work Order : **YL2100897**

Page : 1 of 3

Client : Sabina Gold & Silver Corporation
Contact : Kerrie Serben
Address : 375 - 555 Burrard St. Box 220, Bentall 2
Vancouver BC Canada V7X 1M7
Telephone : ----
Project : 20412211/2500/2570
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Sediment and Water Samples
No. of samples received : 10
No. of samples analysed : 10

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 30-Jul-2021 15:15
Date Analysis Commenced : 03-Aug-2021
Issue Date : 06-Aug-2021 16:22

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
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan



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: Soil/Solid					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Organic / Inorganic Carbon (QC Lot: 257941)											
YL2100897-005	SB21-U-PLSB-5	carbon, inorganic [IC]	----	E354	0.050	%	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 259578)											
YL2100897-006	SB21-U-PLSB-6	carbon, total [TC]	----	E351	0.050	%	5.27	5.31	0.756%	20%	----

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: Soil/Solid						
Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 257941)						
carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 259578)						
carbon, total [TC]	----	E351	0.05	%	<0.050	----



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: Soil/Solid

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 257941)									
carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	94.9	90.0	110	----
Organic / Inorganic Carbon (QCLot: 259578)									
carbon, total [TC]	----	E351	0.05	%	48 %	102	90.0	110	----

Reference Material (RM) Report


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

Sub-Matrix: Soil/Solid

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 257941)									
QC-257941-003	RM	carbon, inorganic [IC]	----	E354	0.383 %	97.7	80.0	120	----
Organic / Inorganic Carbon (QCLot: 259578)									
QC-259578-003	RM	carbon, total [TC]	----	E351	1.4 %	99.7	80.0	120	----

Canada Toll Free: 1 800 668 9878

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Report To		Report Format / Distribution				Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)																													
Company:	Goldier Associates Ltd.	Select Report Format:	<input type="checkbox"/> PDF	<input type="checkbox"/> EXCEL	<input type="checkbox"/> EDO (DIGITAL)	<input type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)																													
Contact:	Emily Hulley/Kerrie Serben	Quality Control (QC) Report with Report	<input checked="" type="checkbox"/> Yes			<input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT																													
Address:	6925 Century Ave #100, Mississauga, ON L5N 7K2	<input type="checkbox"/> Criteria on Report - provide details below if box checked				<input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT																													
Phone:	1721 8 St.E, Saskatoon, SK S7H 0T4	Select Distribution:	<input type="checkbox"/> EMAIL	<input type="checkbox"/> MAIL	<input type="checkbox"/> FAX	<input type="checkbox"/> E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																													
	226-332-1171	Email 1 or Fax	Emily.Hulley@golder.com			Specify Date Required for E2/E or P:																													
	306-202-7817	Email 2	Kerrie.Serben@golder.com			Analysis Request																													
Invoice To	Same as Report To	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Invoice Distribution	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (FP) below																													
Company:	Copy of Invoice with Report	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Select Invoice Distribution:	<input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX																													
Contact:	Sabina Gold and Silver				Email 1 or Fax	mkeefe@sabinagoldsilver.com																													
Project Information						Oil and Gas Required Fields (client use)																													
ALS Bottle Order #:	Quote: YL2021SAB1000003	Approver ID:				Cost Center:																													
Job #:	20412211/2500/2570	GL Account:				Routing Code:																													
PO / AFE:		Activity Code:																																	
LSD:		Location:																																	
ALS Lab Work Order # (lab use only)		YL2100897				ALS Contact:		Oliver Gregg		Sampler:																									
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)					Date (dd-mm-yy)		Time (hh:mm)		Sample Type																									
1	SB21-U-PLSB-1						26-Jul-21		14:45		Sediment		TOC																						
2	SB21-U-PLSB-2						28-Jul-21		10:00		Sediment		METALS																						
3	SB21-U-PLSB-3						28-Jul-21		10:15		Sediment		pH																						
4	SB21-U-PLSB-4						28-Jul-21		10:23		Sediment		Total N																						
5	SB21-U-PLSB-5						28-Jul-21		9:50		Sediment		PSA-PIPET+GRAVEL-MMER																						
6	SB21-U-PLNB-6						26-Jul-21		10:50		Sediment																								
7	SB21-U-PLNB-7						26-Jul-21		11:15		Sediment																								
8	SB21-U-PLNB-8						26-Jul-21		11:30		Sediment																								
9	SB21-U-PLNB-9						26-Jul-21		11:45		Sediment																								
10	SB21-U-PLNB-10						26-Jul-21		13:20		Sediment																								
Drinking Water (DW) Samples (client use)						Special Instructions / Specify Criteria to add on report (client use)																													
Are samples taken from a Regulated DW System?						<input type="checkbox"/> Yes <input type="checkbox"/> No																													
Are samples for human drinking water use?						<input type="checkbox"/> Yes <input type="checkbox"/> No																													
SHIPMENT RELEASE (client use)						INITIAL SHIPMENT RECEPTION (lab use only)																													
Released by: Emily Hulley						Date: 30-Jul-21						Time: 9:00 AM						Received by: 						Date: 30 Jul 21						Time: 1515					
Number of Containers																																			

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

NAFNOJCE 401 From 06 January 2014

CERTIFICATE OF ANALYSIS

Work Order : **YL2101054**
Client : **Sabina Gold & Silver Corporation**
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2500/2520
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 12
No. of samples analysed : 12

Page : 1 of 14
Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 17-Aug-2021 16:40
Date Analysis Commenced : 22-Aug-2021
Issue Date : 01-Oct-2021 08:24

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Courtney Cox	Analyst	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Lisa Watt	Lab Supervisor - Environmental	Inorganics, Edmonton, Alberta
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	Internal Subcontracting, Fort Collins, Colorado
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
Bq/L	Becquerels per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

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

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

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

Qualifiers

Qualifier	Description
RRV	Reported result verified by repeat analysis.

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

Client sample ID

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5
Client sampling date / time					16-Aug-2021 09:30	16-Aug-2021 11:05	16-Aug-2021 13:25	16-Aug-2021 14:40	16-Aug-2021 12:15	
Analyte	CAS Number	Method	LOR	Unit	YL2101054-001	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	3.7	4.1	3.9	4.1	4.0	
conductivity	----	E100	2.0	µS/cm	25.7	25.5	25.5	25.5	25.7	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	9.16	9.06	9.11	9.16	9.14	
pH	----	E108	0.10	pH units	6.76	6.78	6.79	6.78	6.78	
solids, total dissolved [TDS]	----	E162	10	mg/L	21	27	19	20	17	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	16.5	15.8	15.7	15.7	15.5	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	0.24	0.27	0.26	0.40	0.30	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.0056	<0.0050	
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.06	1.05	1.06	1.05	1.06	
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	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0154 ^{RRV}	0.0051	0.0049	0.0046	0.0040	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0021	0.0016	0.0019	0.0016	0.0016	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	4.59	4.55	4.55	4.54	4.58	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	<0.200	<0.200	<0.200	<0.200	<0.200	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	0.0087	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.61	3.83	3.77	3.66	3.42	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.63	4.80	4.19	4.29	4.29	
Total Sulfides										
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	
Total Metals										



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2101054-001	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	
					Result	Result	Result	Result	Result	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00061	0.00067	0.00062	0.00063	0.00064	
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L	0.00806	0.00824	0.00919	0.00885	0.00807	
antimony, total	7440-36-0	E466	0.0000050	mg/L	<0.0000050	0.0000051	0.0000087	0.0000075	0.0000054	
arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000156	0.000147	0.000147	0.000147	0.000150	
barium, total	7440-39-3	E466	0.000020	mg/L	0.00344	0.00343	0.00346	0.00352	0.00341	
beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000021	0.0000022	
bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	
boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	<0.0000025	0.0000025	0.0000032	<0.0000025	
calcium, total	7440-70-2	E466	0.010	mg/L	1.70	1.79	1.77	1.78	1.76	
chromium, total	7440-47-3	E466	0.000040	mg/L	0.000054	0.000057	0.000060	0.000060	0.000056	
cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.0000661	0.0000726	0.0000706	0.0000706	0.0000705	
copper, total	7440-50-8	E466	0.000050	mg/L	0.000868	0.000888	0.000918	0.000915	0.000879	
iron, total	7439-89-6	E466	0.00050	mg/L	0.0277	0.0280	0.0286	0.0292	0.0286	
lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000064	0.000066	0.000066	0.000070	0.000067	
lead, total	7439-92-1	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0.0000110	0.0000131	<0.0000050	
lithium, total	7439-93-2	E466	0.00010	mg/L	0.00043	0.00042	0.00043	0.00042	0.00043	
magnesium, total	7439-95-4	E466	0.0010	mg/L	1.12	1.15	1.16	1.15	1.16	
manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00346	0.00353	0.00355	0.00352	0.00361	
molybdenum, total	7439-98-7	E466	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
nickel, total	7440-02-0	E466	0.000020	mg/L	0.00198	0.00210	0.00209	0.00206	0.00206	
potassium, total	7440-09-7	E466	0.0050	mg/L	0.274	0.284	0.285	0.285	0.285	
selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	
silicon, total	7440-21-3	E466	0.050	mg/L	0.119	0.118	0.119	0.120	0.118	
silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	
sodium, total	17341-25-2	E466	0.010	mg/L	0.436	0.452	0.458	0.446	0.454	
strontium, total	7440-24-6	E466	0.000020	mg/L	0.00719	0.00745	0.00745	0.00737	0.00739	
sulfur, total	7704-34-9	E466	0.50	mg/L	1.58	1.56	1.56	1.62	1.60	
thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000013	0.0000012	<0.0000010	0.0000011	0.0000011	
tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2101054-001	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
titanium, total	7440-32-6	E466	0.000050	mg/L	<0.000050	<0.000050	0.000055	0.000083	<0.000050	
uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000037	0.0000046	0.0000062	0.0000054	0.0000050	
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000025	0.000026	0.000027	0.000028	0.000025	
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00065	0.00062	0.00077	0.00086	0.00044	
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000027	0.000026	0.000026	0.000027	0.000027	
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00614	0.00588	0.00594	0.00691	0.00573	
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000082	0.0000058	0.0000063	0.0000062	0.0000066	
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000147	0.000148	0.000149	0.000154	0.000145	
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00337	0.00339	0.00334	0.00340	0.00334	
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000026	<0.0000025	0.0000028	<0.0000025	<0.0000025	
calcium, dissolved	7440-70-2	E465	0.010	mg/L	1.77	1.73	1.77	1.77	1.78	
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000053	0.000051	0.000052	0.000055	0.000052	
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000217	0.0000218	0.0000217	0.0000239	0.0000217	
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.000892	0.000873	0.000904	0.000892	0.000899	
dissolved metals filtration location	----	EP465	-	-	Field	Field	Field	Field	Field	
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.00897	0.00822	0.00835	0.00915	0.00788	
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00042	0.00042	0.00042	0.00041	0.00041	
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.15	1.15	1.14	1.15	1.14	
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.000572	0.000579	0.000527	0.000519	0.000521	
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	0.00058	0.00062	0.00068	0.00054	<0.00050	
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	<0.000010	<0.000010	<0.000010	0.000021	<0.000010	
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00204	0.00206	0.00210	0.00206	0.00205	
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.289	0.288	0.286	0.287	0.286	
rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5
Client sampling date / time					16-Aug-2021 09:30	16-Aug-2021 11:05	16-Aug-2021 13:25	16-Aug-2021 14:40	16-Aug-2021 12:15	
Analyte	CAS Number	Method	LOR	Unit	YL2101054-001	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	
					Result	Result	Result	Result	Result	
Dissolved Metals										
silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.119	0.119	0.120	0.120	0.120	
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	
sodium, dissolved	17341-25-2	E465	0.010	mg/L	0.461	0.462	0.460	0.466	0.460	
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.00752	0.00751	0.00751	0.00750	0.00748	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	1.57	1.60	1.58	1.57	1.59	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000015	0.0000013	0.0000010	<0.0000010	<0.0000010	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000099	<0.000050	<0.000050	0.000088	<0.000050	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000053	0.0000048	0.0000048	0.0000060	0.0000060	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000023	0.000020	0.000023	0.000023	0.000020	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00061	0.00108	0.00055	0.00142	0.00053	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000029	0.000027	0.000028	0.000027	0.000027	
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	Field	Field	Field	
Radiological Parameters										
radium-226	13982-63-3	RA226-MMER	0.0064	Bq/L	----	----	----	----	<0.0064	
radium-226	13982-63-3	RA226-MMER	0.0072	Bq/L	----	----	----	<0.0072	----	
radium-226	13982-63-3	RA226-MMER	0.0074	Bq/L	----	----	<0.0074	----	----	
radium-226	13982-63-3	RA226-MMER	0.0086	Bq/L	<0.0086	----	----	----	----	
radium-226	13982-63-3	RA226-MMER	0.011	Bq/L	----	<0.011	----	----	----	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5
Client sampling date / time					14-Aug-2021 12:45	14-Aug-2021 13:50	14-Aug-2021 14:30	14-Aug-2021 15:30	14-Aug-2021 11:05	
Analyte	CAS Number	Method	LOR	Unit	YL2101054-006	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	3.7	3.4	3.5	3.5	3.8	
conductivity	----	E100	2.0	µS/cm	25.1	25.0	24.9	25.0	25.7	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	8.98	8.82	8.71	8.76	8.82	
pH	----	E108	0.10	pH units	6.78	6.75	6.75	6.75	6.74	
solids, total dissolved [TDS]	----	E162	10	mg/L	22	19	19	17	16	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	16.0	15.4	16.2	16.0	15.4	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	
turbidity	----	E121	0.10	NTU	0.26	0.30	0.27	0.26	0.31	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0070	
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.03	0.98	1.04	1.03	1.04	
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	0.0060	<0.0050	<0.0050	<0.0050	0.0081	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0037	0.0040	0.0044	0.0037	0.0066	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0013	0.0017	0.0050	0.0015	0.0016	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	4.47	4.30	4.48	4.46	4.48	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	<0.200	<0.200	<0.200	<0.200	<0.200	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.21	4.12	4.74	4.48	3.63	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.82	4.27	4.42	4.40	4.39	
Total Sulfides										
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0016	<0.0015	0.0022	<0.0015	<0.0015	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00090	0.00107	0.00079	0.00076	0.00072	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5
Client sampling date / time						14-Aug-2021 12:45	14-Aug-2021 13:50	14-Aug-2021 14:30	14-Aug-2021 15:30	14-Aug-2021 11:05
Analyte	CAS Number	Method	LOR	Unit		YL2101054-006	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010
						Result	Result	Result	Result	Result
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L		0.00846	0.00844	0.00822	0.00799	0.00816
antimony, total	7440-36-0	E466	0.0000050	mg/L		0.0000054	0.0000053	0.0000056	0.0000058	0.0000066
arsenic, total	7440-38-2	E466	0.000010	mg/L		0.000147	0.000149	0.000137	0.000150	0.000145
barium, total	7440-39-3	E466	0.000020	mg/L		0.00344	0.00362	0.00354	0.00341	0.00343
beryllium, total	7440-41-7	E466	0.0000020	mg/L		<0.0000020	<0.0000020	0.0000023	<0.0000020	<0.0000020
bismuth, total	7440-69-9	E466	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
boron, total	7440-42-8	E466	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cadmium, total	7440-43-9	E466	0.0000025	mg/L		0.0000028	<0.0000025	<0.0000025	0.0000042	0.0000032
calcium, total	7440-70-2	E466	0.010	mg/L		1.70	1.75	1.72	1.73	1.74
chromium, total	7440-47-3	E466	0.000040	mg/L		0.000060	0.000059	0.000060	0.000062	0.000061
cobalt, total	7440-48-4	E466	0.0000050	mg/L		0.0000756	0.0000773	0.0000776	0.0000773	0.0000800
copper, total	7440-50-8	E466	0.000050	mg/L		0.000894	0.000895	0.000914	0.000887	0.000945
iron, total	7439-89-6	E466	0.00050	mg/L		0.0285	0.0299	0.0305	0.0295	0.0286
lanthanum, total	7439-91-0	E466	0.000010	mg/L		0.000071	0.000066	0.000068	0.000071	0.000069
lead, total	7439-92-1	E466	0.0000050	mg/L		0.0000069	0.0000069	0.0000072	0.0000114	0.0000108
lithium, total	7439-93-2	E466	0.00010	mg/L		0.00043	0.00043	0.00043	0.00042	0.00042
magnesium, total	7439-95-4	E466	0.0010	mg/L		1.13	1.15	1.14	1.12	1.12
manganese, total	7439-96-5	E466	0.0000050	mg/L		0.00435	0.00441	0.00455	0.00430	0.00438
molybdenum, total	7439-98-7	E466	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
nickel, total	7440-02-0	E466	0.000020	mg/L		0.00213	0.00216	0.00214	0.00215	0.00217
potassium, total	7440-09-7	E466	0.0050	mg/L		0.280	0.284	0.282	0.279	0.280
selenium, total	7782-49-2	E466	0.000025	mg/L		<0.000025	<0.000025	<0.000025	<0.000025	<0.000025
silicon, total	7440-21-3	E466	0.050	mg/L		0.139	0.143	0.141	0.139	0.137
silver, total	7440-22-4	E466	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
sodium, total	17341-25-2	E466	0.010	mg/L		0.450	0.455	0.455	0.441	0.468
strontium, total	7440-24-6	E466	0.000020	mg/L		0.00730	0.00737	0.00730	0.00720	0.00731
sulfur, total	7704-34-9	E466	0.50	mg/L		1.56	1.58	1.56	1.55	1.55
thallium, total	7440-28-0	E466	0.0000010	mg/L		0.0000012	0.0000011	0.0000011	0.0000013	0.0000011
tin, total	7440-31-5	E466	0.000010	mg/L		<0.000010	0.000020	0.000027	<0.000010	<0.000010
titanium, total	7440-32-6	E466	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
uranium, total	7440-61-1	E466	0.0000010	mg/L		0.0000055	0.0000059	0.0000057	0.0000064	0.0000039



Analytical Results

Sub-Matrix: Water					Client sample ID	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2101054-006	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010	
					Result	Result	Result	Result	Result	
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000022	0.000027	0.000023	0.000024	0.000024	0.000024
zinc, total	7440-66-6	E466	0.00010	mg/L	0.00058	0.00074	0.00066	0.00086	0.00128	0.00128
zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000026	0.000027	0.000029	0.000026	0.000029	0.000029
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00577	0.00556	0.00550	0.00567	0.00680	0.00680
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000071	0.0000055	0.0000052	0.0000054	0.0000078	0.0000078
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000139	0.000144	0.000144	0.000143	0.000148	0.000148
barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00342	0.00340	0.00354	0.00341	0.00346	0.00346
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	<0.0000025	<0.0000025	<0.0000025	<0.0000025	<0.0000025
calcium, dissolved	7440-70-2	E465	0.010	mg/L	1.75	1.72	1.69	1.68	1.70	1.70
chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000058	0.000050	0.000052	0.000052	0.000066	0.000066
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000223	0.0000177	0.0000197	0.0000210	0.0000214	0.0000214
copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.000969	0.000866	0.000869	0.000863	0.000915	0.000915
dissolved metals filtration location	----	EP465	-	-	Field	Field	Field	Field	Field	Field
iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.00815	0.00745	0.00731	0.00749	0.00912	0.00912
lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000063	<0.0000050	<0.0000050	0.0000067	0.0000104	0.0000104
lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00042	0.00040	0.00041	0.00042	0.00040	0.00040
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.12	1.10	1.09	1.11	1.11	1.11
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.000521	0.000412	0.000366	0.000468	0.000610	0.000610
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L	<0.00050	0.00054	<0.00050	<0.00050	<0.00050	<0.00050
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00216	0.00207	0.00210	0.00213	0.00210	0.00210
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.283	0.277	0.275	0.279	0.287	0.287
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025	<0.000025
silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.138	0.138	0.138	0.139	0.138	0.138
silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5
Client sampling date / time						14-Aug-2021 12:45	14-Aug-2021 13:50	14-Aug-2021 14:30	14-Aug-2021 15:30	14-Aug-2021 11:05
Analyte	CAS Number	Method	LOR	Unit	YL2101054-006	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010	
					Result	Result	Result	Result	Result	
Dissolved Metals										
sodium, dissolved	17341-25-2	E465	0.010	mg/L	0.558	0.447	0.451	0.446	0.457	
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.00745	0.00726	0.00724	0.00726	0.00729	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	1.55	1.56	1.53	1.56	1.56	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000012	<0.0000010	0.0000011	0.0000012	0.0000010	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	0.000045	<0.000010	<0.000010	<0.000010	<0.000010	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000057	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000045	0.0000053	0.0000066	0.0000039	0.0000050	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000018	0.000017	0.000019	0.000018	0.000020	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00121	0.00052	0.00057	0.00067	0.00140	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000029	0.000026	0.000029	0.000027	0.000029	
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	Field	Field	Field	
Radiological Parameters										
radium-226	13982-63-3	RA226-MMER	0.0059	Bq/L	<0.0059	----	----	----	----	
radium-226	13982-63-3	RA226-MMER	0.0068	Bq/L	----	----	----	<0.0068	----	
radium-226	13982-63-3	RA226-MMER	0.007	Bq/L	----	----	0.0088	----	----	
radium-226	13982-63-3	RA226-MMER	0.0074	Bq/L	----	----	----	----	<0.0074	
radium-226	13982-63-3	RA226-MMER	0.0091	Bq/L	----	<0.0091	----	----	----	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-QC-1	FB	----	----	----
Client sampling date / time					15-Aug-2021 09:30	15-Aug-2021 17:20	----	----	----	
Analyte	CAS Number	Method	LOR	Unit	YL2101054-011	YL2101054-012	-----	-----	-----	
					Result	Result	----	----	----	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	3.8	<1.0	----	----	----	
conductivity	----	E100	2.0	µS/cm	26.1	<2.0	----	----	----	
hardness (as CaCO3), dissolved	----	EC100	0.50	mg/L	9.03	<0.50	----	----	----	
pH	----	E108	0.10	pH units	6.74	5.28	----	----	----	
solids, total dissolved [TDS]	----	E162	10	mg/L	19	<10	----	----	----	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	16.3	<1.0	----	----	----	
solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	----	----	----	
turbidity	----	E121	0.10	NTU	0.26	<0.10	----	----	----	
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.06	<0.50	----	----	----	
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	----	----	----	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	----	----	----	
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	----	----	----	
phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0037	<0.0010	----	----	----	
phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0017	<0.0010	----	----	----	
silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	----	----	----	
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	4.55	<0.050	----	----	----	
Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	<0.200	<0.200	----	----	----	
Cyanides										
cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	----	----	----	
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.48	<0.50	----	----	----	
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.41	<0.50	----	----	----	
Total Sulfides										
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	----	----	----	
Total Metals										
mercury, total	7439-97-6	E508-L	0.00050	µg/L	0.00065	<0.00050	----	----	----	



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-QC-1	FB	----	----	----
Client sampling date / time						15-Aug-2021 09:30	15-Aug-2021 17:20	----	----	----
Analyte	CAS Number	Method	LOR	Unit		YL2101054-011	YL2101054-012	-----	-----	-----
						Result	Result	----	----	----
Total Metals (Undigested)										
aluminum, total	7429-90-5	E466	0.00020	mg/L		0.00832	<0.00020	----	----	----
antimony, total	7440-36-0	E466	0.0000050	mg/L		0.0000055	<0.0000050	----	----	----
arsenic, total	7440-38-2	E466	0.000010	mg/L		0.000155	<0.000010	----	----	----
barium, total	7440-39-3	E466	0.000020	mg/L		0.00344	<0.000020	----	----	----
beryllium, total	7440-41-7	E466	0.0000020	mg/L		<0.0000020	<0.0000020	----	----	----
bismuth, total	7440-69-9	E466	0.0000010	mg/L		<0.0000010	<0.0000010	----	----	----
boron, total	7440-42-8	E466	0.0050	mg/L		<0.0050	<0.0050	----	----	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L		<0.0000025	<0.0000025	----	----	----
calcium, total	7440-70-2	E466	0.010	mg/L		1.78	<0.010	----	----	----
chromium, total	7440-47-3	E466	0.000040	mg/L		0.000056	<0.000040	----	----	----
cobalt, total	7440-48-4	E466	0.0000050	mg/L		0.0000695	<0.0000050	----	----	----
copper, total	7440-50-8	E466	0.000050	mg/L		0.000900	<0.000050	----	----	----
iron, total	7439-89-6	E466	0.00050	mg/L		0.0292	<0.00050	----	----	----
lanthanum, total	7439-91-0	E466	0.000010	mg/L		0.000065	<0.000010	----	----	----
lead, total	7439-92-1	E466	0.0000050	mg/L		0.0000058	<0.0000050	----	----	----
lithium, total	7439-93-2	E466	0.00010	mg/L		0.00042	<0.00010	----	----	----
magnesium, total	7439-95-4	E466	0.0010	mg/L		1.15	<0.0010	----	----	----
manganese, total	7439-96-5	E466	0.0000050	mg/L		0.00353	<0.0000050	----	----	----
molybdenum, total	7439-98-7	E466	0.000010	mg/L		<0.000010	<0.000010	----	----	----
nickel, total	7440-02-0	E466	0.000020	mg/L		0.00206	<0.000020	----	----	----
potassium, total	7440-09-7	E466	0.0050	mg/L		0.288	<0.0050	----	----	----
selenium, total	7782-49-2	E466	0.000025	mg/L		<0.000025	<0.000025	----	----	----
silicon, total	7440-21-3	E466	0.050	mg/L		0.120	<0.050	----	----	----
silver, total	7440-22-4	E466	0.0000020	mg/L		<0.0000020	<0.0000020	----	----	----
sodium, total	17341-25-2	E466	0.010	mg/L		0.453	<0.010	----	----	----
strontium, total	7440-24-6	E466	0.000020	mg/L		0.00740	<0.000020	----	----	----
sulfur, total	7704-34-9	E466	0.50	mg/L		1.58	<0.50	----	----	----
thallium, total	7440-28-0	E466	0.0000010	mg/L		<0.0000010	<0.0000010	----	----	----
tin, total	7440-31-5	E466	0.000010	mg/L		<0.000010	<0.000010	----	----	----
titanium, total	7440-32-6	E466	0.000050	mg/L		0.000053	<0.000050	----	----	----
uranium, total	7440-61-1	E466	0.0000010	mg/L		0.0000042	<0.0000010	----	----	----



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-QC-1	FB	----	----	----
Client sampling date / time						15-Aug-2021 09:30	15-Aug-2021 17:20	----	----	----
Analyte	CAS Number	Method	LOR	Unit		YL2101054-011	YL2101054-012	-----	-----	-----
						Result	Result	----	----	----
Total Metals (Undigested)										
vanadium, total	7440-62-2	E466	0.000010	mg/L		0.000027	<0.000010	----	----	----
zinc, total	7440-66-6	E466	0.00010	mg/L		0.00053	<0.00010	----	----	----
zirconium, total	7440-67-7	E466	0.000010	mg/L		0.000027	<0.000010	----	----	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E465	0.00020	mg/L		0.00590	<0.00020	----	----	----
antimony, dissolved	7440-36-0	E465	0.0000050	mg/L		0.0000051	<0.0000050	----	----	----
arsenic, dissolved	7440-38-2	E465	0.000010	mg/L		0.000148	<0.000010	----	----	----
barium, dissolved	7440-39-3	E465	0.000020	mg/L		0.00338	<0.000020	----	----	----
beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L		0.0000021	<0.0000020	----	----	----
bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L		<0.0000010	<0.0000010	----	----	----
boron, dissolved	7440-42-8	E465	0.0050	mg/L		<0.0050	<0.0050	----	----	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L		<0.0000025	<0.0000025	----	----	----
calcium, dissolved	7440-70-2	E465	0.010	mg/L		1.72	<0.010	----	----	----
chromium, dissolved	7440-47-3	E465	0.000040	mg/L		0.000052	<0.000040	----	----	----
cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L		0.0000222	<0.0000050	----	----	----
copper, dissolved	7440-50-8	E465	0.000050	mg/L		0.000861	<0.000050	----	----	----
dissolved metals filtration location	----	EP465	-	-		Field	Field	----	----	----
iron, dissolved	7439-89-6	E465	0.00050	mg/L		0.00826	<0.00050	----	----	----
lead, dissolved	7439-92-1	E465	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
lithium, dissolved	7439-93-2	E465	0.00010	mg/L		0.00042	<0.00010	----	----	----
magnesium, dissolved	7439-95-4	E465	0.0010	mg/L		1.15	<0.0010	----	----	----
manganese, dissolved	7439-96-5	E465	0.0000050	mg/L		0.000532	0.0000120 ^{RRV}	----	----	----
mercury, dissolved	7439-97-6	E509-L	0.00050	µg/L		0.00055	<0.00050	----	----	----
molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L		<0.000010	0.000048 ^{RRV}	----	----	----
nickel, dissolved	7440-02-0	E465	0.000020	mg/L		0.00202	<0.000020	----	----	----
phosphorus, dissolved	7723-14-0	E465	0.010	mg/L		<0.010	<0.010	----	----	----
potassium, dissolved	7440-09-7	E465	0.0050	mg/L		0.283	<0.0050	----	----	----
rhodium, dissolved	7440-15-5	E465	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L		<0.000025	<0.000025	----	----	----
silicon, dissolved	7440-21-3	E465	0.050	mg/L		0.119	<0.050	----	----	----
silver, dissolved	7440-22-4	E465	0.0000020	mg/L		<0.0000020	<0.0000020	----	----	----



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	BRP-QC-1	FB	----	----	----
Client sampling date / time					15-Aug-2021 09:30	15-Aug-2021 17:20	----	----	----	
Analyte	CAS Number	Method	LOR	Unit	YL2101054-011	YL2101054-012	-----	-----	-----	
					Result	Result	----	----	----	
Dissolved Metals										
sodium, dissolved	17341-25-2	E465	0.010	mg/L	0.458	<0.010	----	----	----	
strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.00746	<0.000020	----	----	----	
sulfur, dissolved	7704-34-9	E465	0.50	mg/L	1.60	<0.50	----	----	----	
thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000011	<0.0000010	----	----	----	
tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	----	----	----	
titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	----	----	----	
uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000042	<0.0000010	----	----	----	
vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000020	<0.000010	----	----	----	
zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00055	0.00013 ^{RRV}	----	----	----	
zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000027	<0.000010	----	----	----	
dissolved mercury filtration location	----	EP509-L	-	-	Field	Field	----	----	----	
Radiological Parameters										
radium-226	13982-63-3	RA226-MMER	0.0033	Bq/L	0.0041	----	----	----	----	
radium-226	13982-63-3	RA226-MMER	0.0055	Bq/L	----	<0.0055	----	----	----	

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2101054	Page	: 1 of 48
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 20412211/2500/2520	Date Samples Received	: 17-Aug-2021 16:40
PO	: ----	Issue Date	: 01-Oct-2021 08:24
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Page : 2 of 48
Work Order : YL2101054
Client : Sabina Gold & Silver Corporation
Project : 20412211/2500/2520



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Anions and Nutrients	QC-MRG6-2735560 01	----	nitrate (as N)	14797-55-8	E235.NO3-L	0.0186 ^B mg/L	0.005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier *Description*

B *Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*



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	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-1	E298	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-2	E298	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-3	E298	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-4	E298	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-35-5	E298	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-QC-1	E298	15-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) FB	E298	15-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-36-1	E298	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-36-2	E298	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-36-3	E298	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-36-4	E298	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) BRP-36-5	E298	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-1	E235.Cl	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-2	E235.Cl	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-3	E235.Cl	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-4	E235.Cl	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-35-5	E235.Cl	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-QC-1	E235.Cl	15-Aug-2021	----	----	----		22-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE FB	E235.Cl	15-Aug-2021	----	----	----		22-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-36-1	E235.Cl	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-36-2	E235.Cl	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-36-3	E235.Cl	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-36-4	E235.Cl	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE BRP-36-5	E235.Cl	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-1	E378-U	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-2	E378-U	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-3	E378-U	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-4	E378-U	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-35-5	E378-U	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-QC-1	E378-U	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE FB	E378-U	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-36-1	E378-U	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-36-2	E378-U	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-36-3	E378-U	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-36-4	E378-U	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	* EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE BRP-36-5	E378-U	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	* EHTL
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-1	E235.F	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-2	E235.F	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-3	E235.F	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-4	E235.F	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-35-5	E235.F	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-QC-1	E235.F	15-Aug-2021	----	----	----		22-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE FB	E235.F	15-Aug-2021	----	----	----		22-Aug-2021	28 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-36-1	E235.F	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-36-2	E235.F	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-36-3	E235.F	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-36-4	E235.F	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE BRP-36-5	E235.F	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-1	E235.NO3-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-2	E235.NO3-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-3	E235.NO3-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-4	E235.NO3-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-35-5	E235.NO3-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-QC-1	E235.NO3-L	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE FB	E235.NO3-L	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-36-1	E235.NO3-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-36-2	E235.NO3-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-36-3	E235.NO3-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-36-4	E235.NO3-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE BRP-36-5	E235.NO3-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-1	E235.NO2-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-2	E235.NO2-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-3	E235.NO2-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-4	E235.NO2-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-35-5	E235.NO2-L	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-QC-1	E235.NO2-L	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE FB	E235.NO2-L	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	✖ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-36-1	E235.NO2-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-36-2	E235.NO2-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-36-3	E235.NO2-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-36-4	E235.NO2-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE BRP-36-5	E235.NO2-L	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-1	E392	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	<div>✔</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-2	E392	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	<div>✔</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-3	E392	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	<div>✔</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-4	E392	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	<div>✔</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-35-5	E392	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	<div>✔</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-QC-1	E392	15-Aug-2021	----	----	----		23-Aug-2021	28 days	8 days	<div>✔</div>
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE FB	E392	15-Aug-2021	----	----	----		23-Aug-2021	28 days	8 days	<div>✔</div>



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-36-1	E392	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-36-2	E392	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-36-3	E392	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-36-4	E392	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✔
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE BRP-36-5	E392	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✔
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-1	E235.SO4-L	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-2	E235.SO4-L	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-3	E235.SO4-L	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-4	E235.SO4-L	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-35-5	E235.S04-L	16-Aug-2021	----	----	----		22-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-QC-1	E235.S04-L	15-Aug-2021	----	----	----		22-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE FB	E235.S04-L	15-Aug-2021	----	----	----		22-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-36-1	E235.S04-L	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-36-2	E235.S04-L	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-36-3	E235.S04-L	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-36-4	E235.S04-L	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE BRP-36-5	E235.S04-L	14-Aug-2021	----	----	----		22-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-1	E375-U	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-2	E375-U	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-3	E375-U	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-4	E375-U	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-35-5	E375-U	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-QC-1	E375-U	15-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	17 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) FB	E375-U	15-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	17 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-36-1	E375-U	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-36-2	E375-U	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✔
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-36-3	E375-U	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-36-4	E375-U	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)										
Amber glass dissolved (sulfuric acid) BRP-36-5	E375-U	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-1	E318	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-2	E318	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-3	E318	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-4	E318	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-35-5	E318	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-QC-1	E318	15-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) FB	E318	15-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-36-1	E318	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-36-2	E318	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-36-3	E318	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-36-4	E318	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) BRP-36-5	E318	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-1	E372-S	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-2	E372-S	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-3	E372-S	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-4	E372-S	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-35-5	E372-S	16-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	16 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-QC-1	E372-S	15-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	17 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) FB	E372-S	15-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	17 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-36-1	E372-S	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-36-2	E372-S	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-36-3	E372-S	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-36-4	E372-S	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Super Trace Level)										
Amber glass total (sulfuric acid) BRP-36-5	E372-S	14-Aug-2021	01-Sep-2021	----	----		01-Sep-2021	28 days	18 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-1	E339	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-2	E339	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-3	E339	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-4	E339	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-5	E339	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-QC-1	E339	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) FB	E339	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-1	E339	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-2	E339	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-3	E339	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-4	E339	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Free Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-5	E339	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-1	E333	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-2	E333	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-3	E333	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-4	E333	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-5	E333	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-QC-1	E333	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) FB	E333	15-Aug-2021	----	----	----		23-Aug-2021	14 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-1	E333	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-2	E333	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-3	E333	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-4	E333	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-5	E333	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-1	E336	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-2	E336	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-3	E336	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-4	E336	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-35-5	E336	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-QC-1	E336	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) FB	E336	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-1	E336	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-2	E336	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-3	E336	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-4	E336	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✔
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) BRP-36-5	E336	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-36-1	E509-L	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	10 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-36-2	E509-L	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-36-3	E509-L	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-36-4	E509-L	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-36-5	E509-L	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) FB	E509-L	15-Aug-2021	07-Sep-2021	----	----		07-Sep-2021	28 days	23 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-1	E509-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-2	E509-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-3	E509-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-4	E509-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-35-5	E509-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) BRP-QC-1	E509-L	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-36-1	E465	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-36-2	E465	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-36-3	E465	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-36-4	E465	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-36-5	E465	14-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-1	E465	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	8 days	✓



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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-2	E465	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	8 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-3	E465	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	8 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-4	E465	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	8 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-35-5	E465	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	8 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) BRP-QC-1	E465	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine)										
HDPE - dissolved (lab preserved) FB	E465	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	180 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-1	E358-L	16-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-2	E358-L	16-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-3	E358-L	16-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-4	E358-L	16-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-35-5	E358-L	16-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-QC-1	E358-L	15-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) FB	E358-L	15-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-36-1	E358-L	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-36-2	E358-L	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-36-3	E358-L	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✔
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-36-4	E358-L	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) BRP-36-5	E358-L	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-1	E355-L	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-2	E355-L	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-3	E355-L	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-4	E355-L	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-35-5	E355-L	16-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-QC-1	E355-L	15-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) FB	E355-L	15-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-36-1	E355-L	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-36-2	E355-L	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-36-3	E355-L	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-36-4	E355-L	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) BRP-36-5	E355-L	14-Aug-2021	22-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-1	E290	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-2	E290	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-3	E290	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-4	E290	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-35-5	E290	16-Aug-2021	----	----	----		23-Aug-2021	14 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-QC-1	E290	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE FB	E290	15-Aug-2021	----	----	----		23-Aug-2021	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-36-1	E290	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-36-2	E290	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-36-3	E290	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-36-4	E290	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE BRP-36-5	E290	14-Aug-2021	----	----	----		23-Aug-2021	14 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-1	E100	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-2	E100	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE BRP-35-3	E100	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-4	E100	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-35-5	E100	16-Aug-2021	----	----	----		23-Aug-2021	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-QC-1	E100	15-Aug-2021	----	----	----		23-Aug-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE FB	E100	15-Aug-2021	----	----	----		23-Aug-2021	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-36-1	E100	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-36-2	E100	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-36-3	E100	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE BRP-36-4	E100	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE BRP-36-5	E100	14-Aug-2021	----	----	----		23-Aug-2021	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE BRP-35-4	E108	16-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	162 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-3	E108	16-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	164 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-5	E108	16-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	165 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-2	E108	16-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	166 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-35-1	E108	16-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	168 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE FB	E108	15-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	184 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-QC-1	E108	15-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	192 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE BRP-36-4	E108	14-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	210 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE BRP-36-2	E108	14-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	211 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE BRP-36-3	E108	14-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	211 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE BRP-36-1	E108	14-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	212 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE BRP-36-5	E108	14-Aug-2021	----	----	----		23-Aug-2021	0.25 hrs	214 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-1	E162	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-2	E162	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-3	E162	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-4	E162	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	<div>✔</div>
Physical Tests : TDS by Gravimetry										
HDPE BRP-35-5	E162	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	<div>✔</div>



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE BRP-QC-1	E162	15-Aug-2021	----	----	----		22-Aug-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE FB	E162	15-Aug-2021	----	----	----		22-Aug-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE BRP-36-1	E162	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-36-2	E162	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-36-3	E162	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-36-4	E162	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TDS by Gravimetry										
HDPE BRP-36-5	E162	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-1	E160-H	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-2	E160-H	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-3	E160-H	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-4	E160-H	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-35-5	E160-H	16-Aug-2021	----	----	----		22-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-QC-1	E160-H	15-Aug-2021	----	----	----		22-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE FB	E160-H	15-Aug-2021	----	----	----		22-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE BRP-36-1	E160-H	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-36-2	E160-H	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-36-3	E160-H	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT
Physical Tests : TSS by Gravimetry										
HDPE BRP-36-4	E160-H	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	✖ EHT



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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry										
HDPE BRP-36-5	E160-H	14-Aug-2021	----	----	----		22-Aug-2021	7 days	8 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-1	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-2	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-3	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-4	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-35-5	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-QC-1	E121	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE FB	E121	15-Aug-2021	----	----	----		22-Aug-2021	3 days	7 days	* EHT
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-36-1	E121	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	* EHTL



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-36-2	E121	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-36-3	E121	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-36-4	E121	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE BRP-36-5	E121	14-Aug-2021	----	----	----		22-Aug-2021	3 days	8 days	✖ EHTL
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-35-1	RA226-MMER	16-Aug-2021	----	----	----		29-Sep-2021	180 days	44 days	✔
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-35-2	RA226-MMER	16-Aug-2021	----	----	----		29-Sep-2021	180 days	44 days	✔
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-35-3	RA226-MMER	16-Aug-2021	----	----	----		29-Sep-2021	180 days	44 days	✔
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-35-4	RA226-MMER	16-Aug-2021	----	----	----		29-Sep-2021	180 days	44 days	✔
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-35-5	RA226-MMER	16-Aug-2021	----	----	----		29-Sep-2021	180 days	44 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-QC-1	RA226-MMER	15-Aug-2021	----	----	----		29-Sep-2021	180 days	45 days	✓
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) FB	RA226-MMER	15-Aug-2021	----	----	----		29-Sep-2021	180 days	45 days	✓
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-36-1	RA226-MMER	14-Aug-2021	----	----	----		29-Sep-2021	180 days	46 days	✓
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-36-2	RA226-MMER	14-Aug-2021	----	----	----		29-Sep-2021	180 days	46 days	✓
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-36-3	RA226-MMER	14-Aug-2021	----	----	----		29-Sep-2021	180 days	46 days	✓
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-36-4	RA226-MMER	14-Aug-2021	----	----	----		29-Sep-2021	180 days	46 days	✓
Radiological Parameters : Radium-226 by Radon Emanation										
HDPE total (nitric acid) BRP-36-5	RA226-MMER	14-Aug-2021	----	----	----		29-Sep-2021	180 days	46 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-36-1	E466	14-Aug-2021	----	----	----		24-Aug-2021	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-36-2	E466	14-Aug-2021	----	----	----		24-Aug-2021	180 days	10 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-36-3	E466	14-Aug-2021	----	----	----		24-Aug-2021	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-36-4	E466	14-Aug-2021	----	----	----		24-Aug-2021	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-36-5	E466	14-Aug-2021	----	----	----		24-Aug-2021	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-1	E466	16-Aug-2021	----	----	----		24-Aug-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-2	E466	16-Aug-2021	----	----	----		24-Aug-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-3	E466	16-Aug-2021	----	----	----		24-Aug-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-4	E466	16-Aug-2021	----	----	----		24-Aug-2021	180 days	8 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-35-5	E466	16-Aug-2021	----	----	----		24-Aug-2021	180 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) BRP-QC-1	E466	15-Aug-2021	----	----	----		24-Aug-2021	180 days	9 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine)										
Pre-cleaned HDPE - total (lab preserved) FB	E466	15-Aug-2021	----	----	----		24-Aug-2021	180 days	9 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-36-1	E508-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-36-2	E508-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-36-3	E508-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-36-4	E508-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-36-5	E508-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-1	E508-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-2	E508-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-3	E508-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-4	E508-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-35-5	E508-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) BRP-QC-1	E508-L	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) FB	E508-L	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✔
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-1	E395	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-2	E395	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-3	E395	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-4	E395	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-35-5	E395	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-QC-1	E395	15-Aug-2021	----	----	----		23-Aug-2021	7 days	8 days	✖ EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) FB	E395	15-Aug-2021	----	----	----		23-Aug-2021	7 days	8 days	✖ EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-36-1	E395	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	✖ EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-36-2	E395	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	✖ EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-36-3	E395	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	✖ EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-36-4	E395	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	✖ EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) BRP-36-5	E395	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	✖ EHT

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended
 EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
 EHT: Exceeded ALS recommended hold time prior to analysis.
 Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	273554	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	273548	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	273557	1	12	8.3	5.0	✓
Conductivity in Water	E100	273555	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	274816	1	12	8.3	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	274446	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274174	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	273562	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	273556	1	12	8.3	5.0	✓
Free Cyanide by CFA	E339	274039	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	273558	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	273559	1	20	5.0	5.0	✓
pH by Meter	E108	273553	1	12	8.3	5.0	✓
Reactive Silica by Colourimetry	E392	274118	2	25	8.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	273560	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	273498	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	274040	1	12	8.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	281698	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	273549	1	12	8.3	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	274439	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	274444	1	12	8.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	273547	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	281697	2	14	14.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	274019	2	32	6.2	5.0	✓
TSS by Gravimetry	E160-H	273493	2	29	6.9	5.0	✓
Turbidity by Nephelometry	E121	273513	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	274038	1	12	8.3	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	273554	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	273548	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	273557	1	12	8.3	5.0	✓
Conductivity in Water	E100	273555	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	274816	2	12	16.6	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	274446	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274174	1	19	5.2	5.0	✓



Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	273562	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	273556	1	12	8.3	5.0	✓
Free Cyanide by CFA	E339	274039	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	273558	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	273559	1	20	5.0	5.0	✓
pH by Meter	E108	273553	1	12	8.3	5.0	✓
Reactive Silica by Colourimetry	E392	274118	2	25	8.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	273560	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	273498	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	274040	1	12	8.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	281698	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	273549	1	12	8.3	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	274439	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	274444	1	12	8.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	273547	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	281697	2	14	14.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	274019	2	32	6.2	5.0	✓
TSS by Gravimetry	E160-H	273493	2	29	6.9	5.0	✓
Turbidity by Nephelometry	E121	273513	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	274038	1	12	8.3	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	273554	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	273548	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	273557	1	12	8.3	5.0	✓
Conductivity in Water	E100	273555	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	274816	2	12	16.6	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	274446	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274174	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	273562	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	273556	1	12	8.3	5.0	✓
Free Cyanide by CFA	E339	274039	1	12	8.3	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	273558	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	273559	1	20	5.0	5.0	✓
Reactive Silica by Colourimetry	E392	274118	2	25	8.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	273560	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	273498	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	274040	1	12	8.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	281698	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	273549	1	12	8.3	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	274439	1	18	5.5	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	274444	1	12	8.3	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	273547	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	281697	2	14	14.2	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	274019	2	32	6.2	5.0	✔
TSS by Gravimetry	E160-H	273493	2	29	6.9	5.0	✔
Turbidity by Nephelometry	E121	273513	1	20	5.0	5.0	✔
WAD Cyanide by CFA	E336	274038	1	12	8.3	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	273548	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	273557	1	12	8.3	5.0	✔
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	274816	1	12	8.3	5.0	✔
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	274446	1	12	8.3	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274174	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	273562	1	20	5.0	5.0	✔
Fluoride in Water by IC	E235.F	273556	1	12	8.3	5.0	✔
Free Cyanide by CFA	E339	274039	1	12	8.3	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	273558	1	12	8.3	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	273559	1	20	5.0	5.0	✔
Reactive Silica by Colourimetry	E392	274118	2	25	8.0	5.0	✔
Sulfate in Water by IC (Low Level)	E235.SO4-L	273560	1	12	8.3	5.0	✔
Total Cyanide by CFA	E333	274040	1	12	8.3	5.0	✔
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U	281698	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	273549	1	12	8.3	5.0	✔
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	274439	1	18	5.5	5.0	✔
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	274444	1	12	8.3	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	273547	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S	281697	2	14	14.2	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395	274019	2	32	6.2	5.0	✔
WAD Cyanide by CFA	E336	274038	1	12	8.3	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 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 $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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 (Low Level)	E235.SO4-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Free Cyanide by CFA	E339 Vancouver - Environmental	Water	ASTM D7237 (mod)	Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L 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 CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (Super Trace Level)	E372-S Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Dissolved Phosphorus by Colourimetry (Ultra Trace Level)	E375-U Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 Vancouver - Environmental	Water	APHA 4500-SiO ₂ E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 Vancouver - Environmental	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ -) and reports it as Total Sulphide as (H ₂ S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO ₃), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Radium-226 by Radon Emanation	RA226-MMER Fort Collins - Environmental - 225 Commerce Drive Fort Collins Colorado United States 80524	Water	EPA 903.1	Radium-226 in sample was analyzed according to the current revision of SOP 783.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 Vancouver - Environmental	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

Page : 48 of 48
Work Order : YL2101054
Client : Sabina Gold & Silver Corporation
Project : 20412211/2500/2520



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

QUALITY CONTROL REPORT

Work Order : **YL2101054**

Page : 1 of 18

Client : Sabina Gold & Silver Corporation
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2500/2520
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 12
No. of samples analysed : 12

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 17-Aug-2021 16:40
Date Analysis Commenced : 22-Aug-2021
Issue Date : 01-Oct-2021 08:24

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Courtney Cox	Analyst	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Lisa Watt	Lab Supervisor - Environmental	Inorganics, Edmonton, Alberta
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
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Page : 2 of 18
Work Order : YL2101054
Client : Sabina Gold & Silver Corporation
Project : 20412211/2500/2520



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: 273493)											
VA21B7680-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 273494)											
YL2101054-004	BRP-35-4	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 273498)											
YL2101052-001	Anonymous	solids, total dissolved [TDS]	----	E162	10	mg/L	<10	<10	0	Diff <2x LOR	----
Physical Tests (QC Lot: 273513)											
YL2101052-007	Anonymous	turbidity	----	E121	0.10	NTU	<0.10	<0.10	0	Diff <2x LOR	----
Physical Tests (QC Lot: 273553)											
YL2101054-001	BRP-35-1	pH	----	E108	0.10	pH units	6.76	6.77	0.148%	4%	----
Physical Tests (QC Lot: 273554)											
YL2101054-001	BRP-35-1	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	3.7	3.8	0.1	Diff <2x LOR	----
Physical Tests (QC Lot: 273555)											
YL2101054-001	BRP-35-1	conductivity	----	E100	2.0	µS/cm	25.7	25.5	0.2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 273548)											
WR2101048-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 273549)											
YL2101054-001	BRP-35-1	Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 273556)											
YL2101054-001	BRP-35-1	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 273557)											
YL2101054-001	BRP-35-1	chloride	16887-00-6	E235.Cl	0.50	mg/L	1.06	1.05	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 273558)											
YL2101054-001	BRP-35-1	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: 273559)											
YL2101054-001	BRP-35-1	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 273560)											
YL2101054-001	BRP-35-1	sulfate (as SO ₄)	14808-79-8	E235.SO4-L	0.050	mg/L	4.59	4.58	0.311%	20%	----
Anions and Nutrients (QC Lot: 273562)											
YL2101054-001	BRP-35-1	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0012	<0.0010	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 274118)											
YL2101049-001	Anonymous	silicate (as SiO ₂)	7631-86-9	E392	0.50	mg/L	6.93	6.75	2.59%	20%	----

Page : 4 of 18
 Work Order : YL2101054
 Client : Sabina Gold & Silver Corporation
 Project : 20412211/2500/2520



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: 274119)											
YL2101054-011	BRP-QC-1	silicate (as SiO ₂)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 281697)											
YL2101054-001	BRP-35-1	phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0154	0.0128	18.4%	20%	----
Anions and Nutrients (QC Lot: 281698)											
VA21B8607-001	Anonymous	phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 283634)											
FC2100693-001	Anonymous	phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0247	0.0233	5.83%	20%	----
Cyanides (QC Lot: 274038)											
YL2101054-001	BRP-35-1	cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 274039)											
YL2101054-001	BRP-35-1	cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 274040)											
YL2101054-001	BRP-35-1	cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	0.0087	<0.0050	0.0037	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 273547)											
WR2101048-001	Anonymous	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.91	2.68	0.24	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 274174)											
VA21B7207-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.25	4.71	0.46	Diff <2x LOR	----
Total Sulfides (QC Lot: 274019)											
CG2103331-001	Anonymous	sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 274025)											
CG2103339-001	Anonymous	sulfide, total (as S)	18496-25-8	E395	0.0075	mg/L	0.0545	0.0447	0.0098	Diff <2x LOR	----
Total Metals (QC Lot: 274439)											
CG2103368-008	Anonymous	mercury, total	7439-97-6	E508-L	0.00050	ng/L	<0.00050 µg/L	<0.50	0	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 274444)											
YL2101054-001	BRP-35-1	aluminum, total	7429-90-5	E466	0.00020	mg/L	0.00806	0.00966	18.1%	20%	----
		antimony, total	7440-36-0	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000156	0.000147	5.71%	20%	----
		barium, total	7440-39-3	E466	0.000020	mg/L	0.00344	0.00344	0.116%	20%	----
		beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	0.0000029	0.0000004	Diff <2x LOR	----
		calcium, total	7440-70-2	E466	0.010	mg/L	1.70	1.72	1.58%	20%	----
		chromium, total	7440-47-3	E466	0.000040	mg/L	0.000054	0.000057	0.000003	Diff <2x LOR	----
		cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.0000661	0.0000693	4.78%	20%	----



Sub-Matrix: **Water**

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 (Undigested) (QC Lot: 274444) - continued											
YL2101054-001	BRP-35-1	copper, total	7440-50-8	E466	0.000050	mg/L	0.000868	0.000884	1.77%	20%	----
		iron, total	7439-89-6	E466	0.000050	mg/L	0.0277	0.0282	1.71%	20%	----
		lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000064	0.000065	0.0000004	Diff <2x LOR	----
		lead, total	7439-92-1	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E466	0.00010	mg/L	0.00043	0.00042	0.000004	Diff <2x LOR	----
		magnesium, total	7439-95-4	E466	0.0010	mg/L	1.12	1.13	0.695%	20%	----
		manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00346	0.00349	0.844%	20%	----
		molybdenum, total	7439-98-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		nickel, total	7440-02-0	E466	0.000020	mg/L	0.00198	0.00204	2.89%	20%	----
		potassium, total	7440-09-7	E466	0.0050	mg/L	0.274	0.277	0.838%	20%	----
		selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		silicon, total	7440-21-3	E466	0.050	mg/L	0.119	0.118	0.002	Diff <2x LOR	----
		silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E466	0.010	mg/L	0.436	0.441	1.05%	20%	----
		strontium, total	7440-24-6	E466	0.000020	mg/L	0.00719	0.00725	0.854%	20%	----
		sulfur, total	7704-34-9	E466	0.50	mg/L	1.58	1.57	0.009	Diff <2x LOR	----
		thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000013	0.0000012	0.0000002	Diff <2x LOR	----
		tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E466	0.000050	mg/L	<0.000050	0.000070	0.000020	Diff <2x LOR	----
		uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000037	0.0000050	0.0000013	Diff <2x LOR	----
		vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000025	0.000025	0.0000003	Diff <2x LOR	----
		zinc, total	7440-66-6	E466	0.00010	mg/L	0.00065	0.00058	0.00007	Diff <2x LOR	----
		zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000027	0.000028	0.0000008	Diff <2x LOR	----
Dissolved Metals (QC Lot: 274446)											
YL2101054-001	BRP-35-1	aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00614	0.00612	0.443%	20%	----
		antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000082	0.0000077	0.0000005	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000147	0.000141	3.58%	20%	----
		barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00337	0.00339	0.656%	20%	----
		beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000026	<0.0000025	0.00000009	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E465	0.010	mg/L	1.77	1.79	1.02%	20%	----
		chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000053	0.000053	0.0000006	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000217	0.0000222	0.0000004	Diff <2x LOR	----



Sub-Matrix: **Water**

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: 274446) - continued											
YL2101054-001	BRP-35-1	copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.000892	0.000901	0.983%	20%	----
		iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.00897	0.00902	0.454%	20%	----
		lead, dissolved	7439-92-1	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00042	0.00042	0.000003	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.15	1.14	0.343%	20%	----
		manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.000572	0.000567	0.881%	20%	----
		molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00204	0.00206	1.09%	20%	----
		phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.289	0.288	0.234%	20%	----
		rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.119	0.119	0.00005	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E465	0.010	mg/L	0.461	0.460	0.0978%	20%	----
		strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.00752	0.00755	0.410%	20%	----
		sulfur, dissolved	7704-34-9	E465	0.50	mg/L	1.57	1.58	0.006	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000015	0.0000011	0.0000003	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000099	0.000082	0.000017	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000053	0.0000051	0.0000002	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000023	0.000020	0.000002	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00061	0.00059	0.00002	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000029	0.000028	0.0000008	Diff <2x LOR	----
Dissolved Metals (QC Lot: 274816)											
YL2101054-001	BRP-35-1	mercury, dissolved	7439-97-6	E509-L	0.00050	ng/L	0.00058 µg/L	0.50	0.08	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: 273493)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 273494)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 273498)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 273513)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 273554)						
alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 273555)						
conductivity	----	E100	1	µS/cm	1.1	----
Anions and Nutrients (QCLot: 273548)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 273549)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 273556)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 273557)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 273558)						
nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.005	mg/L	# 0.0186	B
Anions and Nutrients (QCLot: 273559)						
nitrite (as N)	14797-65-0	E235.NO ₂ -L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 273560)						
sulfate (as SO ₄)	14808-79-8	E235.SO ₄ -L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 273562)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 274118)						
silicate (as SiO ₂)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 274119)						
silicate (as SiO ₂)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 281697)						
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 281698)						
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 283634)						
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Cyanides (QCLot: 274038)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 274039)						
cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 274040)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 273547)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 274174)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 274019)						
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Sulfides (QCLot: 274025)						
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 274439)						
mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 274444)						
aluminum, total	7429-90-5	E466	0.0002	mg/L	<0.00020	----
antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----
lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 274444) - continued						
magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
sodium, total	17341-25-2	E466	0.01	mg/L	<0.010	----
strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 274446)						
aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 274446) - continued						
molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
sodium, dissolved	17341-25-2	E465	0.01	mg/L	<0.010	----
strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 274816)						
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----
Dissolved Metals (QCLot: 285708)						
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.

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

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: 273493)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	100	85.0	115	----
Physical Tests (QCLot: 273494)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	95.2	85.0	115	----
Physical Tests (QCLot: 273498)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	98.2	85.0	115	----
Physical Tests (QCLot: 273513)									
turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 273553)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 273554)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 273555)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	104	90.0	110	----
Anions and Nutrients (QCLot: 273548)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 273549)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	93.2	75.0	125	----
Anions and Nutrients (QCLot: 273556)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 273557)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 273558)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 273559)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.5	90.0	110	----
Anions and Nutrients (QCLot: 273560)									
sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 273562)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 274118)									
silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	98.6	85.0	115	----
Anions and Nutrients (QCLot: 274119)									



Sub-Matrix: Water

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: 274119) - continued									
silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	98.7	85.0	115	----
Anions and Nutrients (QCLot: 281697)									
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	108	80.0	120	----
Anions and Nutrients (QCLot: 281698)									
phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	105	80.0	120	----
Anions and Nutrients (QCLot: 283634)									
phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	106	80.0	120	----
Cyanides (QCLot: 274038)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	101	80.0	120	----
Cyanides (QCLot: 274039)									
cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	97.6	80.0	120	----
Cyanides (QCLot: 274040)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	95.9	80.0	120	----
Organic / Inorganic Carbon (QCLot: 273547)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 274174)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 274019)									
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	104	80.0	120	----
Total Sulfides (QCLot: 274025)									
sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	85.6	80.0	120	----
Total Metals (QCLot: 274439)									
mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	99.8	80.0	120	----
Total Metals (Undigested) (QCLot: 274444)									
aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	97.5	80.0	120	----
antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	108	80.0	120	----
arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	97.0	80.0	120	----
barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	105	80.0	120	----
beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	94.8	80.0	120	----
bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	106	80.0	120	----
boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	91.0	80.0	120	----
cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	95.7	80.0	120	----
calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	96.2	80.0	120	----

Page : 13 of 18
 Work Order : YL2101054
 Client : Sabina Gold & Silver Corporation
 Project : 20412211/2500/2520



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 (Undigested) (QCLot: 274444) - continued									
chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	95.0	80.0	120	----
cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	96.4	80.0	120	----
copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	94.0	80.0	120	----
iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	95.1	80.0	120	----
lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	100.0	80.0	120	----
lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	104	80.0	120	----
lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	95.6	80.0	120	----
magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	94.7	80.0	120	----
manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	95.8	80.0	120	----
molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	97.0	80.0	120	----
nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	95.1	80.0	120	----
potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	96.3	80.0	120	----
selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	99.2	80.0	120	----
silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	100	80.0	120	----
silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	99.0	80.0	120	----
sodium, total	17341-25-2	E466	0.01	mg/L	50 mg/L	94.8	80.0	120	----
strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	95.9	80.0	120	----
sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	102	80.0	120	----
thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	106	80.0	120	----
tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	99.1	80.0	120	----
titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	98.3	80.0	120	----
uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	97.4	80.0	120	----
vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	94.9	80.0	120	----
zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	93.3	80.0	120	----
zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	99.4	80.0	120	----
Dissolved Metals (QCLot: 274446)									
aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	100	80.0	120	----
antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	107	80.0	120	----
arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	98.6	80.0	120	----
barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	92.5	80.0	120	----
bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	106	80.0	120	----
boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	91.3	80.0	120	----
cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	95.8	80.0	120	----
calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	92.1	80.0	120	----
chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	96.9	80.0	120	----
cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	97.2	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: 274446) - continued									
copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	95.8	80.0	120	----
iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	98.0	80.0	120	----
lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	104	80.0	120	----
lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	93.3	80.0	120	----
magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	95.6	80.0	120	----
manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	97.4	80.0	120	----
molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	98.9	80.0	120	----
nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	95.9	80.0	120	----
phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	88.8	80.0	120	----
potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	97.2	80.0	120	----
rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	97.4	80.0	120	----
silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	99.6	80.0	120	----
silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	100	80.0	120	----
sodium, dissolved	17341-25-2	E465	0.01	mg/L	50 mg/L	95.6	80.0	120	----
strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	97.7	80.0	120	----
sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	103	80.0	120	----
thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	104	80.0	120	----
tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	100	80.0	120	----
titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	98.6	80.0	120	----
uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	93.0	80.0	120	----
vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	97.1	80.0	120	----
zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	94.5	80.0	120	----
zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	99.8	80.0	120	----
mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	99.0	80.0	120	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level $\geq 1 \times$ 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: 273548)										
WR2101048-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.110 mg/L	0.1 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 273549)										
YL2101054-002	BRP-35-2	Kjeldahl nitrogen, total [TKN]	----	E318	2.49 mg/L	2.5 mg/L	99.7	70.0	130	----
Anions and Nutrients (QCLot: 273556)										
YL2101054-002	BRP-35-2	fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 273557)										
YL2101054-002	BRP-35-2	chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 273558)										
YL2101054-002	BRP-35-2	nitrate (as N)	14797-55-8	E235.NO3-L	2.63 mg/L	2.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 273559)										
YL2101054-002	BRP-35-2	nitrite (as N)	14797-65-0	E235.NO2-L	0.516 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 273560)										
YL2101054-002	BRP-35-2	sulfate (as SO ₄)	14808-79-8	E235.SO ₄ -L	106 mg/L	100 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 273562)										
YL2101054-002	BRP-35-2	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0331 mg/L	0.03 mg/L	110	70.0	130	----
Anions and Nutrients (QCLot: 274118)										
YL2101049-002	Anonymous	silicate (as SiO ₂)	7631-86-9	E392	9.88 mg/L	10 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 274119)										
YL2101054-012	FB	silicate (as SiO ₂)	7631-86-9	E392	10.6 mg/L	10 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 281697)										
YL2101054-002	BRP-35-2	phosphorus, total	7723-14-0	E372-S	0.0741 mg/L	0.067 mg/L	110	70.0	130	----
Anions and Nutrients (QCLot: 281698)										
VA21B8607-002	Anonymous	phosphorus, total dissolved	7723-14-0	E375-U	0.0753 mg/L	0.067 mg/L	112	70.0	130	----
Anions and Nutrients (QCLot: 283634)										
YL2101054-001	BRP-35-1	phosphorus, total	7723-14-0	E372-S	0.0694 mg/L	0.067 mg/L	104	70.0	130	----
Cyanides (QCLot: 274038)										
YL2101054-002	BRP-35-2	cyanide, weak acid dissociable	----	E336	0.114 mg/L	0.125 mg/L	91.7	75.0	125	----



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
Cyanides (QCLot: 274039)										
YL2101054-002	BRP-35-2	cyanide, free	----	E339	0.110 mg/L	0.125 mg/L	88.0	75.0	125	----
Cyanides (QCLot: 274040)										
YL2101054-002	BRP-35-2	cyanide, strong acid dissociable (total)	----	E333	0.212 mg/L	0.25 mg/L	85.0	75.0	125	----
Organic / Inorganic Carbon (QCLot: 273547)										
WR2101048-002	Anonymous	carbon, total organic [TOC]	----	E355-L	4.66 mg/L	5 mg/L	93.1	70.0	130	----
Organic / Inorganic Carbon (QCLot: 274174)										
VA21B7207-002	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 274019)										
CG2103331-002	Anonymous	sulfide, total (as S)	18496-25-8	E395	0.250 mg/L	0.2 mg/L	125	75.0	125	----
Total Sulfides (QCLot: 274025)										
CG2103339-002	Anonymous	sulfide, total (as S)	18496-25-8	E395	0.894 mg/L	1 mg/L	89.4	75.0	125	----
Total Metals (QCLot: 274439)										
CG2103368-009	Anonymous	mercury, total	7439-97-6	E508-L	4.26 ng/L	5 ng/L	85.1	70.0	130	----
Total Metals (Undigested) (QCLot: 274444)										
YL2101054-002	BRP-35-2	aluminum, total	7429-90-5	E466	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		antimony, total	7440-36-0	E466	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		arsenic, total	7440-38-2	E466	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		barium, total	7440-39-3	E466	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		beryllium, total	7440-41-7	E466	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		bismuth, total	7440-69-9	E466	0.00954 mg/L	0.01 mg/L	95.4	70.0	130	----
		boron, total	7440-42-8	E466	0.110 mg/L	0.1 mg/L	110	70.0	130	----
		cadmium, total	7440-43-9	E466	0.00389 mg/L	0.004 mg/L	97.3	70.0	130	----
		calcium, total	7440-70-2	E466	3.72 mg/L	4 mg/L	93.0	70.0	130	----
		chromium, total	7440-47-3	E466	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		cobalt, total	7440-48-4	E466	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		copper, total	7440-50-8	E466	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		iron, total	7439-89-6	E466	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		lanthanum, total	7439-91-0	E466	0.00258 mg/L	0.0025 mg/L	103	70.0	130	----
		lead, total	7439-92-1	E466	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		lithium, total	7439-93-2	E466	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	----
		magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E466	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		molybdenum, total	7439-98-7	E466	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		nickel, total	7440-02-0	E466	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----



Sub-Matrix: **Water**

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 (Undigested) (QCLot: 274444) - continued										
YL2101054-002	BRP-35-2	potassium, total	7440-09-7	E466	3.79 mg/L	4 mg/L	94.7	70.0	130	----
		selenium, total	7782-49-2	E466	0.0420 mg/L	0.04 mg/L	105	70.0	130	----
		silicon, total	7440-21-3	E466	8.29 mg/L	10 mg/L	82.9	70.0	130	----
		silver, total	7440-22-4	E466	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		sodium, total	17341-25-2	E466	1.86 mg/L	2 mg/L	93.2	70.0	130	----
		strontium, total	7440-24-6	E466	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		sulfur, total	7704-34-9	E466	19.4 mg/L	20 mg/L	96.9	70.0	130	----
		thallium, total	7440-28-0	E466	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		tin, total	7440-31-5	E466	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		titanium, total	7440-32-6	E466	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
		uranium, total	7440-61-1	E466	0.00377 mg/L	0.004 mg/L	94.4	70.0	130	----
		vanadium, total	7440-62-2	E466	0.0976 mg/L	0.1 mg/L	97.6	70.0	130	----
		zinc, total	7440-66-6	E466	0.417 mg/L	0.4 mg/L	104	70.0	130	----
		zirconium, total	7440-67-7	E466	0.0474 mg/L	0.04 mg/L	119	70.0	130	----
Dissolved Metals (QCLot: 274446)										
YL2101054-002	BRP-35-2	aluminum, dissolved	7429-90-5	E465	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		antimony, dissolved	7440-36-0	E465	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		arsenic, dissolved	7440-38-2	E465	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		barium, dissolved	7440-39-3	E465	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		beryllium, dissolved	7440-41-7	E465	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		bismuth, dissolved	7440-69-9	E465	0.00950 mg/L	0.01 mg/L	95.0	70.0	130	----
		boron, dissolved	7440-42-8	E465	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		cadmium, dissolved	7440-43-9	E465	0.00391 mg/L	0.004 mg/L	97.8	70.0	130	----
		calcium, dissolved	7440-70-2	E465	3.78 mg/L	4 mg/L	94.6	70.0	130	----
		chromium, dissolved	7440-47-3	E465	0.0398 mg/L	0.04 mg/L	99.5	70.0	130	----
		cobalt, dissolved	7440-48-4	E465	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		copper, dissolved	7440-50-8	E465	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		iron, dissolved	7439-89-6	E465	1.96 mg/L	2 mg/L	97.8	70.0	130	----
		lead, dissolved	7439-92-1	E465	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		lithium, dissolved	7439-93-2	E465	0.0969 mg/L	0.1 mg/L	96.9	70.0	130	----
		magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E465	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		molybdenum, dissolved	7439-98-7	E465	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		nickel, dissolved	7440-02-0	E465	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		phosphorus, dissolved	7723-14-0	E465	9.53 mg/L	10 mg/L	95.3	70.0	130	----
		potassium, dissolved	7440-09-7	E465	3.86 mg/L	4 mg/L	96.5	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 274446) - continued										
YL2101054-002	BRP-35-2	rhenium, dissolved	7440-15-5	E465	0.00258 mg/L	0.0025 mg/L	103	70.0	130	----
		selenium, dissolved	7782-49-2	E465	0.0436 mg/L	0.04 mg/L	109	70.0	130	----
		silicon, dissolved	7440-21-3	E465	8.27 mg/L	10 mg/L	82.7	70.0	130	----
		silver, dissolved	7440-22-4	E465	0.00387 mg/L	0.004 mg/L	96.6	70.0	130	----
		sodium, dissolved	17341-25-2	E465	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		strontium, dissolved	7440-24-6	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		sulfur, dissolved	7704-34-9	E465	20.1 mg/L	20 mg/L	100	70.0	130	----
		thallium, dissolved	7440-28-0	E465	0.00390 mg/L	0.004 mg/L	97.4	70.0	130	----
		tin, dissolved	7440-31-5	E465	0.0194 mg/L	0.02 mg/L	97.3	70.0	130	----
		titanium, dissolved	7440-32-6	E465	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		uranium, dissolved	7440-61-1	E465	0.00366 mg/L	0.004 mg/L	91.4	70.0	130	----
		vanadium, dissolved	7440-62-2	E465	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		zinc, dissolved	7440-66-6	E465	0.435 mg/L	0.4 mg/L	109	70.0	130	----
		zirconium, dissolved	7440-67-7	E465	0.0482 mg/L	0.04 mg/L	120	70.0	130	----
Dissolved Metals (QCLot: 274816)										
YL2101054-002	BRP-35-2	mercury, dissolved	7439-97-6	E509-L	4.84 ng/L	5 ng/L	96.7	70.0	130	----



Thursday, September 30, 2021

Oliver Gregg
ALS Environmental
314 Old Airport Road Unit 116
Yellowknife, NT X1A 3T3

Re: ALS Workorder: 2108505
Project Name:
Project Number: YL2101054

Dear Mr. Gregg:

Twelve water samples were received from ALS Environmental, on 8/24/2021. The samples were scheduled for the following analysis:

Radium-226

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,



For,

ALS Environmental
Kelley M. Beyers
Project Manager

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.



2108505

Radium-226:

The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met, with the following exception:

The Ra-226 recovery for RE210916-7LCSD is above the upper control limit of 120% at 125%. The results are submitted without further qualification.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2108505

Client Name: ALS Environmental

Client Project Name:

Client Project Number: YL2101054

Client PO Number: YL2101054

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
YL2101054-001	2108505-1		WATER	16-Aug-21	9:30
YL2101054-002	2108505-2		WATER	16-Aug-21	11:05
YL2101054-003	2108505-3		WATER	16-Aug-21	13:25
YL2101054-004	2108505-4		WATER	16-Aug-21	14:40
YL2101054-005	2108505-5		WATER	16-Aug-21	12:15
YL2101054-006	2108505-6		WATER	14-Aug-21	12:45
YL2101054-007	2108505-7		WATER	14-Aug-21	13:50
YL2101054-008	2108505-8		WATER	14-Aug-21	14:30
YL2101054-009	2108505-9		WATER	14-Aug-21	15:30
YL2101054-010	2108505-10		WATER	14-Aug-21	11:05
YL2101054-011	2108505-11		WATER	14-Aug-21	9:30
YL2101054-012	2108505-12		WATER	14-Aug-21	17:20



Chain of Custody
Yellowknife - Environmental
314 Old Airport Road, Unit 116
Yellowknife NT Canada X1A
3T3

22444



Destination Lab: **USA - Fort Collins**

Address: 225 Commerce Drive Fort Collins CO
United States 80524

Client: Sabina Gold & Silver Corporation

Work Order Number: **YL2101054**

Original Receipt Date/Time: 17/08/2021 16:40
Instructions Received

#

2108505



2 1 0 8 5 0 5 - C

Relinquished By

Date/Time

Received By
Clare Thumma
Date/Time
8/24/21 1600
Receipt Temp

Return as Indicated: Results: ALSYK.ClientServices@alsglobal.com Invoice: ALSYK.ClientServices@alsglobal.com Electronic Data: ALSYK.ClientServices@alsglobal.com

Attention: Oliver Gregg

ALS Sample ID	Client ID	Matrix	Container Type	Test Codes	Method Description	Due Date	Sampling Date and Time	Remarks
1 YL2101054-001	BRP-35-1	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	16/08/2021 09:30	
2 YL2101054-002	BRP-35-2	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	16/08/2021 11:05	
3 YL2101054-003	BRP-35-3	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	16/08/2021 13:25	
4 YL2101054-004	BRP-35-4	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	16/08/2021 14:40	
5 YL2101054-005	BRP-35-5	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	16/08/2021 12:15	
6 YL2101054-006	BRP-36-1	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	14/08/2021 12:45	
7 YL2101054-007	BRP-36-2	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	14/08/2021 13:50	
8 YL2101054-008	BRP-36-3	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	14/08/2021 14:30	
9 YL2101054-009	BRP-36-4	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	14/08/2021 15:30	
10 YL2101054-010	BRP-36-5	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	14/08/2021 11:05	
11 YL2101054-011	BRP-QC-1	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	15/08/2021 09:30	
12 YL2101054-012	FB	Water	HDPE total (nitric acid)	RA226-MMER	Radium-226 by Radon Emanation	24-08-2021	15/08/2021 17:20	



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS BURNABY Workorder No: 2108505
 Project Manager: KMB Initials: CXT Date: 08/25/2021

	N/A	YES	NO
1. Are airbills / shipping documents present and/or removable?		X	
Tracking number: 82 8565 8474/ 82 8565 8474/ 82 8565 8474			
2. Are custody seals on shipping containers intact?	X		
3. Are custody seals on sample containers intact?	X		
4. Is there a COC (chain-of-custody) present?		X	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		X	
6. Are short-hold samples present?		X	
7. Are all samples within holding times for the requested analyses?		X	
8. Were all sample containers received intact? (not broken or leaking)		X	
9. Is there sufficient sample for the requested analyses?		X	
10. Are samples in proper containers for requested analyses? (form 250, <i>Sample Handling Guidelines</i>)		X	
11. Are all aqueous samples preserved correctly, if required? (excluding volatiles)		X	
12. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm (1/4 inch) diameter? (i.e. size of green pea)	X		
13. Were the samples shipped on ice?			X
14. Were cooler temperatures measured at 0.1-6.0°C?	IR gun used*: #5		RAD ONLY
Cooler #: <u>1</u> <u>2</u> <u>3</u> _____ Temperature (°C): <u>AMB</u> <u>AMB</u> <u>AMB</u> _____ # of custody seals on cooler: <u>0</u> <u>0</u> <u>0</u> _____ External µR/hr reading: <u>11</u> <u>11</u> <u>10</u> _____ Background µR/hr reading: <u>11</u> _____ Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES (If no, see Form 008.)			

* Please provide details here for NO responses to boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

Were unpreserved bottles pH checked? NA All client bottle ID's vs ALS lab ID's double-checked by: CT

If applicable, was the client contacted? NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: Kelley Buryas 9/7/21

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-001

Lab ID: 2108505-1

Legal Location:

Matrix: WATER

Collection Date: 8/16/2021 09:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0016 (+/- 0.0048)

U

0.0086 BQ/l

NA

9/28/2021 13:05

Carr: BARIUM

73.6

40-110 %REC

DL = NA

9/28/2021 13:05

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-002

Lab ID: 2108505-2

Legal Location:

Matrix: WATER

Collection Date: 8/16/2021 11:05

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0 (+/- 0.0054)

U,M

0.011

BQ/l

NA

9/28/2021 13:05

Carr: BARIUM

59.1

40-110 %REC

DL = NA

9/28/2021 13:05

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-003

Lab ID: 2108505-3

Legal Location:

Matrix: WATER

Collection Date: 8/16/2021 13:25

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0051 (+/- 0.0049)

U

0.0074 BQ/l

NA

9/28/2021 13:05

Carr: BARIUM

91

40-110 %REC

DL = NA

9/28/2021 13:05

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-004

Lab ID: 2108505-4

Legal Location:

Matrix: WATER

Collection Date: 8/16/2021 14:40

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0017 (+/- 0.0041)

U

0.0072 BQ/l

NA

9/28/2021 13:05

Carr: BARIUM

88.4

40-110 %REC

DL = NA

9/28/2021 13:05

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-005

Lab ID: 2108505-5

Legal Location:

Matrix: WATER

Collection Date: 8/16/2021 12:15

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.00098 (+/- 0.0034)

U

0.0064 BQ/l

NA

9/28/2021 01:53

Carr: BARIUM

80.9

40-110 %REC

DL = NA

9/28/2021 01:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-006

Lab ID: 2108505-6

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 12:45

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0011 (+/- 0.0033)

U

0.0059 BQ/l

NA

9/28/2021 01:53

Carr: BARIUM

89.1

40-110 %REC

DL = NA

9/28/2021 01:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-007

Lab ID: 2108505-7

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 13:50

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0046 (+/- 0.0057)

U

0.0091 BQ/l

NA

9/28/2021 01:53

Carr: BARIUM

76.8

40-110 %REC

DL = NA

9/28/2021 01:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-008

Lab ID: 2108505-8

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 14:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1			SOP 783		Prep Date: 9/16/2021	PrepBy: TRB
Ra-226	0.0088 (+/- 0.0058)		0.007	BQ/l	NA	9/28/2021 01:53
Carr: <i>BARIUM</i>	82.2		40-110	%REC	DL = NA	9/28/2021 01:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-009

Lab ID: 2108505-9

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 15:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0043 (+/- 0.0045)

U

0.0068 BQ/l

NA

9/28/2021 01:53

Carr: BARIUM

89.6

40-110 %REC

DL = NA

9/28/2021 01:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-010

Lab ID: 2108505-10

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 11:05

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0023 (+/- 0.0043)

U

0.0074 BQ/l

NA

9/29/2021 10:53

Carr: BARIUM

71.9

40-110 %REC

DL = NA

9/29/2021 10:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-011

Lab ID: 2108505-11

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 09:30

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	-----------------	-------	--------------------	---------------

Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226 0.0041 (+/- 0.0032)**0.0033 BQ/l**

NA

9/29/2021 10:53

Carr: BARIUM

81.5

40-110 %REC

DL = NA

9/29/2021 10:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-012

Lab ID: 2108505-12

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 17:20

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Radium-226 by Radon Emanation - Method 903.1**SOP 783**

Prep Date: 9/16/2021

PrepBy: TRB

Ra-226	0.0037 (+/- 0.0037)	Y1,U	0.0055	BQ/l	NA	9/29/2021 10:53
Carr: BARIUM	101	Y1	40-110	%REC	DL = NA	9/29/2021 10:53

Client: ALS Environmental

Date: 30-Sep-21

Project: YL2101054

Work Order: 2108505

Sample ID: YL2101054-012

Lab ID: 2108505-12

Legal Location:

Matrix: WATER

Collection Date: 8/14/2021 17:20

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers**Radiochemistry:**

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:

- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

ALS -- Fort Collins

Date: 9/30/2021 1:44:

Client: ALS Environmental

QC BATCH REPORT

Work Order: 2108505

Project: YL2101054

Batch ID: RE210916-7-1

Instrument ID Alpha Scin

Method: Radium-226 by Radon Emanation

LCS	Sample ID: RE210916-7			Units: BQ/I			Analysis Date: 9/29/2021 14:32				
Client ID:	Run ID: RE210916-7A						Prep Date: 9/16/2021		DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-226	1.93 (+/- 0.482)	0.0167	1.718		112	67-120					P,M3
Carr: BARIUM	15000		15320		97.8	40-110					

LCSD	Sample ID: RE210916-7			Units: BQ/I			Analysis Date: 9/29/2021 14:32				
Client ID:	Run ID: RE210916-7A						Prep Date: 9/16/2021		DF: NA		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-226	2.14 (+/- 0.537)	0.0167	1.718		125	67-120		1.93	0.3	2.1	H,Y1,M3
Carr: BARIUM	15600		15320		102	40-110		15000			Y1

MB	Sample ID: RE210916-7				Units: BQ/I		Analysis Date: 9/29/2021 11:37				
Client ID:	Run ID: RE210916-7A				Prep Date: 9/16/2021			DF: NA			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref	DER	DER Limit	Qual
Ra-226	0.0017 (+/- 0.0025)	0.004									Y1,U
Carr: BARIUM	15400		15320		100	40-110					Y1

The following samples were analyzed in this batch:

2108505-1	2108505-2	2108505-3
2108505-4	2108505-5	2108505-6
2108505-7	2108505-8	2108505-9
2108505-10	2108505-11	2108505-12



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COC Number: 1

Page 1 of 1

Contract and company name below will appear on the final report				Report Format / Distribution																																																																																																																																																																																			
Report To Company: Godder Associates Ltd Contact: Zorova Craciunescu Phone: 780-222-0587 (cell) Company address below will appear on the final report Street: 16820 107 Ave NW City/Province: Edmonton, AB Postal Code: T5P 4C3				Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDO (DIGITAL) Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: ZCraciunescu@godder.com Email 2: KSerben@godder.com Email 3: mkeefe@sabinagoldsilver.com																																																																																																																																																																																			
Invoice To Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Company: Sabina Gold And Silver Corp Contact: Merle Keele (504 998 4190) mkeefe@sabinagoldsilver.com Project Information ALS Account # / Quote #: Y1202ISABI10000001_V2 Job #: 20412211/2500/2520 PO / AFE: Major/Minor Code: Routing Code: LSD: Sabina Facility Code: 176233659 Location:				Select Invoice Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: mkeefe@sabinagoldsilver.com Email 2: ZCraciunescu@godder.com Email 3: KSerben@godder.com Invoice Distribution																																																																																																																																																																																			
ALS Lab Work Order # (lab use only): Y12101054				ALS Contact: Oliver Gregg Sampler:																																																																																																																																																																																			
Sample Identification and/or Coordinates (This description will appear on the report)				NUMBER OF CONTAINERS																																																																																																																																																																																			
BRP-35-1 BRP-35-2 BRP-35-3 BRP-35-4 BRP-35-5				<table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <tr> <th colspan="12">Indicate Filled (F), Preserved (P) or Filled and Preserved (F/P) below</th> </tr> <tr> <th></th> <th>P</th> <th>F/P</th> <th>F</th> <th>F</th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>F</th> <th></th> <th></th> </tr> <tr> <td>Routine (including organic phosphorus, reactive silica)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total Nutrients (including total nitrogen)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dissolved Nutrients (including DOC)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total Ultra Metals</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dissolved Ultra Metals</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total Mercury (low level)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Dissolved Mercury (low level)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total Sulfide</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cyanide (total, free, and WAD cyanide)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Radium_226</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TDS (measured and calculated)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Chlorophyll a (see attached)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>												Indicate Filled (F), Preserved (P) or Filled and Preserved (F/P) below													P	F/P	F	F	P	P	P	P	F			Routine (including organic phosphorus, reactive silica)												Total Nutrients (including total nitrogen)												Dissolved Nutrients (including DOC)												Total Ultra Metals												Dissolved Ultra Metals												Total Mercury (low level)												Dissolved Mercury (low level)												Total Sulfide												Cyanide (total, free, and WAD cyanide)												Radium_226												TDS (measured and calculated)												Chlorophyll a (see attached)											
Indicate Filled (F), Preserved (P) or Filled and Preserved (F/P) below																																																																																																																																																																																							
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Environmental Division Yellowknife Work Order Reference YL2101054				SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: _____																																																																																																																																																																																			
SHIPMENT RELEASE (client use) Released by: Emily Huley Date: 17-Aug-21 Time: 18:30 INITIAL SHIPMENT RECEPTION (lab use only) Received by: MAF Date: Aug 17/21 Time: 16:46				WHITE - LABORATORY COPY YELLOW - CLIENT COPY FINAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: _____ Time: _____																																																																																																																																																																																			

1. The first line of the document is a header line, which is a line of text that appears at the top of the page. It is a line of text that is not part of the main body of the document. It is a line of text that is not part of the main body of the document.

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5. The fifth line of the document is a header line, which is a line of text that appears at the top of the page. It is a line of text that is not part of the main body of the document. It is a line of text that is not part of the main body of the document.



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COC Number: 1

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Report To		Contact and company name below will appear on the final report.	
Company:	Golden Associates Ltd.	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDO (DIGITAL)
Contact:	Zenovia Creacinescu	Quality Control (QC) Report with Report	<input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Phone:	780-222-0587 (cell)	Compare Results to Criteria on Report - provide details below if box checked	
Street:	16820 107 Ave NW	Select Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX
City/Province:	Edmonton, AB	Email 1 or Fax:	ZCraclunescu@golder.com
Postal Code:	T5P 4C3	Email 2:	KSerbeni@golder.com
Invoice To:	Same as Report To	Email 3:	mkeefe@sabinagoldsilver.com
Copy of Invoice with Report	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Select Invoice Distribution:	
Company:	Sabina Gold And Silver Corp	Invoice Distribution	
Contact:	Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com		
Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	YL2021SAB110000001_v2	A/E/Cost Center:	P0#
Job #:	2041221/2500/2520	Routing Code:	
PO / A/E:		Major/Minor Code:	
LSD:	Sabina Facility Code: 176233659	Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Oliver Gregg
Sample Identification and/or Coordinates		Date	(dd-mm-yy)
Time	(hh:mm)	Sample Type	
NUMBER OF CONTAINERS			
Indicate Filled (F), Preserved (P) or Filled and Preserved (FP) below			
Routine (including organic phosphorus, reactive silica)			
Total Nutrients (including total nitrogen)			
Dissolved Nutrients (including DOC)			
Total Ultra Metals			
Dissolved Ultra Metals			
Total Mercury (low level)			
Dissolved Mercury (low level)			
Total Sulfide			
Cyanide (total, free, and Y&D cyanide)			
Radium, 226			
TDS (measured and calculated)			
Chlorophyll a (see attached)			
Samples for Archive			
SUSPECTED HAZARD (see Special Instructions)			
Analysis Request			
For tests that cannot be performed according to the service level selected, you will be contacted.			
Date and Time Required for all E&P TATs:			
1 Business day [E - 100%]			
Same Day, Weekend or Statutory holiday [E2 - 200%]			
Laboratory opening fees may apply]			
4 day [P4-20%]			
3 day [P3-25%]			
2 day [P2-50%]			
Regular [R]			
Standard TAT if received by 3 pm - business days - no surcharges apply			
Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Report Format / Distribution			
Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDO (DIGITAL)			
Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Compare Results to Criteria on Report - provide details below if box checked			
Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			
Email 1 or Fax: ZCraclunescu@golder.com			
Email 2: KSerbeni@golder.com			
Email 3: mkeefe@sabinagoldsilver.com			
Invoice Distribution			
Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
Company: Sabina Gold And Silver Corp			
Contact: Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com			
Project Information			
ALS Account # / Quote #:			
Job #:			
PO / A/E:			
LSD:			
ALS Lab Work Order # (lab use only):			
Sample Identification and/or Coordinates			
Date			
Time			
Sample Type			
BPP-36-1			
16-Aug-21			
9:30			
Water			
BPP-36-2			
16-Aug-21			
11:05			
Water			
BPP-36-3			
16-Aug-21			
14:30			
Water			
BPP-36-4			
16-Aug-21			
15:30			
Water			
BPP-36-5			
16-Aug-21			
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16-Aug-21			
13:50			
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BPP-36-24			
16-Aug-21			
14:30			
Water			
BPP-36-25			
16-Aug-21			
15:30			
Water			
BPP-36-26			
16-Aug-21			
11:05			
Water			
BPP-36-27			
16-Aug-21			
9:30			
Water			
BPP-36-28			
16-Aug-21			
11:05			
Water			
BPP-36-29			
16-Aug-21			
13:25			
Water			
BPP-36-30			
16-Aug-21			
14:40			
Water			
BPP-36-31			
16-Aug-21			
12:15			
Water			
BPP-36-32			
16-Aug-21			
12:45			
Water			
BPP-36-33			
16-Aug-21			
13:50			
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BPP-36-34			
16-Aug-21			
14:30			
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BPP-36-35			
16-Aug-21			
15:30			
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BPP-36-36			
16-Aug-21			
11:05			
Water			
BPP-36-37			
16-Aug-21			
9:30			
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BPP-36-38			
16-Aug-21			
11:05			
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BPP-36-39			
16-Aug-21			
13:25			
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BPP-36-40			
16-Aug-21			
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Water			
BPP-36-41			
16-Aug-21			
12:15			
Water			
BPP-36-42			
16-Aug-21			
12:45			
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BPP-36-43			
16-Aug-21			
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BPP-36-44			
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16-Aug-21			
15:30			
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16-Aug-21			
11:05			
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BPP-36-47			
16-Aug-21			
9:30			
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BPP-36-48			
16-Aug-21			
11:05			
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16-Aug-21			
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16-Aug-21			
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16-Aug-21			
12:15			
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16-Aug-21			
11:05			
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BPP-36-141			
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BPP-36-146			
16-Aug-21			
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BPP-36-147			
16-Aug-21			
9:30			
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16-Aug-21			
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BPP-36-149			
16-Aug-21			

1. The first line of the document is a header line.

2. The second line of the document is a header line.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 1

Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																																																																																																																						
Company: Golder Associates Ltd.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																																																																																																																						
Contact: Zenovia Craciunescu		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		PRIORITY (Business Days)				EMERGENCY																																																																																																																																		
Phone: 780-222-0587 (cell)		<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		4 day [P4-20%] <input type="checkbox"/>				1 Business day [E - 100%] <input type="checkbox"/>																																																																																																																																		
Company address below will appear on the final report		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		3 day [P3-25%] <input type="checkbox"/>				Same Day, Weekend or Statutory holiday [E2 - 200% (Laboratory opening fees may apply)] <input type="checkbox"/>																																																																																																																																		
Street: 16820 107 Ave NW		Email 1 or Fax: ZCraciunescu@golder.com		2 day [P2-50%] <input type="checkbox"/>																																																																																																																																						
City/Province: Edmonton, AB		Email 2: KSerben@golder.com		Date and Time Required for all E&P TATs:																																																																																																																																						
Postal Code: T5P 4C3		Email 3: mkeefe@sabinagoldsilver.com		For tests that cannot be performed according to the service level selected, you will be contacted.																																																																																																																																						
Invoice To Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Invoice Distribution		Analysis Request																																																																																																																																						
Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																																																																						
Company: Sabina Gold And Silver Corp		Email 1 or Fax: mkeefe@sabinagoldsilver.com		<table border="1"> <tr> <th></th> <th>P</th> <th>F/P</th> <th>F</th> <th>F</th> <th>P</th> <th>P</th> <th>P</th> <th>F</th> <th></th> <th></th> <th></th> </tr> <tr> <td rowspan="10">NUMBER OF CONTAINERS Routine (including organic phosphorus, reactive silica) Total Nutrients (including total nitrogen) Dissolved Nutrients (including DOC) Total Ultra Metals Dissolved Ultra Metals Total Mercury (low level) Dissolved Mercury (low level) Total Sulfide Cyanide (total, free, and WAD cyanide) Radium-226 TDS (measured and calculated) Chlorophyll a (see attached)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>													P	F/P	F	F	P	P	P	F				NUMBER OF CONTAINERS Routine (including organic phosphorus, reactive silica) Total Nutrients (including total nitrogen) Dissolved Nutrients (including DOC) Total Ultra Metals Dissolved Ultra Metals Total Mercury (low level) Dissolved Mercury (low level) Total Sulfide Cyanide (total, free, and WAD cyanide) Radium-226 TDS (measured and calculated) Chlorophyll a (see attached)																																																																																																														
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Contact: Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com		Email 2: ZCraciunescu@golder.com																																																																																																																																								
Project Information		Oil and Gas Required Fields (client use)		Samples for Archive SUSPECTED HAZARD (see Special Instructions)																																																																																																																																						
ALS Account # / Quote #: YL2021SAB1000001_v2		AFE/Cost Center: PO#																																																																																																																																								
Job #: 20412211/2500/2520		Major/Minor Code: Routing Code:																																																																																																																																								
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LSD: Sabina Facility Code: 176233659		Location:																																																																																																																																								
ALS Lab Work Order # (lab use only):		ALS Contact: Oliver Gregg		Sampler:																																																																																																																																						
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type																																																																																																																																						
BRP-35-1		15-Aug-21	9:30	Water																																																																																																																																						
BRP-35-2		15-Aug-21	11:05	Water																																																																																																																																						
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BRP-35-6		14-Aug-21	12:45	Water																																																																																																																																						
BRP-35-7		14-Aug-21	13:50	Water																																																																																																																																						
BRP-35-8		14-Aug-21	14:30	Water																																																																																																																																						
BRP-35-9		14-Aug-21	15:30	Water																																																																																																																																						
BRP-35-10		14-Aug-21	11:05	Water																																																																																																																																						
BRP-QC-1		15-Aug-21	9:30	Water																																																																																																																																						
FB		15-Aug-21	17:20	Water																																																																																																																																						
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)																																																																																																																																						
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Samples marked archive long term - please hold for a minimum of 120 days or until further notice.		Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																																						
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				Ice Packs <input type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																																																																						
				Cooling Initiated <input type="checkbox"/>																																																																																																																																						
				INITIAL COOLER TEMPERATURES °C: 0.8 FINAL COOLER TEMPERATURES °C:																																																																																																																																						
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)																																																																																																																																						
Released by: Emily Hulley Date: 17-Aug-21 Time:		Received by: [Signature] Date: Aug 17/21 Time: 16:40		Received by: Date: Time:																																																																																																																																						

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

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

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NOV 2018 FRONT

1. *Staphylococcus aureus*
 2. *Staphylococcus aureus*
 3. *Staphylococcus aureus*
 4. *Staphylococcus aureus*
 5. *Staphylococcus aureus*
 6. *Staphylococcus aureus*
 7. *Staphylococcus aureus*
 8. *Staphylococcus aureus*
 9. *Staphylococcus aureus*
 10. *Staphylococcus aureus*

CERTIFICATE OF ANALYSIS

Work Order : **YL2101055**
Client : **Sabina Gold & Silver Corporation**
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2500/2520
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Sediment and Water Samples
No. of samples received : 11
No. of samples analysed : 11

Page : 1 of 8
Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 17-Aug-2021 16:40
Date Analysis Commenced : 20-Aug-2021
Issue Date : 26-Aug-2021 15:38

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Ashley Harris	Laboratory Assistant	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan



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).

<i>Unit</i>	<i>Description</i>
%	percent
mg/kg	milligrams per kilogram
pH units	pH units

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Sediment

Client sample ID

(Matrix: Soil/Solid)

					BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5
Client sampling date / time					16-Aug-2021 10:20	16-Aug-2021 11:30	16-Aug-2021 12:55	16-Aug-2021 13:55	16-Aug-2021 15:10
Analyte	CAS Number	Method	LOR	Unit	YL2101055-001	YL2101055-002	YL2101055-003	YL2101055-004	YL2101055-005
					Result	Result	Result	Result	Result
Physical Tests									
pH (1:2 soil:water)	----	E108	0.10	pH units	6.04	5.83	5.15	5.41	5.48
Particle Size									
clay (<0.004mm)	----	EC184E	1.0	%	2.6	7.4	9.7	4.0	7.5
silt (0.063mm - 0.004mm)	----	EC184E	1.0	%	49.7	68.5	74.9	54.0	71.9
sand (0.2mm - 0.063mm)	----	EC184E	1.0	%	30.2	12.6	9.5	17.5	12.4
sand (2.0mm - 0.2mm)	----	EC184E	1.0	%	16.6	11.1	5.5	24.3	8.2
sand (2.0mm - 0.063mm)	----	EC184E	1.0	%	46.8	23.7	15.0	41.8	20.6
gravel (>2mm)	----	EC184E	1.0	%	<1.0	<1.0	<1.0	<1.0	<1.0
Anions and Nutrients									
nitrogen, total	7727-37-9	E366	0.020	%	0.178	0.388	0.421	0.393	0.429
Organic / Inorganic Carbon									
carbon, total [TC]	----	E351	0.050	%	2.10	4.53	5.00	4.54	5.01
carbon, inorganic [IC]	----	E354	0.050	%	<0.050	0.056	0.061	<0.050	0.059
carbon, inorganic [IC], (as CaCO ₃ equivalent)	----	E354	0.40	%	<0.40	0.47	0.51	<0.40	0.50
carbon, total organic [TOC]	----	EC356	0.050	%	2.10	4.47	4.94	4.54	4.95
organic matter	----	EC356	0.10	%	3.62	7.71	8.52	7.83	8.53
Metals									
aluminum	7429-90-5	E440	50	mg/kg	5110	6500	7770	6180	6970
antimony	7440-36-0	E440	0.10	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
arsenic	7440-38-2	E440	0.10	mg/kg	3.15	3.18	5.18	3.44	3.46
barium	7440-39-3	E440	0.50	mg/kg	35.0	50.9	51.8	41.1	49.5
beryllium	7440-41-7	E440	0.10	mg/kg	0.20	0.24	0.29	0.24	0.26
bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
cadmium	7440-43-9	E440	0.020	mg/kg	0.073	0.230	0.234	0.211	0.218
calcium	7440-70-2	E440	50	mg/kg	2010	2520	2430	2070	2480
chromium	7440-47-3	E440	0.50	mg/kg	15.6	24.4	31.3	21.5	21.9
cobalt	7440-48-4	E440	0.10	mg/kg	5.61	7.23	10.9	8.35	8.46
copper	7440-50-8	E440	0.50	mg/kg	21.2	33.6	40.2	28.6	34.4
iron	7439-89-6	E440	50	mg/kg	8570	8600	11800	8760	9260



Analytical Results

Sub-Matrix: Sediment

Client sample ID

(Matrix: Soil/Solid)

					BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5
Client sampling date / time					16-Aug-2021 10:20	16-Aug-2021 11:30	16-Aug-2021 12:55	16-Aug-2021 13:55	16-Aug-2021 15:10
Analyte	CAS Number	Method	LOR	Unit	YL2101055-001	YL2101055-002	YL2101055-003	YL2101055-004	YL2101055-005
					Result	Result	Result	Result	Result
Metals									
lead	7439-92-1	E440	0.50	mg/kg	2.69	3.93	3.90	3.01	3.93
lithium	7439-93-2	E440	2.0	mg/kg	7.8	8.9	9.1	9.1	9.0
magnesium	7439-95-4	E440	20	mg/kg	2210	2730	2940	2790	2810
manganese	7439-96-5	E440	1.0	mg/kg	69.5	83.4	105	85.2	96.1
mercury	7439-97-6	E510	0.0050	mg/kg	0.0214	0.0393	0.0371	0.0290	0.0412
molybdenum	7439-98-7	E440	0.10	mg/kg	0.28	0.36	0.62	0.32	0.34
nickel	7440-02-0	E440	0.50	mg/kg	22.4	33.7	40.7	31.7	33.5
phosphorus	7723-14-0	E440	50	mg/kg	429	594	621	537	593
potassium	7440-09-7	E440	100	mg/kg	470	580	600	540	600
selenium	7782-49-2	E440	0.20	mg/kg	<0.20	0.22	0.27	<0.20	<0.20
silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0.11	<0.10	<0.10
sodium	7440-23-5	E440	50	mg/kg	108	126	154	121	136
strontium	7440-24-6	E440	0.50	mg/kg	10.1	14.3	14.5	11.1	13.8
sulfur	7704-34-9	E440	1000	mg/kg	<1000	1000	1600	<1000	1300
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	0.062	0.087	0.069	0.065
tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
titanium	7440-32-6	E440	1.0	mg/kg	216	257	267	264	277
tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
uranium	7440-61-1	E440	0.050	mg/kg	0.618	0.848	0.971	0.728	0.878
vanadium	7440-62-2	E440	0.20	mg/kg	18.8	22.8	27.8	21.2	23.4
zinc	7440-66-6	E440	2.0	mg/kg	32.1	43.6	55.0	47.7	48.3
zirconium	7440-67-7	E440	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0

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



Analytical Results

Sub-Matrix: Sediment

Client sample ID

(Matrix: Soil/Solid)					BRP-QC-1	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4
Client sampling date / time					16-Aug-2021 10:20	15-Aug-2021 11:10	15-Aug-2021 12:05	15-Aug-2021 12:45	15-Aug-2021 13:25
Analyte	CAS Number	Method	LOR	Unit	YL2101055-006	YL2101055-007	YL2101055-008	YL2101055-009	YL2101055-010
					Result	Result	Result	Result	Result
Physical Tests									
pH (1:2 soil:water)	----	E108	0.10	pH units	6.00	5.79	5.31	5.60	5.72
Particle Size									
clay (<0.004mm)	----	EC184E	1.0	%	2.9	8.6	7.2	6.2	2.7
silt (0.063mm - 0.004mm)	----	EC184E	1.0	%	51.9	65.3	73.4	65.0	54.6
sand (0.2mm - 0.063mm)	----	EC184E	1.0	%	28.3	13.2	16.0	23.0	29.7
sand (2.0mm - 0.2mm)	----	EC184E	1.0	%	16.2	12.9	3.3	5.8	13.0
sand (2.0mm - 0.063mm)	----	EC184E	1.0	%	44.6	26.1	19.3	28.8	42.7
gravel (>2mm)	----	EC184E	1.0	%	<1.0	<1.0	<1.0	<1.0	<1.0
Anions and Nutrients									
nitrogen, total	7727-37-9	E366	0.020	%	0.178	0.406	0.478	0.423	0.256
Organic / Inorganic Carbon									
carbon, total [TC]	----	E351	0.050	%	2.06	4.88	5.90	5.05	3.07
carbon, inorganic [IC]	----	E354	0.050	%	<0.050	0.074	0.064	0.058	<0.050
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%	<0.40	0.62	0.54	0.49	<0.40
carbon, total organic [TOC]	----	EC356	0.050	%	2.06	4.81	5.84	4.99	3.07
organic matter	----	EC356	0.10	%	3.55	8.29	10.1	8.60	5.29
Metals									
aluminum	7429-90-5	E440	50	mg/kg	4200	9700	9030	7610	5650
antimony	7440-36-0	E440	0.10	mg/kg	<0.10	<0.10	0.10	<0.10	<0.10
arsenic	7440-38-2	E440	0.10	mg/kg	2.64	9.15	44.3	13.2	9.91
barium	7440-39-3	E440	0.50	mg/kg	29.1	46.6	57.5	51.1	45.6
beryllium	7440-41-7	E440	0.10	mg/kg	0.14	0.47	0.54	0.39	0.29
bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20
boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
cadmium	7440-43-9	E440	0.020	mg/kg	0.062	0.242	0.719	0.477	0.331
calcium	7440-70-2	E440	50	mg/kg	1610	1580	1660	1930	1480
chromium	7440-47-3	E440	0.50	mg/kg	15.6	31.0	31.9	26.3	17.3
cobalt	7440-48-4	E440	0.10	mg/kg	4.60	17.4	64.3	21.6	33.3
copper	7440-50-8	E440	0.50	mg/kg	16.7	64.5	80.9	52.7	33.6
iron	7439-89-6	E440	50	mg/kg	7050	22800	77000	25800	21500
lead	7439-92-1	E440	0.50	mg/kg	2.22	4.26	6.08	5.51	3.92



Analytical Results

Sub-Matrix: Sediment

(Matrix: Soil/Solid)

					Client sample ID	BRP-QC-1	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4
					Client sampling date / time	16-Aug-2021 10:20	15-Aug-2021 11:10	15-Aug-2021 12:05	15-Aug-2021 12:45	15-Aug-2021 13:25
Analyte	CAS Number	Method	LOR	Unit	YL2101055-006	YL2101055-007	YL2101055-008	YL2101055-009	YL2101055-010	
					Result	Result	Result	Result	Result	
Metals										
lithium	7439-93-2	E440	2.0	mg/kg	6.2	8.1	5.8	6.7	6.0	
magnesium	7439-95-4	E440	20	mg/kg	1890	2580	2230	2430	1850	
manganese	7439-96-5	E440	1.0	mg/kg	58.1	186	555	197	571	
mercury	7439-97-6	E510	0.0050	mg/kg	0.0187	0.0383	0.0558	0.0526	0.0275	
molybdenum	7439-98-7	E440	0.10	mg/kg	0.27	1.42	1.58	1.04	0.68	
nickel	7440-02-0	E440	0.50	mg/kg	19.6	61.6	99.2	52.0	58.6	
phosphorus	7723-14-0	E440	50	mg/kg	429	638	620	574	373	
potassium	7440-09-7	E440	100	mg/kg	390	560	520	550	420	
selenium	7782-49-2	E440	0.20	mg/kg	<0.20	0.38	0.53	0.34	0.21	
silver	7440-22-4	E440	0.10	mg/kg	<0.10	0.11	0.11	<0.10	<0.10	
sodium	7440-23-5	E440	50	mg/kg	96	95	103	122	104	
strontium	7440-24-6	E440	0.50	mg/kg	8.33	11.0	10.6	12.2	9.36	
sulfur	7704-34-9	E440	1000	mg/kg	<1000	1000	1700	1000	<1000	
thallium	7440-28-0	E440	0.050	mg/kg	<0.050	0.078	0.204	0.114	0.105	
tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0	
titanium	7440-32-6	E440	1.0	mg/kg	202	177	179	194	166	
tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	
uranium	7440-61-1	E440	0.050	mg/kg	0.528	1.44	1.24	1.04	0.723	
vanadium	7440-62-2	E440	0.20	mg/kg	15.4	34.4	37.1	32.4	22.8	
zinc	7440-66-6	E440	2.0	mg/kg	25.6	73.0	121	76.1	58.4	
zirconium	7440-67-7	E440	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	

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



Analytical Results

Sub-Matrix: Sediment

Client sample ID

BRP-36-5

(Matrix: Soil/Solid)

Client sampling date / time

15-Aug-2021
09:25

Analyte	CAS Number	Method	LOR	Unit	YL2101055-011	Result	----	----	----	----
Physical Tests										
pH (1:2 soil:water)	----	E108	0.10	pH units	5.63	----	----	----	----	----
Particle Size										
clay (<0.004mm)	----	EC184E	1.0	%	15.2	----	----	----	----	----
silt (0.063mm - 0.004mm)	----	EC184E	1.0	%	73.8	----	----	----	----	----
sand (0.2mm - 0.063mm)	----	EC184E	1.0	%	6.3	----	----	----	----	----
sand (2.0mm - 0.2mm)	----	EC184E	1.0	%	4.7	----	----	----	----	----
sand (2.0mm - 0.063mm)	----	EC184E	1.0	%	11.0	----	----	----	----	----
gravel (>2mm)	----	EC184E	1.0	%	<1.0	----	----	----	----	----
Anions and Nutrients										
nitrogen, total	7727-37-9	E366	0.020	%	0.656	----	----	----	----	----
Organic / Inorganic Carbon										
carbon, total [TC]	----	E351	0.050	%	7.81	----	----	----	----	----
carbon, inorganic [IC]	----	E354	0.050	%	0.088	----	----	----	----	----
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%	0.73	----	----	----	----	----
carbon, total organic [TOC]	----	EC356	0.050	%	7.72	----	----	----	----	----
organic matter	----	EC356	0.10	%	13.3	----	----	----	----	----
Metals										
aluminum	7429-90-5	E440	50	mg/kg	13000	----	----	----	----	----
antimony	7440-36-0	E440	0.10	mg/kg	0.14	----	----	----	----	----
arsenic	7440-38-2	E440	0.10	mg/kg	42.8	----	----	----	----	----
barium	7440-39-3	E440	0.50	mg/kg	67.6	----	----	----	----	----
beryllium	7440-41-7	E440	0.10	mg/kg	0.75	----	----	----	----	----
bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	----	----	----	----	----
boron	7440-42-8	E440	5.0	mg/kg	6.5	----	----	----	----	----
cadmium	7440-43-9	E440	0.020	mg/kg	0.949	----	----	----	----	----
calcium	7440-70-2	E440	50	mg/kg	2680	----	----	----	----	----
chromium	7440-47-3	E440	0.50	mg/kg	36.8	----	----	----	----	----
cobalt	7440-48-4	E440	0.10	mg/kg	33.7	----	----	----	----	----
copper	7440-50-8	E440	0.50	mg/kg	101	----	----	----	----	----
iron	7439-89-6	E440	50	mg/kg	57400	----	----	----	----	----
lead	7439-92-1	E440	0.50	mg/kg	6.64	----	----	----	----	----



Analytical Results

Sub-Matrix: Sediment

Client sample ID

(Matrix: Soil/Solid)

					BRP-36-5	----	----	----	----
Client sampling date / time					15-Aug-2021 09:25	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	YL2101055-011	-----	-----	-----	-----
					Result	---	---	---	---
Metals									
lithium	7439-93-2	E440	2.0	mg/kg	7.2	----	----	----	----
magnesium	7439-95-4	E440	20	mg/kg	2510	----	----	----	----
manganese	7439-96-5	E440	1.0	mg/kg	254	----	----	----	----
mercury	7439-97-6	E510	0.0050	mg/kg	0.0788	----	----	----	----
molybdenum	7439-98-7	E440	0.10	mg/kg	2.72	----	----	----	----
nickel	7440-02-0	E440	0.50	mg/kg	79.0	----	----	----	----
phosphorus	7723-14-0	E440	50	mg/kg	816	----	----	----	----
potassium	7440-09-7	E440	100	mg/kg	640	----	----	----	----
selenium	7782-49-2	E440	0.20	mg/kg	0.60	----	----	----	----
silver	7440-22-4	E440	0.10	mg/kg	0.18	----	----	----	----
sodium	7440-23-5	E440	50	mg/kg	122	----	----	----	----
strontium	7440-24-6	E440	0.50	mg/kg	16.6	----	----	----	----
sulfur	7704-34-9	E440	1000	mg/kg	2100	----	----	----	----
thallium	7440-28-0	E440	0.050	mg/kg	0.235	----	----	----	----
tin	7440-31-5	E440	2.0	mg/kg	<2.0	----	----	----	----
titanium	7440-32-6	E440	1.0	mg/kg	195	----	----	----	----
tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	----	----	----	----
uranium	7440-61-1	E440	0.050	mg/kg	1.66	----	----	----	----
vanadium	7440-62-2	E440	0.20	mg/kg	49.5	----	----	----	----
zinc	7440-66-6	E440	2.0	mg/kg	157	----	----	----	----
zirconium	7440-67-7	E440	1.0	mg/kg	<1.0	----	----	----	----

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2101055	Page	: 1 of 12
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 20412211/2500/2520	Date Samples Received	: 17-Aug-2021 16:40
PO	: ----	Issue Date	: 26-Aug-2021 15:38
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Sediment and Water Samples		
No. of samples received	: 11		
No. of samples analysed	: 11		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-35-1	E366	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-35-2	E366	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-35-3	E366	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-35-4	E366	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-35-5	E366	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-QC-1	E366	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✔
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-36-1	E366	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✔



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-36-2	E366	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-36-3	E366	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-36-4	E366	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Nitrogen by Combustion										
LDPE bag BRP-36-5	E366	15-Aug-2021	----	----	----		24-Aug-2021	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-36-1	E510	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-36-2	E510	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-36-3	E510	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-36-4	E510	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-36-5	E510	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-35-1	E510	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-35-2	E510	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-35-3	E510	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-35-4	E510	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-35-5	E510	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap BRP-QC-1	E510	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-36-1	E440	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-36-2	E440	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-36-3	E440	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-36-4	E440	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-36-5	E440	15-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-35-1	E440	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-35-2	E440	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-35-3	E440	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-35-4	E440	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-35-5	E440	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap BRP-QC-1	E440	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-35-1	E351	16-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-35-2	E351	16-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-35-3	E351	16-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-35-4	E351	16-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-35-5	E351	16-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-36-1	E351	15-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-36-2	E351	15-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-36-3	E351	15-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-36-4	E351	15-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag BRP-36-5	E351	15-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Eval	Analysis			
			Preparation Date	Holding Times		Analysis Date		Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Organic / Inorganic Carbon : Total Carbon by Combustion											
LDPE bag BRP-QC-1	E351	16-Aug-2021	----	----	----		24-Aug-2021	180 days	0 days	✓	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-35-1	E354	16-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-35-2	E354	16-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-35-3	E354	16-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-35-4	E354	16-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-35-5	E354	16-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-36-1	E354	15-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-36-2	E354	15-Aug-2021	----	----	----		24-Aug-2021	----	----		
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve											
LDPE bag BRP-36-3	E354	15-Aug-2021	----	----	----		24-Aug-2021	----	----		



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag BRP-36-4	E354	15-Aug-2021	----	----	----		24-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag BRP-36-5	E354	15-Aug-2021	----	----	----		24-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag BRP-QC-1	E354	16-Aug-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-35-1	E108	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-35-2	E108	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-35-3	E108	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-35-4	E108	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-35-5	E108	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-QC-1	E108	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	8 days	✓



Matrix: Soil/Solid

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-36-1	E108	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-36-2	E108	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-36-3	E108	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-36-4	E108	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	9 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap BRP-36-5	E108	15-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	30 days	9 days	✓

Legend & Qualifier Definitions

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Soil/Solid**

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)							
Mercury in Soil/Solid by CVAAS	E510	273944	1	16	6.2	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	273943	1	16	6.2	5.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	274435	1	11	9.0	5.0	✔
Total Carbon by Combustion	E351	274583	2	30	6.6	5.0	✔
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	274613	1	11	9.0	5.0	✔
Total Nitrogen by Combustion	E366	274584	2	16	12.5	5.0	✔
Laboratory Control Samples (LCS)							
Mercury in Soil/Solid by CVAAS	E510	273944	2	16	12.5	10.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	273943	2	16	12.5	10.0	✔
pH by Meter (1:2 Soil:Water Extraction)	E108	274435	2	11	18.1	10.0	✔
Total Carbon by Combustion	E351	274583	4	30	13.3	10.0	✔
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	274613	2	11	18.1	10.0	✔
Total Nitrogen by Combustion	E366	274584	4	16	25.0	10.0	✔
Method Blanks (MB)							
Mercury in Soil/Solid by CVAAS	E510	273944	1	16	6.2	5.0	✔
Metals in Soil/Solid by CRC ICPMS	E440	273943	1	16	6.2	5.0	✔
Total Carbon by Combustion	E351	274583	2	30	6.6	5.0	✔
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	274613	1	11	9.0	5.0	✔
Total Nitrogen by Combustion	E366	274584	2	16	12.5	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 Saskatoon - Environmental	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally $20 \pm 5^{\circ}\text{C}$), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at $<60^{\circ}\text{C}$) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Total Carbon by Combustion	E351 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Total Nitrogen by Combustion	E366 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 22.4	The sample is ignited in a combustion analyzer where nitrogen in the reduced nitrous oxide gas is determined using a thermal conductivity detector.
Metals in Soil/Solid by CRC ICPMS	E440 Saskatoon - Environmental	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl . Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Elemental Sulfur may be poorly recovered by this method. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 Saskatoon - Environmental	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl , followed by CVAAS analysis.
Particle Size Analysis (Pipette) - MMER Classification	EC184E Saskatoon - Environmental	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Page : 12 of 12
 Work Order : YL2101055
 Client : Sabina Gold & Silver Corporation
 Project : 20412211/2500/2520



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 Saskatoon - Environmental	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 Saskatoon - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO ₃ and HCl. This method is intended to liberate metals that may be environmentally available.
Dry and Grind	EPP442 Saskatoon - Environmental	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.



QUALITY CONTROL REPORT

Work Order : **YL2101055**

Page : 1 of 10

Client : Sabina Gold & Silver Corporation
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2500/2520
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Sediment and Water Samples
No. of samples received : 11
No. of samples analysed : 11

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 17-Aug-2021 16:40
Date Analysis Commenced : 20-Aug-2021
Issue Date : 26-Aug-2021 15:38

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
Ashley Harris	Laboratory Assistant	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan

Page : 2 of 10
Work Order : YL2101055
Client : Sabina Gold & Silver Corporation
Project : 20412211/2500/2520



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: Soil/Solid					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: 274435)											
YL2101055-001	BRP-35-1	pH (1:2 soil:water)	----	E108	0.10	pH units	6.04	6.06	0.330%	10%	----
Anions and Nutrients (QC Lot: 274573)											
YL2101051-001	Anonymous	nitrogen, total	7727-37-9	E366	0.020	%	0.691	0.703	1.76%	20%	----
Anions and Nutrients (QC Lot: 274584)											
YL2101055-011	BRP-36-5	nitrogen, total	7727-37-9	E366	0.020	%	0.656	0.655	0.202%	20%	----
Organic / Inorganic Carbon (QC Lot: 274572)											
YL2101051-001	Anonymous	carbon, total [TC]	----	E351	0.050	%	8.75	8.94	2.11%	20%	----
Organic / Inorganic Carbon (QC Lot: 274583)											
YL2101055-011	BRP-36-5	carbon, total [TC]	----	E351	0.050	%	7.81	7.81	0.0376%	20%	----
Organic / Inorganic Carbon (QC Lot: 274613)											
YL2101055-006	BRP-QC-1	carbon, inorganic [IC]	----	E354	0.050	%	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 273943)											
YL2101051-001	Anonymous	aluminum	7429-90-5	E440	50	mg/kg	20700	20800	0.544%	40%	----
		antimony	7440-36-0	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		arsenic	7440-38-2	E440	0.10	mg/kg	6.12	6.22	1.56%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	141	134	5.37%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	1.08	0.98	9.68%	30%	----
		bismuth	7440-69-9	E440	0.20	mg/kg	0.80	0.79	0.01	Diff <2x LOR	----
		boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.020	mg/kg	0.598	0.580	3.21%	30%	----
		calcium	7440-70-2	E440	50	mg/kg	2460	2410	2.04%	30%	----
		chromium	7440-47-3	E440	0.50	mg/kg	56.5	55.1	2.50%	30%	----
		cobalt	7440-48-4	E440	0.10	mg/kg	20.6	20.3	1.44%	30%	----
		copper	7440-50-8	E440	0.50	mg/kg	73.0	72.3	0.878%	30%	----
		iron	7439-89-6	E440	50	mg/kg	34800	34700	0.319%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	7.30	7.28	0.363%	40%	----
		lithium	7439-93-2	E440	2.0	mg/kg	32.1	30.6	4.60%	30%	----
		magnesium	7439-95-4	E440	20	mg/kg	5760	5750	0.0890%	30%	----
		manganese	7439-96-5	E440	1.0	mg/kg	515	500	2.92%	30%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	6.09	6.19	1.58%	40%	----
		nickel	7440-02-0	E440	0.50	mg/kg	47.6	46.6	2.04%	30%	----



Sub-Matrix: Soil/Solid					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
Metals (QC Lot: 273943) - continued											
YL2101051-001	Anonymous	phosphorus	7723-14-0	E440	50	mg/kg	1220	1240	1.50%	30%	----
		potassium	7440-09-7	E440	100	mg/kg	2820	2790	1.04%	40%	----
		selenium	7782-49-2	E440	0.20	mg/kg	0.81	0.81	0.00004	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	0.19	0.19	0.005	Diff <2x LOR	----
		sodium	7440-23-5	E440	50	mg/kg	206	208	2	Diff <2x LOR	----
		strontium	7440-24-6	E440	0.50	mg/kg	18.6	18.8	1.34%	40%	----
		sulfur	7704-34-9	E440	1000	mg/kg	2200	2000	100	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.050	mg/kg	0.241	0.242	0.0006	Diff <2x LOR	----
		tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		titanium	7440-32-6	E440	1.0	mg/kg	389	356	8.67%	40%	----
		tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	12.2	12.3	0.908%	30%	----
		vanadium	7440-62-2	E440	0.20	mg/kg	53.6	52.9	1.28%	30%	----
		zinc	7440-66-6	E440	2.0	mg/kg	118	117	1.000%	30%	----
		zirconium	7440-67-7	E440	1.0	mg/kg	<1.0	<1.0	0	Diff <2x LOR	----
Metals (QC Lot: 273944)											
YL2101051-001	Anonymous	mercury	7439-97-6	E510	0.0055	mg/kg	0.0509	0.0473	7.19%	40%	----



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: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 274573)						
nitrogen, total	7727-37-9	E366	0.02	%	<0.020	----
Anions and Nutrients (QCLot: 274584)						
nitrogen, total	7727-37-9	E366	0.02	%	<0.020	----
Organic / Inorganic Carbon (QCLot: 274572)						
carbon, total [TC]	----	E351	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 274583)						
carbon, total [TC]	----	E351	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 274613)						
carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Metals (QCLot: 273943)						
aluminum	7429-90-5	E440	50	mg/kg	<50	----
antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
boron	7440-42-8	E440	5	mg/kg	<5.0	----
cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
calcium	7440-70-2	E440	50	mg/kg	<50	----
chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
iron	7439-89-6	E440	50	mg/kg	<50	----
lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
lithium	7439-93-2	E440	2	mg/kg	<2.0	----
magnesium	7439-95-4	E440	20	mg/kg	<20	----
manganese	7439-96-5	E440	1	mg/kg	<1.0	----
molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
phosphorus	7723-14-0	E440	50	mg/kg	<50	----
potassium	7440-09-7	E440	100	mg/kg	<100	----
selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
silver	7440-22-4	E440	0.1	mg/kg	<0.10	----



Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 273943) - continued						
sodium	7440-23-5	E440	50	mg/kg	<50	----
strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
tin	7440-31-5	E440	2	mg/kg	<2.0	----
titanium	7440-32-6	E440	1	mg/kg	<1.0	----
tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
zinc	7440-66-6	E440	2	mg/kg	<2.0	----
zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Metals (QCLot: 273944)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----



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: Soil/Solid

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 274435)									
pH (1:2 soil:water)	----	E108	----	pH units	6.86 pH units	99.8	97.0	103	----
Anions and Nutrients (QCLot: 274573)									
nitrogen, total	7727-37-9	E366	0.02	%	22.37 %	99.3	90.0	110	----
Anions and Nutrients (QCLot: 274584)									
nitrogen, total	7727-37-9	E366	0.02	%	22.37 %	102	90.0	110	----
Organic / Inorganic Carbon (QCLot: 274572)									
carbon, total [TC]	----	E351	0.05	%	48 %	99.5	90.0	110	----
Organic / Inorganic Carbon (QCLot: 274583)									
carbon, total [TC]	----	E351	0.05	%	48 %	102	90.0	110	----
Organic / Inorganic Carbon (QCLot: 274613)									
carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	98.7	90.0	110	----
Metals (QCLot: 273943)									
aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	101	80.0	120	----
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	99.3	80.0	120	----
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	102	80.0	120	----
barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	97.3	80.0	120	----
bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	96.3	80.0	120	----
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	98.6	80.0	120	----
calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	99.8	80.0	120	----
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	104	80.0	120	----
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	100	80.0	120	----
iron	7439-89-6	E440	50	mg/kg	100 mg/kg	112	80.0	120	----
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	101	80.0	120	----
lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	98.6	80.0	120	----
magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	104	80.0	120	----
manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	102	80.0	120	----
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	102	80.0	120	----
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	101	80.0	120	----



Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 273943) - continued									
phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	102	80.0	120	----
potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	106	80.0	120	----
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	94.0	80.0	120	----
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	102	80.0	120	----
sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	103	80.0	120	----
strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	101	80.0	120	----
sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	97.2	80.0	120	----
thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	99.6	80.0	120	----
tin	7440-31-5	E440	2	mg/kg	50 mg/kg	97.5	80.0	120	----
titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	101	80.0	120	----
tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	100	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	105	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	104	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	98.5	80.0	120	----
zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	102	80.0	120	----
Metals (QCLot: 273944)									
mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	99.1	80.0	120	----



Reference Material (RM) Report

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

Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method			Low	High	
Physical Tests (QCLot: 274435)									
QC-274435-002	RM	pH (1:2 soil:water)	----	E108	8.13 pH units	98.0	96.0	104	----
Anions and Nutrients (QCLot: 274573)									
QC-274573-003	RM	nitrogen, total	7727-37-9	E366	0.11 %	93.2	80.0	120	----
Anions and Nutrients (QCLot: 274584)									
QC-274584-003	RM	nitrogen, total	7727-37-9	E366	0.11 %	97.3	80.0	120	----
Organic / Inorganic Carbon (QCLot: 274572)									
QC-274572-003	RM	carbon, total [TC]	----	E351	1.4 %	95.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 274583)									
QC-274583-003	RM	carbon, total [TC]	----	E351	1.4 %	104	80.0	120	----
Organic / Inorganic Carbon (QCLot: 274613)									
QC-274613-003	RM	carbon, inorganic [IC]	----	E354	0.383 %	95.4	80.0	120	----
Metals (QCLot: 273943)									
QC-273943-003	RM	aluminum	7429-90-5	E440	9817 mg/kg	95.0	70.0	130	----
QC-273943-003	RM	antimony	7440-36-0	E440	3.99 mg/kg	94.4	70.0	130	----
QC-273943-003	RM	arsenic	7440-38-2	E440	3.73 mg/kg	102	70.0	130	----
QC-273943-003	RM	barium	7440-39-3	E440	105 mg/kg	103	70.0	130	----
QC-273943-003	RM	beryllium	7440-41-7	E440	0.349 mg/kg	89.2	70.0	130	----
QC-273943-003	RM	boron	7440-42-8	E440	8.5 mg/kg	97.2	40.0	160	----
QC-273943-003	RM	cadmium	7440-43-9	E440	0.91 mg/kg	93.3	70.0	130	----
QC-273943-003	RM	calcium	7440-70-2	E440	31082 mg/kg	90.0	70.0	130	----
QC-273943-003	RM	chromium	7440-47-3	E440	101 mg/kg	97.1	70.0	130	----
QC-273943-003	RM	cobalt	7440-48-4	E440	6.9 mg/kg	98.8	70.0	130	----
QC-273943-003	RM	copper	7440-50-8	E440	123 mg/kg	99.7	70.0	130	----
QC-273943-003	RM	iron	7439-89-6	E440	23558 mg/kg	96.9	70.0	130	----
QC-273943-003	RM	lead	7439-92-1	E440	267 mg/kg	97.6	70.0	130	----
QC-273943-003	RM	lithium	7439-93-2	E440	9.5 mg/kg	98.5	70.0	130	----
QC-273943-003	RM	magnesium	7439-95-4	E440	5509 mg/kg	94.5	70.0	130	----
QC-273943-003	RM	manganese	7439-96-5	E440	269 mg/kg	98.2	70.0	130	----
QC-273943-003	RM	molybdenum	7439-98-7	E440	1.03 mg/kg	105	70.0	130	----



Sub-Matrix: Soil/Solid

Sub-Matrix: Soil/Solid					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method			Low	High	
Metals (QCLot: 273943) - continued									
QC-273943-003	RM	nickel	7440-02-0	E440	26.7 mg/kg	99.1	70.0	130	----
QC-273943-003	RM	phosphorus	7723-14-0	E440	752 mg/kg	95.0	70.0	130	----
QC-273943-003	RM	potassium	7440-09-7	E440	1587 mg/kg	98.8	70.0	130	----
QC-273943-003	RM	silver	7440-22-4	E440	4.06 mg/kg	114	70.0	130	----
QC-273943-003	RM	sodium	7440-23-5	E440	797 mg/kg	98.8	70.0	130	----
QC-273943-003	RM	strontium	7440-24-6	E440	86.1 mg/kg	92.7	70.0	130	----
QC-273943-003	RM	thallium	7440-28-0	E440	0.0786 mg/kg	136	40.0	160	----
QC-273943-003	RM	tin	7440-31-5	E440	10.6 mg/kg	93.4	70.0	130	----
QC-273943-003	RM	titanium	7440-32-6	E440	839 mg/kg	90.0	70.0	130	----
QC-273943-003	RM	uranium	7440-61-1	E440	0.52 mg/kg	102	70.0	130	----
QC-273943-003	RM	vanadium	7440-62-2	E440	32.7 mg/kg	95.4	70.0	130	----
QC-273943-003	RM	zinc	7440-66-6	E440	297 mg/kg	94.1	70.0	130	----
QC-273943-003	RM	zirconium	7440-67-7	E440	5.73 mg/kg	104	70.0	130	----
Metals (QCLot: 273944)									
QC-273944-003	RM	mercury	7439-97-6	E510	0.059 mg/kg	104	70.0	130	----

Report To		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)									
Company: Golder Associates Ltd.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)									
Contact: Emily Hulley/Kerrie Serben		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT									
Address: 6925 Century Ave #100, Mississauga, ON L5N 7K2 1721 8 St E, Saskatoon, SK S7H 0T4		<input checked="" type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT									
Phone: 226-332-1171 306-202-7817		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge									
		Email 1 or Fax: Emily.Hulley@golder.com			Specify Date Required for E2,E or P:									
		Email 2: Kerrie.Serben@golder.com												
Invoice To		Invoice Distribution			Analysis Request									
Same as Report To <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below									
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Email 1 or Fax: mkeefe@sabinagoldsilver.com												
Company: Sabina Gold and Silver		Email 2:												
Contact: Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com														
Project Information		Oil and Gas Required Fields (client use)			<div style="display: flex; justify-content: space-between;"> <div> TOC, TC, TIC Metals and mercury pH Total N and P PSA-PIPET+GRAVEL-SK </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Number of Containers</div> </div>									
ALS Bottle Order #:		Approver ID:												
Job #: 20412211/2500/2520		GL Account:												
PO / AFE:		Activity Code:												
LSD:		Location:												
ALS Lab Work Order # (lab use only) YL2101055		ALS Contact: Oliver Gregg			Sampler:									
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	TOC, TC, TIC	Metals and mercury	pH	Total N and P	PSA-PIPET+GRAVEL-SK					
	BRP-35-1	16-Aug-21	10:20	Sediment	R	R	R	R	R					
	BRP-35-2	16-Aug-21	11:30	Sediment	R	R	R	R	R					
	BRP-35-3	16-Aug-21	12:55	Sediment	R	R	R	R	R					
	BRP-35-4	16-Aug-21	13:55	Sediment	R	R	R	R	R					
	BRP-35-5	16-Aug-21	15:10	Sediment	R	R	R	R	R					
	BRP-QC-1	16-Aug-21	10:20	Sediment	R	R	R	R	R					
	BRP-36-1	15-Aug-21	11:10	Sediment	R	R	R	R	R					
	BRP-36-2	15-Aug-21	12:05	Sediment	R	R	R	R	R					
	BRP-36-3	15-Aug-21	12:45	Sediment	R	R	R	R	R					
	BRP-36-4	15-Aug-21	13:25	Sediment	R	R	R	R	R					
	BRP-36-5	15-Aug-21	9:25	Sediment	R	R	R	R	R					
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report (client Use)			SAMPLE CONDITION AS RECEIVED (lab use only)									
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>									
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>									
					Cooling Initiated <input type="checkbox"/>									
					INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C				
					0.8									
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)									
Released by: Emily Hulley		Date: 17-AUG-21 Time: 9:00 AM			Received by: <i>MA</i>					Date: 17/21 Time: 16:40				

Environmental Division
Yellowknife
Work Order Reference
YL2101055



Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order : **YL2101200**
Client : **Sabina Gold & Silver Corporation**
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2700
PO : ----
C-O-C number : 1
Sampler : JVu
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 10
No. of samples analysed : 10

Page : 1 of 4
Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife NT Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 07-Sep-2021 09:15
Date Analysis Commenced : 10-Sep-2021
Issue Date : 17-Sep-2021 08:53

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Jay Jang	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

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

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

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

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

Unit	Description
-	No Unit
mg/L	milligrams per litre

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Water					Client sample ID	PN03	PN04	PN05	PN06	PN07
(Matrix: Water)										
Client sampling date / time										
Analyte	CAS Number	Method	LOR	Unit	YL2101200-001	YL2101200-002	YL2101200-003	YL2101200-004	YL2101200-005	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	4.4	7.5	9.8	4.5	3.6	
solids, total dissolved [TDS]	----	E162	10	mg/L	32	82	54	29	88	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	15.3	51.2	27.4	18.0	50.7	
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	1.61	11.8	5.40	0.56	10.2	
nitrate (as N)	14797-55-8	E235.NO ₃ -L	0.0050	mg/L	0.0074	0.808	0.278	0.0052	0.0096	
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.30	mg/L	6.15	13.5	5.88	9.08	20.4	
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.25	7.99	4.55	2.30	7.60	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.47	4.32	2.47	1.79	4.34	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.340	0.681	0.455	0.371	0.275	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.587	1.16	0.775	0.685	1.25	
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

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



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	GLWB-T	GLWB-B	QC
Client sampling date / time					04-Sep-2021 13:56	04-Sep-2021 14:25	03-Sep-2021 16:45	03-Sep-2021 16:45	04-Sep-2021 13:56	
Analyte	CAS Number	Method	LOR	Unit	YL2101200-006	YL2101200-007	YL2101200-008	YL2101200-009	YL2101200-010	
					Result	Result	Result	Result	Result	
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	7.4	6.8	4.6	4.9	7.2	
solids, total dissolved [TDS]	----	E162	10	mg/L	29	54	30	31	26	
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L	15.4	26.3	17.5	17.5	15.2	
Anions and Nutrients										
chloride	16887-00-6	E235.Cl	0.50	mg/L	0.68	0.88	2.30	2.25	0.68	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0417	0.0071	0.0172	0.0163	0.0414	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.76	12.5	6.55	6.60	4.75	
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.21	3.78	2.56	2.59	2.19	
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.56	2.39	1.58	1.58	1.56	
potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.326	0.359	0.469	0.371	0.332	
sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.583	1.15	0.768	0.620	0.596	
dissolved metals filtration location	----	EP421	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory	

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2101200	Page	: 1 of 10
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 20412211/2700	Date Samples Received	: 07-Sep-2021 09:15
PO	: ----	Issue Date	: 17-Sep-2021 08:53
C-O-C number	: 1		
Sampler	: JVV		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 10		
No. of samples analysed	: 10		

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN05	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN06	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN07	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN08	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN09	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE QC	E235.Cl	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB-B	E235.Cl	03-Sep-2021	----	----	----		10-Sep-2021	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB-T	E235.Cl	03-Sep-2021	----	----	----		10-Sep-2021	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN03	E235.Cl	03-Sep-2021	----	----	----		10-Sep-2021	28 days	7 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN05	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN06	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN07	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN08	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN09	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE QC	E235.NO3-L	04-Sep-2021	----	----	----		10-Sep-2021	3 days	6 days	✖ EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB-B	E235.NO3-L	03-Sep-2021	----	----	----		10-Sep-2021	3 days	7 days	✖ EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB-T	E235.NO3-L	03-Sep-2021	----	----	----		10-Sep-2021	3 days	7 days	✖ EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN03	E235.NO3-L	03-Sep-2021	----	----	----		10-Sep-2021	3 days	7 days	✖ EHTR
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN05	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN06	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN07	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✔
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN08	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN09	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE QC	E235.SO4	04-Sep-2021	----	----	----		10-Sep-2021	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-B	E235.SO4	03-Sep-2021	----	----	----		10-Sep-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-T	E235.SO4	03-Sep-2021	----	----	----		10-Sep-2021	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN03	E235.SO4	03-Sep-2021	----	----	----		10-Sep-2021	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLWB-B	E421	03-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GLWB-T	E421	03-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN03	E421	03-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN04	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN05	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN06	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN07	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN08	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) PN09	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) QC	E421	04-Sep-2021	13-Sep-2021	----	----		13-Sep-2021	180 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN04	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN05	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN06	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓



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

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE PN07	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN08	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN09	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE QC	E290	04-Sep-2021	----	----	----		10-Sep-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-B	E290	03-Sep-2021	----	----	----		10-Sep-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-T	E290	03-Sep-2021	----	----	----		10-Sep-2021	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN03	E290	03-Sep-2021	----	----	----		10-Sep-2021	14 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN08	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN09	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	5 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE QC	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GLWB-B	E162	03-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GLWB-T	E162	03-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN03	E162	03-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN04	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN05	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN06	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN07	E162	04-Sep-2021	----	----	----		10-Sep-2021	7 days	6 days	✓

Legend & Qualifier Definitions

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	288460	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	288456	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	290344	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	288457	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	288458	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	288395	1	19	5.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	288460	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	288456	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	290344	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	288457	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	288458	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	288395	1	19	5.2	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	288460	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	288456	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	290344	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	288457	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	288458	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	288395	1	19	5.2	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	288456	1	10	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	290344	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	288457	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	288458	1	10	10.0	5.0	✓



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.
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.
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.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 μm), 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.
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 μm), and preserved with HNO_3 .

QUALITY CONTROL REPORT

Work Order : **YL2101200**

Page : 1 of 5

Client : Sabina Gold & Silver Corporation
Contact : Merle Keefe
Address : 375 - 555 Burrard St. Box 220, Bentall 2
 Vancouver BC Canada V7X 1M7
Telephone : 604 240 6619
Project : 20412211/2700
PO : ----
C-O-C number : 1
Sampler : JVU
Site : ----
Quote number : 2021 Under-Ice Field Program
No. of samples received : 10
No. of samples analysed : 10

Laboratory : Yellowknife - Environmental
Account Manager : Oliver Gregg
Address : 314 Old Airport Road, Unit 116
 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone : 1 867 446 5593
Date Samples Received : 07-Sep-2021 09:15
Date Analysis Commenced : 10-Sep-2021
Issue Date : 17-Sep-2021 08:53

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Jay Jang	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



General Comments

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

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts 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: 288395)											
FJ2100873-001	Anonymous	solids, total dissolved [TDS]	----	E162	20	mg/L	738	754	2.08%	20%	----
Physical Tests (QC Lot: 288460)											
VA21B9414-001	Anonymous	alkalinity, total (as CaCO ₃)	----	E290	1.0	mg/L	9.2	9.5	0.3	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 288456)											
YL2101200-001	PN03	chloride	16887-00-6	E235.Cl	0.50	mg/L	1.61	1.60	0.005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 288457)											
YL2101200-001	PN03	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0074	0.0074	0.000008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 288458)											
YL2101200-001	PN03	sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	6.15	6.14	0.292%	20%	----
Dissolved Metals (QC Lot: 290344)											
YL2101200-001	PN03	calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.25	2.24	0.469%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.47	1.49	1.86%	20%	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.340	0.356	0.016	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	0.587	0.603	2.66%	20%	----



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: 288395)						
solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 288460)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 288456)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 288457)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 288458)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Dissolved Metals (QCLot: 290344)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----



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: 288395)									
solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	105	85.0	115	----
Physical Tests (QCLot: 288460)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 288456)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 288457)									
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: 288458)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	----
Dissolved Metals (QCLot: 290344)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	95.3	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	97.7	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	98.9	80.0	120	----



Matrix Spike (MS) Report

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

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method						
Anions and Nutrients (QCLot: 288456)										
YL2101200-002	PN04	chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 288457)										
YL2101200-002	PN04	nitrate (as N)	14797-55-8	E235.NO3-L	2.59 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 288458)										
YL2101200-002	PN04	sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	----
Dissolved Metals (QCLot: 290344)										
YL2101200-002	PN04	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		potassium, dissolved	7440-09-7	E421	3.98 mg/L	4 mg/L	99.4	70.0	130	----
		sodium, dissolved	17341-25-2	E421	1.89 mg/L	2 mg/L	94.6	70.0	130	----



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 1

Page 1 of 1

Report To Contact and company name below will appear on the final report			Report Format / Distribution			Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																																											
Company: Golder Associates Ltd.			Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																																											
Contact: Zenovia Craciunescu (Yellowknife)			Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			Priority (Business Days) 4 day [P4-20%] <input type="checkbox"/> 3 day [P3-25%] <input type="checkbox"/> 2 day [P2-50%] <input type="checkbox"/>																																																											
Phone: 780-222-0587 (cell)			<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked			EMERGENCY 1 Business day [E - 100%] <input type="checkbox"/>																																																											
Company address below will appear on the final report			Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>																																																											
Street: 16820 107 Ave NW			Email 1 or Fax ZCraciunescu@golder.com			Date and Time Required for all E&P TATs:																																																											
City/Province: Edmonton, AB			Email 2 saad_pasha@golder.com			For tests that can not be performed according to the service level selected, you will be contacted.																																																											
Postal Code: T5P 4C3			Email 3 mkeefe@sabinagoldsilver.com			Analysis Request																																																											
Invoice To Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			Invoice Distribution			<table border="1"> <tr> <td rowspan="4">NUMBER OF CONTAINERS</td> <td colspan="12">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</td> <td rowspan="4">Samples for Archive</td> <td rowspan="4">SUSPECTED HAZARD (see Special Instructions)</td> </tr> <tr><td colspan="14"></td></tr> <tr><td colspan="14"></td></tr> <tr><td colspan="14"></td></tr> </table>			NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												Samples for Archive	SUSPECTED HAZARD (see Special Instructions)																																										
NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												Samples for Archive	SUSPECTED HAZARD (see Special Instructions)																																																			
Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX																																																														
Company: Sabina Gold And Silver Corp			Email 1 or Fax mkeefe@sabinagoldsilver.com																																																														
Contact: Merle Keefe (604 998 4190) mkeefe@sabinagoldsilver.com			Email 2 ZCraciunescu@golder.com																																																														
Project Information			Oil and Gas Required Fields (client use)																																																														
ALS Account # / Quote #: YL2021SABI10000001			AFE/Cost Center: PO#																																																														
Job #: 20412211/2700			Major/Minor Code: Routing Code:																																																														
PO / AFE:			Requisitioner:																																																														
LSD: Sabina Facility Code: 176233659			Location:																																																														
ALS Lab Work Order # (lab use only):			ALS Contact: Oliver Gregg			Sampler: JVu																																																											
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type																																																													
PN03		03-Sep-21	15:31	Water	1	✓																																																											
PN04		04-Sep-21	9:10	Water	1	✓																																																											
PN05		04-Sep-21	10:15	Water	1	✓																																																											
PN06		04-Sep-21	11:35	Water	1	✓																																																											
PN07		04-Sep-21	9:35	Water	1	✓																																																											
PN08		04-Sep-21	13:56	Water	1	✓																																																											
PN09		04-Sep-21	14:25	Water	1	✓																																																											
GLWB-T		03-Sep-21	16:45	Water	1	✓																																																											
GLWB-B		03-Sep-21	16:45	Water	1	✓																																																											
QC		04-Sep-21	13:56	Water	1	✓																																																											
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Drinking Water (DW) Samples¹ (client use)			Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)			SAMPLE CONDITION AS RECEIVED (lab use only)																																																											
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			Samples marked archive long term - please hold for a minimum of 120 days or until further notice.			Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>																																																											
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						Ice Packs <input checked="" type="checkbox"/> Ice Cubes <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>																																																											
						Cooling Initiated <input type="checkbox"/>																																																											
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SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)																																																											
Released by: JVu	Date: Sept 5/21	Time: 9:15	Received by:	Date: Sept 7-21	Time: 9:05	Received by:	Date:	Time:																																																									



REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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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.

APPENDIX B

2021 Water Quality - Field Profiles Tables and Graphs

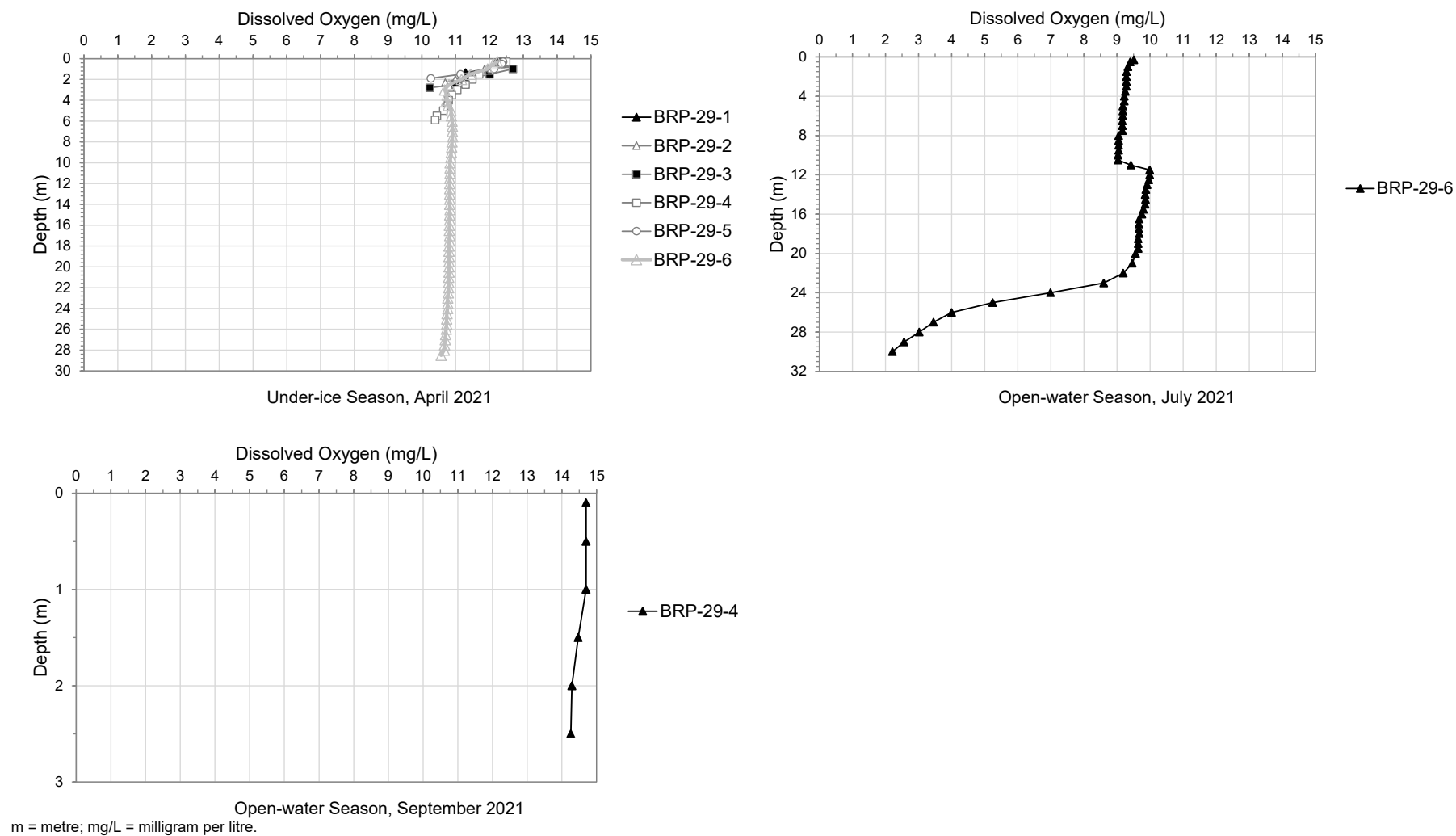
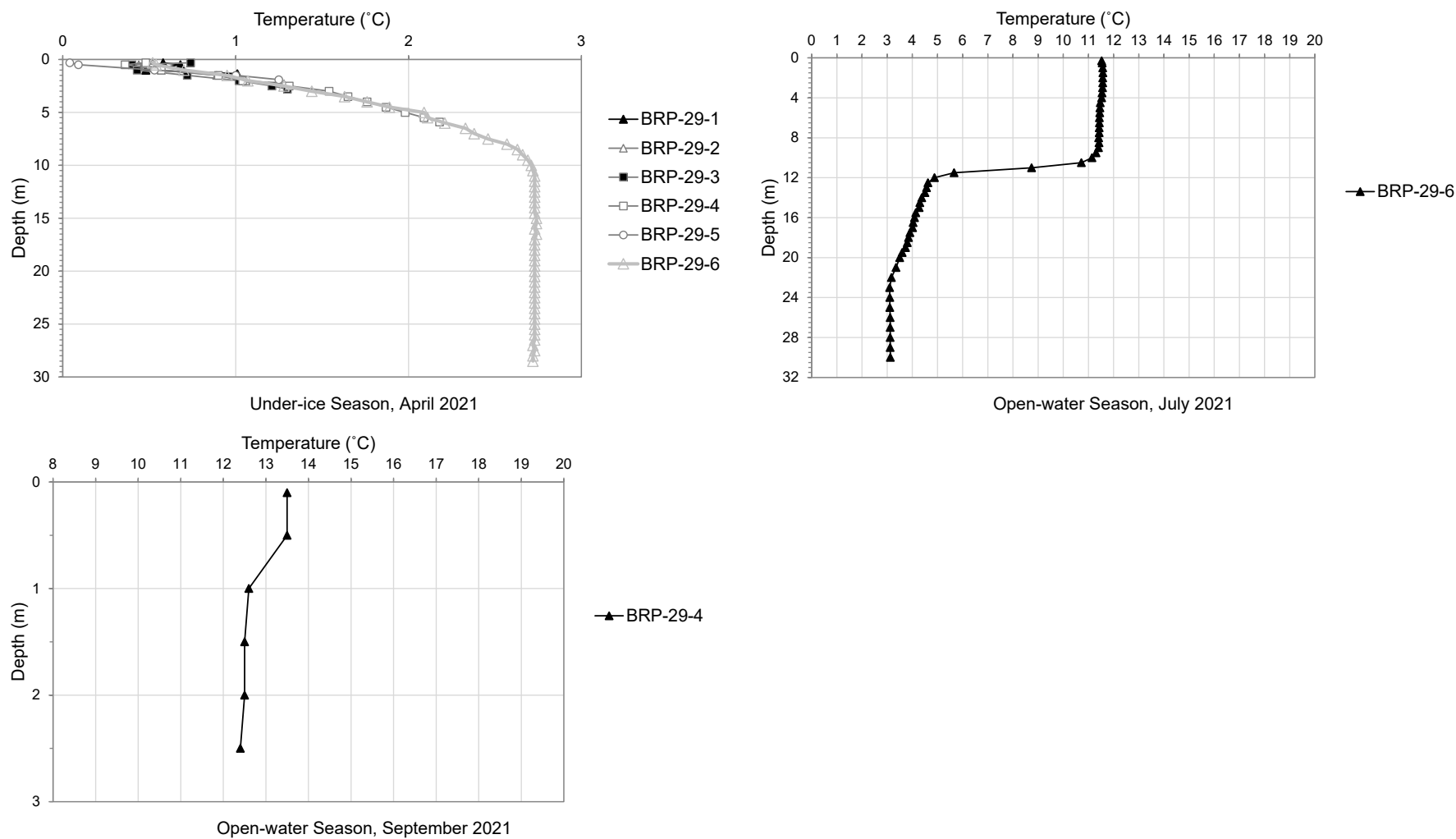
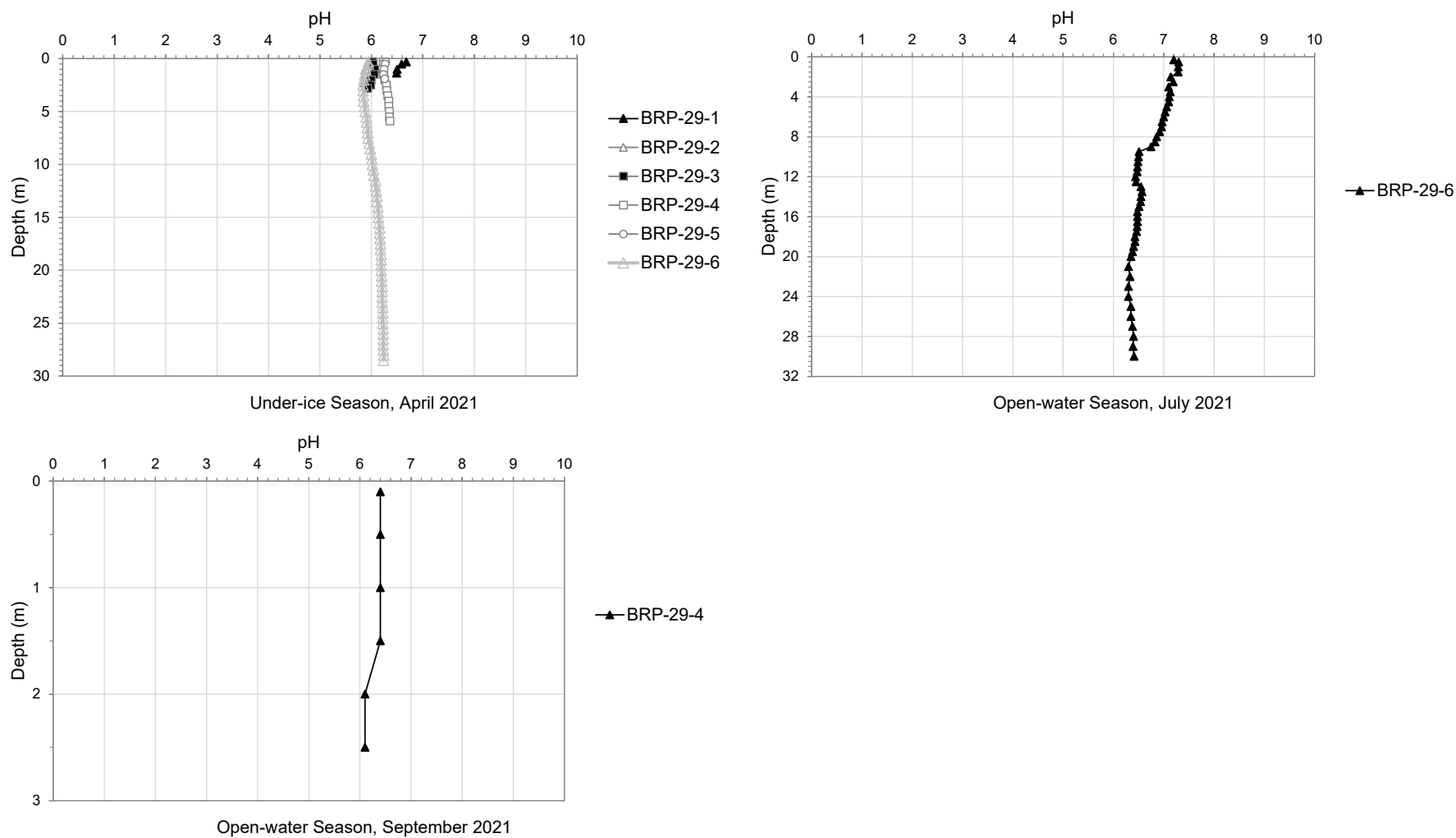
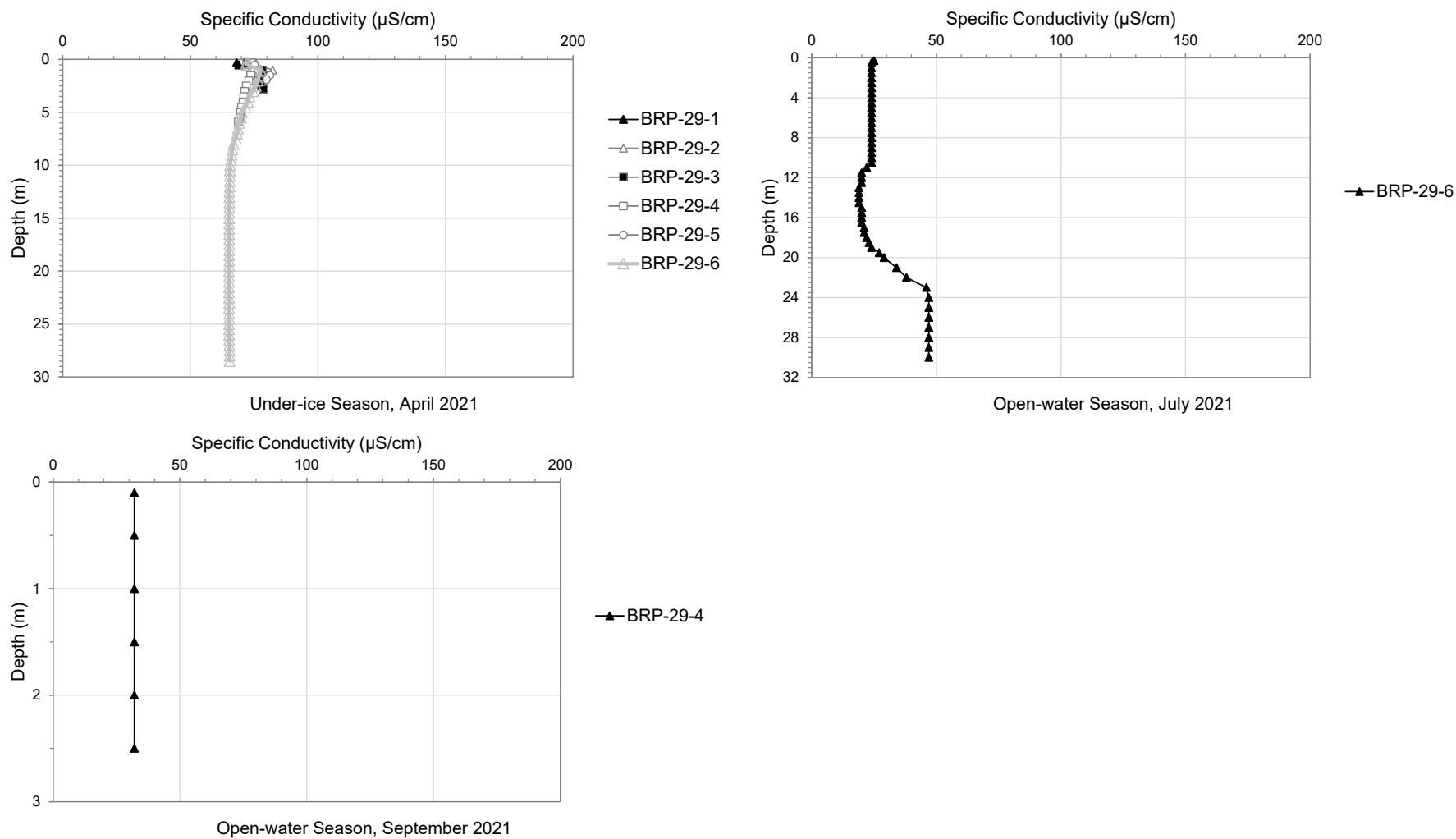
Figure B-1: Dissolved Oxygen Profiles at Goose Lake West Bay at BRP-29, 2021

Figure B-2: Water Temperature Profiles at Goose Lake West Bay at BRP-29, 2021

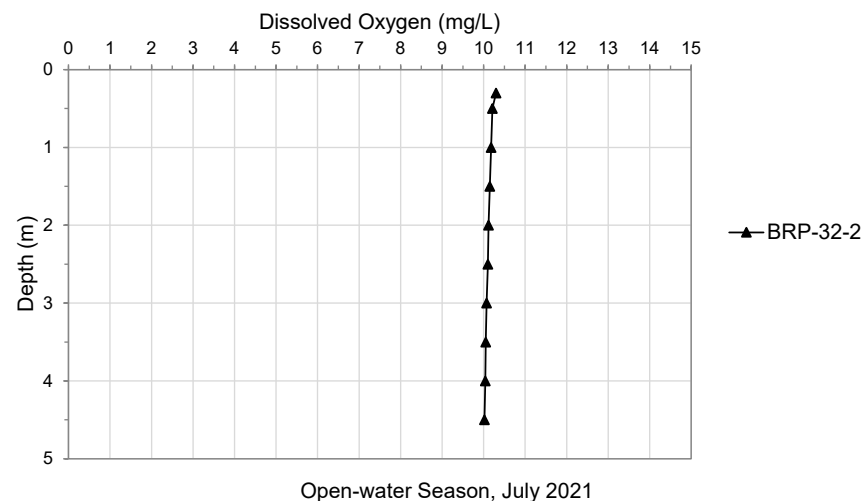
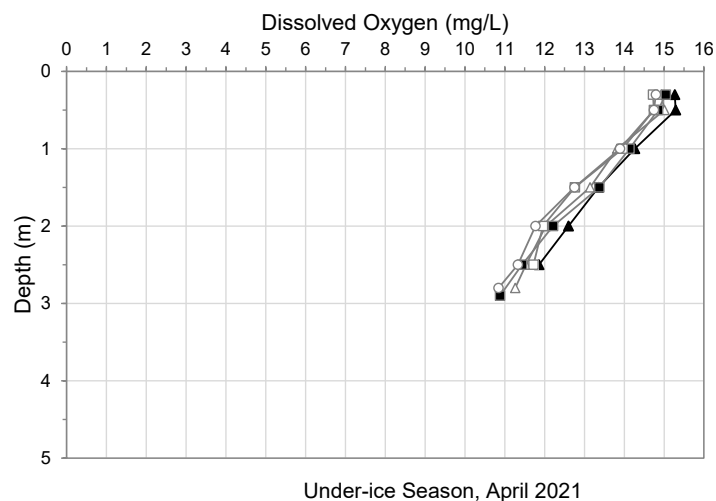
m = metre; °C = degrees Celsius

Figure B-3: pH Profiles at Goose Lake West Bay at BRP-29, 2021

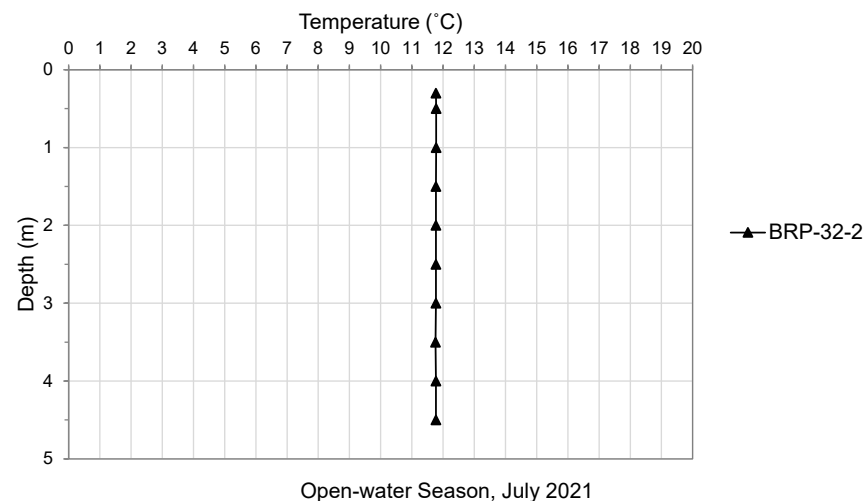
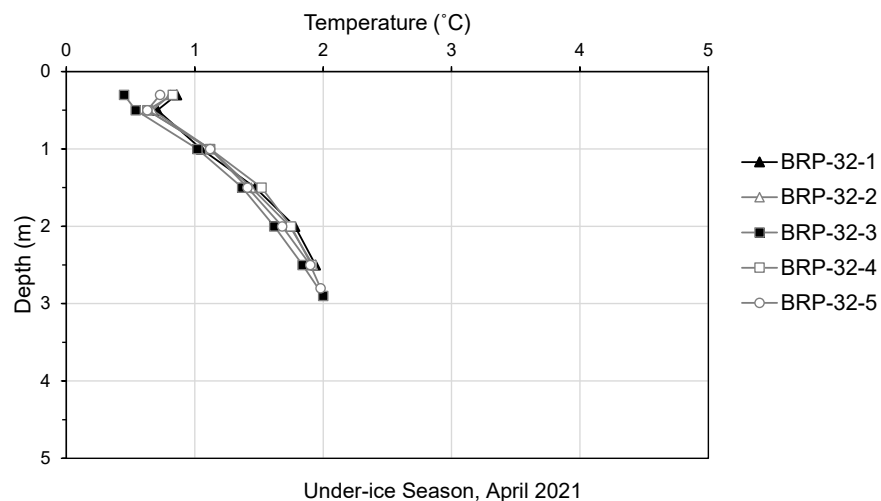
m = metre.

Figure B-4: Specific Conductivity Profiles at Goose Lake West Bay at BRP-29, 2021

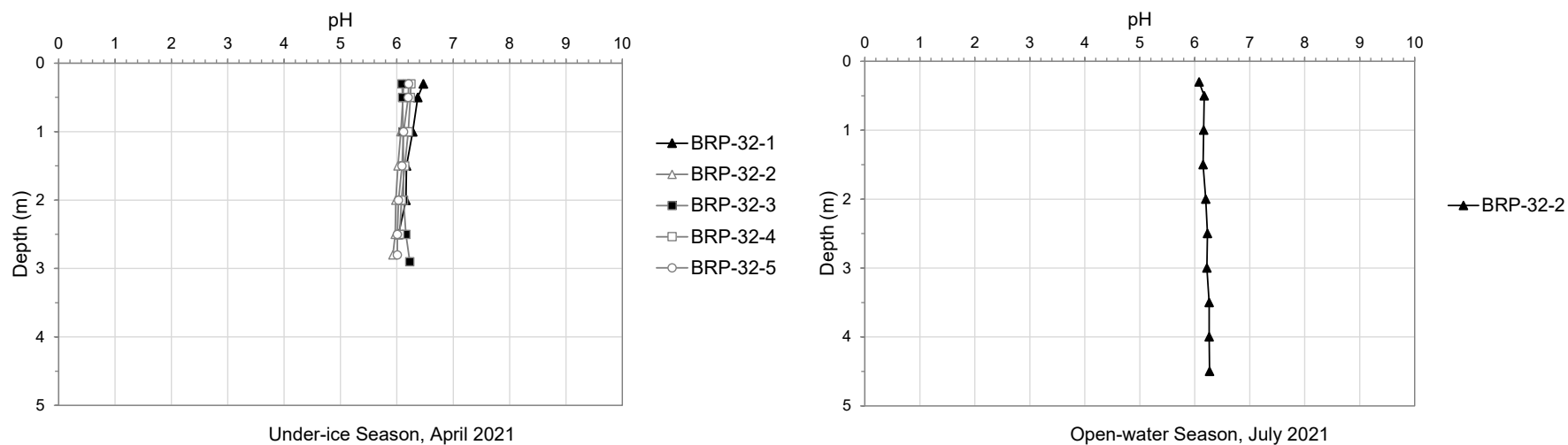
m = metre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre.

Figure B-5: Dissolved Oxygen Profiles at Goose Lake Central Basin at BRP-32, 2021

m = metre; mg/L = milligram per litre.

Figure B-6: Water Temperature Profiles at Goose Lake Central Basin at BRP-32, 2021

m = metre; °C = degrees Celsius

Figure B-7: pH Profiles at Goose Lake Central Basin at BRP-32, 2021

m = metre.

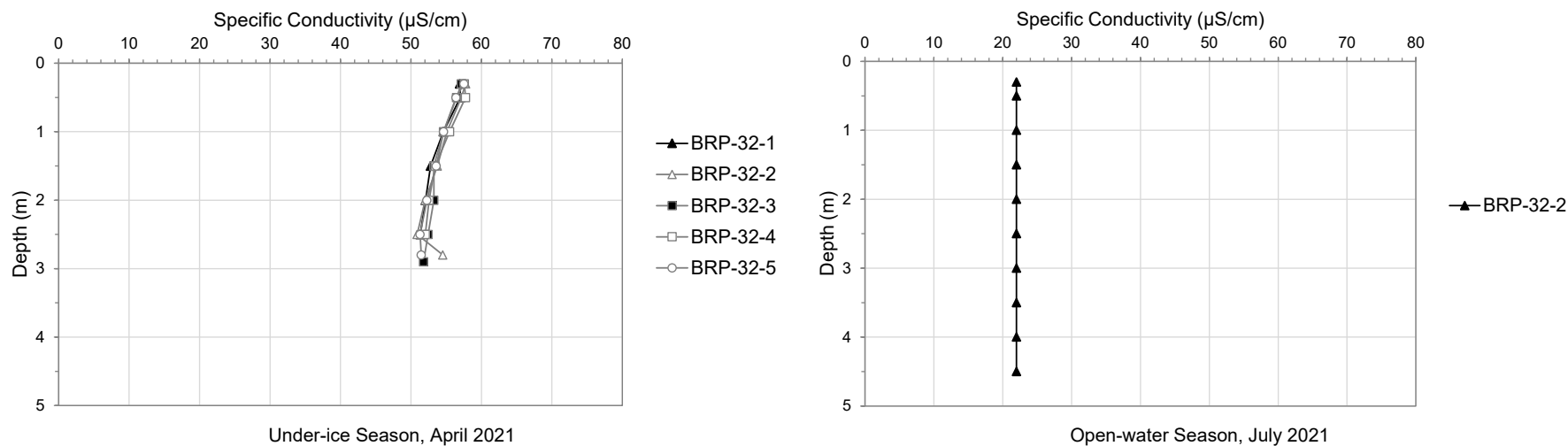
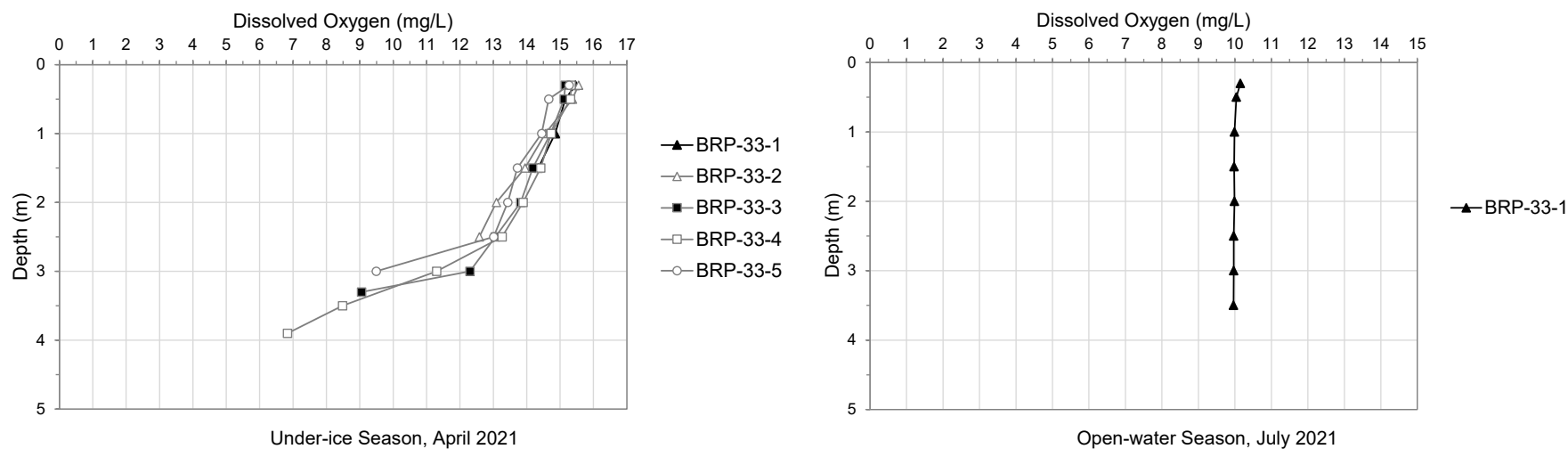
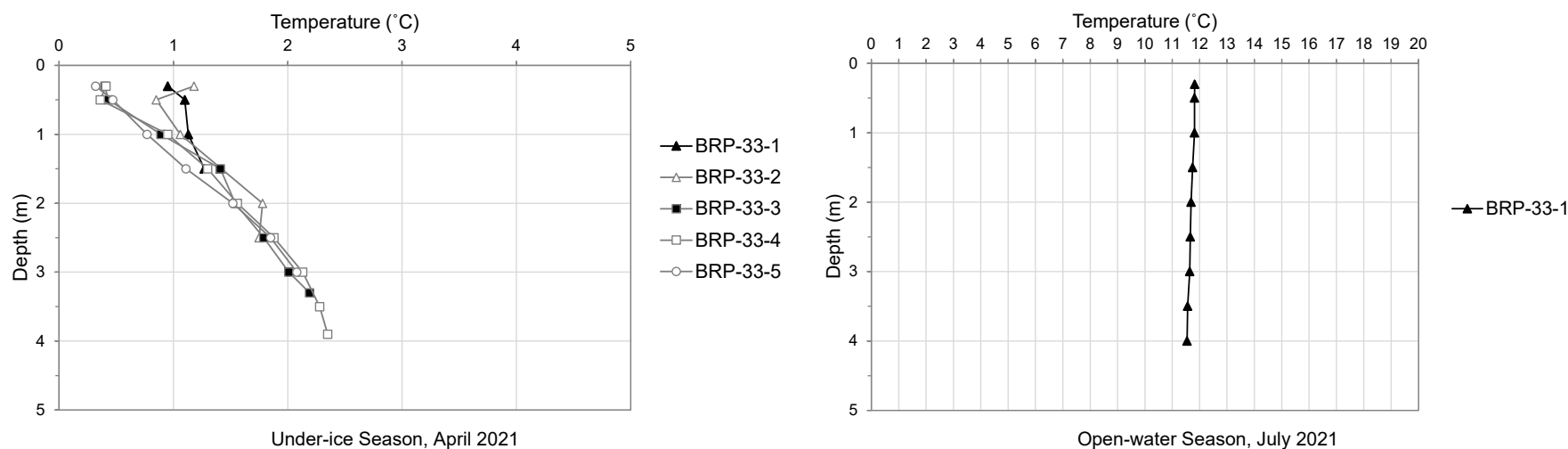
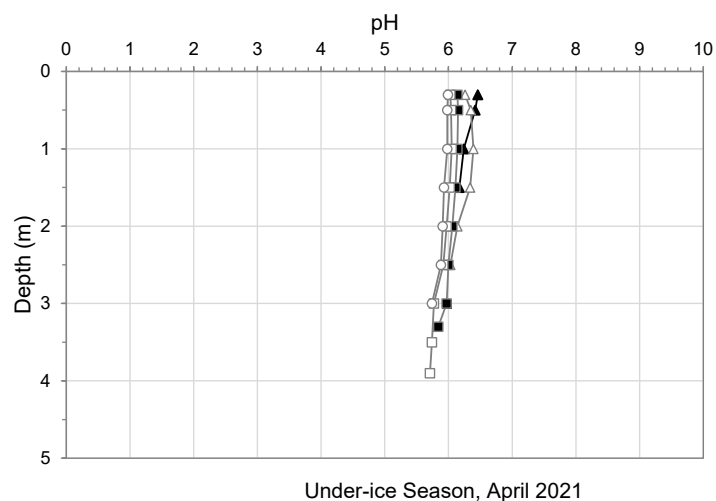
Figure B-8: Specific Conductivity Profiles at Goose Lake Central Basin at BRP-32, 2021m = metre; $\mu\text{S/cm}$ = microsiemens per centimetre.

Figure B-9: Dissolved Oxygen Profiles at Goose Lake Southeast Basin at BRP-33, 2021

m = metre; mg/L = milligram per litre.

Figure B-10: Water Temperature Profiles at Goose Lake Southeast Basin at BRP-33, 2021

m = metre; °C = degrees Celsius

Figure B-11: pH Profiles at Goose Lake Southeast Basin at BRP-33, 2021

m = metre.

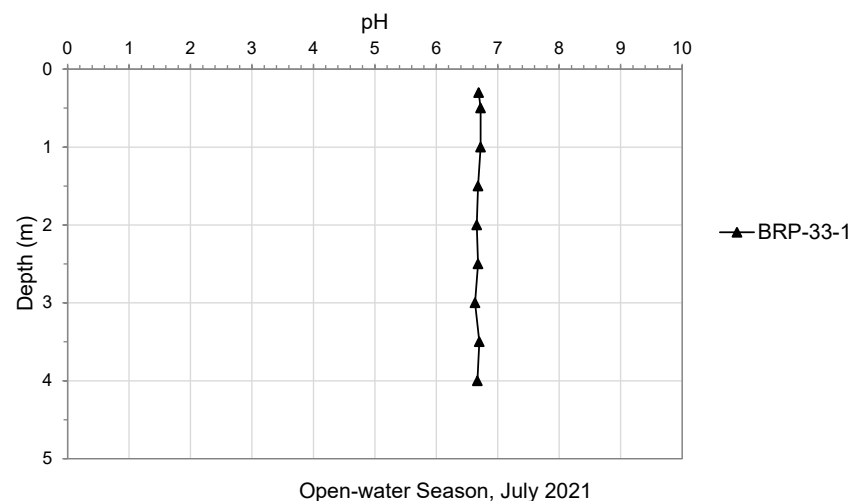
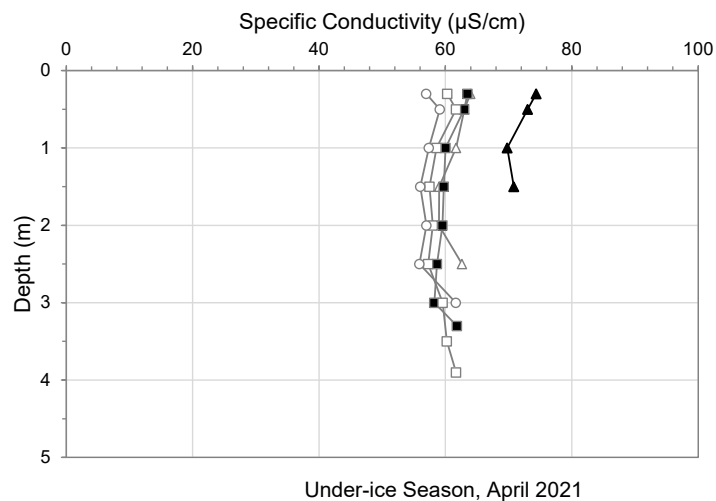
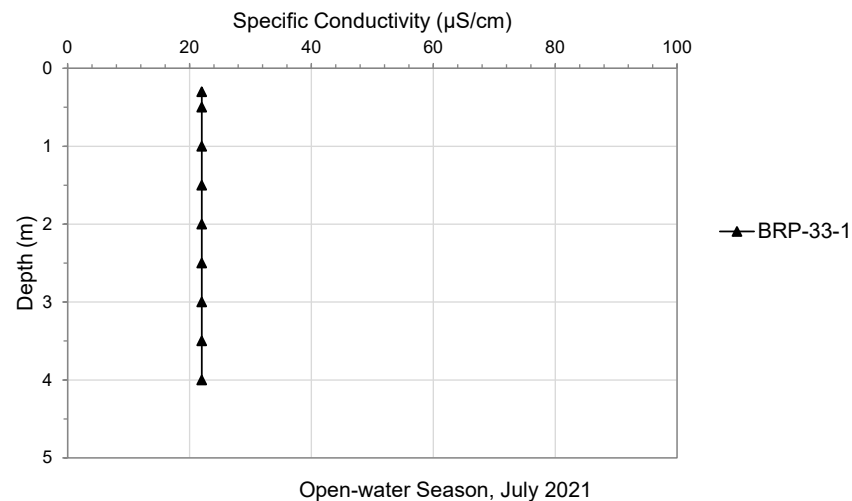
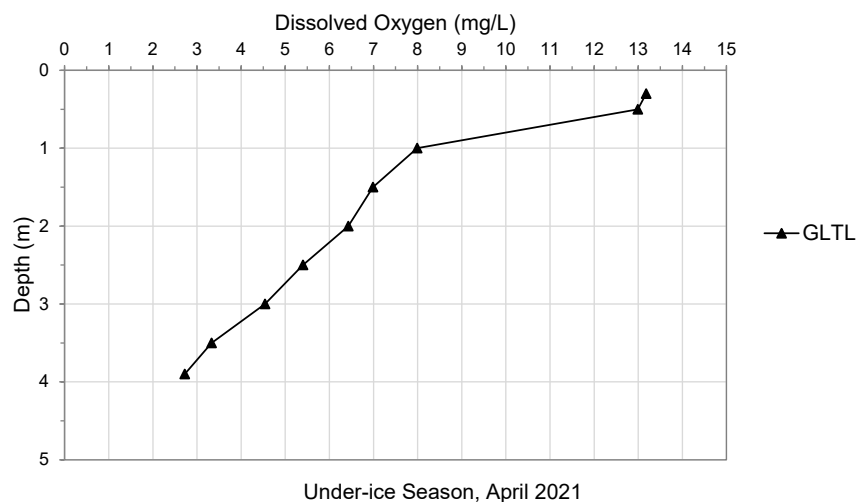
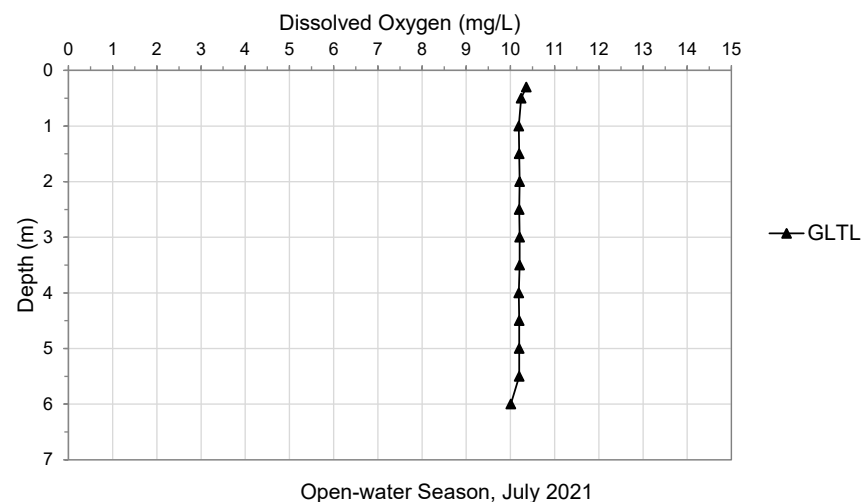
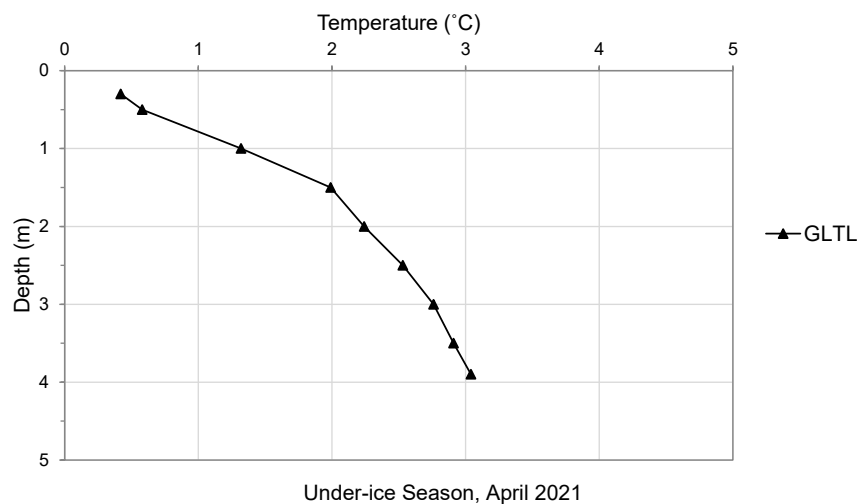
**Figure B-12: Specific Conductivity Profiles at Goose Lake Southeast Basin at BRP-33, 2021**m = metre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre.

Figure B-13: Dissolved Oxygen Profiles at Goose Lake Tail, 2021

m = metre; mg/L = milligram per litre.

**Figure B-14: Water Temperature Profiles at Goose Lake Tail, 2021**

m = metre; °C = degrees Celsius

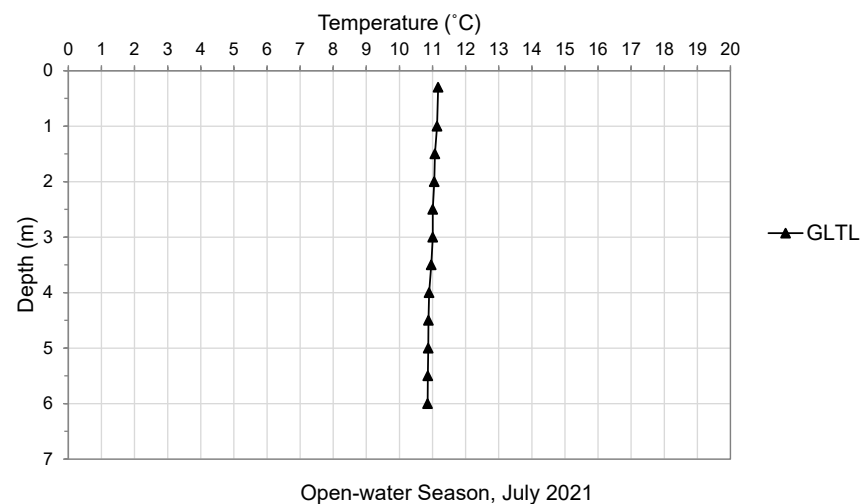
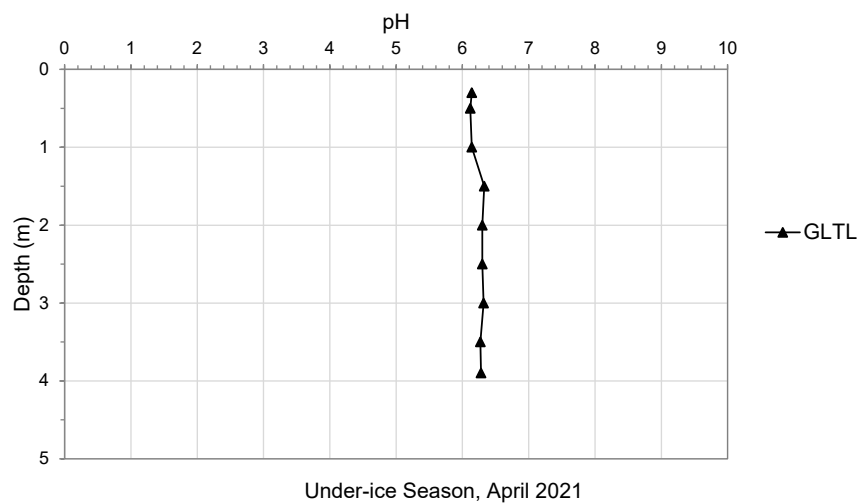


Figure B-15: pH Profiles at Goose Lake Tail, 2021

m = metre.

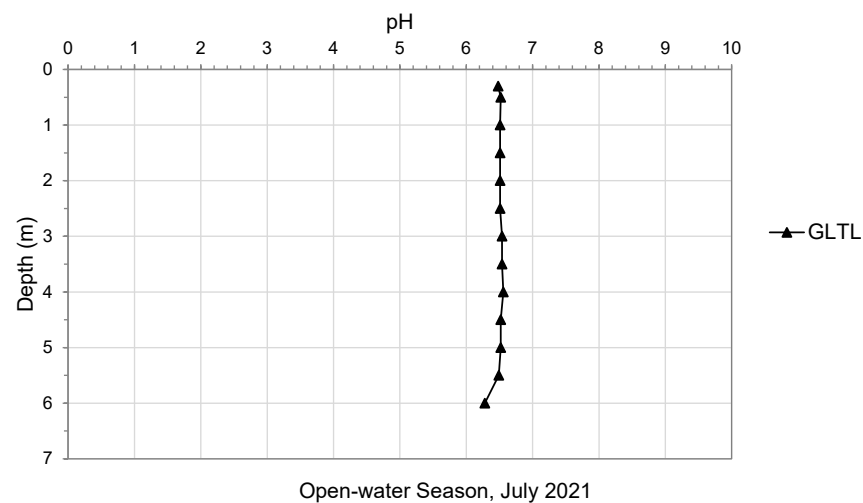
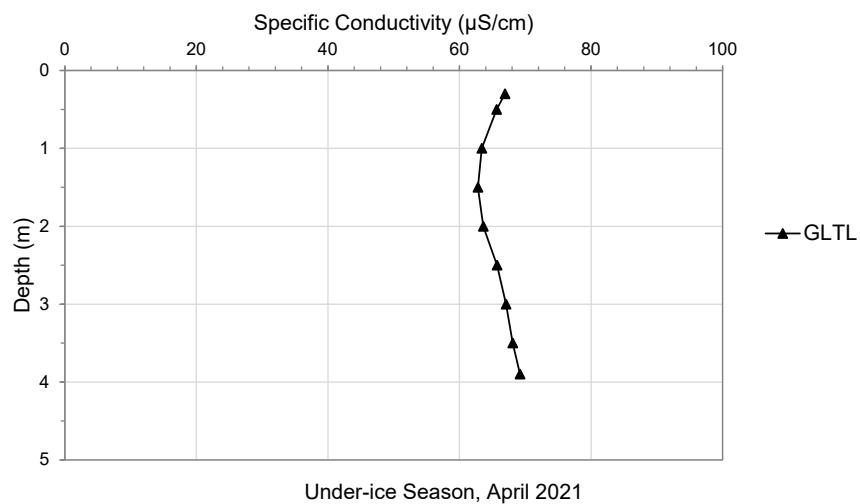
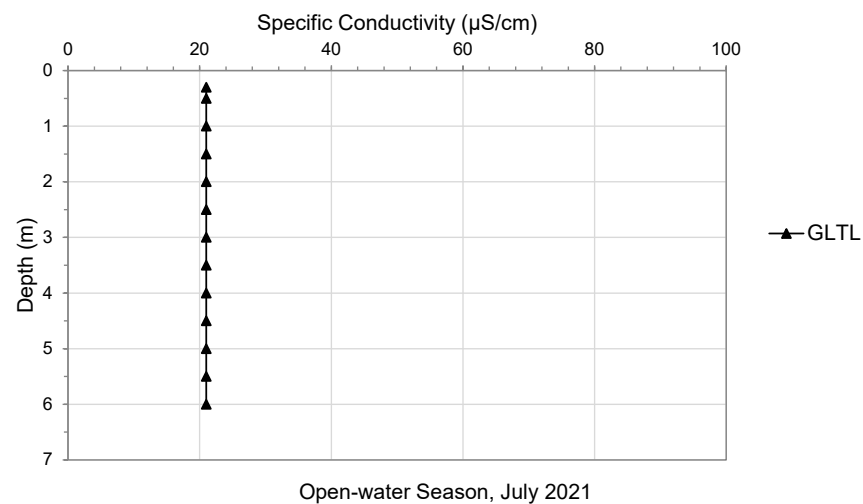
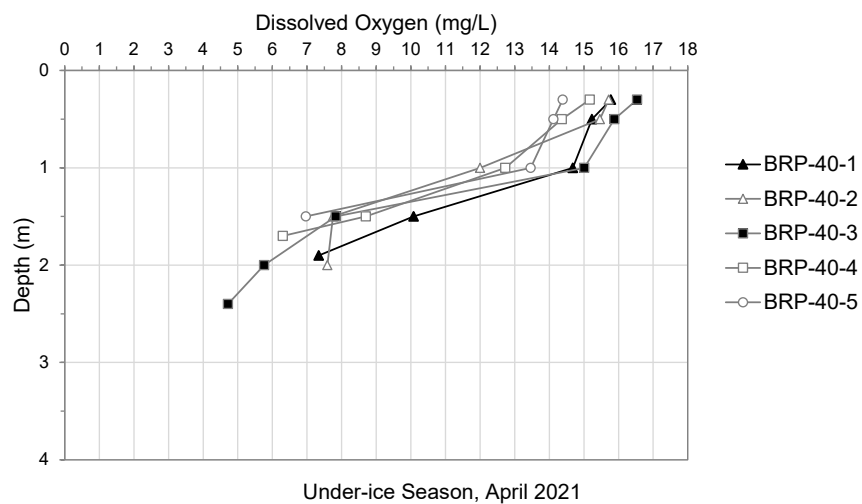
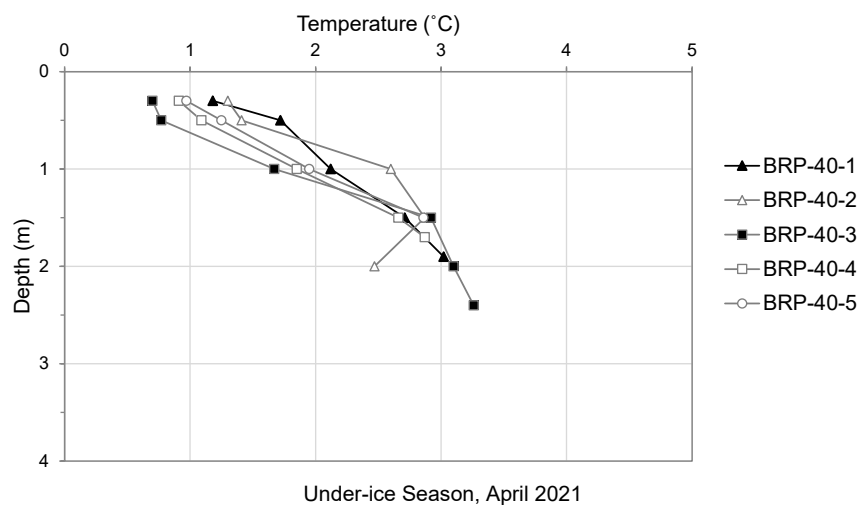
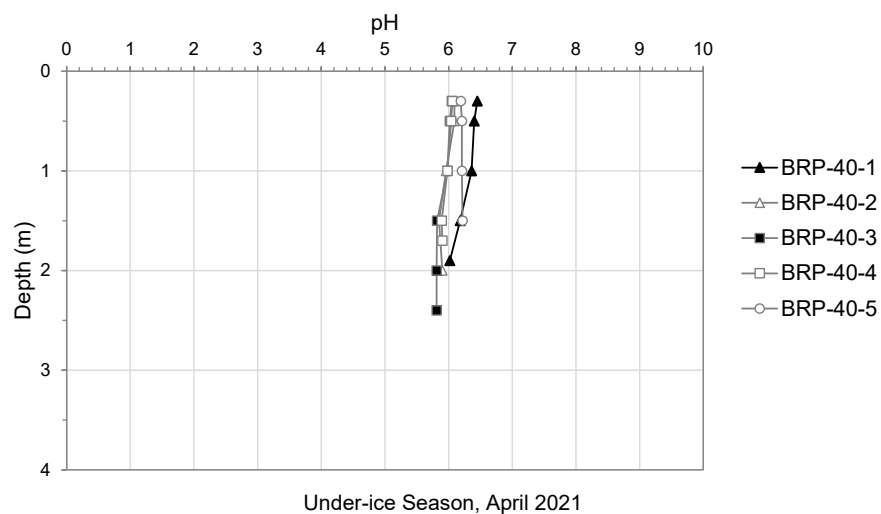
**Figure B-16: Specific Conductivity Profiles at Goose Lake Tail, 2021**m = metre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre.

Figure B-17: Dissolved Oxygen Profiles at Reference B Lake at BRP-40, 2021

m = metre; mg/L = milligram per litre.

Figure B-18: Water Temperature Profiles at Reference B Lake at BRP-40, 2021

m = metre; °C = degrees Celsius

Figure B-19: pH Profiles at Reference B Lake at BRP-40, 2021

m = metre.

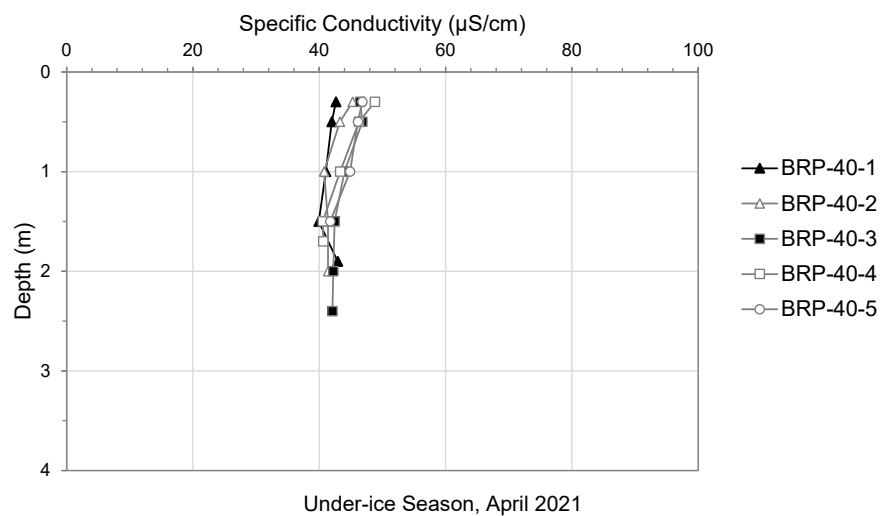
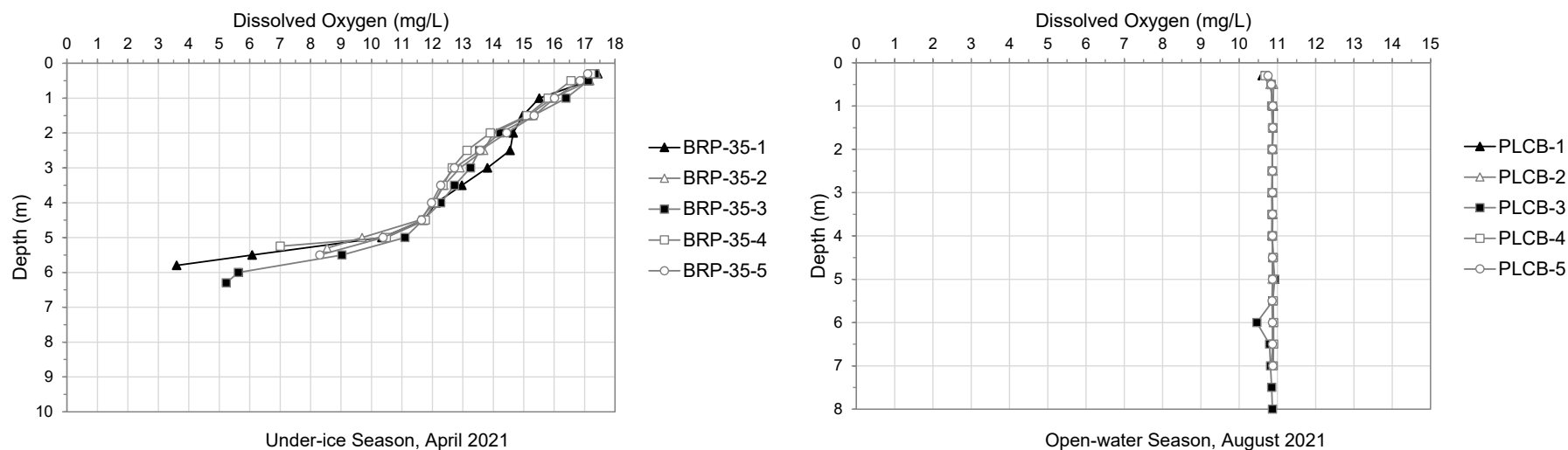
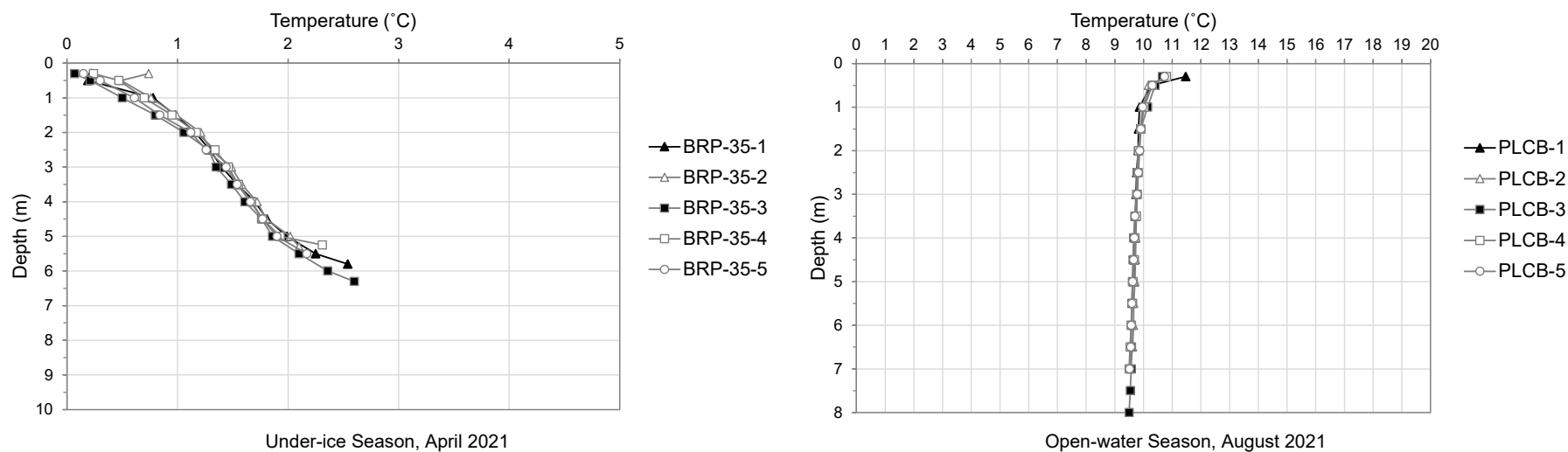
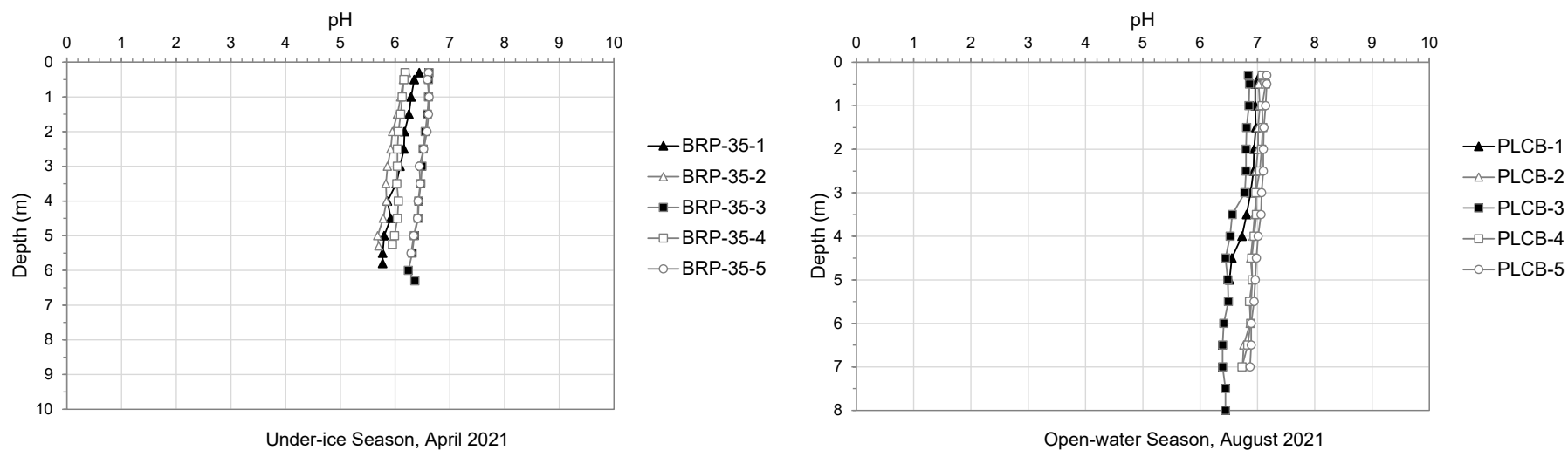
Figure B-20: Specific Conductivity Profiles at Reference B Lake at BRP-40, 2021m = metre; $\mu\text{S/cm}$ = microsiemens per centimetre.

Figure B-21: Dissolved Oxygen Profiles at Propeller Lake South Basin at BRP-35 (near centre), 2021

m = metre; mg/L = milligram per litre.

Figure B-22: Water Temperature Profiles at Propeller Lake South Basin at BRP-35 (near centre), 2021

m = metre; °C = degrees Celsius

Figure B-23: pH Profiles at Propeller Lake South Basin at BRP-35 (near centre), 2021

m = metre.

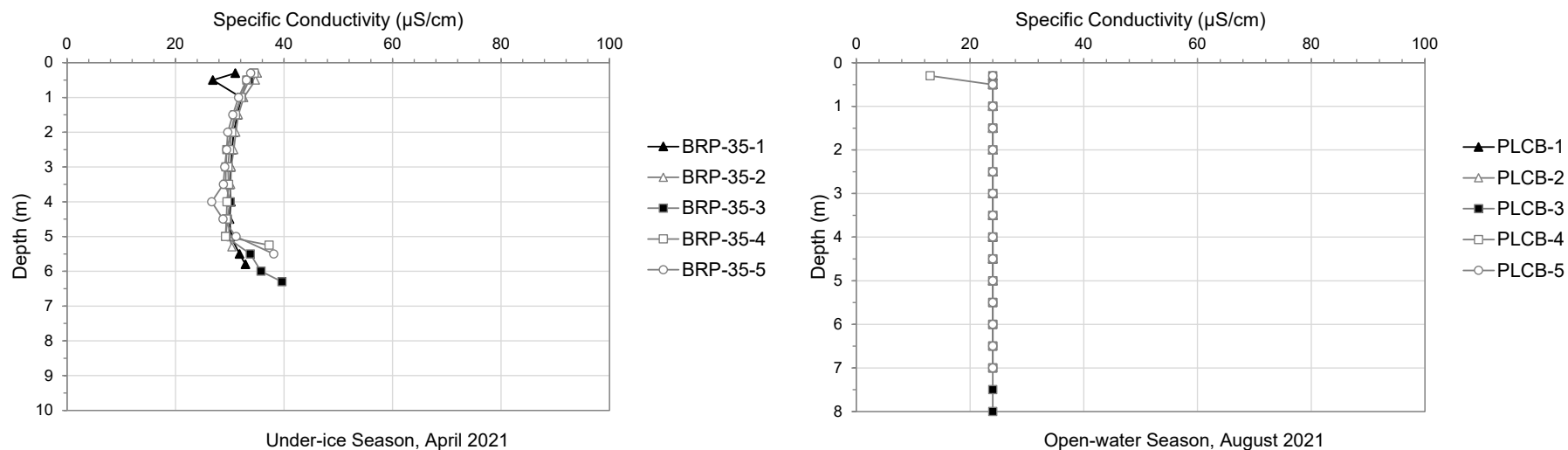
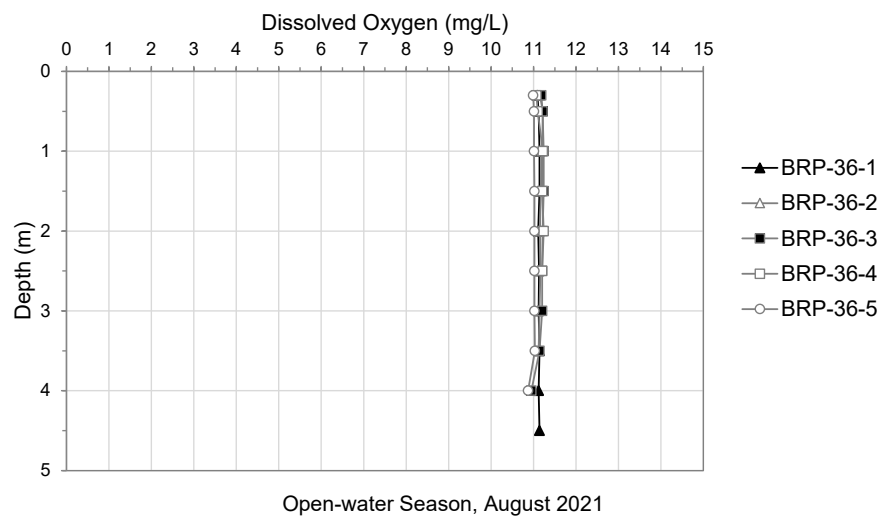
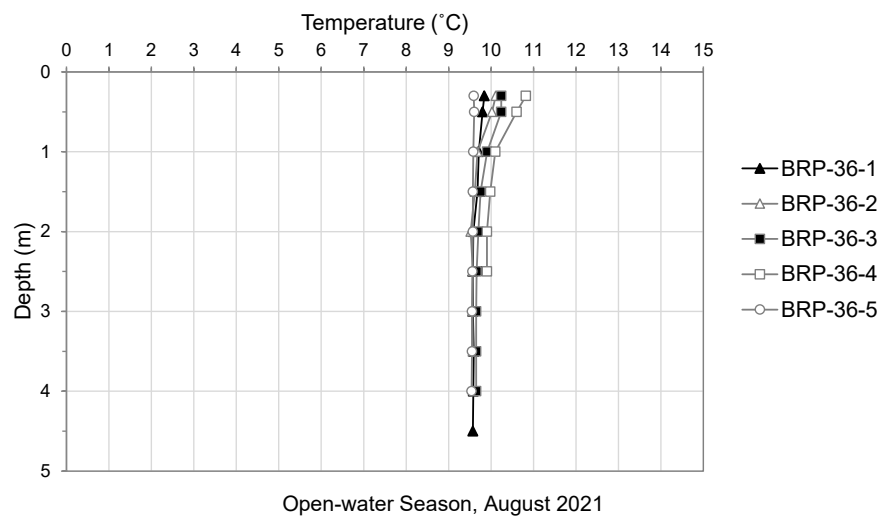
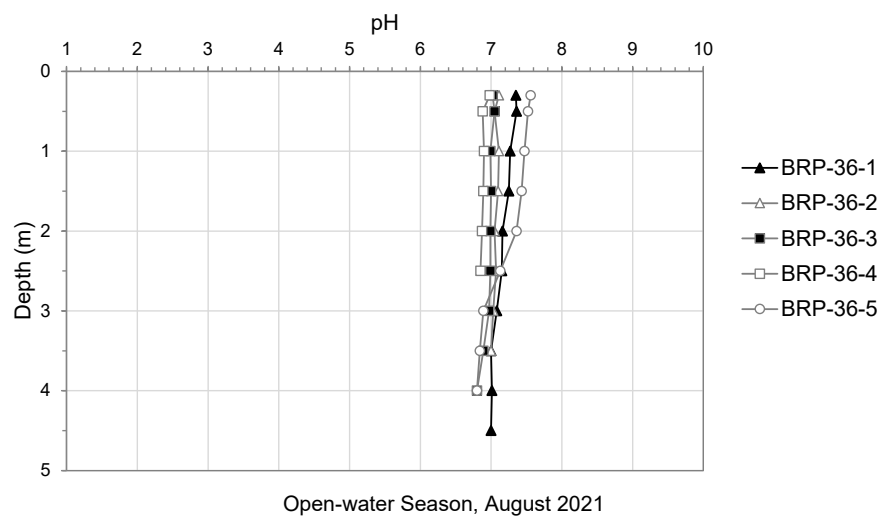
Figure B-24: Specific Conductivity Profiles at Propeller Lake South Basin at BRP-35 (near centre), 2021m = metre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre.

Figure B-25: Dissolved Oxygen Profiles at Propeller Lake North Basin at BRP-36, 2021

m = metre; mg/L = milligram per litre.

Figure B-26: Water Temperature Profiles at Propeller Lake North Basin at BRP-36, 2021

m = metre; °C = degrees Celsius

Figure B-27: pH Profiles at Propeller Lake North Basin at BRP-36, 2021

m = metre.

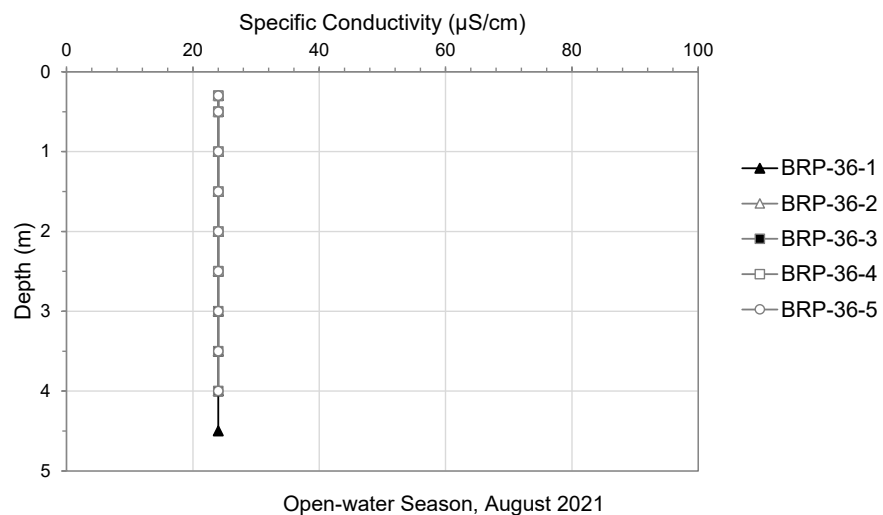
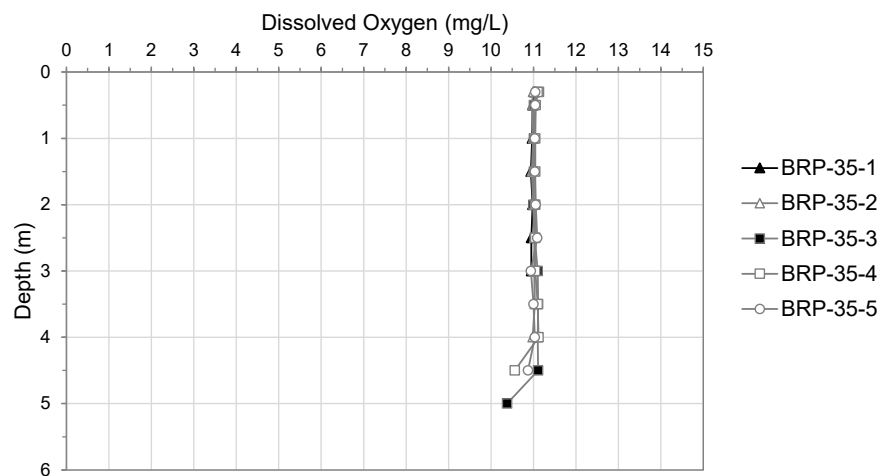
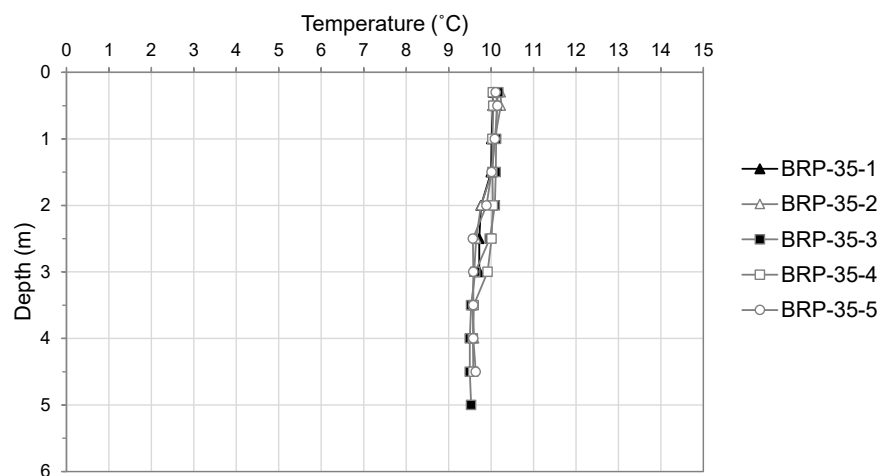
Figure B-28: Specific Conductivity Profiles at Propeller Lake North Basin at BRP-36, 2021m = metre; $\mu\text{S/cm}$ = microsiemens per centimetre.

Figure B-29: Dissolved Oxygen Profiles at Propeller Lake Central Basin (near inflow), 2021

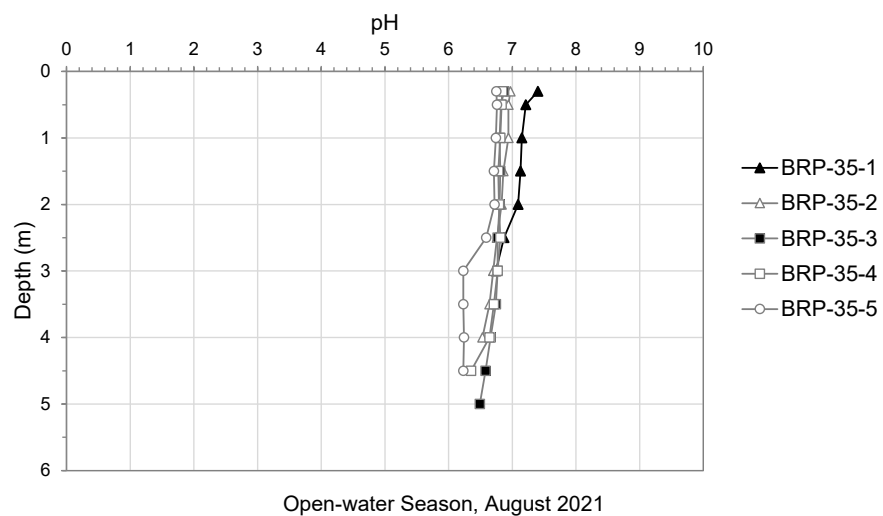
Open-water Season, August 2021

m = metre; mg/L = milligram per litre.

Figure B-30: Water Temperature Profiles at Propeller Lake Central Basin (near inflow), 2021

Open-water Season, August 2021

m = metre; °C = degrees Celsius

Figure B-31: pH Profiles at Propeller Lake Central Basin (near inflow), 2021

m = metre.

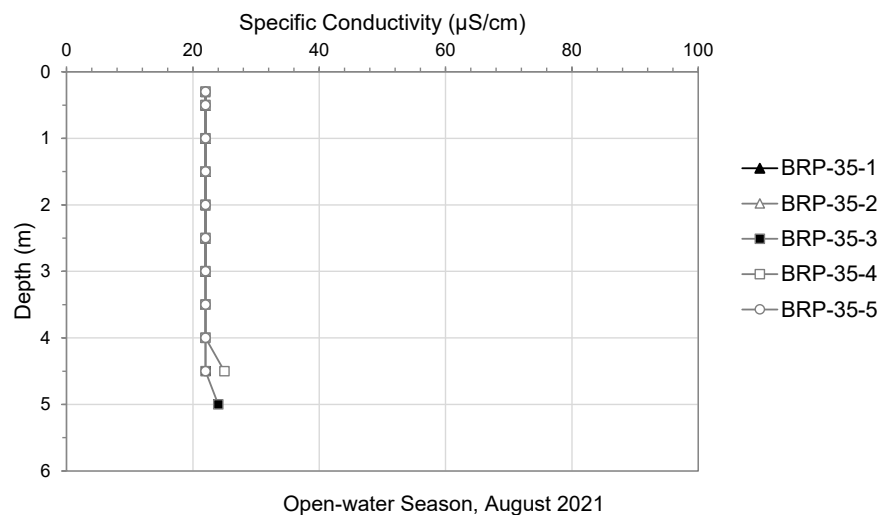
Figure B-32: Specific Conductivity Profiles at Propeller Lake Central Basin (near inflow), 2021m = metre; $\mu\text{S}/\text{cm}$ = microsiemens per centimetre.

Table B-1: Field Profiles at Goose Lake West Bay at BRP-29, April 2021

Station	Date	Depth ^(a) (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-29-1							
BRP-29-1	13-Apr-21	0.3	87.1	12.2	0.6	6.7	68.2
BRP-29-1	13-Apr-21	0.5	86.5	12.2	0.7	6.6	69.0
BRP-29-1	13-Apr-21	1.0	84.9	12.0	0.5	6.5	77.6
BRP-29-1	13-Apr-21	1.4	81.1	11.3	1.0	6.5	76.5
BRP-29-2							
BRP-29-2	13-Apr-21	0.3	88.3	12.4	0.5	6.0	75.6
BRP-29-2	13-Apr-21	0.5	87.8	12.5	0.4	6.0	76.0
BRP-29-2	13-Apr-21	1.0	83.9	11.9	0.6	5.9	82.4
BRP-29-2	13-Apr-21	1.5	81.5	11.4	0.9	5.9	79.9
BRP-29-2	13-Apr-21	2.0	78.8	11.0	1.1	5.9	78.0
BRP-29-2	13-Apr-21	2.3	77.2	10.7	1.3	5.9	76.2
BRP-29-3							
BRP-29-3	13-Apr-21	0.3	87.7	12.4	0.7	6.0	72.2
BRP-29-3	13-Apr-21	0.5	86.8	12.3	0.4	6.0	72.2
BRP-29-3	13-Apr-21	1.0	89.7	12.7	0.4	6.1	78.2
BRP-29-3	13-Apr-21	1.5	85.3	12.0	0.7	6.1	79.4
BRP-29-3	13-Apr-21	2.0	80.8	11.3	1.0	6.0	78.4
BRP-29-3	13-Apr-21	2.5	77.8	11.0	1.2	6.0	77.9
BRP-29-3	13-Apr-21	2.8	73.9	10.2	1.3	5.9	78.7
BRP-29-4							
BRP-29-4	13-Apr-21	0.3	88.4	12.5	0.5	6.2	74.2
BRP-29-4	13-Apr-21	0.5	86.8	12.3	0.4	6.2	74.3
BRP-29-4	13-Apr-21	1.0	85.5	12.1	0.6	6.2	75.3
BRP-29-4	13-Apr-21	1.5	83.7	11.7	0.9	6.2	73.6
BRP-29-4	13-Apr-21	2.0	82.5	11.5	1.0	6.3	73.0
BRP-29-4	13-Apr-21	2.5	81.7	11.3	1.3	6.3	71.9
BRP-29-4	13-Apr-21	3.0	80.5	11.0	1.5	6.3	71.3
BRP-29-4	13-Apr-21	3.5	79.6	10.9	1.7	6.3	71.0
BRP-29-4	13-Apr-21	4.0	79.1	10.8	1.8	6.3	70.7
BRP-29-4	13-Apr-21	4.5	79.1	10.8	1.9	6.3	70.1
BRP-29-4	13-Apr-21	5.0	78.4	10.6	2.0	6.4	69.7
BRP-29-4	13-Apr-21	5.5	77.3	10.4	2.1	6.4	69.4
BRP-29-4	13-Apr-21	5.9	77.1	10.4	2.2	6.4	68.9
BRP-29-5							
BRP-29-5	13-Apr-21	0.3	86.4	12.4	0.0	6.3	74.6
BRP-29-5	13-Apr-21	0.5	86.4	12.4	0.1	6.3	75.2
BRP-29-5	13-Apr-21	1.0	85.9	12.1	0.5	6.3	76.6
BRP-29-5	13-Apr-21	1.5	79.9	11.1	1.0	6.2	81.2
BRP-29-5	13-Apr-21	1.9	74.5	10.3	1.3	6.3	79.9
BRP-29-6							
BRP-29-6	13-Apr-21	0.3	86.4	12.2	0.5	5.9	72.1
BRP-29-6	13-Apr-21	0.5	85.7	12.1	0.5	5.9	71.8
BRP-29-6	13-Apr-21	1.0	84.9	11.9	0.7	5.9	77.6
BRP-29-6	13-Apr-21	1.5	82.0	11.4	1.0	5.9	77.1
BRP-29-6	13-Apr-21	2.0	80.3	11.2	1.1	5.9	76.6
BRP-29-6	13-Apr-21	2.5	78.2	10.8	1.3	5.8	75.7
BRP-29-6	13-Apr-21	3.0	77.5	10.7	1.4	5.8	74.7
BRP-29-6	13-Apr-21	3.5	78.4	10.7	1.6	5.9	73.3
BRP-29-6	13-Apr-21	4.0	78.6	10.7	1.8	5.9	72.6
BRP-29-6	13-Apr-21	4.5	79.3	10.8	1.9	5.9	71.7
BRP-29-6	13-Apr-21	5.0	80.3	10.9	2.1	5.9	70.3
BRP-29-6	13-Apr-21	5.5	80.4	10.9	2.1	5.9	70.0
BRP-29-6	13-Apr-21	6.0	80.8	10.9	2.2	5.9	69.3
BRP-29-6	13-Apr-21	6.5	81.1	10.9	2.3	5.9	68.7
BRP-29-6	13-Apr-21	7.0	81.2	10.9	2.4	5.9	68.4
BRP-29-6	13-Apr-21	7.5	81.4	10.9	2.5	5.9	67.9
BRP-29-6	13-Apr-21	8.0	81.6	10.9	2.6	6.0	66.9
BRP-29-6	13-Apr-21	8.5	81.6	10.9	2.6	6.0	66.6
BRP-29-6	13-Apr-21	9.0	81.6	10.9	2.7	6.0	66.2
BRP-29-6	13-Apr-21	9.5	81.5	10.9	2.7	6.0	66.0
BRP-29-6	13-Apr-21	10.0	81.5	10.8	2.7	6.0	65.6
BRP-29-6	13-Apr-21	10.5	81.4	10.8	2.7	6.0	65.5
BRP-29-6	13-Apr-21	11.0	81.4	10.8	2.7	6.1	65.4
BRP-29-6	13-Apr-21	11.5	81.4	10.8	2.7	6.1	65.5
BRP-29-6	13-Apr-21	12.0	81.4	10.8	2.7	6.1	65.4
BRP-29-6	13-Apr-21	12.5	81.4	10.8	2.7	6.1	65.3
BRP-29-6	13-Apr-21	13.0	81.4	10.8	2.7	6.1	65.3
BRP-29-6	13-Apr-21	13.5	81.4	10.8	2.7	6.1	65.3
BRP-29-6	13-Apr-21	14.0	81.4	10.8	2.7	6.1	65.3
BRP-29-6	13-Apr-21	14.5	81.4	10.8	2.7	6.1	65.3
BRP-29-6	13-Apr-21	15.0	81.4	10.8	2.7	6.1	65.3
BRP-29-6	13-Apr-21	15.5	81.4	10.8	2.7	6.2	65.3
BRP-29-6	13-Apr-21	16.0	81.3	10.8	2.7	6.2	65.3
BRP-29-6	13-Apr-21	16.5	81.3	10.8	2.7	6.2	65.3
BRP-29-6	13-Apr-21	17.0	81.4	10.8	2.7	6.2	65.3
BRP-29-6	13-Apr-21	17.5	81.3	10.8	2.7	6.2	65.3
BRP-29-6	13-Apr-21	18.0	81.3	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	18.5	81.3	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	19.0	81.3	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	19.5	81.3	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	20.0	81.2	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	20.5	81.2	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	21.0	81.2	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	21.5	81.1	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	22.0	81.2	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	22.5	81.1	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	23.0	81.0	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	23.5	81.0	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	24.0	80.9	10.8	2.7	6.2	65.2
BRP-29-6	13-Apr-21	24.5	80.8	10.7	2.7	6.2	65.3
BRP-29-6	13-Apr-21	25.0	80.8	10.7	2.7	6.2	65.2
BRP-29-6	13-Apr-21	25.5	80.7	10.7	2.7	6.2	65.2
BRP-29-6	13-Apr-21	26.0	80.7	10.7	2.7	6.2	65.2
BRP-29-6	13-Apr-21	26.5	80.5	10.7	2.7	6.2	65.3
BRP-29-6	13-Apr-21	27.0	80.4	10.7	2.7	6.2	65.3
BRP-29-6	13-Apr-21	27.5	80.3	10.7	2.7	6.2	65.4
BRP-29-6	13-Apr-21	28.0	80.2	10.7	2.7	6.2	65.4
BRP-29-6	13-Apr-21	28.5	79.5	10.6	2.7	6.2	65.4

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) - depth starting from underneath the ice layer

Table B-2: Field Profiles at Goose Lake West Bay at BRP-29, July 2021

Station	Date	Depth (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-29-6							
BRP-29-6	26-Jul-21	0.3	87.5	9.5	11.5	7.2	25.0
BRP-29-6	26-Jul-21	0.5	86.3	9.4	11.6	7.3	24.0
BRP-29-6	26-Jul-21	1.0	86.0	9.3	11.6	7.3	24.0
BRP-29-6	26-Jul-21	1.5	85.5	9.3	11.6	7.3	24.0
BRP-29-6	26-Jul-21	2.0	85.4	9.3	11.6	7.1	24.0
BRP-29-6	26-Jul-21	2.5	85.3	9.3	11.6	7.2	24.0
BRP-29-6	26-Jul-21	3.0	85.1	9.3	11.6	7.1	24.0
BRP-29-6	26-Jul-21	3.5	84.9	9.3	11.5	7.1	24.0
BRP-29-6	26-Jul-21	4.0	84.5	9.2	11.5	7.1	24.0
BRP-29-6	26-Jul-21	4.5	84.4	9.2	11.5	7.1	24.0
BRP-29-6	26-Jul-21	5.0	84.2	9.2	11.5	7.1	24.0
BRP-29-6	26-Jul-21	5.5	84.2	9.2	11.5	7.0	24.0
BRP-29-6	26-Jul-21	6.0	84.0	9.2	11.4	7.0	24.0
BRP-29-6	26-Jul-21	6.5	83.9	9.2	11.4	7.0	24.0
BRP-29-6	26-Jul-21	7.0	84.1	9.2	11.4	7.0	24.0
BRP-29-6	26-Jul-21	7.5	83.9	9.2	11.4	6.9	24.0
BRP-29-6	26-Jul-21	8.0	82.7	9.1	11.4	6.9	24.0
BRP-29-6	26-Jul-21	8.5	82.8	9.1	11.4	6.8	24.0
BRP-29-6	26-Jul-21	9.0	82.9	9.1	11.4	6.8	24.0
BRP-29-6	26-Jul-21	9.5	82.6	9.1	11.3	6.5	24.0
BRP-29-6	26-Jul-21	10.0	82.1	9.0	11.1	6.5	24.0
BRP-29-6	26-Jul-21	10.5	81.4	9.0	10.7	6.5	24.0
BRP-29-6	26-Jul-21	11.0	80.4	9.4	8.7	6.5	22.0
BRP-29-6	26-Jul-21	11.5	78.9	10.0	5.7	6.5	20.0
BRP-29-6	26-Jul-21	12.0	77.1	10.0	4.9	6.4	20.0
BRP-29-6	26-Jul-21	12.5	77.3	10.0	4.6	6.5	20.0
BRP-29-6	26-Jul-21	13.0	76.7	9.9	4.6	6.6	19.0
BRP-29-6	26-Jul-21	13.5	76.2	9.9	4.5	6.6	19.0
BRP-29-6	26-Jul-21	14.0	75.9	9.9	4.4	6.6	19.0
BRP-29-6	26-Jul-21	14.5	75.7	9.9	4.3	6.5	19.0
BRP-29-6	26-Jul-21	15.0	75.5	9.9	4.3	6.5	20.0
BRP-29-6	26-Jul-21	15.5	75.1	9.8	4.1	6.5	20.0
BRP-29-6	26-Jul-21	16.0	74.6	9.8	4.1	6.5	20.0
BRP-29-6	26-Jul-21	16.5	73.9	9.7	4.0	6.5	20.0
BRP-29-6	26-Jul-21	17.0	73.7	9.7	4.0	6.5	21.0
BRP-29-6	26-Jul-21	17.5	73.3	9.7	3.9	6.5	21.0
BRP-29-6	26-Jul-21	18.0	73.3	9.7	3.9	6.4	22.0
BRP-29-6	26-Jul-21	18.5	73.1	9.6	3.8	6.4	23.0
BRP-29-6	26-Jul-21	19.0	73.2	9.6	3.7	6.4	24.0
BRP-29-6	26-Jul-21	19.5	72.6	9.6	3.6	6.4	27.0
BRP-29-6	26-Jul-21	20.0	72.0	9.6	3.5	6.4	29.0
BRP-29-6	26-Jul-21	21.0	70.9	9.5	3.4	6.3	34.0
BRP-29-6	26-Jul-21	22.0	69.4	9.2	3.2	6.3	38.0
BRP-29-6	26-Jul-21	23.0	65.5	8.6	3.1	6.3	46.0
BRP-29-6	26-Jul-21	24.0	52.1	7.0	3.1	6.3	47.0
BRP-29-6	26-Jul-21	25.0	40.2	5.2	3.1	6.4	47.0
BRP-29-6	26-Jul-21	26.0	31.0	4.0	3.1	6.4	47.0
BRP-29-6	26-Jul-21	27.0	25.7	3.5	3.1	6.4	47.0
BRP-29-6	26-Jul-21	28.0	22.5	3.0	3.1	6.4	47.0
BRP-29-6	26-Jul-21	29.0	19.5	2.6	3.1	6.4	47.0
BRP-29-6	26-Jul-21	30.0	16.8	2.2	3.1	6.4	47.0

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.

Table B-3: Field Profiles at Goose Lake West Bay at BRP-29, September 2021

Station ^(a)	Date	Depth (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-29-4							
BRP-29-4	03-Sep-21	0.1	141	14.7	13.5	6.4	32.0
BRP-29-4	03-Sep-21	0.5	141	14.7	13.5	6.4	32.0
BRP-29-4	03-Sep-21	1.0	139	14.7	12.6	6.4	32.0
BRP-29-4	03-Sep-21	1.5	136	14.5	12.5	6.4	32.0
BRP-29-4	03-Sep-21	2.0	133	14.3	12.5	6.1	32.0
BRP-29-4	03-Sep-21	2.5	134	14.3	12.4	6.1	32.0

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) only one station within the area has been sampled during this program (data for HD model)

Table B-4: Field Profiles at Goose Lake Central Basin at BRP-32, April 2021

Station	Date	Depth ^(a) (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-32-1							
BRP-32-1	15-Apr-21	0.3	109.4	15.3	0.9	6.5	56.9
BRP-32-1	15-Apr-21	0.5	108.9	15.3	0.7	6.4	57.0
BRP-32-1	15-Apr-21	1.0	102.4	14.3	1.1	6.3	54.6
BRP-32-1	15-Apr-21	1.5	96.8	13.4	1.5	6.2	52.8
BRP-32-1	15-Apr-21	2.0	92.1	12.6	1.8	6.2	52.1
BRP-32-1	15-Apr-21	2.5	87.2	11.9	1.9	6.0	51.3
BRP-32-2							
BRP-32-2	15-Apr-21	0.3	106.5	14.9	0.8	6.1	57.8
BRP-32-2	15-Apr-21	0.5	106.4	15.0	0.7	6.1	57.2
BRP-32-2	15-Apr-21	1.0	99.3	13.8	1.1	6.1	55.1
BRP-32-2	15-Apr-21	1.5	95.3	13.1	1.4	6.0	53.8
BRP-32-2	15-Apr-21	2.0	88.0	12.0	1.7	6.0	52.0
BRP-32-2	15-Apr-21	2.5	84.8	11.5	1.9	6.0	50.9
BRP-32-2	15-Apr-21	2.8	82.9	11.3	-	5.9	54.5
BRP-32-3							
BRP-32-3	15-Apr-21	0.3	106.2	15.0	0.5	6.1	57.2
BRP-32-3	15-Apr-21	0.5	105.1	14.9	0.5	6.1	56.5
BRP-32-3	15-Apr-21	1.0	101.4	14.1	1.0	6.1	54.6
BRP-32-3	15-Apr-21	1.5	96.9	13.4	1.4	6.1	53.3
BRP-32-3	15-Apr-21	2.0	89.1	12.2	1.6	6.1	53.3
BRP-32-3	15-Apr-21	2.5	83.9	11.4	1.8	6.2	52.4
BRP-32-3	15-Apr-21	2.9	80.1	10.9	2.0	6.2	51.8
BRP-32-4							
BRP-32-4	15-Apr-21	0.3	104.1	14.7	0.8	6.3	57.6
BRP-32-4	15-Apr-21	0.5	104.5	14.7	0.6	6.2	57.7
BRP-32-4	15-Apr-21	1.0	100.3	14.0	1.1	6.2	55.5
BRP-32-4	15-Apr-21	1.5	92.7	12.8	1.5	6.1	53.5
BRP-32-4	15-Apr-21	2.0	87.5	12.0	1.8	6.1	52.6
BRP-32-4	15-Apr-21	2.5	86.1	11.7	1.9	6.1	52.0
BRP-32-5							
BRP-32-5	15-Apr-21	0.3	105.2	14.8	0.7	6.2	57.5
BRP-32-5	15-Apr-21	0.5	104.6	14.7	0.6	6.2	56.4
BRP-32-5	15-Apr-21	1.0	99.8	13.9	1.1	6.1	54.6
BRP-32-5	15-Apr-21	1.5	92.5	12.8	1.4	6.1	53.6
BRP-32-5	15-Apr-21	2.0	86.0	11.8	1.7	6.0	52.3
BRP-32-5	15-Apr-21	2.5	83.3	11.3	1.9	6.0	51.3
BRP-32-5	15-Apr-21	2.8	79.8	10.8	2.0	6.0	51.5

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) - depth starting from underneath the ice layer

Table B-5: Field Profiles at Goose Lake Central Basin at BRP-32, July 2021

Station ^(a)	Date	Depth (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-32-2							
BRP-32-2	26-Jul-21	0.3	95.2	10.30	11.77	6.08	22.0
BRP-32-2	26-Jul-21	0.5	94.3	10.21	11.78	6.17	22.0
BRP-32-2	26-Jul-21	1.0	93.9	10.18	11.78	6.16	22.0
BRP-32-2	26-Jul-21	1.5	93.7	10.15	11.77	6.15	22.0
BRP-32-2	26-Jul-21	2.0	93.4	10.12	11.77	6.20	22.0
BRP-32-2	26-Jul-21	2.5	93.2	10.10	11.77	6.23	22.0
BRP-32-2	26-Jul-21	3.0	93.0	10.07	11.77	6.22	22.0
BRP-32-2	26-Jul-21	3.5	92.8	10.05	11.76	6.26	22.0
BRP-32-2	26-Jul-21	4.0	92.7	10.04	11.77	6.26	22.0
BRP-32-2	26-Jul-21	4.5	92.5	10.02	11.77	6.27	22.0

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) only one station within the area has been sampled during this program (data for HD model)

Table B-6: Field Profiles at Goose Lake Southeast Basin at BRP-33, April 2021

Station	Date	Depth ^(a) (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-33-1							
BRP-33-1	11-Apr-21	0.3	110.1	15.5	1.0	6.5	74.4
BRP-33-1	11-Apr-21	0.5	108.6	15.2	1.1	6.4	73.0
BRP-33-1	11-Apr-21	1.0	106.5	14.9	1.1	6.2	69.8
BRP-33-1	11-Apr-21	1.5	103.3	14.4	1.3	6.2	70.8
BRP-33-2							
BRP-33-2	11-Apr-21	0.3	111.1	15.6	1.2	6.3	64.0
BRP-33-2	11-Apr-21	0.5	108.6	15.4	0.9	6.4	63.0
BRP-33-2	11-Apr-21	1.0	103.8	14.6	1.1	6.4	61.7
BRP-33-2	11-Apr-21	1.5	100.9	14.0	1.4	6.3	59.0
BRP-33-2	11-Apr-21	2.0	95.3	13.1	1.8	6.1	59.0
BRP-33-2	11-Apr-21	2.5	91.5	12.6	1.8	6.0	62.6
BRP-33-3							
BRP-33-3	11-Apr-21	0.3	106.1	15.2	0.4	6.1	63.5
BRP-33-3	11-Apr-21	0.5	106.1	15.1	0.4	6.2	63.0
BRP-33-3	11-Apr-21	1.0	104.6	14.7	0.9	6.1	60.0
BRP-33-3	11-Apr-21	1.5	102.3	14.2	1.4	6.1	59.8
BRP-33-3	11-Apr-21	2.0	100.3	13.8	1.5	6.1	59.5
BRP-33-3	11-Apr-21	2.5	95.2	13.1	1.8	6.0	58.7
BRP-33-3	11-Apr-21	3.0	90.5	12.3	2.0	6.0	58.2
BRP-33-3	11-Apr-21	3.3	66.7	9.1	2.2	5.8	61.8
BRP-33-4							
BRP-33-4	11-Apr-21	0.3	107.4	15.3	0.4	6.0	60.3
BRP-33-4	11-Apr-21	0.5	107.2	15.3	0.4	6.0	61.7
BRP-33-4	11-Apr-21	1.0	105.1	14.7	1.0	6.1	58.6
BRP-33-4	11-Apr-21	1.5	103.6	14.4	1.3	6.0	57.5
BRP-33-4	11-Apr-21	2.0	100.7	13.9	1.6	6.0	58.0
BRP-33-4	11-Apr-21	2.5	96.8	13.3	1.9	5.9	57.3
BRP-33-4	11-Apr-21	3.0	83.0	11.3	2.1	5.8	59.6
BRP-33-4	11-Apr-21	3.5	62.6	8.5	2.3	5.7	60.2
BRP-33-4	11-Apr-21	3.9	51.1	6.8	2.4	5.7	61.7
BRP-33-5							
BRP-33-5	11-Apr-21	0.3	106.7	15.3	0.3	6.0	57.0
BRP-33-5	11-Apr-21	0.5	103.1	14.7	0.5	6.0	59.1
BRP-33-5	11-Apr-21	1.0	101.9	14.5	0.8	6.0	57.4
BRP-33-5	11-Apr-21	1.5	98.0	13.7	1.1	5.9	56.0
BRP-33-5	11-Apr-21	2.0	97.0	13.4	1.5	5.9	57.0
BRP-33-5	11-Apr-21	2.5	94.8	13.0	1.9	5.9	55.9
BRP-33-5	11-Apr-21	3.0	70.0	9.5	2.1	5.7	61.6

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) - depth starting from underneath the ice layer

Table B-7: Field Profiles at Goose Lake Southeast Basin at BRP-33, July 2021

Station ^(a)	Date	Depth (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
BRP-33-2							
BRP-33-2	26-Jul-21	0.3	94.1	10.2	11.8	6.7	22.0
BRP-33-2	26-Jul-21	0.5	92.8	10.0	11.8	6.7	22.0
BRP-33-2	26-Jul-21	1.0	92.4	10.0	11.8	6.7	22.0
BRP-33-2	26-Jul-21	1.5	92.1	10.0	11.7	6.7	22.0
BRP-33-2	26-Jul-21	2.0	92.0	10.0	11.7	6.7	22.0
BRP-33-2	26-Jul-21	2.5	91.8	10.0	11.7	6.7	22.0
BRP-33-2	26-Jul-21	3.0	91.7	10.0	11.6	6.6	22.0
BRP-33-2	26-Jul-21	3.5	91.8	10.0	11.6	6.7	22.0
BRP-33-2	26-Jul-21	4.0	87.1	9.6	11.5	6.7	22.0

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) only one station within the area has been sampled during this program (data for HD model)

Table B-8: Field Profiles at Goose Lake Tail, April 2021

Station ^(b)	Date	Depth ^(a) (m)	DO (%)	DO (mg/L)	Water temperature (°C)	pH	Specific Conductivity (µS/cm)
GLTL							
GLTL	15-Apr-21	0.3	93.0	13.2	0.4	6.1	66.9
GLTL	15-Apr-21	0.5	92.1	13.0	0.6	6.1	65.7
GLTL	15-Apr-21	1.0	61.2	8.0	1.3	6.1	63.4
GLTL	15-Apr-21	1.5	51.5	7.0	2.0	6.3	62.8
GLTL	15-Apr-21	2.0	47.7	6.4	2.2	6.3	63.6
GLTL	15-Apr-21	2.5	40.3	5.4	2.5	6.3	65.7
GLTL	15-Apr-21	3.0	34.2	4.5	2.8	6.3	67.1
GLTL	15-Apr-21	3.5	25.1	3.3	2.9	6.3	68.1
GLTL	15-Apr-21	3.9	20.6	2.7	3.0	6.3	69.2

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; (°C) = degrees Celsius;
µS/cm = microsiemens per centimetre; - = data not available.
(a) depth starting from underneath the ice layer,
(b) only one station within the area has been sampled during this program (data for HD model)

APPENDIX C

2021 Water Quality – Analytical Chemistry

Table C-1: Water Quality Summary at Goose Lake West Bay, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites													
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	YL2100283-006	YL2100283-008	YL2100283-007	YL2100896-001	YL2100896-002	YL2100896-003	YL2100896-004	YL2101200-009	YL2101200-008
		Acute	Chronic			BRP-29-1	BRP-29-2	BRP-29-2-B	BRP-29-3	BRP-29-4	BRP-29-5	BRP-29-6-T	BRP-29-6-B	BRP-29 (SHALLOW)-	BRP-29 (SHALLOW)-B	BRP-29 (SHALLOW)-T	BRP-29 (SHALLOW)-B	BRP-29-6-B	BRP-29-6-T
						04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	07-26-2021	07-26-2021	07-26-2021	07-26-2021
Field Measured																			
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.5 ^(Ae)	5.9 ^(C, Ae)	5.9 ^(C, Ae)	6.1 ^(C, Ae)	6.2 ^(C, Ae)	6.3 ^(C, Ae)	5.9 ^(C, Ae)	6.2 ^(C, Ae)	6.0 ^(C, Ae)	6.1 ^(C, Ae)	7.3	6.4 ^(C, Ae)	6.1 ^(C, Ae)	6.4 ^(C, Ae)
Specific conductivity	µS/cm	-	-	-	-	78	82	76	78	75	77	78	65	24	33	24	47	32	32
Temperature	°C	-	-	-	15	0.50	0.60	1.3	0.40	0.60	0.50	0.70	2.7	12	3.7	12	3.1	13	14
Dissolved oxygen	mg/L	-	6.5	-	-	12	12	11	13	12	12	12	11	9.9	5.2 ^(C)	9.3	2.6 ^(C)	14	15
Dissolved oxygen	%	-	-	-	-	85	84	77	90	86	86	85	81	91	40	86	20	134	141
Conventional Parameters																			
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.6 ^(Ae)	6.6 ^(Ae)	-	6.6 ^(Ae)	6.5 ^(Ae)	6.6 ^(Ae)	-	-	-	-	-	-	-	-
Specific conductivity	µS/cm	-	-	-	-	83	86	-	88	88	88	-	-	-	-	-	-	-	-
Hardness, as CaCO ₃	mg/L	-	-	-	-	31	33	-	32	33	34	-	-	-	-	-	-	-	-
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	6.9	7.0	7.5	6.8	7.2	7.2	7.5	6.3	4.8	6.7	4.8	7.2	4.9	4.6
Total dissolved solids	mg/L	-	-	-	500	70	70	70	72	76	74	74	50	32	58	32	63	31	30
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	49	51	46	50	52	52	45	42	18	38	17	40	18	18
Total dissolved solids (APHA 2005) ⁽¹⁾	mg/L	-	-	-	-	40	41	42	41	42	43	41	39	17	34	16	36	17	17
Total suspended solids	mg/L	-	-	-	-	<3.0	<3.0	-	<3.0	<3.0	<3.0	-	-	-	-	-	-	-	-
Total organic carbon	mg/L	-	-	-	-	5.6	5.8	-	5.7	5.9	5.9	-	-	-	-	-	-	-	-
Dissolved organic carbon	mg/L	-	-	-	-	5.6	5.3	-	5.5	5.8	5.9	-	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-
Major Ions																			
Calcium	mg/L	-	-	-	-	6.6	7.0	7.1	6.6	7.0	7.2	7.2	6.8	2.7	6.1	2.7	6.4	2.6	2.6
Chloride	mg/L	640	120	-	250	9.7	10	10	10	10	10	9.9	10.0	2.4	8.2	2.3	8.7	2.3	2.3
Cyanide (free)	mg/L	-	0.0050	0.2	-	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-
Cyanide	mg/L	-	-	-	-	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-
Fluoride	mg/L	-	0.12	1.5	-	0.023	0.028	-	0.028	0.024	0.025	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	3.5	3.7	3.9	3.7	3.8	3.8	3.6	3.6	1.6	3.2	1.4	3.2	1.6	1.6
Potassium	mg/L	-	-	-	-	0.55	0.57	0.56	0.56	0.58	0.60	0.53	0.49	0.41	0.54	0.36	0.50	0.37	0.47
Sodium	mg/L	-	-	-	200	1.2	1.2	1.2	1.3	1.3	1.3	1.1	1.1	0.84	1.1	0.55	1.0	0.62	0.77
Sulphate	mg/L	-	-	-	500	14	14	14	14	14	15	14	12	5.9	11	5.8	12	6.6	6.6
Sulphide	mg/L	-	-	-	0.05	0.0018	0.0016	-	0.0020	0.0023	0.0024	-	-	-	-	-	-	-	-
Silica	mg/L	-	-	-	-	3.0	3.1	-	3.0	3.0	3.1	-	-	-	-	-	-	-	-
Nutrients																			
Nitrate	mg-N/L	124	2.9	10	-	0.12	0.13	0.14	0.13	0.14	0.13	0.14	0.12	0.021	0.11	0.016	0.12	0.016	0.017
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	0.0015	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-
Total ammonia	mg-N/L	-	3.7 - 227 ^(a)	-	-	0.018	0.021	-	0.021	0.022	0.022	-	-	-	-	-	-	-	-
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	0.21	0.22	-	0.22	0.22	0.24	-	-	-	-	-	-	-	-
Total phosphorus	mg-P/L	-	-	-	-	0.0027	0.0028	-	0.0026	0.0029	0.0035	-	-	-	-	-	-	-	-
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0019	0.0020	-	0.0021	0.0023	0.0019	-	-	-	-	-	-	-	-
Orthophosphate	mg-P/L	-	-	-	-	<0.001	<0.001	-	0.0013	0.0013	<0.001	-	-	-	-	-	-	-	-
Total Metals																			
Aluminum	µg/L	-	5.0 - 100 ^(b, c)	2,900	-	27	30 ^(c)	-	29 ^(c)	29 ^(c)	31 ^(c)	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	6.0	-	0.020	0.014	-	0.046	0.023	0.025	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	5.0	10	-	0.30	0.30	-	0.30	0.31	0.33	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	2,000	-	12	13	-	12	13	14	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-	0.0062	0.0068	-	0.0079	0.0082	0.0090	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-
Boron	µg/L	29,000	1,500	5,000	-	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	-	-	-	-	-	-	-
Cadmium	µg/L	0.41 - 0.70 ^(d)	0.042 - 0.064 ^(d)	7.0	-	0.015	0.018	-	0.018	0.019	0.019	-	-	-	-	-	-	-	-
Calcium	µg/L	-	-	-	-	6,160	7,080	-	6,410	6,660	7,160	-	-	-	-	-	-	-	-
Chromium	µg/L	-	1.0 ^(e)	50 ^(e)	-	0.13	0.15	-	0.15	0.16	0.16	-	-	-	-	-	-	-	-

Table C-1: Water Quality Summary at Goose Lake West Bay, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites													
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	YL2100283-006	YL2100283-008	YL2100283-007	YL2100896-001	YL2100896-002	YL2100896-003	YL2100896-004	YL2101200-009	YL2101200-008
		Acute	Chronic			BRP-29-1	BRP-29-2	BRP-29-2-B	BRP-29-3	BRP-29-4	BRP-29-5	BRP-29-6-T	BRP-29-6-B	BRP-29 (SHALLOW)-	BRP-29 (SHALLOW)-B	BRP-29 (SHALLOW)-T	BRP-29 (SHALLOW)-B	BRP-29-6-B	BRP-29-6-T
						04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	07-26-2021	07-26-2021	07-26-2021	07-26-2021
Cobalt	µg/L	-	-	-	-	0.41	0.51	-	0.42	0.49	0.50	-	-	-	-	-	-	-	-
Copper	µg/L	-	2.0 ^(d)	2,000	1,000	2.7 ^(c)	3.1 ^(c)	-	3.0 ^(c)	3.0 ^(c)	3.3 ^(c)	-	-	-	-	-	-	-	-
Iron	µg/L	-	300	-	300	17	20	-	17	20	21	-	-	-	-	-	-	-	-
Lanthanum	µg/L	-	-	-	-	0.52	0.53	-	0.51	0.53	0.55	-	-	-	-	-	-	-	-
Lead	µg/L	-	1.0 ^(d)	5.0	-	0.0061	<0.005	-	0.015	0.028	0.048	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-	1.1	1.1	-	1.1	1.1	1.1	-	-	-	-	-	-	-	-
Magnesium	µg/L	-	-	-	-	3,190	3,740	-	3,440	3,570	3,750	-	-	-	-	-	-	-	-
Manganese	µg/L	1,620 - 2,562 ^(d)	-	120	20	5.1	7.3	-	5.2	6.7	6.8	-	-	-	-	-	-	-	-
Mercury	µg/L	-	0.026	1.0	-	0.0011	0.00089	-	0.0020	0.0042	0.012	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	73	-	-	0.011	0.010	-	0.012	0.015	0.015	-	-	-	-	-	-	-	-
Nickel	µg/L	-	25 ^(d)	-	-	8.4	9.7	-	8.9	9.3	9.7	-	-	-	-	-	-	-	-
Potassium	µg/L	-	-	-	-	503	583	-	534	554	591	-	-	-	-	-	-	-	-
Selenium	µg/L	-	1.0	50	-	0.032	0.039	-	0.032	0.034	0.039	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-	1,290	1,350	-	1,330	1,360	1,390	-	-	-	-	-	-	-	-
Silver	µg/L	-	0.25	-	-	<0.002	<0.002	-	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-
Sodium	µg/L	-	-	-	-	1,080	1,230	-	1,140	1,200	1,270	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	7,000	-	32	36	-	33	34	37	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-	4,520	4,660	-	4,700	4,840	4,930	-	-	-	-	-	-	-	-
Thallium	µg/L	-	0.80	-	-	0.0022	0.0027	-	0.0027	0.0025	0.0021	-	-	-	-	-	-	-	-
Tin	µg/L	-	-	-	-	<0.01	<0.01	-	0.072	0.10	0.57	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	0.063	0.064	-	0.54	0.084	0.11	-	-	-	-	-	-	-	-
Uranium	µg/L	33	15	20	-	0.016	0.013	-	0.015	0.012	0.017	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-	0.036	0.040	-	0.039	0.036	0.041	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	5,000	2.5	2.7	-	2.8	3.0	3.8	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-	0.14	0.14	-	0.15	0.15	0.16	-	-	-	-	-	-	-	-
Dissolved Metals																			
Aluminum	µg/L	-	-	-	-	29	30	-	30	30	31	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	-	0.014	0.016	-	0.033	0.039	0.020	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	-	0.40	0.50	-	49	77	0.45	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	-	12	13	-	12	13	13	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	-	0.0064	0.0083	-	0.0073	0.0070	0.0063	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	-	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	-	-	-	-	-	-	-
Cadmium	µg/L	-	-	-	-	0.017	0.014	-	0.016	0.016	0.018	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-	0.14	0.15	-	0.15	0.16	0.16	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	-	0.41	0.47	-	0.41	0.47	0.46	-	-	-	-	-	-	-	-
Copper	µg/L	-	-	-	-	2.9	3.1	-	3.0	3.1	3.1	-	-	-	-	-	-	-	-
Iron	µg/L	-	-	-	-	13	14	-	20	15	15	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	-	0.0053	<0.005	-	0.0095	0.0057	0.017	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	-	1.1	1.1	-	1.1	1.2	1.1	-	-	-	-	-	-	-	-
Manganese	µg/L	1,620 - 2,562 ^(d)	200 - 330 ^(h)	-	-	5.1	6.9	-	5.5	8.2	6.4	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	-	0.00098	0.0012	-	0.0016	0.0024	0.0087	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	-	0.014	0.013	-	0.014	0.015	0.014	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	-	9.0	9.5	-	9.0	9.5	9.7	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	-	0.033	0.035	-	0.033	0.033	0.038	-	-	-	-	-	-	-	-
Silicon	µg/L	-	-	-	-	1,280	1,350	-	1,290	1,370	1,390	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	-	<0.002	<0.002	-	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	-	34	35	-	34	36	36	-	-	-	-	-	-	-	-
Sulphur	µg/L	-	-	-	-	4,490	4,740	-	4,510	4,850	4,870	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	-	0.0021	0.0019	-	0.0022	0.0021	0.0019	-	-	-	-	-	-	-	-

Table C-1: Water Quality Summary at Goose Lake West Bay, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites													
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-001	YL2100283-002	YL2100283-003	YL2100283-004	YL2100283-005	YL2100283-006	YL2100283-008	YL2100283-007	YL2100896-001	YL2100896-002	YL2100896-003	YL2100896-004	YL2101200-009	YL2101200-008
		Acute	Chronic			BRP-29-1	BRP-29-2	BRP-29-2-B	BRP-29-3	BRP-29-4	BRP-29-5	BRP-29-6-T	BRP-29-6-B	BRP-29 (SHALLOW)-	BRP-29 (SHALLOW)-B	BRP-29 (SHALLOW)-T	BRP-29 (SHALLOW)-B	BRP-29-6-B	BRP-29-6-T
						04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	04-13-2021	07-26-2021	07-26-2021	07-26-2021	07-26-2021
Tin	µg/L	-	-	-	-	<0.01	<0.01	-	0.083	0.094	0.51	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	0.066	0.073	-	0.080	0.065	0.074	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	-	0.015	0.014	-	0.014	0.017	0.016	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	-	0.034	0.038	-	0.039	0.037	0.038	-	-	-	-	-	-	-	-
Zinc	µg/L	29 - 48 ^(g)	9.1 - 29 ^(h)	-	-	2.5	2.5	-	2.6	2.7	3.3	-	-	-	-	-	-	-	-
Zirconium	µg/L	-	-	-	-	0.14	0.14	-	0.14	0.15	0.15	-	-	-	-	-	-	-	-

Notes:

- ^(a) = the ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (3.74 mg-N/L) is based on the combination of field pH (7.3) and water temperature (11.6°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temperature measurements for each sample.
- ^(b) = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (5.9 to 7.3). The guideline is calculated based on the individual pH for each sample.
- ^(c) = guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.
- ^(d) = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (20 to 34 mg/L). The guideline is calculated based on the individual hardness value for each sample.
- ^(e) = guideline is for chromium VI.
- ^(f) = the chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.0), and hardness (20.0 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.
- ^(g) = the acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (28.6 µg/L) is based on the combination of hardness (20.0 mg/L) and DOC (4.0 mg/L). Guidelines calculated with hardness and DOC values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.
- ^(h) = the chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (9.1 µg/L) is based on the combination of field pH (7.3), hardness (20.0 mg/L) and DOC (4.0 mg/L). Guidelines calculated with pH, hardness, and DOC values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and DOC 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.
- ⁽ⁱ⁾ = total dissolved solids calculated by Golder using the Standard Method by APHA 2005.
- ^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.
- ^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

= no guideline or no data; B = near bottom, T = near top.

Sources:

- CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.
- Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.
- APHA 2005 = Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, 2005.

Table C-2: Water Quality Summary at Goose Lake Central Basin, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites							
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-015	YL2100283-016	YL2100283-017	YL2100283-024	YL2100283-018	YL2100283-019	YL2100896-005	YL2100896-006
		Acute	Chronic			BRP-32-1	BRP-32-2	BRP-32-3	BRP-32-3-B	BRP-32-4	BRP-32-5	BRP-23-T	BRP-32-B
						04-15-2021	04-15-2021	04-15-2021	04-15-2021	04-15-2021	04-15-2021	07-26-2021	07-26-2021
Field Measured													
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.3 ^(C, Ae)	6.1 ^(C, Ae)	6.1 ^(C, Ae)	6.2 ^(C, Ae)	6.2 ^(C, Ae)	6.1 ^(C, Ae)	6.2 ^(C, Ae)	6.3 ^(C, Ae)
Conductivity	µS/cm	-	-	-	-	30	30	30	29	30	30	-	-
Specific conductivity	µS/cm	-	-	-	-	55	55	57	52	55	55	22	22
Temperature	°C	-	-	-	15	1.1	1.1	0.50	2.0	1.1	1.1	12	12
Dissolved oxygen	mg/L	-	6.5	-	-	14	14	15	11	14	14	10	10
Dissolved oxygen	%	-	-	-	-	102	99	106	80	100	100	93	93
Conventional Parameters													
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.7 ^(Ae)	6.7 ^(Ae)	6.8 ^(Ae)	-	6.7 ^(Ae)	6.7 ^(Ae)	-	-
Specific conductivity	µS/cm	-	-	-	-	65	68	69	-	69	66	-	-
Hardness, as CaCO ₃	mg/L	-	-	-	-	27	26	27	-	28	26	-	-
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	7.8	8.4	8.7	8.2	8.5	8.1	4.5	4.2
Total dissolved solids	mg/L	-	-	-	500	51	55	56	49	54	52	29	27
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	42	43	44	36	44	42	15	15
Total dissolved solids (APHA 2005) ^(f)	mg/L	-	-	-	-	33	34	35	33	35	33	14	14
Total suspended solids	mg/L	-	-	-	-	<3.0	<3.0	<3.0	-	<3.0	<3.0	-	-
Total organic carbon	mg/L	-	-	-	-	6.4	6.8	6.8	-	7.0	6.9	-	-
Dissolved organic carbon	mg/L	-	-	-	-	6.2	6.7	6.6	-	6.8	6.6	-	-
Turbidity	NTU	-	-	-	-	<0.1	0.11	0.13	-	0.19	0.10	-	-
Major Ions													
Calcium	mg/L	-	-	-	-	5.3	5.0	5.2	5.1	5.2	5.0	2.2	2.2
Chloride	mg/L	640	120	-	250	3.7	4.0	4.0	3.8	4.0	3.8	1.4	1.4
Cyanide (free)	mg/L	-	0.0050	0.20	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	-
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	-
Cyanide	mg/L	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	-
Fluoride	mg/L	-	0.12	1.5	-	0.030	0.031	0.032	-	0.031	0.030	-	-
Magnesium	mg/L	-	-	-	-	3.4	3.2	3.4	3.2	3.5	3.2	1.4	1.4
Potassium	mg/L	-	-	-	-	0.60	0.55	0.59	0.55	0.60	0.57	0.30	0.31
Sodium	mg/L	-	-	-	200	1.3	1.2	1.3	1.1	1.3	1.2	0.52	0.52
Sulphate	mg/L	-	-	-	500	14	15	15	14	15	14	5.9	5.9
Sulphide	mg/L	-	-	-	0.050	0.0022	<0.0015	0.0024	-	<0.0015	0.0023	-	-
Silica	mg/L	-	-	-	-	2.1	2.2	2.2	-	2.3	2.1	-	-
Nutrients													
Nitrate	mg-N/L	124	2.9	10	-	0.047	0.039	0.038	0.068	0.044	0.043	<0.005	<0.005
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	-	-
Total ammonia	mg-N/L	-	37 - 145 ^(ai)	-	-	0.039	0.046	0.041	-	0.040	0.037	-	-
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	0.26	0.32	0.33	-	0.35	0.30	-	-
Total phosphorus	mg-P/L	-	-	-	-	0.0034	0.0038	0.0035	-	0.0041	0.0037	-	-
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0018	0.0022	0.0021	-	0.0025	0.0027	-	-
Orthophosphate	mg-P/L	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	-	-
Total Metals													
Aluminum	µg/L	-	5.0 ^(b, c)	2,900	-	29 ^(e)	21 ^(e)	22 ^(e)	-	22 ^(e)	21 ^(e)	-	-
Antimony	µg/L	-	-	6.0	-	0.087	0.017	0.034	-	0.019	0.015	-	-
Arsenic	µg/L	-	5.0	10	-	0.37	0.33	0.34	-	0.34	0.32	-	-
Barium	µg/L	-	-	2,000	-	11	9.8	10	-	10	9.9	-	-
Beryllium	µg/L	-	-	-	-	0.0053	0.0047	0.0062	-	0.0058	0.0057	-	-
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	-	-
Boron	µg/L	29,000	1,500	5,000	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	-	-
Cadmium	µg/L	0.41 - 0.57 ^(di)	0.042 - 0.054 ^(d)	7.0	-	0.0081	0.0096	0.0096	-	0.0081	0.0089	-	-
Calcium	µg/L	-	-	-	-	5,550	5,090	5,140	-	5,280	5,160	-	-
Chromium	µg/L	-	1.0 ^(e)	50 ^(e)	-	0.19	0.15	0.16	-	0.17	0.15	-	-
Cobalt	µg/L	-	-	-	-	0.15	0.13	0.13	-	0.13	0.13	-	-
Copper	µg/L	-	2.0 ^(d)	2,000	1,000	3.2 ^(e)	2.8 ^(e)	3.2 ^(e)	-	3.0 ^(e)	2.9 ^(e)	-	-
Iron	µg/L	-	300	-	300	28	20	19	-	19	18	-	-
Lead	µg/L	-	1.0 ^(d)	5.0	-	0.047	0.0084	0.030	-	<0.005	<0.005	-	-
Lithium	µg/L	-	-	-	-	1.2	1.1	1.2	-	1.2	1.1	-	-
Magnesium	µg/L	-	-	-	-	3,550	3,270	3,360	-	3,440	3,320	-	-
Manganese	µg/L	1,620 - 2,143 ^(d)	-	120	20	7.0	6.5	6.4	-	6.9	6.6	-	-
Mercury	µg/L	-	0.026	1.0	-	0.0042	0.00077	0.0080	-	0.00075	0.00071	-	-
Molybdenum	µg/L	-	73	-	-	0.021	0.012	0.016	-	0.013	0.012	-	-
Nickel	µg/L	-	25 ^(d)	-	-	8.9	8.2	8.3	-	8.5	8.3	-	-
Potassium	µg/L	-	-	-	-	636	567	584	-	607	573	-	-
Selenium	µg/L	-	1.0	50	-	0.045	0.041	0.042	-	0.035	0.038	-	-
Silicon	µg/L	-	-	-	-	1,040	981	1,010	-	1,020	969	-	-
Silver	µg/L	-	0.25	-	-	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	-
Sodium	µg/L	-	-	-	-	1,370	1,160	1,220	-	1,240	1,210	-	-
Strontium	µg/L	-	-	7,000	-	27	25	26	-	26	25	-	-
Sulphur	µg/L	-	-	-	-	5,240	4,980	5,150	-	5,120	4,940	-	-
Thallium	µg/L	-	0.80	-	-	0.0030	0.0025	0.0024	-	0.0025	0.0026	-	-
Tin	µg/L	-	-	-	-	0.13	<0.01	0.29	-	<0.01	<0.01	-	-
Titanium	µg/L	-	-	-	-	0.34	0.054	0.078	-	0.059	0.070	-	-
Uranium	µg/L	33	15	20	-	0.016	0.015	0.013	-	0.013	0.014	-	-
Vanadium	µg/L	-	-	-	-	0.055	0.038	0.041	-	0.039	0.040	-	-
Zinc	µg/L	-	-	5,000	-	2.1	1.4	2.4	-	1.3	1.4	-	-
Zirconium	µg/L	-	-	-	-	0.13	0.12	0.13	-	0.13	0.12	-	-
Dissolved Metals													
Aluminum	µg/L	-	-	-	-	22	20	22	-	21	21	-	-
Antimony	µg/L	-	-	-	-	0.051	0.014	0.022	-	0.035	0.020	-	-
Arsenic	µg/L	-	-	-	-	0.42	0.54	0.44	-	74	0.49	-	-
Barium	µg/L	-	-	-	-	10	9.5	9.9	-	10.0	9.7	-	-
Beryllium	µg/L	-	-	-	-	0.0057	0.0056	0.0048	-	0.0035	0.0060	-	-
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	0.0031	-	-
Boron	µg/L	-	-	-	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	-	-
Cadmium	µg/L	-	-	-	-	0.0082	0.0044	0.0062	-	0.0069	0.0061	-	-
Chromium	µg/L	-	-	-	-	0.16	0.14	0.16	-	0.16	0.15	-	-
Cobalt	µg/L	-	-	-	-	0.096	0.089	0.097	-	0.11	0.092	-	-
Copper	µg/L	-	-	-	-	3.0	2.8	3.1	-	2.9	2.8	-	-
Iron	µg/L	-	-	-	-	14	12	13	-	13	12	-	-
Lead	µg/L	-	-	-	-	0.016	<0.005	0.011	-	<0.005	<0.005	-	-
Lithium	µg/L	-	-	-	-	1.2	1.1	1.2	-	1.2	1.1	-	-
Manganese	µg/L	1,620 - 2,143 ^(d)	200 - 310 ^(f)	-	-	4.9	4.4	4.8	-	5.2	4.4	-	-
Mercury	µg/L	-	-	-	-	0.0034	0.00096	0.0052	-	0.00087	0.00080	-	-
Molybdenum	µg/L	-	-	-	-	0.018	0.011	0.017	-	0.015	0.014	-	-
Nickel	µg/L	-	-	-	-	8.4	8.0	8.4	-	8.3	8.0	-	-
Selenium	µg/L	-	-	-	-	0.033	0.028	0.035	-	0.042	0.040	-	-
Silicon	µg/L	-	-	-	-	1,010	984	998	-	1,010	976	-	-
Silver	µg/L	-	-	-	-	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	-
Strontium	µg/L	-	-	-	-	25	24	25	-	26	25	-	-
Sulphur	µg/L	-	-	-	-	5,020	4,950	5,040	-	5,000	4,860	-	-
Thallium	µg/L	-	-	-	-	0.0025	0.0024	0.0019	-	0.0020	0.0017	-	-
Tin	µg/L	-	-	-	-	0.12	<0.01	0.19	-	<0.01	<0.01	-	-
Titanium	µg/L	-	-	-	-	0.14	<0.05	0.058	-	0.050	0.052	-	-
Uranium	µg/L	-	-	-	-	0.012	0.013	0.013	-	0.016	0.014	-	-
Vanadium	µg/L	-	-	-	-	0.043	0.036	0.042	-	0.042	0.035	-	-
Zinc	µg/L	30 - 42 ^(g)	19 - 25 ^(h)	-	-	1.9	1.6	2.1	-	2.0	1.8	-	-
Zirconium	µg/L	-	-	-	-	0.13	0.12	0.13	-	0.12	0.12	-	-

Notes:

^(a) = the ammonia guideline is pH and temperature dependent.

Table C-3: Water Quality Summary at Goose Lake Southeast Basin, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites							
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100261-001	YL2100261-002	YL2100261-003	YL2100261-013	YL2100261-004	YL2100261-005	YL2100896-007	YL2100896-008
		Acute	Chronic			BRP-33-1	BRP-33-2	BRP-33-3	BRP-33-2-B	BRP-33-4	BRP-33-5	BRP-33-T	BRP-33-B
						04-11-2021	04-11-2021	04-11-2021	04-11-2021	04-11-2021	04-11-2021	07-26-2021	07-26-2021
Field Measured													
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.2 ^(C, Ae)	6.4 ^(C, Ae)	6.1 ^(C, Ae)	6.0 ^(C, Ae)	6.1 ^(C, Ae)	6.0 ^(C, Ae)	6.7 ^(Ae)	6.7 ^(Ae)
Conductivity	µS/cm	-	-	-	-	38	33	32	35	32	31	-	-
Specific conductivity	µS/cm	-	-	-	-	70	62	60	63	59	57	22	22
Temperature	°C	-	-	-	15	1.1	1.1	0.90	1.8	1.0	0.80	12	12
Dissolved oxygen	mg/L	-	6.5	-	-	15	15	15	13	15	15	10	10
Dissolved oxygen	%	-	-	-	-	107	104	105	92	105	102	92	92
Conventional Parameters													
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.9 ^(Ae)	6.9 ^(Ae)	6.9 ^(Ae)	-	6.9 ^(Ae)	7.0	-	-
Specific conductivity	µS/cm	-	-	-	-	86	73	75	-	70	76	-	-
Hardness, as CaCO ₃	mg/L	-	-	-	-	36	33	33	-	31	33	-	-
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	11	9.2	9.1	9.4	8.5	9.8	4.7	4.2
Total dissolved solids	mg/L	-	-	-	500	69	55	62	57	58	58	23	29
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	57	49	50	38	47	51	15	15
Total dissolved solids (APHA 2005) ^(f)	mg/L	-	-	-	-	44	38	39	37	36	40	14	14
Total suspended solids	mg/L	-	-	-	-	<3.0	<3.0	<3.0	-	<3.0	<3.0	-	-
Total organic carbon	mg/L	-	-	-	-	8.6	7.6	7.8	-	7.2	8.1	-	-
Dissolved organic carbon	mg/L	-	-	-	-	9.0	7.8	8.6	-	7.7	8.1	-	-
Turbidity	NTU	-	-	-	-	0.18	0.17	0.25	-	0.13	0.27	-	-
Major Ions													
Calcium	mg/L	-	-	-	-	7.0	6.4	6.3	5.9	6.0	6.5	2.3	2.2
Chloride	mg/L	640	120	-	250	5.2	4.4	4.5	4.4	4.1	4.6	1.4	1.4
Cyanide (free)	mg/L	-	0.0050	0.20	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	-
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	-
Cyanide	mg/L	-	-	-	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	-	-
Fluoride	mg/L	-	0.12	1.5	-	0.038	0.037	0.031	0.035	0.030	0.035	-	-
Magnesium	mg/L	-	-	-	-	4.4	4.2	4.1	3.6	3.9	4.2	1.4	1.4
Potassium	mg/L	-	-	-	-	0.81	0.71	0.68	0.61	0.65	0.70	0.30	0.31
Sodium	mg/L	-	-	-	200	2.0	1.5	1.5	1.3	1.4	1.5	0.51	0.53
Sulphate	mg/L	-	-	-	500	18	15	16	15	15	16	5.9	5.9
Sulphide	mg/L	-	-	-	0.050	<0.0019	<0.0019	<0.0019	-	<0.0019	<0.0019	-	-
Silica	mg/L	-	-	-	-	2.6	2.3	2.2	-	2.1	2.3	-	-
Nutrients													
Nitrate	mg-N/L	124	2.9	10	-	0.078	0.079	0.079	0.078	0.074	0.078	<0.005	<0.005
Nitrite	mg-N/L	-	0.060	1.0	-	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
Total ammonia	mg-N/L	-	15 - 177 ^(a)	-	-	0.034	0.024	0.025	-	0.021	0.028	-	-
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	0.42	0.34	0.39	-	0.33	0.35	-	-
Total phosphorus	mg-P/L	-	-	-	-	0.0046	0.0041	0.0052	-	0.0039	0.0034	-	-
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0025	0.0035	0.0029	-	0.0095	0.0050	-	-
Orthophosphate	mg-P/L	-	-	-	-	0.0021	<0.001	0.0013	-	<0.001	<0.001	-	-
Total Metals													
Aluminum	µg/L	-	5.0 - 100 ^(b, c)	2,900	-	36 ^(d)	30 ^(c)	29 ^(c)	-	26 ^(c)	26 ^(c)	-	-
Antimony	µg/L	-	-	6.0	-	0.076	0.025	0.044	-	0.038	0.022	-	-
Arsenic	µg/L	-	5.0	10	-	0.53	0.37	0.39	-	0.35	0.36	-	-
Barium	µg/L	-	-	2,000	-	16	12	13	-	12	12	-	-
Beryllium	µg/L	-	-	-	-	0.0068	0.0062	0.0064	-	0.0070	0.0068	-	-
Bismuth	µg/L	-	-	-	-	0.0010	<0.001	0.0010	-	<0.001	<0.001	-	-
Boron	µg/L	29,000	1,500	5,000	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	-	-
Cadmium	µg/L	0.41 - 0.73 ^(d)	0.042 - 0.067 ^(d)	7.0	-	0.025	0.016	0.012	-	0.0094	0.0079	-	-
Calcium	µg/L	-	-	-	-	7,940	6,060	6,300	-	5,820	6,150	-	-
Chromium	µg/L	-	1.0 ^(e)	50 ^(e)	-	0.34	0.25	0.24	-	0.24	0.20	-	-
Cobalt	µg/L	-	-	-	-	0.25	0.28	0.28	-	0.25	0.24	-	-
Copper	µg/L	-	2.0 ^(d)	2,000	1,000	5.2 ^(c)	3.8 ^(c)	3.7 ^(c)	-	3.3 ^(c)	3.4 ^(c)	-	-
Iron	µg/L	-	300	-	300	50	40	38	-	36	37	-	-
Lanthanum	µg/L	-	-	-	-	0.53	0.38	0.39	-	0.38	0.39	-	-
Lead	µg/L	-	1.0 ^(d)	5.0	-	0.22	0.076	0.099	-	0.047	0.021	-	-
Lithium	µg/L	-	-	-	-	1.7	1.3	1.4	-	1.3	1.4	-	-
Magnesium	µg/L	-	-	-	-	5,100	3,920	4,020	-	3,740	3,960	-	-
Manganese	µg/L	1,620 - 2,681 ^(d)	-	120	20	9.8	9.6	11	-	10	9.7	-	-
Mercury	µg/L	-	0.026	1.0	-	0.0092	0.00089	0.0037	-	0.00075	0.0014	-	-
Molybdenum	µg/L	-	73	-	-	0.052	0.050	0.047	-	0.027	0.020	-	-
Nickel	µg/L	-	25 ^(d)	-	-	13	9.7	10.0	-	9.4	9.7	-	-
Potassium	µg/L	-	-	-	-	929	660	684	-	632	671	-	-
Selenium	µg/L	-	1.0	50	-	0.067	0.049	0.051	-	0.047	0.040	-	-
Silicon	µg/L	-	-	-	-	1,470	1,060	1,100	-	1,020	1,080	-	-
Silver	µg/L	-	0.25	-	-	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	-
Sodium	µg/L	-	-	-	-	2,460	1,410	1,480	-	1,360	1,430	-	-
Strontium	µg/L	-	-	7,000	-	39	30	31	-	29	30	-	-
Sulphur	µg/L	-	-	-	-	7,890	5,510	5,760	-	5,240	5,480	-	-
Thallium	µg/L	-	0.80	-	-	0.0031	0.0021	0.0025	-	0.0025	0.0028	-	-
Tin	µg/L	-	-	-	-	0.45	0.099	0.21	-	0.024	0.030	-	-
Titanium	µg/L	-	-	-	-	0.24	0.10	0.18	-	0.12	0.098	-	-
Uranium	µg/L	33	15	20	-	0.023	0.014	0.013	-	0.016	0.020	-	-
Vanadium	µg/L	-	-	-	-	0.082	0.064	0.054	-	0.050	0.051	-	-
Zinc	µg/L	-	-	-	5,000	6.3	3.4	2.9	-	2.0	2.4	-	-
Zirconium	µg/L	-	-	-	-	0.20	0.14	0.15	-	0.14	0.14	-	-
Dissolved Metals													
Aluminum	µg/L	-	-	-	-	29	26	25	-	24	26	-	-
Antimony	µg/L	-	-	-	-	0.041	0.028	0.028	-	0.025	0.026	-	-
Arsenic	µg/L	-	-	-	-	0.45	0.39	0.42	-	0.43	0.43	-	-
Barium	µg/L	-	-	-	-	14	12	12	-	12	13	-	-
Beryllium	µg/L	-	-	-	-	0.0082	0.0069	0.0046	-	0.0050	0.0076	-	-
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	-	-
Boron	µg/L	-	-	-	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	-	-
Cadmium	µg/L	-	-	-	-	0.019	0.011	0.0087	-	0.0084	0.011	-	-
Chromium	µg/L	-	-	-	-	0.25	0.20	0.20	-	0.20	0.21	-	-
Cobalt	µg/L	-	-	-	-	0.18	0.17	0.22	-	0.19	0.17	-	-
Copper	µg/L	-	-	-	-	4.3	3.6	3.5	-	3.3	3.5	-	-
Iron	µg/L	-	-	-	-	24	24	22	-	22	23	-	-
Lead	µg/L	-	-	-	-	0.076	0.020	0.020	-	0.011	0.0076	-	-
Lithium	µg/L	-	-	-	-	1.7	1.4	1.4	-	1.3	1.4	-	-
Manganese	µg/L	1,620 - 2,681 ^(d)	230 - 310 ^(f)	-	-	6.4	6.8	8.9	-	8.2	7.2	-	-
Mercury	µg/L	-	-	-	-	0.0031	0.00076	0.0021	-	0.00094	0.00061	-	-
Molybdenum	µg/L	-	-	-	-	0.032	0.019	0.18	-	0.028	0.40	-	-
Nickel	µg/L	-	-	-	-	11	10	9.9	-	9.6	10	-	-
Selenium	µg/L	-	-	-	-	0.048	0.051	0.049	-	0.045	0.044	-	-
Silicon	µg/L	-	-	-	-	1,240	1,160	1,140	-	1,090	1,150	-	-
Silver	µg/L	-	-	-	-	<0.002	<0.002	<0.002	-	<0.002	<0.002	-	-
Strontium	µg/L	-	-	-	-	34	32	31	-	30	32	-	-
Sulphur	µg/L	-	-										

Notes:

^(a) = the ammonia guideline is pH and temperature dependent. The guideline that

Table C-4: Water Quality Summary at Goose Lake Tail, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites			
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-022	YL2100283-023	YL2100896-009	YL2100896-010
		Acute	Chronic			GLTL-T	GLTL-B	GLTL-T	GLTL-B
						04-15-2021	04-15-2021	07-26-2021	07-26-2021
Field Measured									
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.1 ^(C, Ae)	6.3 ^(C, Ae)	6.5 ^(Ae)	6.5 ^(Ae)
Specific conductivity	µS/cm	-	-	-	-	63	69	21	21
Temperature	°C	-	-	-	15	1.3	3.0	11	11
Dissolved oxygen	mg/L	-	6.5	-	-	8.0	2.7 ^(C)	10	10
Dissolved oxygen	%	-	-	-	-	62	21	93	92
Conventional Parameters									
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	12	12	4.4	4.3
Total dissolved solids	mg/L	-	-	-	500	62	61	27	24
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	43	44	15	15
Total dissolved solids (APHA 2005) ^(a)	mg/L	-	-	-	-	40	41	14	14
Major Ions									
Calcium	mg/L	-	-	-	-	6.5	6.4	2.2	2.2
Chloride	mg/L	640	120	-	250	4.4	4.6	1.4	1.4
Magnesium	mg/L	-	-	-	-	4.0	4.1	1.4	1.4
Potassium	mg/L	-	-	-	-	0.67	0.67	0.32	0.33
Sodium	mg/L	-	-	-	200	1.3	1.3	0.53	0.54
Sulphate	mg/L	-	-	-	500	16	17	5.8	5.9
Nutrients									
Nitrate	mg-N/L	124	2.9	10	-	0.057	0.088	<0.005	<0.005

Notes:

^(a) = total dissolved solids calculated by Golder using the Standard Method by APHA 2005.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

'= no guideline or no data; B = near bottom, T = near top.

Sources:

CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.

Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

APHA 2005 = Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, 2005.

Table C-5: Water Quality Summary at Propeller Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites															
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100261-007	YL2100261-008	YL2100261-009	YL2100261-010	YL2100261-011	YL2101054-001	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	YL2101054-006	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010	
		Acute	Chronic			BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5	
						04-12-2021	04-12-2021	04-12-2021	04-12-2021	04-12-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-14-2021	08-14-2021	08-14-2021	08-14-2021
Field Measured																					
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.3 ^(C, Ae)	6.1 ^(C, Ae)	6.6 ^(Ae)	6.1 ^(C, Ae)	6.6 ^(Ae)	6.3 ^(C, Ae)	6.1 ^(C, Ae)	6.6 ^(Ae)	6.1 ^(C, Ae)	6.6 ^(Ae)	7.3	7.1	7.0	6.9 ^(Ae)	6.6 ^(Ae)	
Specific conductivity	µS/cm	-	-	-	-	32	33	32	32	32	32	33	32	32	32	24	24	24	24	32	
Temperature	°C	-	-	-	15	0.80	0.80	0.50	0.70	0.60	0.80	0.80	0.50	0.70	0.60	9.1	9.7	9.9	10	0.60	
Dissolved oxygen	mg/L	-	6.5	-	-	16	16	16	16	16	16	16	16	16	16	11	11	11	11	16	
Dissolved oxygen	%	-	-	-	-	110	113	115	111	113	110	123	115	111	113	98	99	99	99	113	
Conventional Parameters																					
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.9 ^(Ae)	7.0	6.9 ^(Ae)	6.9 ^(Ae)	7.0	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.7 ^(Ae)	
Specific conductivity	µS/cm	-	-	-	-	47	48	46	44	44	26	26	26	26	26	25	25	25	25	26	
Hardness, as CaCO ₃	mg/L	-	-	-	-	18	19	17	18	17	9.2	9.1	9.1	9.2	9.1	9.0	8.8	8.7	8.8	8.8	
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	7.3	7.3	7.3	7.3	7.0	3.7	4.1	3.9	4.1	4.0	3.7	3.4	3.5	3.5	3.8	
Total dissolved solids	mg/L	-	-	-	500	36	38	30	30	26	21	27	19	20	17	22	19	19	17	16	
Total dissolved solids (calculated)	mg/L	-	-	-	500	31	31	30	30	29	17	16	16	16	16	16	15	16	16	15	
Total suspended solids	mg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	
Total organic carbon	mg/L	-	-	-	-	6.1	5.7	5.9	5.6	6.0	4.6	4.8	4.2	4.3	4.3	4.8	4.3	4.4	4.4	4.4	
Dissolved organic carbon	mg/L	-	-	-	-	7.2	6.4	6.3	6.2	6.4	4.6	3.8	3.8	3.7	3.4	4.2	4.1	4.7	4.5	3.6	
Turbidity	NTU	-	-	-	-	0.16	0.21	0.11	0.12	0.11	0.24	0.27	0.26	0.40	0.30	0.26	0.30	0.27	0.26	0.31	
Radium-226	Bq/l	-	-	-	-	-	-	-	-	-	<0.0086	<0.011	<0.0074	<0.0072	<0.0064	<0.0059	<0.0091	0.0088	<0.0068	<0.0074	
Major Ions																					
Calcium	mg/L	-	-	-	-	3.5	3.5	3.3	3.4	3.3	1.8	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	
Chloride	mg/L	640	120	-	250	2.0	2.0	2.0	1.9	1.9	1.1	1.1	1.1	1.1	1.1	1.0	0.98	1.0	1.0	1.0	
Cyanide (free)	mg/L	-	0.0050	0.20	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Cyanide	mg/L	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	0.0087	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Fluoride	mg/L	-	0.12	1.5	-	0.026	0.029	0.029	0.029	0.026	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Magnesium	mg/L	-	-	-	-	2.4	2.4	2.2	2.3	2.2	1.2	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	
Potassium	mg/L	-	-	-	-	0.49	0.50	0.46	0.46	0.46	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.29	
Sodium	mg/L	-	-	-	200	0.96	0.95	0.88	0.92	0.88	0.46	0.46	0.46	0.47	0.46	0.56	0.45	0.45	0.45	0.46	
Sulphate	mg/L	-	-	-	500	9.1	9.2	9.1	8.9	8.9	4.6	4.6	4.6	4.5	4.6	4.5	4.3	4.5	4.5	4.5	
Sulphide	mg/L	-	-	-	0.050	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.0016	<0.0015	0.0022	<0.0015	<0.0015	
Silica	mg/L	-	-	-	-	0.86	0.87	0.88	0.83	0.83	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Nutrients																					
Nitrate	mg-N/L	124	2.9	10	-	0.0098	0.014	0.011	0.010	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	0.0060	<0.005	<0.005	<0.005	0.0081	
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Total ammonia	mg-N/L	-	4.5 - 142 ^(a)	-	-	0.028	0.025	0.027	0.025	0.026	<0.005	<0.005	<0.005	0.0056	<0.005	<0.005	<0.005	<0.005	<0.005	0.0070	
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	0.29	0.25	0.30	0.27	0.28	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Total phosphorus	mg-P/L	-	-	-	-	0.0049	0.0036	0.0038	0.0035	0.0038	0.015	0.0051	0.0049	0.0046	0.0040	0.0037	0.0040	0.0044	0.0037	0.0066	
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0039	0.0026	0.0021	0.0019	0.0026	0.0021	0.0016	0.0019	0.0016	0.0016	0.0013	0.0017	0.0050	0.0015	0.0016	
Orthophosphate	mg-P/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Chlorophyll a (avg of triplicate)	µg/L	-	-	-	-	-	-	-	-	-	0.93	1.1	0.80	0.94	0.96	0.76	0.98	1.1	0.95	0.93	
Total Metals																					
Aluminum	µg/L	-	5.0 - 100 ^(b, c)	2,900	-	13 ^(C)	13 ^(C)	13	14 ^(C)	12	8.1 ^(C)	8.2 ^(C)	9.2	8.9 ^(C)	8.1	8.5	8.4	8.2	8.0	8.2	
Antimony	µg/L	-	-	6.0	-	0.024	0.016	0.022	0.014	0.018	<0.005	0.0051	0.0087	0.0075	0.0054	0.0054	0.0053	0.0056	0.0058	0.0066	
Arsenic	µg/L	-	5.0	10	-	0.25	0.25	0.25	0.24	0.24	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.15	0.15	
Barium	µg/L	-	-	2,000	-	6.6	6.6	6.3	6.3	6.3	3.4	3.4	3.5	3.5	3.4	3.4	3.6	3.5	3.4	3.4	
Beryllium	µg/L	-	-	-	-	0.0028	0.0028	0.0026	<0.002	<0.002	<0.002	<0.002	<0.002	0.0021	0.0022	<0.002	<0.002	0.0023	<0.002	<0.002	
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Boron	µg/L	29,000	1,500	5,000	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Cadmium	µg/L	0.18 - 0.38 ^(d)	0.039 - 0.040 ^(d)	7.0	-	0.0032	0.0040	0.0031	0.0041	<0.0025	<0.0025	<0.0025	0.0025	0.0032	<0.0025	0.0028	<0.0025	<0.0025	0.0042	0.0032	
Calcium	µg/L	-	-	-	-	3,480	3,600	3,470													

Table C-5: Water Quality Summary at Propeller Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites														
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100261-007	YL2100261-008	YL2100261-009	YL2100261-010	YL2100261-011	YL2101054-001	YL2101054-002	YL2101054-003	YL2101054-004	YL2101054-005	YL2101054-006	YL2101054-007	YL2101054-008	YL2101054-009	YL2101054-010
		Acute	Chronic			BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5
						04-12-2021	04-12-2021	04-12-2021	04-12-2021	04-12-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-14-2021	08-14-2021	08-14-2021	08-14-2021	08-14-2021
Tin	µg/L	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.020	0.027	<0.01	<0.01
Titanium	µg/L	-	-	-	-	0.086	0.59	<0.05	0.050	0.054	<0.05	<0.05	0.055	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Uranium	µg/L	33	15	20	-	0.0093	0.0081	0.0092	0.0087	0.0067	0.0037	0.0046	0.0062	0.0054	0.0050	0.0055	0.0059	0.0057	0.0064	0.0039
Vanadium	µg/L	-	-	-	-	0.033	0.035	0.033	0.029	0.034	0.025	0.026	0.027	0.028	0.025	0.022	0.027	0.023	0.024	0.024
Zinc	µg/L	-	-	-	5,000	1.3	0.89	0.75	0.79	0.80	0.65	0.62	0.77	0.86	0.44	0.58	0.74	0.66	0.86	1.3
Zirconium	µg/L	-	-	-	-	0.064	0.060	0.076	0.057	0.057	0.027	0.026	0.026	0.027	0.027	0.026	0.027	0.029	0.026	0.029
Dissolved Metals																				
Aluminum	µg/L	-	-	-	-	12	12	11	12	12	6.1	5.9	5.9	6.9	5.7	5.8	5.6	5.5	5.7	6.8
Antimony	µg/L	-	-	-	-	0.018	0.013	0.38	0.013	0.012	0.0082	0.0058	0.0063	0.0062	0.0066	0.0071	0.0055	0.0052	0.0054	0.0078
Arsenic	µg/L	-	-	-	-	0.33	0.32	0.33	0.51	0.34	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.15
Barium	µg/L	-	-	-	-	6.4	6.7	6.3	6.4	6.4	3.4	3.4	3.3	3.4	3.3	3.4	3.4	3.5	3.4	3.5
Beryllium	µg/L	-	-	-	-	0.0057	0.0027	0.0031	0.0022	0.0020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	-	-	-	-	0.0039	0.0038	<0.0025	0.0028	0.0046	0.0026	<0.0025	0.0028	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Chromium	µg/L	-	-	-	-	0.13	0.12	0.11	0.11	0.11	0.053	0.051	0.052	0.055	0.052	0.058	0.050	0.052	0.052	0.066
Cobalt	µg/L	-	-	-	-	0.043	0.039	0.040	0.043	0.041	0.022	0.022	0.022	0.024	0.022	0.022	0.018	0.020	0.021	0.021
Copper	µg/L	-	-	-	-	1.7	1.7	1.6	1.6	1.6	0.89	0.87	0.90	0.89	0.90	0.97	0.87	0.87	0.86	0.92
Iron	µg/L	-	-	-	-	9.4	9.3	8.7	9.5	8.7	9.0	8.2	8.4	9.2	7.9	8.2	7.5	7.3	7.5	9.1
Lead	µg/L	-	-	-	-	0.023	0.0069	0.0062	0.0089	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	0.0067	0.010
Lithium	µg/L	-	-	-	-	1.5	0.83	0.77	0.81	0.82	0.42	0.42	0.42	0.41	0.41	0.42	0.40	0.41	0.42	0.40
Manganese	µg/L	781 - 1,513 ^(a)	200 - 260 ^(f)	-	-	2.1	2.0	1.8	2.0	1.9	0.57	0.58	0.53	0.52	0.52	0.52	0.41	0.37	0.47	0.61
Mercury	µg/L	-	-	-	-	0.00060	<0.0005	<0.0005	<0.0005	<0.0005	0.00058	0.00062	0.00068	0.00054	<0.0005	<0.0005	0.00054	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	-	-	-	-	0.014	<0.01	0.017	0.011	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	µg/L	-	-	-	-	4.2	4.2	4.0	4.0	4.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1
Selenium	µg/L	-	-	-	-	0.032	0.029	<0.025	0.041	0.029	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Silicon	µg/L	-	-	-	-	404	418	399	405	397	119	119	120	120	120	138	138	138	139	138
Silver	µg/L	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	-	-	-	-	15	15	14	15	14	7.5	7.5	7.5	7.5	7.5	7.5	7.3	7.2	7.3	7.3
Sulphur	µg/L	-	-	-	-	3,120	3,260	3,090	3,120	3,100	1,570	1,600	1,580	1,570	1,590	1,550	1,560	1,530	1,560	1,560
Thallium	µg/L	-	-	-	-	0.0016	0.0017	0.0011	0.0014	0.0014	0.0015	0.0013	0.0010	<0.001	<0.001	0.0012	<0.001	0.0011	0.0012	0.0010
Tin	µg/L	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.045	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	-	-	-	-	<0.05	0.053	<0.05	0.077	<0.05	0.099	<0.05	<0.05	0.088	<0.05	<0.05	<0.05	<0.05	<0.05	0.057
Uranium	µg/L	-	-	-	-	0.0081	0.0076	0.0078	0.0087	0.0075	0.0053	0.0048	0.0048	0.0060	0.0060	0.0045	0.0053	0.0066	0.0039	0.0050
Vanadium	µg/L	-	-	-	-	0.032	0.029	0.030	0.030	0.031	0.023	0.020	0.023	0.023	0.020	0.018	0.017	0.019	0.018	0.020
Zinc	µg/L	20 - 31 ^(g)	9.3 - 22 ^(h)	-	-	1.2	0.85	0.98	0.99	0.77	0.61	1.1	0.55	1.4	0.53	1.2	0.52	0.57	0.67	1.4
Zirconium	µg/L	-	-	-	-	0.063	0.064	0.061	0.071	0.061	0.029	0.027	0.028	0.027	0.027	0.029	0.026	0.029	0.027	0.029

Notes:

- ^(a) = the ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (4.54 mg-N/L) is based on the combination of field pH (7.3) and water temperature (9.1°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temperature measurements for each sample.
- ^(b) = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.1 to 7.3). The guideline is calculated based on the individual pH for each sample.
- ^(c) = guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.
- ^(d) = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (9 to 19 mg/L). The guideline is calculated based on the individual hardness value for each sample.
- ^(e) = guideline is for chromium VI.
- ^(f) = the chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.3), and hardness (18.4 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.
- ^(g) = the acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (20.2 µg/L) is based on the combination of hardness (9.1 mg/L) and DOC (3.4 mg/L). Guidelines calculated with hardness and DOC values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.
- ^(h) = the chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (9.3 µg/L) is based on the combination of field pH (7.3), hardness (9.0 mg/L) and DOC (4.2 mg/L). Guidelines calculated with pH, hardness, and DOC values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and DOC 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.
- ⁽ⁱ⁾ = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.
- ^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- = no guideline or no data.

Sources:

CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.

Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

Table C-5: Water Quality Summary at Propeller Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Seasonal Summary											
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	Ice Cover											
		Acute	Chronic			Median	Mean	95 th Percentil	Min	Max	Standard Deviation	nd	Count	% Above Guideline			
														A	C	D	Ae
Field Measured																	
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.3 ^(C, Ae)	6.3 ^(C, Ae)	6.6 ^(Ae)	6.1 ^(C, Ae)	6.6 ^(Ae)	0.25	0	5	-	60	-	100
Specific conductivity	µS/cm	-	-	-	-	32	32	32	32	33	0.34	0	5	-	-	-	-
Temperature	°C	-	-	-	15	0.70	0.68	0.80	0.50	0.80	0.13	0	5	-	-	-	-
Dissolved oxygen	mg/L	-	6.5	-	-	16	16	16	16	16	0.33	0	5	-	-	-	-
Dissolved oxygen	%	-	-	-	-	113	112	115	110	115	2.0	0	5	-	-	-	-
Conventional Parameters																	
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.9 ^(Ae)	6.9 ^(Ae)	7.0	6.9 ^(Ae)	7.0	0.055	0	5	-	-	-	60
Specific conductivity	µS/cm	-	-	-	-	46	46	48	44	48	1.6	0	5	-	-	-	-
Hardness, as CaCO ₃	mg/L	-	-	-	-	18	18	18	17	19	0.54	0	5	-	-	-	-
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	7.3	7.2	7.3	7.0	7.3	0.13	0	5	-	-	-	-
Total dissolved solids	mg/L	-	-	-	500	30	32	38	26	38	4.9	0	5	-	-	-	-
Total dissolved solids (calculated)	mg/L	-	-	-	500	30	30	31	29	31	0.77	0	5	-	-	-	-
Total suspended solids	mg/L	-	-	-	-	<3.0	1.5	<3.0	<3.0	<3.0	0	5	5	-	-	-	-
Total organic carbon	mg/L	-	-	-	-	5.9	5.8	6.1	5.6	6.1	0.21	0	5	-	-	-	-
Dissolved organic carbon	mg/L	-	-	-	-	6.4	6.5	7.1	6.2	7.2	0.42	0	5	-	-	-	-
Turbidity	NTU	-	-	-	-	0.12	0.14	0.20	0.11	0.21	0.043	0	5	-	-	-	-
Radium-226	Bq/l	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Major Ions																	
Calcium	mg/L	-	-	-	-	3.4	3.4	3.5	3.3	3.5	0.100	0	5	-	-	-	-
Chloride	mg/L	640	120	-	250	2.0	2.0	2.0	1.9	2.0	0.046	0	5	-	-	-	-
Cyanide (free)	mg/L	-	0.0050	0.20	-	<0.005	0.0025	<0.005	<0.005	<0.005	0	5	5	-	-	-	-
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	0.0025	<0.005	<0.005	<0.005	0	5	5	-	-	-	-
Cyanide	mg/L	-	-	-	-	<0.005	0.0025	<0.005	<0.005	<0.005	0	5	5	-	-	-	-
Fluoride	mg/L	-	0.12	1.5	-	0.029	0.028	0.029	0.026	0.029	0.0016	0	5	-	-	-	-
Magnesium	mg/L	-	-	-	-	2.3	2.3	2.4	2.2	2.4	0.075	0	5	-	-	-	-
Potassium	mg/L	-	-	-	-	0.46	0.47	0.50	0.46	0.50	0.019	0	5	-	-	-	-
Sodium	mg/L	-	-	-	200	0.92	0.92	0.95	0.88	0.96	0.037	0	5	-	-	-	-
Sulphate	mg/L	-	-	-	500	9.1	9.0	9.2	8.9	9.2	0.16	0	5	-	-	-	-
Sulphide	mg/L	-	-	-	0.050	<0.0019	0.00095	<0.0019	<0.0019	<0.0019	0	5	5	-	-	-	-
Silica	mg/L	-	-	-	-	0.86	0.85	0.88	0.83	0.88	0.023	0	5	-	-	-	-
Nutrients																	
Nitrate	mg-N/L	124	2.9	10	-	0.011	0.011	0.013	0.0098	0.014	0.0015	0	5	-	-	-	-
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	5	5	-	-	-	-
Total ammonia	mg-N/L	-	4.5 - 142 ^(a)	-	-	0.026	0.026	0.028	0.025	0.028	0.0012	0	5	-	-	-	-
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	0.28	0.28	0.30	0.25	0.30	0.019	0	5	-	-	-	-
Total phosphorus	mg-P/L	-	-	-	-	0.0038	0.0039	0.0047	0.0035	0.0049	0.00056	0	5	-	-	-	-
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0026	0.0026	0.0036	0.0019	0.0039	0.00078	0	5	-	-	-	-
Orthophosphate	mg-P/L	-	-	-	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	5	5	-	-	-	-
Chlorophyll <i>a</i> (avg of triplicate)	µg/L	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-
Total Metals																	
Aluminum	µg/L	-	5.0 - 100 ^(b, c)	2,900	-	13 ^(C)	13 ^(C)	14 ^(C)	12	14 ^(C)	0.64	0	5	-	60	-	-
Antimony	µg/L	-	-	6.0	-	0.018	0.019	0.023	0.014	0.024	0.0039	0	5	-	-	-	-
Arsenic	µg/L	-	5.0	10	-	0.25	0.25	0.25	0.24	0.25	0.0068	0	5	-	-	-	-
Barium	µg/L	-	-	2,000	-	6.3	6.4	6.6	6.3	6.6	0.16	0	5	-	-	-	-
Beryllium	µg/L	-	-	-	-	0.0026	0.0020	0.0028	<0.002	0.0028	0.00095	2	5	-	-	-	-
Bismuth	µg/L	-	-	-	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	5	5	-	-	-	-
Boron	µg/L	29,000	1,500	5,000	-	<5.0	2.5	<5.0	<5.0	<5.0	0	5	5	-	-	-	-
Cadmium	µg/L	0.18 - 0.38 ^(d)	0.039 - 0.040 ^(d)	7.0	-	0.0032	0.0031	0.0041	<0.0025	0.0041	0.0011	1	5	-	-	-	-
Calcium	µg/L	-	-	-	-	3,470	3,438	3,576	3,320	3,600	119	0	5	-	-	-	-
Chromium	µg/L	-	1.0 ^(e)	50 ^(e)	-	0.12	0.12	0.14	0.11	0.14	0.010	0	5	-	-	-	-
Cobalt	µg/L	-	-	-	-	0.053	0.053	0.054	0.052	0.054	0.00086	0	5	-	-	-	-
Copper	µg/L	-	2.0 ^(d)	2,000	1,000	1.7	1.7	1.7	1.6	1.7	0.047	0	5	-	-	-	-
Iron	µg/L	-	300	-	300	14	15	18	14	19	2.3	0	5	-	-	-	-
Lanthanum	µg/L	-	-	-	-	0.12	0.11	0.12	0.11	0.12	0.0022	0	5	-	-	-	-
Lead	µg/L	-	1.0 ^(d)	5.0	-	0.014	0.015	0.021	0.010	0.021	0.0050	0	5	-	-	-	-
Lithium	µg/L	-	-	-	-	0.82	0.81	0.83	0.78	0.83	0.020	0	5	-	-	-	-
Magnesium	µg/L	-	-	-	-	2,350	2,338	2,400	2,280	2,410	54	0	5	-	-	-	-
Manganese	µg/L	781 - 1,513 ^(d)	-	120	20	2.7	2.7	2.8	2.6	2.8	0.10	0	5	-	-	-	-
Mercury	µg/L	-	0.026	1.0	-	0.00053	0.00043	0.00057	<0.0005	0.00058	0.00017	2	5	-	-	-	-
Molybdenum	µg/L	-	73	-	-	0.011	0.0096	0.014	<0.01	0.014	0.0043	2	5	-	-	-	-
Nickel	µg/L	-	25 ^(d)	-	-	4.1	4.1	4.3	4.0	4.3	0.13	0	5	-	-	-	-
Potassium	µg/L	-	-	-	-	478	479	504	456	506	22	0	5	-	-	-	-
Selenium	µg/L	-	1.0	50	-	0.032	0.031	0.033	0.028	0.033	0.0020	0	5	-	-	-	-
Silicon	µg/L	-	-	-	-	393	389	394	381	394	6.7	0	5	-	-	-	-
Silver	µg/L	-	0.25	-	-	<0.002	0.0010	<0.002	<0.002	<0.002	0	5	5	-	-	-	-
Sodium	µg/L	-	-	-	-	930	935	985	892	991	41	0	5	-	-	-	-
Strontium	µg/L	-	-	7,000	-	15	15	16	15	16	0.44	0	5	-	-	-	-
Sulphur	µg/L	-	-	-	-	3,080	3,092	3,158	3,010	3,160	63	0	5	-	-	-	-
Thallium	µg/L	-	0.80	-	-	0.0016	0.0016	0.0019	0.0013	0.0019	0.00025	0	5	-	-	-	-

Table C-5: Water Quality Summary at Propeller Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Seasonal Summary											
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	Ice Cover											
		Acute	Chronic			Median	Mean	95 th Percentil	Min	Max	Standard Deviation	nd	Count	% Above Guideline			
														A	C	D	Ae
Tin	µg/L	-	-	-	-	<0.01	0.0050	<0.01	<0.01	<0.01	0	5	5	-	-	-	-
Titanium	µg/L	-	-	-	-	0.054	0.16	0.49	<0.05	0.59	0.24	1	5	-	-	-	-
Uranium	µg/L	33	15	20	-	0.0087	0.0084	0.0093	0.0067	0.0093	0.0011	0	5	-	-	-	-
Vanadium	µg/L	-	-	-	-	0.033	0.033	0.035	0.029	0.035	0.0023	0	5	-	-	-	-
Zinc	µg/L	-	-	-	5,000	0.80	0.90	1.2	0.75	1.3	0.21	0	5	-	-	-	-
Zirconium	µg/L	-	-	-	-	0.060	0.063	0.074	0.057	0.076	0.0079	0	5	-	-	-	-
Dissolved Metals																	
Aluminum	µg/L	-	-	-	-	12	12	12	11	12	0.32	0	5	-	-	-	-
Antimony	µg/L	-	-	-	-	0.013	0.086	0.30	0.012	0.38	0.16	0	5	-	-	-	-
Arsenic	µg/L	-	-	-	-	0.33	0.37	0.48	0.32	0.51	0.083	0	5	-	-	-	-
Barium	µg/L	-	-	-	-	6.4	6.4	6.6	6.3	6.7	0.15	0	5	-	-	-	-
Beryllium	µg/L	-	-	-	-	0.0027	0.0031	0.0052	0.0020	0.0057	0.0015	0	5	-	-	-	-
Bismuth	µg/L	-	-	-	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	5	5	-	-	-	-
Boron	µg/L	-	-	-	-	<5.0	2.5	<5.0	<5.0	<5.0	0	5	5	-	-	-	-
Cadmium	µg/L	-	-	-	-	0.0038	0.0033	0.0045	<0.0025	0.0046	0.0013	1	5	-	-	-	-
Chromium	µg/L	-	-	-	-	0.11	0.11	0.13	0.11	0.13	0.0090	0	5	-	-	-	-
Cobalt	µg/L	-	-	-	-	0.041	0.041	0.043	0.039	0.043	0.0018	0	5	-	-	-	-
Copper	µg/L	-	-	-	-	1.6	1.6	1.7	1.6	1.7	0.056	0	5	-	-	-	-
Iron	µg/L	-	-	-	-	9.3	9.1	9.5	8.7	9.5	0.42	0	5	-	-	-	-
Lead	µg/L	-	-	-	-	0.0069	0.010	0.020	0.0057	0.023	0.0073	0	5	-	-	-	-
Lithium	µg/L	-	-	-	-	0.82	0.95	1.4	0.77	1.5	0.32	0	5	-	-	-	-
Manganese	µg/L	781 - 1,513 ^(a)	200 - 260 ^(f)	-	-	2.0	2.0	2.1	1.8	2.1	0.11	0	5	-	-	-	-
Mercury	µg/L	-	-	-	-	<0.0005	0.00032	0.00060	<0.0005	0.00060	0.00016	4	5	-	-	-	-
Molybdenum	µg/L	-	-	-	-	0.011	0.010	0.016	<0.01	0.017	0.0054	2	5	-	-	-	-
Nickel	µg/L	-	-	-	-	4.0	4.1	4.2	4.0	4.2	0.11	0	5	-	-	-	-
Selenium	µg/L	-	-	-	-	0.029	0.029	0.039	<0.025	0.041	0.010	1	5	-	-	-	-
Silicon	µg/L	-	-	-	-	404	405	415	397	418	8.2	0	5	-	-	-	-
Silver	µg/L	-	-	-	-	<0.002	0.0010	<0.002	<0.002	<0.002	0	5	5	-	-	-	-
Strontium	µg/L	-	-	-	-	15	15	15	14	15	0.48	0	5	-	-	-	-
Sulphur	µg/L	-	-	-	-	3,120	3,138	3,232	3,090	3,260	69	0	5	-	-	-	-
Thallium	µg/L	-	-	-	-	0.0014	0.0014	0.0017	0.0011	0.0017	0.00023	0	5	-	-	-	-
Tin	µg/L	-	-	-	-	<0.01	0.0050	<0.01	<0.01	<0.01	0	5	5	-	-	-	-
Titanium	µg/L	-	-	-	-	<0.05	0.041	0.072	<0.05	0.077	0.023	3	5	-	-	-	-
Uranium	µg/L	-	-	-	-	0.0078	0.0079	0.0086	0.0075	0.0087	0.00048	0	5	-	-	-	-
Vanadium	µg/L	-	-	-	-	0.030	0.030	0.032	0.029	0.032	0.0011	0	5	-	-	-	-
Zinc	µg/L	20 - 31 ^(g)	9.3 - 22 ^(h)	-	-	0.98	0.95	1.1	0.77	1.2	0.15	0	5	-	-	-	-
Zirconium	µg/L	-	-	-	-	0.063	0.064	0.070	0.061	0.071	0.0041	0	5	-	-	-	-

Notes:

^(a) = the ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (4.54 mg-N/L) is based on the combination of field pH (7.3) and water temperature (9.1°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temperature measurements for each sample.

^(b) = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.1 to 7.3). The guideline is calculated based on the individual pH for each sample.

^(c) = guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.

^(d) = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (9 to 19 mg/L). The guideline is calculated based on the individual hardness value for each sample.

^(e) = guideline is for chromium VI.

^(f) = the chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.3), and hardness (18.4 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.

^(g) = the acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (20.2 µg/L) is based on the combination of hardness (9.1 mg/L) and DOC (3.4 mg/L). Guidelines calculated with hardness and DOC values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.

^(h) = the chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (9.3 µg/L) is based on the combination of field pH (7.3), hardness (9.0 mg/L) and DOC (4.2 mg/L). Guidelines calculated with pH, hardness, and DOC values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and DOC 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- = no guideline or no data.

Sources:
CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.
Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

Table C-5: Water Quality Summary at Propeller Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Seasonal Summary												
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	Open Water												
		Acute	Chronic			Median	Mean	95 th Percentil	Min	Max	Standard Deviation	nd	Count	% Above Guideline				
															A	C	D	Ae
Field Measured																		
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.6 ^(Ae)	6.7 ^(Ae)	7.2	6.1 ^(C, Ae)	7.3	0.41	0	10	-	30	-	-	70
Specific conductivity	µS/cm	-	-	-	-	32	29	32	24	33	4.1	0	10	-	-	-	-	
Temperature	°C	-	-	-	15	0.80	4.3	10	0.50	10	4.7	0	10	-	-	-	-	
Dissolved oxygen	mg/L	-	6.5	-	-	16	14	16	11	16	2.5	0	10	-	-	-	-	
Dissolved oxygen	%	-	-	-	-	110	108	119	98	123	8.7	0	10	-	-	-	-	
Conventional Parameters																		
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.8 ^(Ae)	6.8 ^(Ae)	6.8 ^(Ae)	6.7 ^(Ae)	6.8 ^(Ae)	0.032	0	10	-	-	-	100	
Specific conductivity	µS/cm	-	-	-	-	26	25	26	25	26	0.32	0	10	-	-	-	-	
Hardness, as CaCO ₃	mg/L	-	-	-	-	9.0	9.0	9.2	8.7	9.2	0.18	0	10	-	-	-	-	
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	3.8	3.8	4.1	3.4	4.1	0.25	0	10	-	-	-	-	
Total dissolved solids	mg/L	-	-	-	500	19	20	25	16	27	3.2	0	10	-	-	-	-	
Total dissolved solids (calculated)	mg/L	-	-	-	500	16	16	16	15	17	0.36	0	10	-	-	-	-	
Total suspended solids	mg/L	-	-	-	-	<3.0	1.5	<3.0	<3.0	<3.0	0	10	10	-	-	-	-	
Total organic carbon	mg/L	-	-	-	-	4.4	4.5	4.8	4.2	4.8	0.22	0	10	-	-	-	-	
Dissolved organic carbon	mg/L	-	-	-	-	4.0	4.0	4.7	3.4	4.7	0.45	0	10	-	-	-	-	
Turbidity	NTU	-	-	-	-	0.27	0.29	0.36	0.24	0.40	0.045	0	10	-	-	-	-	
Radium-226	Bq/l	-	-	-	-	<0.0074	0.0044	<0.011	<0.0059	<0.011	0.0017	9	10	-	-	-	-	
Major Ions																		
Calcium	mg/L	-	-	-	-	1.7	1.7	1.8	1.7	1.8	0.037	0	10	-	-	-	-	
Chloride	mg/L	640	120	-	250	1.0	1.0	1.1	0.98	1.1	0.024	0	10	-	-	-	-	
Cyanide (free)	mg/L	-	0.0050	0.20	-	<0.005	0.0025	<0.005	<0.005	<0.005	0	10	10	-	-	-	-	
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	0.0025	<0.005	<0.005	<0.005	0	10	10	-	-	-	-	
Cyanide	mg/L	-	-	-	-	<0.005	0.0031	0.0087	<0.005	0.0087	0.0020	9	10	-	-	-	-	
Fluoride	mg/L	-	0.12	1.5	-	<0.02	0.010	<0.02	<0.02	<0.02	0	10	10	-	-	-	-	
Magnesium	mg/L	-	-	-	-	1.1	1.1	1.2	1.1	1.2	0.023	0	10	-	-	-	-	
Potassium	mg/L	-	-	-	-	0.29	0.28	0.29	0.28	0.29	0.0050	0	10	-	-	-	-	
Sodium	mg/L	-	-	-	200	0.46	0.47	0.52	0.45	0.56	0.033	0	10	-	-	-	-	
Sulphate	mg/L	-	-	-	500	4.5	4.5	4.6	4.3	4.6	0.085	0	10	-	-	-	-	
Sulphide	mg/L	-	-	-	0.050	<0.0015	0.00098	0.0019	<0.0015	0.0022	0.00051	8	10	-	-	-	-	
Silica	mg/L	-	-	-	-	<0.5	0.25	<0.5	<0.5	<0.5	0	10	10	-	-	-	-	
Nutrients																		
Nitrate	mg-N/L	124	2.9	10	-	<0.005	0.0034	0.0072	<0.005	0.0081	0.0020	8	10	-	-	-	-	
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	10	10	-	-	-	-	
Total ammonia	mg-N/L	-	4.5 - 142 ^(a)	-	-	<0.005	0.0033	0.0064	<0.005	0.0070	0.0016	8	10	-	-	-	-	
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	<0.2	0.10	<0.2	<0.2	<0.2	0	10	10	-	-	-	-	
Total phosphorus	mg-P/L	-	-	-	-	0.0045	0.0056	0.011	0.0037	0.015	0.0035	0	10	-	-	-	-	
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0016	0.0020	0.0037	0.0013	0.0050	0.0011	0	10	-	-	-	-	
Orthophosphate	mg-P/L	-	-	-	-	<0.001	0.00057	0.0012	<0.001	0.0012	0.00022	9	10	-	-	-	-	
Chlorophyll a (avg of triplicate)	µg/L	-	-	-	-	0.94	0.94	1.1	0.76	1.1	0.10	0	10	-	-	-	-	
Total Metals																		
Aluminum	µg/L	-	5.0 - 100 ^(b, c)	2,900	-	8.2	8.4	9.0	8.0	9.2	0.38	0	10	-	30	-	-	
Antimony	µg/L	-	-	6.0	-	0.0055	0.0058	0.0082	<0.005	0.0087	0.0016	1	10	-	-	-	-	
Arsenic	µg/L	-	5.0	10	-	0.15	0.15	0.15	0.14	0.16	0.0048	0	10	-	-	-	-	
Barium	µg/L	-	-	2,000	-	3.4	3.5	3.6	3.4	3.6	0.068	0	10	-	-	-	-	
Beryllium	µg/L	-	-	-	-	<0.002	0.0014	0.0023	<0.002	0.0023	0.00058	7	10	-	-	-	-	
Bismuth	µg/L	-	-	-	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	10	10	-	-	-	-	
Boron	µg/L	29,000	1,500	5,000	-	<5.0	2.5	<5.0	<5.0	<5.0	0	10	10	-	-	-	-	
Cadmium	µg/L	0.18 - 0.38 ^(d)	0.039 - 0.040 ^(d)	7.0	-	0.0025	0.0022	0.0038	<0.0025	0.0042	0.0011	5	10	-	-	-	-	
Calcium	µg/L	-	-	-	-	1,745	1,744	1,786	1,700	1,790	32	0	10	-	-	-	-	
Chromium	µg/L	-	1.0 ^(e)	50 ^(e)	-	0.060	0.059	0.062	0.054	0.062	0.0025	0	10	-	-	-	-	
Cobalt	µg/L	-	-	-	-	0.074	0.074	0.079	0.066	0.080	0.0044	0	10	-	-	-	-	
Copper	µg/L	-	2.0 ^(d)	2,000	1,000	0.89	0.90	0.93	0.87	0.95	0.023	0	10	-	-	-	-	
Iron	µg/L	-	300	-	300	29	29	30	28	31	0.86	0	10	-	-	-	-	
Lanthanum	µg/L	-	-	-	-	0.068	0.068	0.071	0.064	0.071	0.0024	0	10	-	-	-	-	
Lead	µg/L	-	1.0 ^(d)	5.0	-	0.0071	0.0075	0.012	<0.005	0.013	0.0040	3	10	-	-	-	-	
Lithium	µg/L	-	-	-	-	0.43	0.43	0.43	0.42	0.43	0.0052	0	10	-	-	-	-	
Magnesium	µg/L	-	-	-	-	1,145	1,140	1,160	1,120	1,160	16	0	10	-	-	-	-	
Manganese	µg/L	781 - 1,513 ^(d)	-	120	20	4.0	4.0	4.5	3.5	4.6	0.46	0	10	-	-	-	-	
Mercury	µg/L	-	0.026	1.0	-	0.00070	0.00074	0.00099	0.00061	0.0011	0.00015	0	10	-	-	-	-	
Molybdenum	µg/L	-	73	-	-	<0.01	0.0050	<0.01	<0.01	<0.01	0	10	10	-	-	-	-	
Nickel	µg/L	-	25 ^(d)	-	-	2.1	2.1	2.2	2.0	2.2	0.059	0	10	-	-	-	-	
Potassium	µg/L	-	-	-	-	283	282	285	274	285	3.6	0	10	-	-	-	-	
Selenium	µg/L	-	1.0	50	-	<0.025	0.013	<0.025	<0.025	<0.025	0	10	10	-	-	-	-	
Silicon	µg/L	-	-	-	-	129	129	142	118	143	11	0	10	-	-	-	-	
Silver	µg/L	-	0.25	-	-	<0.002	0.0010	<0.002	<0.002	<0.002	0	10	10	-	-	-	-	
Sodium	µg/L	-	-	-	-	453	452	464	436	468	9.0	0	10	-	-	-	-	
Strontium	µg/L	-	-	7,000	-	7.3	7.3	7.5	7.2	7.5	0.091	0	10	-	-	-	-	
Sulphur	µg/L	-	-	-	-	1,560	1,572	1,611	1,550	1,620	23	0	10	-	-	-	-	
Thallium	µg/L	-	0.80	-	-	0.0011	0.0011	0.0013	<0.001	0.0013	0.00023	1	10	-	-	-	-	

Table C-5: Water Quality Summary at Propeller Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Seasonal Summary											
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	Open Water											
		Acute	Chronic			Median	Mean	95 th Percentil	Min	Max	Standard Deviation	nd	Count	% Above Guideline			
														A	C	D	Ae
Tin	µg/L	-	-	-	-	<0.01	0.0087	0.024	<0.01	0.027	0.0080	8	10	-	-	-	-
Titanium	µg/L	-	-	-	-	<0.05	0.034	0.070	<0.05	0.083	0.020	8	10	-	-	-	-
Uranium	µg/L	33	15	20	-	0.0055	0.0052	0.0063	0.0037	0.0064	0.00092	0	10	-	-	-	-
Vanadium	µg/L	-	-	-	-	0.025	0.025	0.028	0.022	0.028	0.0019	0	10	-	-	-	-
Zinc	µg/L	-	-	-	5,000	0.70	0.75	1.1	0.44	1.3	0.23	0	10	-	-	-	-
Zirconium	µg/L	-	-	-	-	0.027	0.027	0.029	0.026	0.029	0.0012	0	10	-	-	-	-
Dissolved Metals																	
Aluminum	µg/L	-	-	-	-	5.8	6.0	6.9	5.5	6.9	0.49	0	10	-	-	-	-
Antimony	µg/L	-	-	-	-	0.0063	0.0064	0.0080	0.0052	0.0082	0.0010	0	10	-	-	-	-
Arsenic	µg/L	-	-	-	-	0.15	0.15	0.15	0.14	0.15	0.0041	0	10	-	-	-	-
Barium	µg/L	-	-	-	-	3.4	3.4	3.5	3.3	3.5	0.059	0	10	-	-	-	-
Beryllium	µg/L	-	-	-	-	<0.002	0.0010	<0.002	<0.002	<0.002	0	10	10	-	-	-	-
Bismuth	µg/L	-	-	-	-	<0.001	0.00050	<0.001	<0.001	<0.001	0	10	10	-	-	-	-
Boron	µg/L	-	-	-	-	<5.0	2.5	<5.0	<5.0	<5.0	0	10	10	-	-	-	-
Cadmium	µg/L	-	-	-	-	<0.0025	0.0015	0.0027	<0.0025	0.0028	0.00061	8	10	-	-	-	-
Chromium	µg/L	-	-	-	-	0.052	0.054	0.062	0.050	0.066	0.0047	0	10	-	-	-	-
Cobalt	µg/L	-	-	-	-	0.022	0.021	0.023	0.018	0.024	0.0016	0	10	-	-	-	-
Copper	µg/L	-	-	-	-	0.89	0.89	0.94	0.86	0.97	0.032	0	10	-	-	-	-
Iron	µg/L	-	-	-	-	8.2	8.2	9.1	7.3	9.2	0.69	0	10	-	-	-	-
Lead	µg/L	-	-	-	-	<0.005	0.0041	0.0087	<0.005	0.010	0.0028	7	10	-	-	-	-
Lithium	µg/L	-	-	-	-	0.42	0.41	0.42	0.40	0.42	0.0082	0	10	-	-	-	-
Manganese	µg/L	781 - 1,513 ^(a)	200 - 260 ^(f)	-	-	0.52	0.51	0.60	0.37	0.61	0.076	0	10	-	-	-	-
Mercury	µg/L	-	-	-	-	0.00054	0.00042	0.00065	<0.0005	0.00068	0.00018	5	10	-	-	-	-
Molybdenum	µg/L	-	-	-	-	<0.01	0.0066	0.021	<0.01	0.021	0.0051	9	10	-	-	-	-
Nickel	µg/L	-	-	-	-	2.1	2.1	2.1	2.0	2.2	0.038	0	10	-	-	-	-
Selenium	µg/L	-	-	-	-	<0.025	0.013	<0.025	<0.025	<0.025	0	10	10	-	-	-	-
Silicon	µg/L	-	-	-	-	129	129	139	119	139	9.8	0	10	-	-	-	-
Silver	µg/L	-	-	-	-	<0.002	0.0010	<0.002	<0.002	<0.002	0	10	10	-	-	-	-
Strontium	µg/L	-	-	-	-	7.5	7.4	7.5	7.2	7.5	0.12	0	10	-	-	-	-
Sulphur	µg/L	-	-	-	-	1,565	1,567	1,596	1,530	1,600	20	0	10	-	-	-	-
Thallium	µg/L	-	-	-	-	0.0011	0.00098	0.0014	<0.001	0.0015	0.00036	3	10	-	-	-	-
Tin	µg/L	-	-	-	-	<0.01	0.0090	0.045	<0.01	0.045	0.013	9	10	-	-	-	-
Titanium	µg/L	-	-	-	-	<0.05	0.042	0.094	<0.05	0.099	0.029	7	10	-	-	-	-
Uranium	µg/L	-	-	-	-	0.0052	0.0052	0.0063	0.0039	0.0066	0.00080	0	10	-	-	-	-
Vanadium	µg/L	-	-	-	-	0.020	0.020	0.023	0.017	0.023	0.0022	0	10	-	-	-	-
Zinc	µg/L	20 - 31 ^(g)	9.3 - 22 ^(h)	-	-	0.64	0.86	1.4	0.52	1.4	0.38	0	10	-	-	-	-
Zirconium	µg/L	-	-	-	-	0.028	0.028	0.029	0.026	0.029	0.0011	0	10	-	-	-	-

Notes:

^(a) = the ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (4.54 mg-N/L) is based on the combination of field pH (7.3) and water temperature (9.1°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temperature measurements for each sample.

^(b) = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.1 to 7.3). The guideline is calculated based on the individual pH for each sample.

^(c) = guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.

^(d) = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (9 to 19 mg/L). The guideline is calculated based on the individual hardness value for each sample.

^(e) = guideline is for chromium VI.

^(f) = the chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.3), and hardness (18.4 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.

^(g) = the acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (20.2 µg/L) is based on the combination of hardness (9.1 mg/L) and DOC (3.4 mg/L). Guidelines calculated with hardness and DOC values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.

^(h) = the chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (9.3 µg/L) is based on the combination of field pH (7.3), hardness (9.0 mg/L) and DOC (4.2 mg/L). Guidelines calculated with pH, hardness, and DOC values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and DOC 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- = no guideline or no data.

Sources:
CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.
Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

Table C6: Water Quality Summary at Reference B Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites				
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-009	YL2100283-010	YL2100283-011	YL2100283-012	YL2100283-013
		Acute	Chronic			BRP-40-1	BRP-40-2	BRP-40-3	BRP-40-4	BRP-40-5
						04-14-2021	04-14-2021	04-14-2021	04-14-2021	04-14-2021
Field Measured										
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.4 ^(C, Ae)	6.0 ^(C, Ae)	6.0 ^(C, Ae)	6.0 ^(C, Ae)	6.2 ^(C, Ae)
Conductivity	µS/cm	-	-	-	-	23	23	24	24	25
Specific conductivity	µS/cm	-	-	-	-	41	41	44	43	45
Temperature	°C	-	-	-	15	2.1	2.6	1.7	1.9	2.0
Dissolved oxygen	mg/L	-	6.5	-	-	15	12	15	13	14
Dissolved oxygen	%	-	-	-	-	109	91	110	94	100
Conventional Parameters										
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.8 ^(Ae)	6.9 ^(Ae)	6.9 ^(Ae)	6.9 ^(Ae)	6.9 ^(Ae)
Specific conductivity	µS/cm	-	-	-	-	54	55	53	59	58
Hardness, as CaCO ₃	mg/L	-	-	-	-	22	21	23	22	22
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	14	15	14	16	16
Total dissolved solids	mg/L	-	-	-	500	47	38	42	44	42
Total dissolved solids (calculated)	mg/L	-	-	-	500	34	34	33	35	36
Total suspended solids	mg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	<3.0
Total organic carbon	mg/L	-	-	-	-	5.3	5.2	4.9	5.5	5.6
Dissolved organic carbon	mg/L	-	-	-	-	5.2	5.4	4.8	5.4	5.4
Turbidity	NTU	-	-	-	-	0.19	0.18	0.19	0.24	0.23
Major Ions										
Calcium	mg/L	-	-	-	-	3.8	3.7	4.1	3.9	4.0
Chloride	mg/L	640	120	-	250	1.0	1.0	0.92	1.0	1.1
Cyanide (free)	mg/L	-	0.0050	0.20	-	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	mg/L	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide	mg/L	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	-	0.12	1.5	-	0.031	0.031	0.028	0.034	0.030
Magnesium	mg/L	-	-	-	-	2.9	2.8	3.0	2.9	3.0
Potassium	mg/L	-	-	-	-	0.59	0.55	0.63	0.59	0.60
Sodium	mg/L	-	-	-	200	1.1	0.99	1.1	1.1	1.1
Sulphate	mg/L	-	-	-	500	8.4	8.5	8.0	8.8	8.9
Sulphide	mg/L	-	-	-	0.050	0.0020	0.0021	0.0017	0.0021	0.0022
Silica	mg/L	-	-	-	-	1.5	1.6	1.5	1.7	1.7
Nutrients										
Nitrate	mg-N/L	124	2.9	10	-	<0.005	<0.005	<0.005	0.011	0.0052
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	<0.001	<0.001	<0.001	<0.001
Total ammonia	mg-N/L	-	63 - 165 ^(a)	-	-	0.087	0.085	0.100	0.11	0.11
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	0.33	0.35	0.34	0.38	0.40
Total phosphorus	mg-P/L	-	-	-	-	0.0050	0.0038	0.0039	0.0043	0.0052
Dissolved phosphorus	mg-P/L	-	-	-	-	0.0028	0.0020	0.0020	0.0022	0.0018
Orthophosphate	mg-P/L	-	-	-	-	<0.001	0.0023	0.0012	<0.001	<0.001
Total Metals										
Aluminum	µg/L	-	5.0 ^(b, c)	2,900	-	3.1	2.4	2.7	2.8	2.7
Antimony	µg/L	-	-	6.0	-	0.023	0.015	0.0096	0.018	0.013
Arsenic	µg/L	-	5.0	10	-	0.27	0.26	0.26	0.27	0.27
Barium	µg/L	-	-	2,000	-	7.9	7.6	8.0	8.6	8.5
Beryllium	µg/L	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	29,000	1,500	5,000	-	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	0.42 - 0.46 ^(d)	0.043 - 0.046 ^(d)	7.0	-	0.0034	<0.0025	0.0028	0.0041	<0.0025

Table C6: Water Quality Summary at Reference B Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites				
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-009	YL2100283-010	YL2100283-011	YL2100283-012	YL2100283-013
		Acute	Chronic			BRP-40-1	BRP-40-2	BRP-40-3	BRP-40-4	BRP-40-5
						04-14-2021	04-14-2021	04-14-2021	04-14-2021	04-14-2021
Calcium	µg/L	-	-	-	-	3,840	3,820	3,940	4,010	4,040
Chromium	µg/L	-	1.0 ^(e)	50 ^(e)	-	0.059	0.058	0.058	0.057	0.058
Cobalt	µg/L	-	-	-	-	0.17	0.12	0.15	0.25	0.20
Copper	µg/L	-	2.0 ^(d)	2,000	1,000	0.95	0.92	0.95	0.95	0.95
Iron	µg/L	-	300	-	300	55	46	49	63	71
Lanthanum	µg/L	-	-	-	-	0.043	0.037	0.042	0.044	0.043
Lead	µg/L	-	1.0 ^(d)	5.0	-	0.0064	<0.005	<0.005	0.014	0.0055
Lithium	µg/L	-	-	-	-	0.78	0.77	0.86	0.79	0.82
Magnesium	µg/L	-	-	-	-	2,900	2,870	2,930	2,970	3,020
Manganese	µg/L	1,663 - 1,804 ^(d)	-	120	20	29 ^(Ae)	24 ^(Ae)	25 ^(Ae)	38 ^(Ae)	29 ^(Ae)
Mercury	µg/L	-	0.026	1.0	-	<0.0005	<0.0005	<0.0005	0.0036	<0.0005
Molybdenum	µg/L	-	73	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	µg/L	-	25 ^(d)	-	-	2.1	2.1	2.1	2.2	2.2
Potassium	µg/L	-	-	-	-	592	573	597	616	611
Selenium	µg/L	-	1.0	50	-	0.033	0.040	0.030	0.038	0.034
Silicon	µg/L	-	-	-	-	675	661	685	726	754
Silver	µg/L	-	0.25	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Sodium	µg/L	-	-	-	-	1,080	1,040	1,060	1,090	1,120
Strontium	µg/L	-	-	7,000	-	14	14	14	15	15
Sulphur	µg/L	-	-	-	-	2,820	2,850	2,880	2,890	3,020
Thallium	µg/L	-	0.80	-	-	0.0013	0.0018	0.0017	0.0018	0.0014
Tin	µg/L	-	-	-	-	<0.01	<0.01	<0.01	0.092	<0.01
Titanium	µg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
Uranium	µg/L	33	15	20	-	0.0032	0.0040	0.0035	0.0036	0.0030
Vanadium	µg/L	-	-	-	-	0.023	0.021	0.020	0.023	0.023
Zinc	µg/L	-	-	-	5,000	0.49	0.23	0.31	0.54	0.44
Zirconium	µg/L	-	-	-	-	0.032	0.032	0.031	0.033	0.031
Dissolved Metals										
Aluminum	µg/L	-	-	-	-	3.1	2.1	2.4	2.2	2.3
Antimony	µg/L	-	-	-	-	0.010	0.011	0.014	0.012	0.0074
Arsenic	µg/L	-	-	-	-	0.33	0.42	0.37	0.40	0.48
Barium	µg/L	-	-	-	-	7.5	7.5	8.0	8.2	8.5
Beryllium	µg/L	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	-	-	-	-	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Chromium	µg/L	-	-	-	-	0.057	0.047	0.059	0.051	0.058
Cobalt	µg/L	-	-	-	-	0.090	0.13	0.11	0.18	0.14
Copper	µg/L	-	-	-	-	1.6	0.86	0.96	0.90	0.93
Iron	µg/L	-	-	-	-	15	16	17	18	21
Lead	µg/L	-	-	-	-	0.032	<0.005	<0.005	<0.005	<0.005
Lithium	µg/L	-	-	-	-	0.76	0.73	0.79	0.76	0.79
Manganese	µg/L	1,663 - 1,804 ^(d)	200 ^(f)	-	-	23	25	23	34	25
Mercury	µg/L	-	-	-	-	0.00053	0.00059	<0.0005	0.0013	<0.0005
Molybdenum	µg/L	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	µg/L	-	-	-	-	2.1	2.0	2.2	2.1	2.2
Selenium	µg/L	-	-	-	-	0.030	0.029	0.030	0.036	0.032
Silicon	µg/L	-	-	-	-	665	664	692	714	752

Table C6: Water Quality Summary at Reference B Lake, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites				
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100283-009	YL2100283-010	YL2100283-011	YL2100283-012	YL2100283-013
		Acute	Chronic			BRP-40-1	BRP-40-2	BRP-40-3	BRP-40-4	BRP-40-5
						04-14-2021	04-14-2021	04-14-2021	04-14-2021	04-14-2021
Silver	µg/L	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	-	-	-	-	14	13	15	14	14
Sulphur	µg/L	-	-	-	-	2,770	2,680	3,020	2,760	2,950
Thallium	µg/L	-	-	-	-	0.0011	0.0015	0.0015	0.0014	0.0016
Tin	µg/L	-	-	-	-	<0.01	<0.01	<0.01	0.072	<0.01
Titanium	µg/L	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
Uranium	µg/L	-	-	-	-	0.0031	0.0026	0.0035	0.0016	0.0046
Vanadium	µg/L	-	-	-	-	0.022	0.021	0.025	0.018	0.020
Zinc	µg/L	31 - 33 ^(g)	19 - 20 ^(h)	-	-	1.4	1.0	1.6	0.40	0.32
Zirconium	µg/L	-	-	-	-	0.028	0.030	0.033	0.029	0.029

Notes:

^(a) = the ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (63.40 mg-N/L) is based on the combination of field pH (6.4) and water temperature (2.1°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temperature measurements for

^(b) = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.0 to 6.4). The guideline is calculated based on the individual pH for each sample.

^(c) = guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.

^(d) = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (21 to 23 mg/L). The guideline is calculated based on the individual hardness value for each sample.

^(e) = guideline is for chromium VI.

^(f) = the chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.4), and hardness (21.6 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for

^(g) = the acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (31.5 µg/L) is based on the combination of hardness (20.6 mg/L) and DOC (5.4 mg/L). Guidelines calculated with hardness and DOC values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.

^(h) = the chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (18.9 µg/L) is based on the combination of field pH (6.0), hardness (22.6 mg/L) and DOC (4.8 mg/L). Guidelines calculated with pH, hardness, and DOC values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and DOC 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- = no guideline or no data.

Sources:

CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.

Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

Stream Stations Descriptions

PN03 = Goose Lake Outflow

PN04 = Llama Lake Outflow

PN05 = Gander Pond Outflow

PN06 = Giraffe Lake Outflow

PN07 = Echo Lake Outflow

PN08 = Wolf Outflow

PN09 = Goose Southeast Inflow

Table C-7: Water Quality Summary at Goose Lake Streams, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites							
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100716-001	YL2100852-001	YL2101200-001	YL2100716-002	YL2100852-002	YL2101200-002	YL2100716-003	YL2100852-003
		Acute	Chronic			PN03	PN03	PN03	PN04	PN04	PN04	PN05	PN05
						07-05-2021	07-24-2021	09-03-2021	07-05-2021	07-24-2021	09-04-2021	07-05-2021	07-24-2021
Field Measured													
pH	-	-	6.5 - 9.0	-	7.0 - 11	7.1	6.7 ^(Ae)	6.3 ^(C, Ae)	7.4	5.7 ^(C, Ae)	6.1 ^(C, Ae)	7.3	6.3 ^(C, Ae)
Specific conductivity	µS/cm	-	-	-	-	32	72	29	45	98	89	32	67
Temperature	°C	-	-	-	15	9.6	11	14	8.9	9.1	6.9	12	6.8
Dissolved oxygen	mg/L	-	6.5	-	-	-	9.3	14	-	7.2	9.0	-	11
Dissolved oxygen	%	-	-	-	-	-	83	133	-	63	76	-	94
Conventional Parameters													
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	4.7	4.5	4.4	6.7	7.0	7.5	5.5	8.2
Total dissolved solids	mg/L	-	-	-	500	27	24	32	30	44	82	25	25
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	15	15	15	21	28	51	14	17
Total dissolved solids (APHA 2005) ^(a)	mg/L	-	-	-	-	15	15	15	21	26	47	14	16
Major Ions													
Calcium	mg/L	-	-	-	-	2.4	2.0	2.3	3.7	4.5	8.0	2.4	2.6
Chloride	mg/L	640	120	-	250	1.4	1.6	1.6	3.7	4.8	12	1.2	1.4
Fluoride	mg/L	-	0.12	1.5	-	<0.02	-	-	<0.02	-	-	<0.02	-
Magnesium	mg/L	-	-	-	-	1.4	1.4	1.5	1.7	2.2	4.3	1.3	1.6
Potassium	mg/L	-	-	-	-	0.31	0.33	0.34	0.45	0.49	0.68	0.30	0.28
Sodium	mg/L	-	-	-	200	0.54	0.61	0.59	0.67	0.82	1.2	0.49	0.59
Sulphate	mg/L	-	-	-	500	5.9	5.9	6.2	6.2	7.8	14	4.5	4.4
Nutrients													
Nitrate	mg-N/L	124	2.9	10	-	0.0077	0.0059	0.0074	0.066	0.32	0.81	0.19	0.14
Nitrite	mg-N/L	-	0.060	1.0	-	<0.001	-	-	<0.001	-	-	<0.001	-

Notes:

^(a) = total dissolved solids calculated by Golder using the Standard Method by APHA 2005.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- = no guideline or no data.

Sources:

CCME 1999 (with updates to 2021) = Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, MB, Canada.

Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

APHA 2005 = Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, 2005.

Table C-7: Water Quality Summary at Goose Lake Streams, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites							
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2101200-003	YL2100716-004	YL2100852-004	YL2101200-004	YL2100716-005	YL2100852-005	YL2101200-005	YL2100716-006
		Acute	Chronic			PN05	PN06	PN06	PN06	PN07	PN07	PN07	PN08
						09-04-2021	07-05-2021	07-25-2021	09-04-2021	07-05-2021	07-24-2021	09-04-2021	07-05-2021
Field Measured													
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.3 ^(C, Ae)	8.0	6.6 ^(Ae)	6.6 ^(Ae)	7.2	5.8 ^(C, Ae)	6.0 ^(C, Ae)	7.1
Specific conductivity	µS/cm	-	-	-	-	52	23	-	31	46	108	89	24
Temperature	°C	-	-	-	15	7.7	7.0	11	11	11	6.5	6.9	13
Dissolved oxygen	mg/L	-	6.5	-	-	15	-	-	14	-	9.5	15	-
Dissolved oxygen	%	-	-	-	-	129	-	-	129	-	77	126	-
Conventional Parameters													
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	9.8	4.3	4.2	4.5	5.4	12	3.6	5.5
Total dissolved solids	mg/L	-	-	-	500	54	24	24	29	46	60	88	22
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	27	13	17	18	19	28	51	11
Total dissolved solids (APHA 2005) ^(a)	mg/L	-	-	-	-	26	13	16	17	19	25	46	11
Major Ions													
Calcium	mg/L	-	-	-	-	4.6	1.7	2.0	2.3	3.6	4.7	7.6	1.8
Chloride	mg/L	640	120	-	250	5.4	<0.5	0.51	0.56	5.1	5.6	10	<0.5
Fluoride	mg/L	-	0.12	1.5	-	-	<0.02	-	-	0.022	-	-	<0.02
Magnesium	mg/L	-	-	-	-	2.5	1.2	1.6	1.8	1.9	2.7	4.3	1.1
Potassium	mg/L	-	-	-	-	0.46	0.25	0.31	0.37	0.061	0.12	0.28	0.25
Sodium	mg/L	-	-	-	200	0.78	0.44	0.61	0.69	0.89	1.0	1.3	0.43
Sulphate	mg/L	-	-	-	500	5.9	6.5	8.2	9.1	3.8	3.0	20	3.8
Nutrients													
Nitrate	mg-N/L	124	2.9	10	-	0.28	<0.005	<0.005	0.0052	<0.005	0.028	0.0096	0.0082
Nitrite	mg-N/L	-	0.060	1.0	-	-	<0.001	-	-	<0.001	-	-	<0.001

Notes:

^(a) = total dissolved solids calculated by Golder using the Standard Method by APHA 2005.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

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Sources:

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APHA 2005 = Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, 2005.

Table C-7: Water Quality Summary at Goose Lake Streams, 2021

Parameter	Unit	Guidelines for the Protection of:				Sampling Sites				
		Aquatic Life [CCME 1999]		Drinking Water [HC 2021]	Aesthetic [HC 2021]	YL2100852-006	YL2101200-006	YL2100716-007	YL2100852-007	YL2101200-007
		Acute	Chronic			PN08	PN08	PN09	PN09	PN09
						07-25-2021	09-04-2021	07-05-2021	07-25-2021	09-04-2021
Field Measured										
pH	-	-	6.5 - 9.0	-	7.0 - 11	6.2 ^(C, Ae)	6.7 ^(Ae)	7.2	6.3 ^(C, Ae)	6.6 ^(Ae)
Specific conductivity	µS/cm	-	-	-	-	-	27	33	-	46
Temperature	°C	-	-	-	15	12	10	14	16 ^(Ae)	11
Dissolved oxygen	mg/L	-	6.5	-	-	-	15	-	-	15
Dissolved oxygen	%	-	-	-	-	-	135	-	-	134
Conventional Parameters										
Total alkalinity, as CaCO ₃	mg/L	-	-	-	-	6.3	7.4	9.6	17	6.8
Total dissolved solids	mg/L	-	-	-	500	21	29	43	64	54
Total dissolved solids (calculated by lab)	mg/L	-	-	-	500	13	15	14	22	26
Total dissolved solids (APHA 2005) ^(a)	mg/L	-	-	-	-	13	14	14	19	25
Major Ions										
Calcium	mg/L	-	-	-	-	1.7	2.2	2.6	3.7	3.8
Chloride	mg/L	640	120	-	250	0.56	0.68	<0.5	<0.5	0.88
Fluoride	mg/L	-	0.12	1.5	-	-	-	0.024	-	-
Magnesium	mg/L	-	-	-	-	1.2	1.6	1.6	2.5	2.4
Potassium	mg/L	-	-	-	-	0.26	0.33	0.11	0.33	0.36
Sodium	mg/L	-	-	-	200	0.54	0.58	0.87	1.3	1.2
Sulphate	mg/L	-	-	-	500	4.4	4.8	2.8	1.4	13
Nutrients										
Nitrate	mg-N/L	124	2.9	10	-	0.027	0.042	<0.005	<0.005	0.0071
Nitrite	mg-N/L	-	0.060	1.0	-	-	-	<0.001	-	-

Notes:

^(a) = total dissolved solids calculated by Golder using the Standard Method by APHA 2005.

^(C) = concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range.

^(Ae) = concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- = no guideline or no data.

Sources:

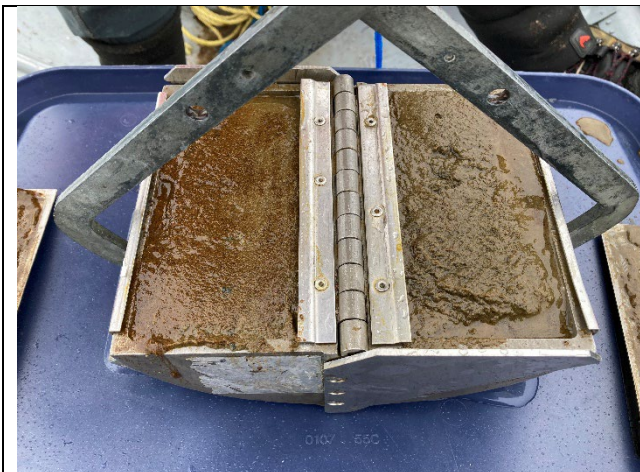
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Health Canada 2021 = Summary of Guidelines for Canadian Drinking Water Quality. Prepared by the Federal-Provincial Subcommittee on Drinking Water of the Federal-Provincial-Territorial Committee on Environmental and Occupational Health.

APHA 2005 = Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, 2005.

APPENDIX D

Representative Sediment Samples Photos at Propeller Lake, 2021

Sediment and Benthic Samples Photographs at Propeller Lake

Photograph 1: Sediment sample at Propeller Lake North Basin station BRP-36-1, July 2021



Photograph 2: Sediment sample at Propeller Lake North Basin station BRP-36-2, July 2021



Photograph 3: Sediment sample at Propeller Lake North Basin station BRP-36-3, July 2021



Photograph 4: Sediment sample at Propeller Lake North Basin station BRP-36-4, July 2021



Photograph 5: Sediment sample at Propeller Lake North Basin station BRP-36-5, July 2021



Photograph 6: Sediment sample at Propeller Lake South Basin station BRP-35-1, July 2021



Photograph 7: Sediment sample at Propeller Lake South Basin station BRP-35-2, July 2021



Photograph 8: Sediment sample at Propeller Lake South Basin station BRP-35-3, July 2021



Photograph 9: Sediment sample at Propeller Lake South Basin station BRP-35-4, July 2021



Photograph 10: Sediment sample at Propeller Lake South Basin station BRP-35-5, July 2021



Photograph 11: Sediment sample at Propeller Lake North Basin station BRP-36-1 (grab#1), August 2021



Photograph 12: Sediment sample at Propeller Lake North Basin station BRP-36-1 (grab#2), August 2021



Photograph 13: Benthic sample at Propeller Lake North Basin station BRP-36-1 (grab#1), August 2021



Photograph 14: Benthic sample at Propeller Lake North Basin station BRP-36-1 (grab#2), August 2021



Photograph 15: Sediment sample at Propeller Lake North Basin station BRP-36-2 (grab#1), August 2021



Photograph 16: Sediment sample at Propeller Lake North Basin station BRP-36-2 (grab#2), August 2021



Photograph 17: Benthic sample at Propeller Lake North Basin station BRP-36-2 (grab#1), August 2021



Photograph 18: Benthic sample at Propeller Lake North Basin station BRP-36-2 (grab#2), August 2021



Photograph 19: Sediment sample at Propeller Lake North Basin station BRP-36-3 (grab#1), August 2021



Photograph 20: Sediment sample at Propeller Lake North Basin station BRP-36-3 (grab#2), August 2021



Photograph 21: Benthic sample at Propeller Lake North Basin station BRP-36-3 (grab#1), August 2021



Photograph 22: Benthic sample at Propeller Lake North Basin station BRP-36-3 (grab#2), August 2021



Photograph 23: Sediment sample at Propeller Lake North Basin station BRP-36-4 (grab#1), August 2021



Photograph 24: Sediment sample at Propeller Lake North Basin station BRP-36-4 (grab#2), August 2021



Photograph 25: Benthic sample at Propeller Lake North Basin station BRP-36-4 (grab#1), August 2021



Photograph 26: Benthic sample at Propeller Lake North Basin station BRP-36-4 (grab#2), August 2021



Photograph 27: Sediment sample at Propeller Lake North Basin station BRP-36-5 (grab#1), August 2021



Photograph 28: Sediment sample at Propeller Lake North Basin station BRP-36-5 (grab#2), August 2021



Photograph 29: Benthic sample at Propeller Lake North Basin station BRP-36-5 (grab#1), August 2021



Photograph 30: Benthic sample at Propeller Lake North Basin station BRP-36-5 (grab#2), August 2021



Photograph 31: Sediment sample at Propeller Lake South Basin station BRP-35-1 (grab#1), August 2021



Photograph 32: Sediment sample at Propeller Lake South Basin station BRP-35-1 (grab#1), August 2021



Photograph 33: Sediment sample at Propeller Lake South Basin station BRP-35-2, August 2021



Photograph 31: Sediment sample at Propeller Lake South Basin station BRP-35-3, August 2021



Photograph 32: Sediment sample at Propeller Lake South Basin station BRP-35-4, August 2021



Photograph 33: Sediment sample at Propeller Lake South Basin station BRP-35-5, August 2021

APPENDIX E

2021 Sediment Quality – Analytical Chemistry

Table E.1: Sediment Quality in Propeller Lake, July and August 2021

Parameter	Unit (Dry Weight)	Guidelines		Sampling Sites																					
		ISQG	PEL	BRP-35-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5	BRP-35-1	DUP-1	BRP-35-2	BRP-35-3	BRP-35-4	BRP-35-5	BRP-36-1	BRP-36-2	BRP-36-3	BRP-36-4	BRP-36-5	
				07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	07-28-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-16-2021	08-15-2021	08-15-2021	08-15-2021	08-15-2021
Carbon and Nitrogen																									
Total organic carbon	%	-	-	1.51	4.60	5.24	4.19	4.30	5.20	6.32	6.20	4.09	7.43	2.10	2.06	4.47	4.97	4.54	4.95	4.81	5.84	4.99	3.07	7.72	
Total inorganic carbon	%	-	-	<0.05	<0.05	0.065	<0.05	0.054	0.07	0.065	0.054	<0.05	0.088	<0.05	<0.05	0.056	0.061	<0.05	0.059	0.074	0.064	0.058	<0.05	0.088	
Inorganic carbon as calcium carbonate equivalent	%	-	-	<0.4	<0.4	0.54	<0.4	0.45	0.59	0.54	0.45	<0.4	0.74	<0.4	<0.4	0.47	0.51	<0.4	0.5	0.62	0.54	0.49	<0.4	0.73	
Total carbon	%	-	-	1.5	4.6	5.3	4.2	4.4	5.3	6.4	6.3	4.1	7.5	2.1	2.1	4.5	5	4.5	5	4.9	5.9	5.1	3.1	7.8	
Organic matter	%	-	-	2.6	7.9	9.0	7.2	7.4	9	11	11	7.1	13	3.6	3.6	7.7	8.5	7.8	8.5	8.3	10	8.6	5.3	13	
Total nitrogen	%	-	-	-	-	-	-	-	-	-	-	-	-	0.18	0.18	0.39	0.42	0.39	0.43	0.41	0.48	0.42	0.26	0.66	
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	5.8	5.2	5.4	5.5	5.8	5.3	5.6	5.7	5.6	
Particle Size																									
Grain size >2 mm	%	-	-	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Grain size 0.2 mm - 2 mm (coarse sand)	%	-	-	16	5.5	4	13	5.9	5	2.4	3.1	4.8	2	17	16	11	5.5	24	8.2	13	3.3	5.8	13	4.7	
Grain size 0.063 - 0.2 mm (sand)	%	-	-	33.9	11	8	11	8.5	6.4	14.4	19.2	19.5	3.3	30.2	28.3	12.6	9.5	17.5	12.4	13.2	16	23	29.7	6.3	
Grain size 0.004 - 0.063 mm (silt)	%	-	-	46	75.4	78	68	75	76	75	72	70	79	50	52	69	75	54	72	65	73	65	55	74	
Clay content <0.004 mm	%	-	-	2.6	8	9.6	7.6	10	12	7.8	5.9	5.8	15	2.6	2.9	7.4	9.7	4	7.5	8.6	7.2	6.2	2.7	15	
Total Metals																									
Aluminum	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	5,110	4,200	6,500	7,770	6,180	6,970	9,700	9,030	7,610	5,650	13,000	
Antimony	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.14	
Arsenic	mg/kg	5.9	17	-	-	-	-	-	-	-	-	-	-	3.2	2.6	3.2	5.2	3.4	3.5	9.2 ^(ISQG)	44 ^(ISQG; PEL)	13 ^(ISQG)	9.9 ^(ISQG)	43 ^(ISQG; PEL)	
Barium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	35	29	51	52	41	50	47	58	51	46	68	
Beryllium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.14	0.24	0.29	0.24	0.26	0.47	0.54	0.39	0.29	0.75	
Bismuth	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Boron	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.5	
Cadmium	mg/kg	0.6	3.5	-	-	-	-	-	-	-	-	-	-	0.073	0.062	0.23	0.23	0.21	0.22	0.24	0.72 ^(ISQG)	0.48	0.33	0.95 ^(ISQG)	
Calcium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	2,010	1,610	2,520	2,430	2,070	2,480	1,580	1,660	1,930	1,480	2,680	
Chromium	mg/kg	37	90	-	-	-	-	-	-	-	-	-	-	16	16	24	31	22	22	31	32	26	17	37	
Cobalt	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	5.6	4.6	7.2	11	8.4	8.5	17	64	22	33	34	
Copper	mg/kg	36	197	-	-	-	-	-	-	-	-	-	-	21	17	34	40	29	34	65 ^(ISQG)	81 ^(ISQG)	53 ^(ISQG)	34	101 ^(ISQG)	
Iron	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	8,570	7,050	8,600	11,800	8,760	9,260	22,800	77,000	25,800	21,500	57,400	
Lead	mg/kg	35	91	-	-	-	-	-	-	-	-	-	-	2.7	2.2	3.9	3.9	3	3.9	4.3	6.1	5.5	3.9	6.6	
Lithium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	7.8	6.2	8.9	9.1	9.1	9	8.1	5.8	6.7	6	7.2	
Magnesium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	2,210	1,890	2,730	2,940	2,790	2,810	2,580	2,230	2,430	1,850	2,510	
Manganese	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	70	58	83	105	85	96	186	555	197	571	254	
Mercury	mg/kg	0.17	0.49	-	-	-	-	-	-	-	-	-	-	0.021	0.019	0.039	0.037	0.029	0.041	0.038	0.056	0.053	0.028	0.079	
Molybdenum	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.28	0.27	0.36	0.62	0.32	0.34	1.4	1.6	1	0.68	2.7	
Nickel	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	22	20	34	41	32	34	62	99	52	59	79	
Phosphorus	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	429	429	594	621	537	593	638	620	574	373	816	
Potassium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	470	390	580	600	540	600	560	520	550	420	640	
Selenium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.2	0.22	0.27	<0.2	<0.2	0.38	0.53	0.34	0.21	0.6	
Silver	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	0.11	0.11	<0.1	<0.1	0.18	
Sodium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	108	96	126	154	121	136	95	103	122	104	122	
Strontium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	10	8.3	14	15	11	14	11	11	12	9.4	17	
Thallium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	0.062	0.087	0.069	0.065	0.078	0.2	0.11	0.11	0.24	
Tin	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Titanium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	216	202	257	267	264	277	177	179	194	166	195	
Uranium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.62	0.53	0.85	0.97	0.73	0.88	1.4	1.2	1	0.72	1.7	
Vanadium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	19	15	23	28	21	23	34	37	32	23	50	
Zinc	mg/kg	123	315	-	-	-	-	-	-	-	-	-	-	32	26	44	55	48	48	73	121	76	58	157 ^(ISQG)	
Zirconium	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Tungsten	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	

ISQG = Interim Sediment Quality Guideline (CCME 1999)

PEL = Probable Effect Level (CCME 1999)

Sediment quality data shown in this table were rounded to reflect laboratory precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Measured concentrations equal to the guideline values were not identified as exceedances

- = no guideline or data.

APPENDIX F

2021 Benthic Invertebrate Community Data



Freshwater Benthic Enumeration and Identification Methods

Client: Golder

Project: Propeller Baseline AEMP

Protocol: EEM

Sample Inventory

Sample arrival: 27-Aug-21

Number of samples: 14

Number of jars: 14

Screen size: 500 µm

Biologica project number: fb21-151

The chain of custody documents were checked and approved with the client. Samples were transferred from formalin into 70% ethanol and stained with Rose Bengal to aid in sorting. Each sample was provided a unique identification number and placed in the queue for analysis.

Table 1. Summary of benthic samples processed for Golder Propeller Baseline AEMP, 2021.

Client Sample ID	Date Sampled	Biologica Sample ID	Sub-sample	Organisms Counted
BRP-35-1	16-Aug-21	fb21-151-001	Whole	145
BRP-35-2	16-Aug-21	fb21-151-002	Whole	150
BRP-35-3-A	16-Aug-21	fb21-151-003	Whole	32
BRP-35-3-B	16-Aug-21	fb21-151-004	Whole	36
BRP-35-3-C	16-Aug-21	fb21-151-005	Whole	12
BRP-35-4	16-Aug-21	fb21-151-006	Whole	72
BRP-35-5	16-Aug-21	fb21-151-007	Whole	36
BRP-36-1	15-Aug-21	fb21-151-008	Whole	300
BRP-36-2	15-Aug-21	fb21-151-009	29/48	322
BRP-36-3-1	15-Aug-21	fb21-151-010	Whole	180
BRP-36-3-2	15-Aug-21	fb21-151-011	Whole	97
BRP-36-3-3	15-Aug-21	fb21-151-012	Whole	155
BRP-36-4	15-Aug-21	fb21-151-013	Whole	203
BRP-36-5	15-Aug-21	fb21-151-014	14/24	321

Sample Processing

Sorting:

Samples were sorted using dissecting microscopes at 10–40x magnification by trained personnel. All debris in each sample was checked microscopically, including leaves, twigs, moss, elutriated gravel, and other large debris, to ensure “clinger taxa” were recovered consistently from the samples.

Split samples were subsampled using a Caton tray (Caton, 1991). All sample debris was spread evenly over a Caton grid, and equivalent quadrats were randomly selected and removed for microscopic sorting until the target count of 300 was reached.

After completion of the initial subsample, any large organisms (>1.5 cm), if present, were removed from the unsorted portion of the sample. If these large individuals were unique to the sample, they were identified and included in the data. Their abundance is considered to be from the whole sample, and therefore were not extrapolated. Large organisms that are not unique to the sample, those already represented in the subsampled data, are not included in the data. This process ensures rare and unique taxa are captured in the data.

To minimize potential sorter bias, samples were distributed among technicians such that no one person sorted all the replicates of a given sample or station.

Sorting QA/QC:

To ensure sorting efficiency was >95%, whole and/or partial sub-samples were re-sorted. Sorting efficiency was calculated using the following equation (where total count = final total number of organisms in sample):

$$\text{Sorting efficiency} = [1 - (\# \text{ of organisms in spotcheck or re-sort} / \text{total organisms})] \times 100$$

*Total organisms includes the original count and the number found from the re-sort

Sorting efficiency QA/QC was performed on 64% of samples. For the selected samples, 25-100% of the debris was re-sorted. All samples checked must meet or exceed 95% sorting efficiency. Any samples falling below 95% sorting efficiency were re-sorted in their entirety, and additional checks were undertaken as necessary. For quality assurance, QA re-sorts were performed on 10% of samples. One sample was randomly selected and re-sorted in its entirety. Refer to Table 2 for sorting efficiency results.

Table 2. Summary of sorting QA/QC results for Golder Propeller Baseline AEMP, 2021.

Client Sample ID	Biologica Sample ID	Sorting Efficiency QC: Spotcheck	Sorting Efficiency QA: Whole Re-sort
BRP-35-1	fb21-151-001		97.28%
BRP-35-2	fb21-151-002	Resorted	
BRP-35-3-A	fb21-151-003	96.88%	
BRP-35-3-B	fb21-151-004	96.00%	
BRP-35-3-C	fb21-151-005	Resorted	
BRP-35-4	fb21-151-006	Resorted	
BRP-35-5	fb21-151-007	100.00%	
BRP-36-1	fb21-151-008		
BRP-36-2	fb21-151-009		
BRP-36-3-1	fb21-151-010	100.00%	
BRP-36-3-2	fb21-151-011	100.00%	
BRP-36-3-3	fb21-151-012		
BRP-36-4	fb21-151-013	100.00%	
BRP-36-5	fb21-151-014		
Average:		98.81%	97.28%

Identification:

All organisms were identified using a combination of dissecting (10–40x) and compound (100–1000x) microscopes and standard taxonomic keys (see methodological and taxonomic references) to the level specified by the client: species or LPL (lowest practicable level). As required, chironomids and oligochaetes were cleared and slide-mounted. All specimens were archived in air-tight glass vials with glycerin and 70% ethanol for long-term storage. Taxonomic data were recorded in Biologica's custom database.

Any species new to Biologica's verified reference collections are confirmed by one of Biologica's secondary certified taxonomists.

No species were found that were new to Biologica's verified reference collections.

Table 3. Taxonomists certified by the Society of Freshwater Science (SFS).

Taxonomist	Certification	Certification Expiry*
Robynn Holma	North American Chironomidae	2022
	Western Arthropods	2022
	Western EPT	2024
	Western Chironomidae	---
	Eastern EPT	2022
	Eastern Arthropods	2024
Karen Hoban	Western EPT	2022
	Western Arthropods	2022
	Eastern EPT	2025
	Eastern Arthropods	2025
Breanna Bomback	North American Chironomidae	2025
Hiroki Tomoe	North American Oligochaeta	2020

*Certifications renewal has been delayed due to COVID-19 and certificates have been extended by SFS until such time as testing can be resumed.

Data

All data were recorded in Biologica's custom database. Results were provided to the Golder project manager in Excel spreadsheets via email.

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Table F1: Raw Benthic Invertebrate Abundance Data (numbers per sample) for Propeller Lake, August 2021

							Biologica Sample ID	fb21-151-001	fb21-151-002	fb21-151-003	fb21-151-004	fb21-151-005	fb21-151-006	fb21-151-007	fb21-151-008	fb21-151-009	fb21-151-010	fb21-151-011	fb21-151-012	fb21-151-013	fb21-151-014
							Client Sample ID	BRP-35-1	BRP-35-2	BRP-35-3-A	BRP-35-3-B	BRP-35-3-C	BRP-35-4	BRP-35-5	BRP-36-1	BRP-36-2	BRP-36-3-1	BRP-36-3-2	BRP-36-3-3	BRP-36-4	BRP-36-5
							Area	PLSB	PLSB	PLSB	PLSB	PLSB	PLSB	PLSB	PLNB	PLNB	PLNB	PLNB	PLNB	PLNB	PLNB
							Date Sampled	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-16	2021-08-15	2021-08-15	2021-08-15	2021-08-15	2021-08-15	2021-08-15
Phylum	Class	Order	Family	Subfamily/Tribe	Taxon	Row Summary	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance	Abundance
Annelida	Clitellata	Lumbriculida	Lumbriculidae	-	<i>Lumbriculus variegatus</i>	44	14	9	1	2	0	7	1	0	5	2	0	1	0	2	
		Tubificida	Naididae	-	<i>Naididae</i> indet.	7	2	0	1	0	0	0	0	0	2	1	0	1	0	0	
				Naidinae	<i>Nais communis</i>	5	0	3	1	0	0	0	0	0	0	0	0	0	0	0	
					<i>Uncinails uncinata</i>	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
			Rhyacodrilinae		<i>Rhyacodrilus</i> sp.	44	0	16	0	2	0	6	2	3	8	0	2	0	3	2	
					<i>Rhyacodrilus coccineus</i>	11	1	0	2	0	0	0	0	0	1	0	0	0	0	7	
			Tubificinae		<i>Limnodrilus</i> sp.	3	0	0	0	0	0	0	0	0	2	0	1	0	0	0	
					<i>Limnodrilus hoffmeisteri</i>	38	0	0	0	0	0	0	0	0	35	0	1	1	0	2	
		-	Enchytraeidae	-	<i>Enchytraeidae</i> indet.	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
		Arthropoda	Arachnida	Trombidiformes	-	-	<i>Acari</i> indet.	2	0	0	0	2	0	0	0	0	0	0	0	0	0
Arrenuridae	-				<i>Arrenurus</i> sp.	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
Lebertiidae	-				<i>Lebertia</i> sp.	3	1	0	0	0	0	1	0	0	0	0	0	1	0	0	
Oxidae	-				<i>Oxus</i> sp.	5	0	1	0	0	0	0	0	2	2	0	0	0	0	0	
Pionidae	-				<i>Pionidae</i> indet.	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	
Cnidaria	Hydrozoa	Anthoathecatae	Hydridae	-	<i>Hydra</i> sp.	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
Arthropoda	Insecta	Diptera	-	-	<i>Diptera</i> indet.	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
			Chironomidae	-	<i>Chironomidae</i> indet.	21	2	1	0	0	0	0	4	5	4	0	0	2	3		
				Chironomini	<i>Chironomini</i> indet.	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	
				<i>Chironomus</i> sp.	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
				<i>Cladopelma</i> sp.	3	0	0	0	0	0	1	0	0	2	0	0	0	0	0		
				<i>Cryptochironomus</i> sp.	11	1	3	0	1	0	1	4	0	0	1	0	0	0	0		
				<i>Dicrotendipes</i> sp.	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0		
				<i>Microtendipes pedellus</i> group	11	2	0	0	0	0	0	0	1	0	1	0	0	0	7		
				<i>Pagastiella</i> sp.	18	2	0	0	0	0	0	0	0	7	2	1	1	2	3		
				<i>Parachironomus</i> sp.	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0		
				<i>Paracladopelma</i> sp.	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0		
				<i>Polypedilum</i> sp.	3	0	2	0	0	0	0	0	0	0	1	0	0	0	0		
				<i>Stictochironomus</i> sp.	750	32	15	0	0	0	0	0	103	161	79	45	67	63	185		
			Tanytarsini		<i>Tanytarsini</i> indet.	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	
					<i>Cladotanytarsus</i> sp.	11	4	2	1	1	0	0	1	0	2	0	0	0	0	0	
					<i>Corynocera</i> sp.	137	2	18	6	6	0	4	4	18	3	0	1	1	7	67	
					<i>Micropsectra/Tanytarsus</i> sp. complex	158	5	26	0	0	1	7	0	6	10	0	1	2	1	99	
					<i>Paratanytarsus</i> sp.	10	3	2	0	1	0	0	0	2	2	0	0	0	0	0	
					<i>Rheotanytarsus</i> sp.	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
					<i>Tanytarsus</i> sp.	20	0	0	1	1	0	1	4	0	0	13	0	0	0	0	
			Diamesinae	<i>Protanypus</i> sp.	6	1	1	0	0	0	1	1	2	0	0	0	0	0	0		
			Orthoclaadiinae		<i>Heterotrissocladius</i> sp.	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
					<i>Psectrocladius</i> sp.	20	1	0	1	0	0	1	0	0	13	2	0	0	0	2	
					<i>Zalutschia</i> sp.	49	4	8	7	5	9	12	4	0	0	0	0	0	0	0	
			Prodiamesinae	<i>Monodiamesa</i> sp.	24	6	2	0	0	0	0	0	3	2	0	1	2	7	2		
			Pentaneurini		<i>Pentaneurini</i> indet.	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
					<i>Ablabesmyia</i> sp.	10	0	1	0	0	0	0	0	1	5	1	0	0	0	2	
		Procladiini	<i>Procladius</i> sp.	161	8	12	1	0	0	3	1	30	23	11	7	12	15	38			
			Empididae	-	<i>Empididae</i> indet.	2	0	0	0	0	0	0	0	0	0	0	0	0	0		
			Trichoptera		<i>Trichoptera</i> indet.	4	0	0	0	0	0	0	2	2	0	0	0	0	0		
	Trichoptera	Limnephilidae	Dicosmoecinae		<i>Ecclisomyia</i> sp.	1	0	0	0	0	0	0	0	0	1	0	0	0			
Mollusca	Bivalvia	Veneroida	Pisidiidae	-	<i>Pisidiidae</i> indet.	856	52	20	8	10	2	21	12	119	238	56	36	61	96	125	
	Gastropoda	-	-	-	<i>Gastropoda</i> indet.	1	0	0	0	0	0	0	0	0	0	0	0	1	0		
		Heterostropho	Valvatidae	-	<i>Valvata sincera</i> sp.	5	2	2	0	0	0	0	0	0	0	0	1	0	0		
					<i>Valvata</i> sp.	23	0	4	0	4	0	3	1	0	3	4	1	1	2	0	
Platyhelminthes	-	-	-	-	<i>Platyhelminthes</i> indet.	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
Grand Total						2,501	145	150	32	36	12	72	36	300	533	180	97	155	203	550	

APPENDIX G

2021 Lake Trout Health and Tissue Chemistry Data

Table G-1: Data from Lake Trout Sampled from Goose Lake and Propeller Lake, 2021

Lake	FIN	Sex	Life Stage	Fork Length (cm)	Total Length (cm)	Total Body Weight (g)	Condition (k)	Age (y)	Age Structures	Biopsy Collected (Y/N)	Floy Tag ID	Comment
Goose Lake	SB21UGLLKTR1001	Unknown	Adult	57.1	-	2550	-	9	FR	Y	1450	-
	SB21UGLLKTR1002	Unknown	Unknown	39.4	43.8	625	0.744	9	FR	Y	1414	-
	SB21UGLLKTR1003	Unknown	Unknown	46.6	50.7	960	0.737	12	FR	Y	1412	-
	SB21UGLLKTR1004	Unknown	Unknown	29.5	32.8	250	0.708	7	FR	N	1410	-
	SB21UGLLKTR1005	Unknown	Adult	63.6	70.2	2675	0.773	15	FR	Y	1409	-
	SB21UGLLKTR1006	Unknown	Unknown	30.9	34.7	310	0.742	6	FR	N	1406	-
	SB21UGLLKTR1007	Unknown	Adult	45.9	51.3	975	0.722	10	FR	Y	1403	-
	SB21UGLLKTR1008	Unknown	Juvenile	22.4	24.6	125	0.840	2	FR	N	0751	-
	SB21UGLLKTR1009	Unknown	Unknown	37.5	42.0	500	0.675	9	FR	Y	0753	-
	SB21UGLLKTR1010	Unknown	Unknown	31.2	34.6	300	0.724	6	FR	N	0755	-
	SB21UGLLKTR1011	Unknown	Unknown	40.8	45.2	600	0.650	8	FR	Y	0756	-
	SB21UGLLKTR1012	Unknown	Juvenile	27.4	30.1	200	0.733	3	FR	N	0759	-
	SB21UGLLKTR1013	Unknown	Adult	47.8	52.5	925	0.639	7	FR	N	0761	-
	SB21UGLLKTR1014	Unknown	Adult	65.7	70.9	2950	0.828	12	FR	Y	0763	-
	SB21UGLLKTR1015	Unknown	Unknown	32.9	36.3	310	0.648	6	FR	N	0765	-
	SB21UGLLKTR1016	Unknown	Unknown	41.0	45.6	600	0.633	7	FR	N	0766	-
	SB21UGLLKTR1018	Unknown	Unknown	28.3	31.2	225	0.741	3	FR	N	0768	-
	SB21UGLLKTR1019	Unknown	Unknown	38.7	42.6	510	0.660	9	FR	N	0769	-
	SB21UGLLKTR1021	Unknown	Adult	43.4	48.2	875	0.781	10	FR	Y	-	-
	SB21UGLLKTR1022	Unknown	Adult	56.6	62.2	2050	0.852	12	FR	N	0771	-
	SB21UGLLKTR1023	Unknown	Juvenile	23.7	26.1	140	0.787	3	FR	Y	-	-
	SB21UGLLKTR1024	Unknown	Unknown	35.3	39.1	400	0.669	8	FR	N	0774	-
	SB21UGLLKTR1025	Unknown	Juvenile	24.8	27.4	150	0.729	3	FR	N	-	too small for floy tag
	SB21UGLLKTR1026	Unknown	Juvenile	24.0	26.3	150	0.825	2	FR	N	-	too small for floy tag
	SB21UGLLKTR1030	Unknown	Juvenile	26.1	29.0	175	0.718	4	FR	N	-	too small for floy tag
	SB21UGLLKTR1031	Unknown	Adult	46.4	51.2	1000	0.745	10	FR	N	0775	-
	SB21UGLLKTR1032	Unknown	Adult	54.8	59.9	1550	0.721	9	FR	N	0777	-
	SB21UGLLKTR1033	Unknown	Unknown	37.9	42.3	520	0.687	8	FR	N	0778	-
	SB21UGLLKTR1034	Unknown	Juvenile	25.5	28.1	160	0.721	3	FR	N	-	-
	SB21UGLLKTR1035	Unknown	Adult	45.9	50.9	975	0.739	9	FR	N	0779	-
	SB21UGLLKTR1036	Unknown	Adult	63.1	69.4	2820	0.844	21	FR	N	0781	-
	SB21UGLLKTR1038	Unknown	Unknown	36.1	40.0	440	0.688	8	FR	N	0782	-
Propeller Lake	SB21UPLKTR2001	Unknown	Adult	53.4	58.7	1650	0.816	14	FR	Y	1448	-
	SB21UPLKTR2002	Unknown	Adult	55.5	60.0	1650	0.764	12	FR	Y	1446	-
	SB21UPLKTR2003	Unknown	Unknown	44.1	49.3	750	0.626	10	FR	Y	1445	-
	SB21UPLKTR2004	Unknown	Adult	67.5	74.0	2700	0.666	14	FR	Y	1444	-
	SB21UPLKTR2005	Unknown	Unknown	48.9	53.6	775	0.503	9	FR	Y	1443	-
	SB21UPLKTR2006	Unknown	Adult	51.8	57.1	1600	0.859	10	FR	Y	1142	-
	SB21UPLKTR2007	Unknown	Unknown	41.6	45.4	582	0.622	7	FR	Y	1441	-
	SB21UPLKTR2008	Unknown	Adult	54.4	59.8	1505	0.704	12	FR	Y	1440	-
	SB21UPLKTR2009	Unknown	Adult	64.7	70.2	3100	0.896	20	FR	Y	1438	-
	SB21UPLKTR2012	Unknown	Adult	52.1	57.6	1450	0.759	12	FR	Y	1437	-
	SB21UPLKTR2013	Unknown	Unknown	44.4	49.5	1150	0.948	12	FR	Y	1436	-
	SB21UPLKTR2014	Unknown	Adult	44.2	48.2	900	0.804	10	FR	Y	1435	possible mortality
	SB21UPLKTR2015	Unknown	Adult	57.3	62.4	1995	0.821	14	FR	Y	1434	-
	SB21UPLKTR2016	Unknown	Adult	51.6	56.6	1495	0.825	8	FR	N	1433	-
	SB21UPLKTR2017	Unknown	Adult	54.6	59.5	1725	0.819	9	FR	N	1432	-
	SB21UPLKTR2018	Unknown	Adult	58.4	64.3	2250	0.846	14	FR	N	1431	-
	SB21UPLKTR2019	Unknown	Adult	52.4	57.9	1450	0.747	9	FR	N	1429	-
	SB21UPLKTR2020	Unknown	Adult	53.0	58.1	1575	0.803	10	FR	N	1428	-
	SB21UPLKTR2021	Unknown	Adult	50.4	55.0	1325	0.796	7	FR	N	1427	-
	SB21UPLKTR2022	Unknown	Unknown	44.8	49.7	900	0.733	7	FR	N	1426	-
	SB21UPLKTR2023	Unknown	Adult	55.3	60.3	1680	0.766	10	FR	N	1425	-
	SB21UPLKTR2024	Unknown	Adult	60.6	66.6	2250	0.762	10	FR	N	1424	-
	SB21UPLKTR2025	Unknown	Adult	62.7	68.4	2550	0.797	13	FR	N	1423	-
	SB21UPLKTR2026	Unknown	Adult	61.9	67.9	2200	0.703	16	FR	N	1421	-
	SB21UPLKTR2027	Unknown	Adult	51.1	56.3	1400	0.785	11	FR	N	1420	-
	SB21UPLKTR2028	Unknown	Adult	51.9	57.1	1425	0.765	10	FR	N	1418	-
	SB21UPLKTR2029	Unknown	Adult	62.4	69.5	2500	0.745	12	FR	N	1417	-
	SB21UPLKTR2030	Unknown	Unknown	45.6	50.9	1000	0.758	7	FR	N	1416	-
	SB21UPLKTR2031	Unknown	Adult	53.2	58.2	1495	0.758	9	FR	N	1415	broken jaw

FIN = Fish Identification Number; FR = fin ray; - = not applicable or no observations recorded.

Table G-2: Non-Target Species Captured from Goose Lake and Propeller Lake, 2021

Lake	Species	FIN	Life Stage	Fork Length (cm)	Total Length (cm)	Total Body Weight (g)
Goose Lake	ARGR	SB21UGLARGR1017	Adult	32.4	35.5	400
	RNWH	SB21UGLRNWH1020	Unknown	30.3	32.9	275
	RNWH	SB21UGLRNWH1027	Unknown	36.5	39.4	475
	RNWH	SB21UGLRNWH1028	Unknown	34.3	37.1	400
	RNWH	SB21UGLRNWH1029	Unknown	33.2	36.3	400
	RNWH	SB21UGLRNWH1037	Unknown	33.5	36.3	400
Propeller Lake	RNWH	SB21UPLRNWH2010	Unknown	27.2	29.6	200
	RNWH	SB21UPLRNWH2011	Unknown	23.2	24.8	100

Fish Identification Number; No. = Number; ARGR = Arctic Grayling; RNWH = Round Whitefish

Table G-3: Angling Records for Fish Caught in Goose Lake, 2021

Lake	Sampling Effort Number	Start Date (dd-mmm-yy)	End Date (dd-mmm-yy)	Set Time (hh:mm)	Lift Time (hh:mm)	Fishing Hours (h)	Depth Range (m)	Set			Total Angling Effort (angler-hour)	Arctic Grayling		Lake Trout	
								No. Anglers	Angling Gear	Habitat Description		Catch	CPUE ^a	Catch	CPUE ^a
Goose Lake	SB21FHGLAN1001	24-Jul-21	24-Jul-21	10:10	12:20	2.17	1.0 7.0	2	spoons, jigs	deep pooled area, bedrock & boulders, fished off of small island	4.33	0	0	0	0
	SB21FHGLAN1002	24-Jul-21	24-Jul-21	15:40	17:40	2.00	- -	2	spoons	deep channel, boulder & bedrock, fished from shore off bedrock slab	4.00	0	0	0	0
	SB21FHGLAN1003	25-Jul-21	25-Jul-21	10:26	11:10	0.733	5.0 10.0	2	spoons	trolled along northeast bay	1.47	0	0	0	0
	SB21FHGLAN1004	25-Jul-21	25-Jul-21	14:10	14:48	0.633	1.5 10.0	2	spoons	trolled along island and back towards camp	1.27	0	0	0	0
	SB21FHGLAN1005	25-Jul-21	25-Jul-21	15:20	16:05	0.750	1.0 10.0	2	spoons	shoreline around camp	1.50	0	0	0	0
	SB21FHGLAN1006	25-Jul-21	25-Jul-21	16:33	17:20	0.783	1.0 10.0	2	spoons	fished in front of mine	1.57	0	0	1	0.638
	SB21FHGLAN1007	25-Jul-21	25-Jul-21	17:40	18:00	0.333	1.0 10.0	2	spoons	trolled along shoreline in front of camp area	0.67	0	0	0	0
	SB21FHGLAN1008	29-Jul-21	29-Jul-21	9:45	11:40	1.92	1.5 6.0	2	spoons	trolled shoreline along north side	3.83	0	0	2	0.522
	SB21FHGLAN1009	29-Jul-21	29-Jul-21	13:20	14:15	0.917	1.5 7.0	2	spoons	trolled shoreline near neck & outflow from Propeller	1.83	0	0	0	0
	SB21FHGLAN1010	29-Jul-21	29-Jul-21	14:50	16:25	1.58	1.5 26.0	2	spoons	trolled over deep spots	3.17	0	0	3	0.947
	SB21FHGLAN1011	29-Jul-21	29-Jul-21	16:35	17:48	1.22	1.5 26.0	2	spoons	trolled along shoreline on camp side	2.43	0	0	4	1.64
	SB21FHGLAN1012	30-Jul-21	30-Jul-21	11:10	12:35	1.42	1.0 10.0	2	spoons	trolled shoreline and across bay	2.83	0	0	3	1.06
	SB21FHGLAN1013	30-Jul-21	30-Jul-21	13:35	14:57	1.37	1.5 7.0	2	spoons	trolled along shoreline	2.73	1	0.366	4	1.46
	SB21FHGLAN1014	30-Jul-21	30-Jul-21	16:07	17:06	0.983	1.0 6.0	2	spoons	trolled shoreline	1.97	0	0	1	0.508
	SB21FHGLAN1015	31-Jul-21	31-Jul-21	11:55	13:20	1.42	1.0 7.0	2	spoons	trolled shoreline around all of main basin	2.83	0	0	2	0.706
	SB21FHGLAN1016	31-Jul-21	31-Jul-21	13:55	15:30	1.58	1.0 26.0	2	spoons	trolled shoreline	3.17	0	0	2	0.632
	SB21FHGLAN1017	31-Jul-21	31-Jul-21	16:10	17:45	1.58	1.2 26.0	2	spoons	trolled shoreline along camp, bo/co	3.17	0	0	1	0.316

^a Total catch-per-unit-effort (CPUE) calculated as the total catch of a single species over the total effort for all the angling effort in an area.

Table G-4: Gill Net Records for Fish Caught in Goose Lake, 2021

Area	Sampling Effort Number	UTM (NAD83, 11V)				Start Date	End Date	Set Time (hh:mm)	Lift Time (hh:mm)	Fishing Hours (h)	Depth Range (m)		Set			Lake Trout		Round Whitefish	
		Start		End									Length (m)	Mesh (inches)	Habitat Description	Catch	CPUE ^a	Catch	CPUE ^a
		Easting	Northing	Easting	Northing														
Goose Lake	SB21FHGLGN1501	433149	7271507	433198	7271459	25-Jul-21	25-Jul-21	10:13	13:55	3.70	7.0	9.0	100	1 & 3	set perpendicular to shore in bay northeast, in deep section	0	0	0	0
	SB21FHGLGN1502	433281	7271603	433302	7271550	25-Jul-21	25-Jul-21	14:05	16:15	2.17	2.9	3.4	100	1 & 3	set in northeast bay between island and shore	0	0	0	0
	SB21FHGLGN1503	433323	7270581	433354	7270535	25-Jul-21	25-Jul-21	16:30	17:40	1.17	2.5	4.0	100	1 & 3	set off of boulder point	0	0	0	0
	SB21FHGLGN1504	433563	7271551	433525	7271578	29-Jul-21	29-Jul-21	9:37	11:47	2.17	1.0	1.5	100	1 & 3	set between two islands, boulder substrate	0	0	0	0
	SB21FHGLGN1505	432875	7270339	432875	7270272	29-Jul-21	29-Jul-21	12:12	14:15	2.05	1.4	3.4	100	1 & 3	set off of boulder point	0	0	0	0
	SB21FHGLGN1506	431196	7269979	431169	7269942	29-Jul-21	29-Jul-21	14:50	16:28	1.63	1.0	7.0	100	1 & 3	set in deep pool boulder at inflow	0	0	0	0
	SB21FHGLGN1507	434498	7270084	434541	7270110	30-Jul-21	30-Jul-21	11:06	13:00	1.90	1.0	1.2	100	1 & 3	set at bay near inflow from creek	1	0.526	0	0
	SB21FHGLGN1508	434083	7270055	434108	7270095	30-Jul-21	30-Jul-21	13:25	15:00	1.58	1.2	7.8	100	1 & 3	set near dock at drop off, perpendicular to shore	3	1.89	1	0.632
	SB21FHGLGN1509	434105	7270029	434159	7270042	31-Jul-21	31-Jul-21	11:48	13:25	1.62	1.0	5.3	100	1 & 3	set next to dock, cobble and boulder substrate	2	1.24	3	1.86
	SB21FHGLGN1510	434105	7270029	434159	7270042	31-Jul-21	31-Jul-21	13:50	15:32	1.70	1.0	5.5	100	1 & 3	set next to dock, cobble and boulder substrate	3	1.76	7	4.12

^a Total catch-per-unit-effort (CPUE) calculated as the total catch of a single species over the total effort for one gill net set in one area.

Table G-5: Angling Records for Fish Caught in Propeller Lake, 2021

Lake	Sampling Effort Number	Start Date	End Date	Set Time (hh:mm)	Lift Time (hh:mm)	Fishing Hours (h)	Depth Range (m)	Set			Total Angling Effort (angler-hour)	Lake Trout	
								No. Anglers	Angling Gear	Habitat Description		Catch	CPUE ^a
Propeller Lake	SB21FHPLAN2001	26-Jul-21	26-Jul-21	15:20	16:30	1.17	1.0 5.0	2	spoons	trolled from inlet to small bay and back	2.33	1	0.429
	SB21FHPLAN2002	27-Jul-21	27-Jul-21	10:25	12:05	1.67	2.0 5.0	2	spoons	shoreline trolling and in bay with islands and outflow	3.33	3	0.900
	SB21FHPLAN2003	27-Jul-21	27-Jul-21	12:25	13:00	0.58	1.0 5.0	2	spoons	trolled sheltered bay by outflow	1.17	0	0.000
	SB21FHPLAN2004	27-Jul-21	27-Jul-21	15:25	16:30	1.08	1.0 7.0	2	spoons	trolled along shoreline and into bays	2.17	1	0.462
	SB21FHPLAN2005	27-Jul-21	27-Jul-21	16:52	17:10	0.30	2.0 7.0	2	spoons	trolled shoreline along bay, boulder/cobble	0.600	0	0.000
	SB21FHPLAN2007	28-Jul-21	28-Jul-21	11:30	12:50	1.33	1.0 7.0	2	spoons	trolled from inflow and around islands	2.67	2	0.750
	SB21FHPLAN2008	28-Jul-21	28-Jul-21	13:35	14:50	1.25	1.5 6.0	2	spoons	trolled around islands	2.50	3	1.200
	SB21FHPLAN2009	28-Jul-21	28-Jul-21	15:25	16:30	1.08	1.5 6.0	2	spoons	trolled around islands, same as AN-08	2.17	3	1.385
	SB21FHPLAN2010	28-Jul-21	28-Jul-21	16:45	17:15	0.50	1.5 6.0	2	spoons	trolled along islands and shoreline to bay	1.00	0	0.000

^a Total catch-per-unit-effort (CPUE) calculated as the total catch of a single species over the total effort for all the angling effort in an area.

Table G-6: Gill Net Records for Fish Caught in Propeller Lake, 2021

Area	Sampling Effort Number	UTM (NAD83, 11V)				Start Date	End Date	Set Time (hh:mm)	Lift Time (hh:mm)	Fishing Hours (h)	Depth Range (m)		Set			Lake Trout		Round Whitefish	
		Start		End									Length (m)	Mesh (inches)	Habitat Description	Catch	CPUE ^a	Catch	CPUE ^a
		Easting	Northing	Easting	Northing														
Propeller Lake	SB21FHPLGN2501	434710	7279130	434669	7279161	26-Jul-21	26-Jul-21	10:38	12:55	2.28	1.5	2.7	100	1 & 3	set at outfall in cobble/boulder substrate	1	0.438	0	0
	SB21FHPLGN2502	434709	7279171	434726	7279123	27-Jul-21	27-Jul-21	10:13	12:08	1.92	2.0	3.0	100	1 & 3	set in front of outfall in boulder and cobble substrate	0	0	0	0
	SB21FHPLGN2503	434587	7279391	434560	7279347	27-Jul-21	27-Jul-21	12:17	13:40	1.38	2.1	3.7	100	1 & 3	set perp to shore across islands	8	5.78	2	1.45
	SB21FHPLGN2504	434486	7274345	434483	7274282	27-Jul-21	27-Jul-21	16:46	17:25	0.650	1.0	3.0	100	1 & 3	set of rocky point in cobble/boulder bay	0	0	0	0
	SB21FHPLGN2505	435103	7272503	435040	7272503	28-Jul-21	28-Jul-21	9:40	11:00	1.33	1.5	2.2	100	1 & 3	set off point at inflow	3	2.25	0	0
	SB21FHPLGN2506	435103	7272503	435040	7272503	28-Jul-21	28-Jul-21	11:18	13:00	1.70	1.5	2.5	100	1 & 3	set off point at inflow	1	0.588	0	0
	SB21FHPLGN2507	435174	7273206	435151	7273157	28-Jul-21	28-Jul-21	13:18	15:05	1.78	1.0	2.0	100	1 & 3	set off of boulder island, perp to shore	3	1.68	0	0
	SB21FHPLGN2508	435174	7273206	435151	7273157	28-Jul-21	28-Jul-21	15:20	16:30	1.17	1.0	2.0	100	1 & 3	set off of boulder island, perp to shore	0	0	0	0

^a Total catch-per-unit-effort (CPUE) calculated as the total catch of a single species over the total effort for one gill net set in one area.

Table G-7: Environmental Data Collected for Goose Lake and Propeller Lake, 2021

Area	Date (dd/mon/yy)	Air Temp (°C)	Cloud Cover (%)	Wind Speed (km/h)	Wind Direction	Precipitation	Water Temperature (°C)	DO (mg/L)	DO (%)	pH	Specific Conductivity (µS/cm)
Goose Lake	24-Jul-21	3.0	100	50.4	N	light	9.3	8.25	73.8	6.35	96.8
	25-Jul-21	12.2	50	26.7	NNE	none	10.5	9.99	89.4	7.81	63.9
	29-Jul-21	11.6	50-70	11.6	WSW	light	12.0	9.78	90.2	7.30	40.8
	30-Jul-21	11.9	70	15.8	WSW	none	12.1	9.62	90.1	7.42	40.5
	31-Jul-21	9.9	-	9.6	S	none	-	-	-	-	-
Propeller Lake	26-Jul-21	5.4	100	12.1	NNE	light	10.6	10.20	93.7	5.97	36.2
	27-Jul-21	6.0	100	21.9	NNW	none	10.5	11.07	99.3	6.35	35.1
	28-Jul-21	15.0	50-70	13.4	SW	none	10.2	10.56	92.9	6.54	34.1

DO = dissolved oxygen; N = north; S = south; W = west; NE = northeast; SW = southwest; NW = northwest; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; "-" = not recorded or not applicable

Table G-8: Fish Aging Laboratory Results for Lake Trout Sampled from Goose Lake and Propeller Lake, 2021

Area	Ageing Structure	FIN	Age (y)	CI	QA/QC
Goose Lake	FR	SB21UGLLKTR1001	9	F	-
	FR	SB21UGLLKTR1002	9	F	-
	FR	SB21UGLLKTR1003	12	F	-
	FR	SB21UGLLKTR1004	7	F	-
	FR	SB21UGLLKTR1005	15	P	-
	FR	SB21UGLLKTR1006	6	F	-
	FR	SB21UGLLKTR1007	10	P	-
	FR	SB21UGLLKTR1008	2	F	-
	FR	SB21UGLLKTR1009	9	F	-
	FR	SB21UGLLKTR1010	6	F	-
	FR	SB21UGLLKTR1011	8	F	-
	FR	SB21UGLLKTR1012	3	F	-
	FR	SB21UGLLKTR1013	7	F	-
	FR	SB21UGLLKTR1014	12	F	-
	FR	SB21UGLLKTR1015	6	F	-
	FR	SB21UGLLKTR1016	7	F	-
	FR	SB21UGLLKTR1018	3	F	-
	FR	SB21UGLLKTR1019	9	F	-
	FR	SB21UGLLKTR1021	10	F	-
	FR	SB21UGLLKTR1022	12	P	-
	FR	SB21UGLLKTR1023	3	F	-
	FR	SB21UGLLKTR1024	8	F	8
	FR	SB21UGLLKTR1025	3	F	4
	FR	SB21UGLLKTR1026	2	F	2
	FR	SB21UGLLKTR1030	4	F	-
	FR	SB21UGLLKTR1031	10	F	-
	FR	SB21UGLLKTR1032	9	F	-
	FR	SB21UGLLKTR1033	8	F	-
	FR	SB21UGLLKTR1034	3	F	-
	FR	SB21UGLLKTR1035	9	F	-
	FR	SB21UGLLKTR1036	21	P	-
	FR	SB21UGLLKTR1038	8	F	-
Propeller Lake	FR	SB21UPLLKTR2001	14	F	-
	FR	SB21UPLLKTR2002	12	F	-
	FR	SB21UPLLKTR2003	10	F	-
	FR	SB21UPLLKTR2004	14	F	-
	FR	SB21UPLLKTR2005	9	F	-
	FR	SB21UPLLKTR2006	10	F	-
	FR	SB21UPLLKTR2007	7	P	-
	FR	SB21UPLLKTR2008	12	P	-
	FR	SB21UPLLKTR2009	20	F	-
	FR	SB21UPLLKTR2012	12	F	-
	FR	SB21UPLLKTR2013	12	F	-
	FR	SB21UPLLKTR2014	10	F	-
	FR	SB21UPLLKTR2015	14	F	-
	FR	SB21UPLLKTR2016	8	F	-
	FR	SB21UPLLKTR2017	9	F	-
	FR	SB21UPLLKTR2018	14	F	-
	FR	SB21UPLLKTR2019	9	F	-
	FR	SB21UPLLKTR2020	10	F	-
	FR	SB21UPLLKTR2021	7	F	7
	FR	SB21UPLLKTR2022	7	F	7
	FR	SB21UPLLKTR2023	10	F	10
	FR	SB21UPLLKTR2024	10	F	-
	FR	SB21UPLLKTR2025	13	F	-
	FR	SB21UPLLKTR2026	16	P	-
	FR	SB21UPLLKTR2027	11	F	-
	FR	SB21UPLLKTR2028	10	F	-
	FR	SB21UPLLKTR2029	12	F	-
	FR	SB21UPLLKTR2030	7	F	-
	FR	SB21UPLLKTR2031	9	F	-

FIN = Fish Identification Number; FR = fin ray; CI = confidence index; F = fair; P = poor; QA/QC = quality assurance and quality control age determination; - = not recorded or not applicable

Table G-9: Muscle Biopsy Tissue Mercury Chemistry for Lake Trout Sampled from Goose Lake and Propeller Lake, 2021

Lake	Lab ID	FIN	Date Sampled	Sample Type	Total Mercury (ng/g dw)	Total Mercury (ng/g ww)
Goose Lake	106629	SB21FH-GL-LKTR-1001	25-Jul-21	-	2430	519
	106630	SB21FH-GL-LKTR-1002	29-Jul-21	-	2580	536
	106631	SB21FH-GL-LKTR-1003	29-Jul-21	Dup A1	3050	612
	106631	SB21FH-GL-LKTR-1003	29-Jul-21	Dup A2	3190	639
	106632	SB21FH-GL-LKTR-1005	29-Jul-21	-	4630	914
	106633	SB21FH-GL-LKTR-1007	29-Jul-21	-	2110	435
	106634	SB21FH-GL-LKTR-1009	29-Jul-21	-	2710	528
	106635	SB21FH-GL-LKTR-1011	30-Jul-21	-	3360	690
	106636	SB21FH-GL-LKTR-1014	30-Jul-21	-	4310	929
	106637	SB21FH-GL-LKTR-1021	30-Jul-21	-	2050	439
	106638	SB21FH-GL-LKTR-1023	30-Jul-21	-	1110	237
Propeller Lake	106639	SB21FH-PL-LKTR-2001	26-Jul-21	-	2350	496
	106640	SB21FH-PL-LKTR-2002	26-Jul-21	-	3300	697
	106641	SB21FH-PL-LKTR-2003	27-Jul-21	-	1880	377
	106642	SB21FH-PL-LKTR-2004	27-Jul-21	-	3010	601
	106643	SB21FH-PL-LKTR-2005	27-Jul-21	-	1480	326
	106644	SB21FH-PL-LKTR-2006	27-Jul-21	-	3360	684
	106645	SB21FH-PL-LKTR-2007	27-Jul-21	-	1440	302
	106646	SB21FH-PL-LKTR-2008	27-Jul-21	-	4570	914
	106647	SB21FH-PL-LKTR-2009	27-Jul-21	-	3630	794
	106648	SB21FH-PL-LKTR-2012	27-Jul-21	-	2530	503
	106649	SB21FH-PL-LKTR-2013	27-Jul-21	-	1770	354
	106650	SB21FH-PL-LKTR-2014	27-Jul-21	Dup A1	1210	260
	106650	SB21FH-PL-LKTR-2014	27-Jul-21	Dup A2	1170	252
	106651	SB21FH-PL-LKTR-2015	27-Jul-21	-	2810	593

Fish Identification Number; Dup A1/A2 = laboratory duplicate samples; ng/g dw = nanogram per gram dry weight; ng/g ww = nanogram per gram wet weight.

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Date Received: September 13, 2021
Sampling Date(s): July 25, 2021 to July 30, 2021
Date Issued: September 24, 2021

Matrix: Tissue Biopsy (dry)
Transaction ID: 990
PO/Contract No.:
Date Analysed: September 22, 2021
Analyst(s): Zorica B.

Analytical Method: Total Mercury in Biological Tissues by Digestion, Purge and Trap, and CVAAS (T00110 version 8)

Comments: Dermal plug samples were freeze dried at Flett Research prior to analysis to eliminate errors associated with loss of moisture which can occur in small tissue samples. When present the dark portion of scale and skin from the tip of the dermal plug is removed prior to analysis.

*Based on our experience percent loss on drying results normally fall between 78% and 82% in fish muscle tissue. %LOD results which fall outside of this range are considered aberrant. A high %LOD result may be due to inclusion of water droplets during tissue sampling in the field while a low %LOD result may be the result of compression of the tissue during the sampling procedure which results in a loss of moisture from the tissue.

A lower than expected %LOD can also be caused when the scale, which is left in place for drying, is large compared to the mass of muscle tissue for the biopsy. This is because the dense scale contains less water, and when combined with the muscle tissue during this drying procedure, will cause the observed overall % loss on drying to be less than expected for fresh fish muscle.

Irregular %LOD results have been replaced with a value of 80% which is considered typical for %LOD of muscle tissue in fish. These corrections affect the wet weight concentrations of total Hg; there is no effect upon the dry weight total Hg concentrations. Original %LOD values can be found on the wet wt-dry wt sheet in this workbook.

Detection Limit: 17 ng/g (ML)

MDL=5 ng/g based on 7 replicates of analytical blanks (98% confidence)

For reporting purposes results will be flagged below the ML which is considered a practical quantitation limit

These limits assumes 10 mg of dry sample and 1mL of a 25mL digest is used for analysis. Lower detection limits are possible if greater sample weights are used or if a larger volume of digest can be tolerated

Estimated Uncertainty: The estimated uncertainty of this method has been determined to be $\pm 23\%$ at concentrations between 1 and 27400 ng/g (95% confidence)

Results authorized by Dr. Robert J. Flett, Chief Scientist

QUALITY DATA	Blanks		Mean of 3 Bubblers	Standard Deviation				Bubbler 2	Bubbler 3			
		Bubbler Blank Mean Peak Area	1462	548				1912	858			
		Bubbler Blank (pg)	0.53	0.20				0.70	0.31			
			Sample Type	Gross Peak Area	Volume of Method Blank Digest added to the Bubbler (mL)	Mean Weight of Dry Samples used in the Batch (g)			Equivalent Total Hg (ng DRY/g) in the Method Blank			
									[uses mean weight of samples used in the batch]			
		Method Blank 1	MBik-1	12954	0.500	0.00660			31.76			
		Method Blank 2	MBik-2	16801	0.500				42.40			
		Method Blank 3	MBik-3	15141	0.500				37.81			
		Method Blank Mean Peak Area			0.500				37.32			
		Calibration Standards			Gross Peak Area		Calibration Factor (Area Units/ ng)	Recovery (%)				
	Mean Calibration Factor (area units/ ng)					2738989	100					
	Spike Recovery	Matrix Spike (MS) and Matrix Spike Duplicate (MSD)		Sample Type	Gross Peak Area	Volume of Digest added to the Bubbler (mL)	Weight of Sample added to the digestion tube (g)	Percent Weight Lost on Drying (%LOD)		Net Total Hg (ng/g) (Bubbler & Method Bk subtracted)	Total Hg Recover (%)	
			SB21FH-GL-LKTR-1021	MS1	1245876	0.100	0.00446	-		25412	104	
			SB21FH-GL-LKTR-1021	MS1D	1260128	0.100	0.00583	-		19663	102	
			Mean of Spiked Duplicates for SB21FH-GL-LKTR-1021						%RPD= 1.5		103	
			SB21FH-PL-LKTR-2008	MS2	1339258	0.100	0.00418	-		29153	102	
			SB21FH-PL-LKTR-2008	MS2D	1290047	0.100	0.00346	-		33922	101	
			Mean of Spiked Duplicates for SB21FH-PL-LKTR-2008						%RPD= 1.1		102	
			Mean of Spike Recoveries								102	
			QC Samples		Dorm-4	DORM-1	450946	0.100	0.11070	4.81	387	94
			Reference Materials		Dorm-4	DORM-2	456722	0.100	0.11402	4.81	381	92
	Ongoing Precision & Recovery (OPR)		Mean of Dorm-4 (412 ng/g)						384	93		
			OPR solids (beginning of run)	OPR-1	273413	0.100			0.98	98		
			OPR solids (end of run)	OPR-2	269054	0.100			0.97	97		
			Mean OPR (1 ng/L)						0.98	98		

LAB ID	Sample Details	Sample ID	Date Sampled	Time Sampled	Sample Type	Gross Peak Area	Volume of Digest added to the Bubbler (mL)	Weight of Dry Sample added to the digestion tube (g)	Percent Weight Lost on Drying (%LOD)	Net Total Hg in the sample		Net Total Hg in the sample	
										[Bubbler & Method Bk Subtracted] [Recovery corrected]	[Bubbler & Method Bk Subtracted] [Recovery corrected]	[Bubbler & Method Bk Subtracted] [Recovery corrected]	[Bubbler & Method Bk Subtracted] [Recovery corrected]
										As Analyzed	As Calculated		
106629		SB21FH-GL-LKTR-1001	July 25, 2021			633729	0.500	0.00454	78.6	2430	519		
106630		SB21FH-GL-LKTR-1002	July 29, 2021			1515560	0.500	0.01036	79.2	2580	536		
106631		SB21FH-GL-LKTR-1003	July 29, 2021		Dup A1	738422	0.500	0.00422	80.0	3050	612		
106631		SB21FH-GL-LKTR-1003	July 29, 2021		Dup A2	803031	0.500	0.00440	80.0	3190	639		
106632		SB21FH-GL-LKTR-1005	July 29, 2021			1488750	0.500	0.00567	80.3	4630	914		
106633		SB21FH-GL-LKTR-1007	July 29, 2021			1416153	0.500	0.01185	79.3	2110	435		
106634		SB21FH-GL-LKTR-1009	July 29, 2021			654501	0.500	0.00421	80.5	2710	528		
106635		SB21FH-GL-LKTR-1011	July 30, 2021			894488	0.500	0.00466	79.5	3360	690		
106636		SB21FH-GL-LKTR-1014	July 30, 2021			2701514	0.500	0.01110	78.5	4310	929		
106637		SB21FH-GL-LKTR-1021	July 30, 2021			833623	0.500	0.00710	78.6	2050	439		
106638		SB21FH-GL-LKTR-1023	July 30, 2021			797424	0.500	0.01256	78.7	1110	237		
106639		SB21FH-PL-LKTR-2001	July 26, 2021			819367	0.500	0.00610	78.9	2350	496		
106640		SB21FH-PL-LKTR-2002	July 26, 2021			722539	0.500	0.00382	79.9	3030	697		
106641		SB21FH-PL-LKTR-2003	July 27, 2021			602563	0.500	0.00556	80	1880	377		
106642		SB21FH-PL-LKTR-2004	July 27, 2021			1213145	0.500	0.00710	80	3010	601		
106643		SB21FH-PL-LKTR-2005	July 27, 2021			571316	0.500	0.00670	78.0	1480	326		
106644		SB21FH-PL-LKTR-2006	July 27, 2021			786508	0.500	0.00409	79.6	3360	684		
106645		SB21FH-PL-LKTR-2007	July 27, 2021			450383	0.500	0.00540	79.0	1440	302		
106646		SB21FH-PL-LKTR-2008	July 27, 2021			1429258	0.500	0.00552	80.0	4570	914		
106647		SB21FH-PL-LKTR-2009	July 27, 2021			1805467	0.500	0.00879	78.1	3630	794		
106648		SB21FH-PL-LKTR-2012	July 27, 2021			718917	0.500	0.00495	80.5	2530	503		

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* : See 'Comments' section above for discussion

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Dup : Duplicate - two subsamples of the same sample carried through the analytical procedure in an identical manner



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Tomekita Hiroko 07152

APPENDIX H

2021 Slimy Sculpin Fish Health Data

Table H-1: Electrofishing Records for Fish Caught in Propeller Lake, 2021

Area	Effort Number	UTM (NAD83, 11V)				Date (d/m/y)	Start Time (hh:mm)	End Time (hh:mm)	Depth Range (m)	Set					Arctic Grayling			Burbot			Lake Trout			Ninespine Stickleback			Round Whitefish			Slimy Sculpin			
		Start		End						Voltage (V)	Frequency (Hz)	Pulse Width (ms)	Seconds (s)	Habitat Description	Catch	Mortality/ Captured	CPUE ^a	Catch	Mortality/ Captured	CPUE ^a	Catch	Mortality/ Captured	CPUE ^a	Catch	Mortality/ Captured	CPUE ^a	Catch	Mortality/ Captured	CPUE ^a	Catch	Mortality/ Captured	CPUE ^a	
		Easting	Northing	Easting	Northing																												
Propeller Lake North Basin	SB21FHPLNBBP1001	434023	7278582	434068	7278718	13-Aug-21	10:40	12:45	0.10	0.60	800	60	6	2739	fish shoreline near small bay, sand/cobble substrate	0	0	0	3	0	0.110	1	0	0.037	2	0	0.073	0	0	0	28	10	1.022
	SB21FHPLNBBP1002	434047	7278558	434112	7278414	13-Aug-21	10:00	11:00	0.20	0.50	900	60	6	952	10% fines, 20% Sa, 30% Gr, 10% Bo, 30% Co	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	0.735	
	SB21FHPLNBBP1003	433879	7278623	433959	7278382	13-Aug-21	11:30	12:30	0.20	0.50	900	60	6	1199	10% fines, 30% Sa, 20% Gr, 10% Bo, 30% Co	0	0	0	2	0	0.167	0	0	0	1	0	0.083	0	0	0	8	2	0.667
	SB21FHPLNBBP1004	434707	7278911	434823	7279144	14-Aug-21	10:40	12:10	0.10	0.50	900	60	6	2594	Co/Gr shoreline along /near outflow, some sand	0	0	0	4	0	0.154	1	0	0.039	5	0	0.193	0	0	0	19	16	0.732
	SB21FHPLNBBP1005	434003	7279071	433896	7279105	15-Aug-21	9:25	10:10	0.10	0.60	900	60	6	1325	Co/Bo/Sa shoreline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	8	0.906	
	SB21FHPLNBBP1006	434855	7278782	434684	7278854	15-Aug-21	10:50	11:55	0.10	0.50	900	60	6	2248	Sa and Co shoreline in small sheltered bay	0	0	0	3	0	0.133	3	0	0.133	1	0	0.044	0	0	0	31	13	1.379
	SB21FHPLNBBP1007	434787	7278857	434767	7279097	19-Aug-21	9:10	11:30	0.10	0.50	900	60	6	5027	Co/Gr/Sa/Bo, shoreline around point and outflow	0	0	0	6	1	0.119	0	0	0	0	0	0	0	0	52	23	1.034	
	SB21FHPLNBBP1008	434531	7279459	434551	7279550	19-Aug-21	9:20	9:50	0.10	0.50	800	60	6	655	20% Bo, 40% Co, 20% Gr, 20% Sa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.153	
	SB21FHPLNBBP1009	434581	7279418	434792	7279250	19-Aug-21	10:10	11:30	0.10	0.50	800	60	6	1658	20% Bo, 40% Co, 20% Gr, 20% Sa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	13	1.267	
Propeller Lake South Basin	SB21FHPLSBBP2001	434070	7273977	434176	7273782	16-Aug-21	11:15	11:50	0.10	0.50	800	60	6	798	shorelines in small bay, Co/Gr/Sa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0.627
	SB21FHPLSBBP2002	434311	7273764	434378	7273896	16-Aug-21	13:00	13:45	0.10	0.50	800	60	6	1804	shorelines in small bay, Co/Gr/Sa	0	0	0	1	0	0.055	0	0	0	0	0	0	1	0	0.055	14	7	0.776
	SB21FHPLSBBP2003	435146	7272577	435415	7272540	17-Aug-21	10:10	11:00	0.20	0.50	800	60	6	1248	20% Bo, 20% Co, 30% Gr, 10% Sa, 20% Org	0	0	0	1	0	0.080	0	0	0	2	0	0.02	0	0	0	3	1	0.240
	SB21FHPLSBBP2004	434953	7272825	435020	7272872	17-Aug-21	10:00	10:45	0.10	0.50	900	60	6	2116	shoreline in bay near island, algae on rocks, Co/Gr/Sa/Bo	1	0	0.047	1	0	0.047	2	0	0.095	6	0	0.06	0	0	0	14	8	0.662
	SB21FHPLSBBP2005	435652	7273552	435580	7273749	17-Aug-21	12:00	12:40	0.10	0.40	800	60	6	1221	20% Bo, 40% Co, 10% Sa, 20% Si, 10% Org	0	0	0	1	0	0.082	1	0	0.082	0	0	0	1	1	0.0819	28	6	2.293
	SB21FHPLSBBP2006	435647	7273550	435681	7273532	17-Aug-21	12:00	12:30	0.10	0.50	900	60	6	1231	-	0	0	0	1	1	0.081	0	0	0	1	0	0.01	0	0	0	25	17	2.031
	SB21FHPLSBBP2007	435722	7273827	435537	7273900	18-Aug-21	9:25	10:15	0.10	0.50	900	60	6	1730	Co/Bo shoreline with some Sa/Gr	0	0	0	6	1	0.347	1	0	0.058	0	0	0	0	0	0	6	5	0.347
	SB21FHPLSBBP2008	435727	7273830	436047	7273982	18-Aug-21	9:30	11:00	0.10	0.50	800	60	6	3433	10% Bo, 60% Co, 20% Gr, 10% Sa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0.320	
	SB21FHPLSBBP2009	434311	7273764	434378	7273896	18-Aug-21	12:00	13:00	0.10	0.50	900	60	6	2374	algae covered Bo in bay at point	0	0	0	1	0	0.042	1	0	0.042	1	0	0.01	1	0	0.0421	1	1	0.042
	SB21FHPLSBBP2010	434481	7273800	434576	7273722	18-Aug-21	12:20	12:40	0.10	0.50	800	60	6	436	-	0	0	0	1	0	0.229	0	0	0	1	0	0.01	0	0	0	3	1	0.688

a) Calculated as fish per 100 s.
UTM = Universal Transverse Mercator; V = volts, Hz = hertz; ms = milliseconds; CPUE = catch-per-unit-effort; - = not recorded; Sa = sands; Gr = gravel; Bo = boulder; Co = cobble; Org = organics.

Table H-2: Environmental Data Collected for Propeller Lake, 2021

Area	Effort Number	Date (dd/mm/yy)	Air Temp (°C)	Cloud Cover (%)	Wind Direction	Precipitation	Wind Speed (km/h)	Water Temp (°C)	DO (mg/L)	DO (%)	pH	Specific Conductivity (µS/cm)
Propeller Lake North Basin	SB21FHPLNBBP1001	13-Aug-21	10	25	SE	none	5.0	9.73	11.80	92.2	6.04	31
	SB21FHPLNBBP1002	13-Aug-21	10	25	SE	none	5.0	9.73	11.80	92.2	6.04	31
	SB21FHPLNBBP1003	13-Aug-21	10	25	SE	none	5.0	9.73	11.80	92.2	6.04	31
	SB21FHPLNBBP1004	14-Aug-21	13.3	80	ENE	none	16.1	9.74	12.88	113.4	6.93	31
	SB21FHPLNBBP1005	15-Aug-21	11.7	80	ESE	none	10.0	9.80	11.12	98.0	7.36	24
	SB21FHPLNBBP1006	15-Aug-21	11.7	80	ESE	none	10.0	9.80	11.12	98.0	7.36	24
	SB21FHPLNBBP1007	19-Aug-21	11.8	60	S/N	light	16.1	12.88	10.39	92.6	7.02	30
	SB21FHPLNBBP1008	19-Aug-21	11.0	80	N	none	5.0	12.88	10.39	92.6	7.02	30
	SB21FHPLNBBP1009	19-Aug-21	11.0	80	N	none	5.0	12.88	10.39	92.6	7.02	30
Propeller Lake South Basin	SB21FHPLSBBP2001	16-Aug-21	10.0	100	W	none	5.0	10.23	10.97	97.7	6.94	22
	SB21FHPLSBBP2002	16-Aug-21	11.5	60	W	none	11.5	10.23	10.97	97.7	6.94	22
	SB21FHPLSBBP2003	17-Aug-21	10.0	30	SW	none	5.6	13.75	9.77	94.3	7.30	25
	SB21FHPLSBBP2004	17-Aug-21	7.0	50	SW	none	5.6	13.75	9.77	94.3	7.30	25
	SB21FHPLSBBP2005	17-Aug-21	12.0	30	W	none	5.0	13.75	9.77	94.3	7.30	25
	SB21FHPLSBBP2006	17-Aug-21	12.9	20	SW	none	5.6	13.75	9.77	94.3	7.30	25
	SB21FHPLSBBP2007	18-Aug-21	10.0	0	S	none	5.0	12.06	9.00	91.3	6.72	25
	SB21FHPLSBBP2008	18-Aug-21	10.0	5	S	none	5.0	12.06	9.00	91.3	6.72	25
	SB21FHPLSBBP2009	18-Aug-21	12.0	30	S	none	25.0	12.06	9.00	91.3	6.72	25
	SB21FHPLSBBP2010	18-Aug-21	12.0	30	S	none	25.0	12.06	9.00	91.3	6.72	25

DO = dissolved oxygen; SE = southeast; E = east; N = north; S = south; W = west; SW = southwest; mg/L = milligram per litre; µS/cm = microSiemens per centimetre.

Table H-3: Non-Target Species Captured from Propeller Lake, 2021

Area	Species	FIN	Life Stage	Standard Length (mm)	Fork Length (mm)	Total Length (mm)	Total Body Weight (g)	Condition
Propeller Lake North Basin	BURB	SB21UPLNBBURB1038	Juvenile	175	-	200	-	-
	BURB	SB21UPLNBBURB1039	Juvenile	74	-	81	2.94	0.553
	BURB	SB21UPLNBBURB1040	Juvenile	56	-	62	1.205	0.506
	NNST	SB21UPLNBNNST1041	Unknown	39	-	44	0.525	0.616
	LKTR	SB21UPLNBLKTR1042	Unknown	-	37	39	0.457	0.770
	NNST	SB21UPLNBNNST1043	Unknown	39	-	52	0.823	0.585
	NNST	SB21UPLNBNNST1044	Unknown	-	-	45	0.426	0.467
	BURB	SB21UPLNBBURB1050	Juvenile	-	-	67	1.9855	0.660
	BURB	SB21UPLNBBURB1051	Juvenile	-	-	64	1.2105	0.462
	NNST	SB21UPLNBNNST1053	Unknown	47	-	52	0.639	0.454
	LKTR	SB21UPLNBLKTR1054	Juvenile	-	38	39	0.414	0.698
	NNST	SB21UPLNBNNST1055	Unknown	47	-	52	0.762	0.542
	BURB	SB21UPLNBBURB1056	Juvenile	65	-	70	2.158	0.629
	NNST	SB21UPLNBNNST1057	Unknown	39	-	44	0.582	0.683
	NNST	SB21UPLNBNNST1058	Unknown	44	-	48	0.631	0.571
	NNST	SB21UPLNBNNST1060	Unknown	45	-	50	0.628	0.502
	BURB	SB21UPLNBBURB1061	Juvenile	74	-	82	3.956	0.717
	BURB	SB21UPLNBBURB1062	Juvenile	59	-	67	1.833	0.609
	BURB	SB21UPLNBBURB1064	Juvenile	75	-	78	3.226	0.680
	BURB	SB21UPLNBBURB1086	Juvenile	55	-	59	1.264	0.615
	NNST	SB21UPLNBNNST1087	Unknown	42	-	45	0.485	0.532
	LKTR	SB21UPLNBLKTR1088	Juvenile	39	-	41	0.575	0.834
	BURB	SB21UPLNBBURB1089	Juvenile	70	-	75	2.430	0.576
	LKTR	SB21UPLNBLKTR1090	Juvenile	-	40	42	0.453	0.611
	LKTR	SB21UPLNBLKTR1091	Juvenile	-	38	39	0.344	0.580
	BURB	SB21UPLNBBURB1092	Juvenile	71	-	75	2.832	0.671
	BURB	SB21UPLNBBURB1161	Juvenile	74	-	77	2.475	0.542
	BURB	SB21UPLNBBURB1178	Juvenile	58	-	60	1.163	0.538
	BURB	SB21UPLNBBURB1181	Juvenile	62	-	65	1.1648	0.424
	BURB	SB21UPLNBBURB1183	Juvenile	63	-	76	2.554	0.582
	BURB	SB21UPLNBBURB1185	Juvenile	67	-	72	2.631	0.705
	BURB	SB21UPLNBBURB1195	Juvenile	-	-	71	2.207	0.617
Propeller Lake South Basin	RNWH	SB21UPLSBRNWH2013	Juvenile	-	41	49	0.4757	0.404
	BURB	SB21UPLSBBURB2014	Juvenile	-	-	70	1.7675	0.515
	NNST	SB21UPLSBNNST2054	Unknown	38	-	45	0.534	0.586
	NNST	SB21UPLSBNNST2055	Unknown	43	-	49	0.661	0.562
	BURB	SB21UPLSBBURB2058	Juvenile	55	-	58	1.154	0.591
	BURB	SB21UPLSBBURB2069	Juvenile	60	-	-	1.4081	-
	LKTR	SB21UPLSBLKTR2073	Juvenile	-	38	41	0.449	0.651
	RNWH	SB21UPLSBRNWH2074	Juvenile	-	33	35	0.2592	0.605
	LKTR	SB21UPLSBLKTR2084	Juvenile	-	40	42	0.575	0.776
	NNST	SB21UPLSBNNST2085	Unknown	42	-	44	0.590	0.693
	ARGR	SB21UPLSBARGR2086	Juvenile	-	97	101	7.308	0.709
	NNST	SB21UPLSBNNST2087	Unknown	48	-	53	0.770	0.517
	BURB	SB21UPLSBBURB2088	Juvenile	69	-	72	2.384	0.639
	NNST	SB21UPLSBNNST2089	Unknown	40	-	44	0.424	0.498
	LKTR	SB21UPLSBLKTR2090	Juvenile	-	81	86	5.287	0.831
	NNST	SB21UPLSBNNST2091	Unknown	40	-	43	0.604	0.760
	NNST	SB21UPLSBNNST2092	Unknown	43	-	47	0.595	0.573
	NNST	SB21UPLSBNNST2093	Unknown	44	-	47	0.532	0.512
	NNST	SB21UPLSBNNST2101	Unknown	44	-	49	0.612	0.520
	BURB	SB21UPLSBBURB2102	Juvenile	55	-	59	1.497	0.729
	BURB	SB21UPLSBBURB2128	Juvenile	50	-	59	1.267	0.617
	BURB	SB21UPLSBBURB2129	Juvenile	70	-	81	3.332	0.627
	BURB	SB21UPLSBBURB2130	Juvenile	69	-	79	3.467	0.703
	LKTR	SB21UPLSBLKTR2131	Juvenile	-	41	43	0.673	0.846
	BURB	SB21UPLSBBURB2132	Juvenile	66	-	74	2.899	0.715
	BURB	SB21UPLSBBURB2133	Juvenile	51	-	58	1.437	0.737
	BURB	SB21UPLSBBURB2135	Juvenile	53	-	62	1.814	0.761
	BURB	SB21UPLSBBURB2136	Juvenile	50	-	57	1.327	0.717
	NNST	SB21UPLSBNNST2137	Unknown	44	-	48	0.607	0.549
	RNWH	SB21UPLSBRNWH2138	Juvenile	-	40	44	0.440	0.517
	LKTR	SB21UPLSBLKTR2139	Juvenile	-	31	35	0.467	1.09
	BURB	SB21UPLSBBURB2140	Juvenile	49	-	57	1.233	0.666
	NNST	SB21UPLSBNNST2141	Unknown	48	-	54	0.880	0.559

Fish Identification Number; ARGR = Arctic Grayling; BURB = Burbot; LKTR = Lake Trout; NNST = Ninespine Stickleback; RNWH = Round Whitefish; "-" = not applicable or no obs

Table H-4: Population Data for Slimy Sculpin Processed in Excess of Lethal Sample Size Targets from Propeller Lake, 2021

Area	FIN	Sex	Life Stage	Release/ Captured ^(a)	Total Length (mm)	Total Body Weight (g)	Condition	Comments
Propeller Lake North Basin	SB21UPLNBSLSC1020	Unknown	Unknown	R	51	0.95	0.717	-
	SB21UPLNBSLSC1021	Unknown	Unknown	R	52	1.04	0.737	-
	SB21UPLNBSLSC1022	Unknown	Unknown	R	51	1.25	0.942	-
	SB21UPLNBSLSC1023	Unknown	Unknown	R	48	0.79	0.710	-
	SB21UPLNBSLSC1024	Unknown	Unknown	R	38	0.34	0.614	-
	SB21UPLNBSLSC1025	Unknown	Unknown	R	46	0.79	0.811	-
	SB21UPLNBSLSC1026	Unknown	Unknown	R	49	0.67	0.565	-
	SB21UPLNBSLSC1027	Unknown	Unknown	R	36	0.39	0.834	-
	SB21UPLNBSLSC1028	Unknown	Unknown	R	41	0.55	0.804	-
	SB21UPLNBSLSC1029	Unknown	Unknown	R	48	1.04	0.939	-
	SB21UPLNBSLSC1030	Unknown	Unknown	R	48	1.04	0.938	-
	SB21UPLNBSLSC1031	Unknown	Unknown	R	52	1.18	0.839	-
	SB21UPLNBSLSC1032	Unknown	Unknown	R	34	0.36	0.906	-
	SB21UPLNBSLSC1033	Unknown	Unknown	R	34	0.32	0.804	-
	SB21UPLNBSLSC1034	Unknown	Unknown	R	40	0.45	0.702	-
	SB21UPLNBSLSC1035	Unknown	Unknown	R	51	0.97	0.734	-
	SB21UPLNBSLSC1036	Unknown	Unknown	R	37	0.42	0.821	-
	SB21UPLNBSLSC1037	Unknown	Unknown	R	47	0.82	0.787	-
	SB21UPLNBSLSC1045	Unknown	Unknown	R	47	0.87	0.838	-
	SB21UPLNBSLSC1046	Unknown	Unknown	R	48	0.84	0.758	-
	SB21UPLNBSLSC1047	Unknown	Unknown	R	44	0.65	0.764	-
	SB21UPLNBSLSC1048	Unknown	Unknown	R	35	0.37	0.861	-
	SB21UPLNBSLSC1049	Unknown	Unknown	R	29	0.21	0.872	-
	SB21UPLNBSLSC1052	Unknown	Unknown	R	52	0.93	0.661	-
	SB21UPLNBSLSC1059	Unknown	Juvenile	R	31	0.21	0.702	-
	SB21UPLNBSLSC1063	Unknown	Juvenile	R	41	0.54	0.788	-
	SB21UPLNBSLSC1065	Unknown	Juvenile	R	40	0.47	0.736	-
	SB21UPLNBSLSC1082	Unknown	Unknown	R	45	0.71	0.779	Tapeworm
	SB21UPLNBSLSC1083	Unknown	Unknown	R	45	0.95	1.047	-
	SB21UPLNBSLSC1084	Unknown	Unknown	R	45	0.73	0.799	-
	SB21UPLNBSLSC1085	Unknown	Unknown	R	38	0.43	0.778	-
	SB21UPLNBSLSC1093	Unknown	Juvenile	R	37	0.42	0.825	-
	SB21UPLNBSLSC1094	Unknown	Unknown	R	46	0.90	0.927	-
	SB21UPLNBSLSC1095	Unknown	Juvenile	R	56	1.30	0.739	-
	SB21UPLNBSLSC1096	Unknown	Juvenile	R	36	0.35	0.748	-
	SB21UPLNBSLSC1097	Unknown	Unknown	R	41	0.47	0.679	-
	SB21UPLNBSLSC1098	Unknown	Unknown	R	40	0.45	0.705	-
	SB21UPLNBSLSC1099	Unknown	Juvenile	R	34	0.40	1.020	-
	SB21UPLNBSLSC1100	Unknown	Juvenile	R	34	0.35	0.880	-
	SB21UPLNBSLSC1101	Unknown	Juvenile	R	33	0.23	0.634	-
	SB21UPLNBSLSC1102	Unknown	Juvenile	R	36	0.36	0.774	-
	SB21UPLNBSLSC1103	Unknown	Unknown	R	41	0.57	0.830	-
	SB21UPLNBSLSC1104	Unknown	Juvenile	R	35	0.37	0.863	-
	SB21UPLNBSLSC1105	Unknown	Juvenile	R	35	0.48	1.115	-
	SB21UPLNBSLSC1106	Unknown	Unknown	R	44	0.81	0.950	-
	SB21UPLNBSLSC1107	Unknown	Juvenile	R	32	0.18	0.549	-
	SB21UPLNBSLSC1108	Unknown	Juvenile	R	39	0.46	0.779	-
	SB21UPLNBSLSC1109	Unknown	Unknown	R	44	0.67	0.781	-
	SB21UPLNBSLSC1110	Unknown	Unknown	R	41	0.53	0.772	-
	SB21UPLNBSLSC1113	Male	Adult	C	60	2.04	0.969	Tapeworm, no internal assessment
	SB21UPLNBSLSC1124	Male	Adult	C	55	1.55	0.947	No internal assessment
	SB21UPLNBSLSC1125	Male	Adult	C	57	1.73	0.929	No internal assessment
	SB21UPLNBSLSC1126	Male	Adult	C	52	1.28	0.883	Tapeworm, no internal assessment
	SB21UPLNBSLSC1131	Male	Adult	C	51	0.86	0.643	Tapeworm, no internal assessment
	SB21UPLNBSLSC1136	Male	Adult	C	57	1.51	0.827	Tapeworm, no internal assessment
	SB21UPLNBSLSC1137	Male	Adult	C	63	1.98	0.774	Tapeworm, no internal assessment
	SB21UPLNBSLSC1140	-	-	C	59	1.86	0.918	Tapeworm, no internal assessment
	SB21UPLNBSLSC1141	-	-	C	46	0.89	0.897	Tapeworm, no internal assessment
	SB21UPLNBSLSC1145	Male	Adult	C	80	4.58	0.902	Tapeworm, no internal assessment
	SB21UPLNBSLSC1148	-	-	C	55	1.26	0.779	Tapeworm, no internal assessment
	SB21UPLNBSLSC1150	Male	Adult	C	54	1.09	0.687	-
	SB21UPLNBSLSC1151	Male	Adult	C	49	0.90	0.768	-
	SB21UPLNBSLSC1153	-	-	C	59	1.76	0.872	Tapeworm, no internal assessment
	SB21UPLNBSLSC1155	Male	Adult	C	53	1.09	0.737	No internal assessment
	SB21UPLNBSLSC1156	-	-	C	50	1.02	0.841	Tapeworm, no internal assessment
	SB21UPLNBSLSC1157	Male	Adult	C	51	0.93	0.687	No internal assessment
	SB21UPLNBSLSC1158	Male	Adult	C	51	1.08	0.808	No internal assessment
	SB21UPLNBSLSC1159	Male	Juvenile	C	46	0.72	0.734	No internal assessment
	SB21UPLNBSLSC1160	Male	Adult	C	51	1.04	0.796	No internal assessment
	SB21UPLNBSLSC1162	Male	Adult	C	47	0.86	0.820	-
	SB21UPLNBSLSC1163	-	-	C	49	1.06	0.880	Tapeworm, no internal assessment
	SB21UPLNBSLSC1164	-	-	R	43	0.68	0.854	-
	SB21UPLNBSLSC1165	-	-	R	37	0.32	0.622	-
	SB21UPLNBSLSC1166	-	-	R	39	0.49	0.831	-
	SB21UPLNBSLSC1167	-	-	R	35	0.39	0.908	-
	SB21UPLNBSLSC1168	-	-	R	39	0.46	0.777	-
	SB21UPLNBSLSC1169	-	-	R	41	0.49	0.718	-
	SB21UPLNBSLSC1170	-	-	R	40	0.46	0.717	-
	SB21UPLNBSLSC1171	-	-	R	39	0.48	0.804	-
	SB21UPLNBSLSC1172	-	-	C	48	0.82	0.735	Tapeworm, no internal assessment
	SB21UPLNBSLSC1173	-	-	C	46	0.76	0.803	-
	SB21UPLNBSLSC1174	-	-	C	51	1.14	0.871	Tapeworm, no internal assessment
	SB21UPLNBSLSC1175	-	-	C	46	0.88	0.902	Tapeworm, no internal assessment
	SB21UPLNBSLSC1176	Male	Adult	C	48	0.87	0.776	No internal assessment
	SB21UPLNBSLSC1177	Male	Juvenile	C	45	0.64	0.693	No internal assessment
	SB21UPLNBSLSC1179	Unknown	Adult	R	70	3.22	0.938	Tapeworm
	SB21UPLNBSLSC1180	Unknown	Unknown	R	48	0.99	0.893	-
	SB21UPLNBSLSC1182	Unknown	Adult	R	62	2.27	0.954	Tapeworm

Table H-4: Population Data for Slimy Sculpin Processed in Excess of Lethal Sample Size Targets from Propeller Lake, 2021

Area	FIN	Sex	Life Stage	Release/ Captured ^(a)	Total Length (mm)	Total Body Weight (g)	Condition	Comments
	SB21UPLNBSLSC1184	Unknown	Adult	R	70	3.29	0.958	Tapeworm
	SB21UPLNBSLSC1186	Unknown	Unknown	R	47	1.36	1.310	Tapeworm
	SB21UPLNBSLSC1187	Unknown	Juvenile	R	35	0.40	0.928	-
	SB21UPLNBSLSC1188	Unknown	Juvenile	R	38	0.43	0.782	-
	SB21UPLNBSLSC1189	Unknown	Adult	R	74	4.41	1.089	Tapeworm
	SB21UPLNBSLSC1190	Unknown	Juvenile	R	37	0.43	0.857	-
	SB21UPLNBSLSC1191	Unknown	Juvenile	R	35	0.39	0.910	-
	SB21UPLNBSLSC1192	Unknown	Juvenile	R	36	0.43	0.930	-
	SB21UPLNBSLSC1193	Unknown	Juvenile	R	36	0.35	0.752	-
	SB21UPLNBSLSC1194	Unknown	Adult	R	54	1.15	0.729	Tapeworm
	SB21UPLNBSLSC1196	Unknown	Adult	R	51	1.20	0.905	Tapeworm
	SB21UPLNBSLSC1197	Unknown	Unknown	R	40	0.53	0.823	-
	SB21UPLNBSLSC1198	Unknown	Unknown	R	42	0.56	0.761	-
	SB21UPLNBSLSC1199	Unknown	Unknown	R	41	0.53	0.769	-
	SB21UPLNBSLSC1200	Unknown	Unknown	R	42	0.58	0.788	-
	SB21UPLNBSLSC1201	Unknown	Unknown	R	45	0.89	0.974	-
	SB21UPLNBSLSC1202	Unknown	Juvenile	R	39	0.53	0.890	-
	SB21UPLNBSLSC1203	Unknown	Juvenile	R	39	0.44	0.742	-
	SB21UPLNBSLSC1204	Unknown	Adult	R	49	0.92	0.785	Tapeworm
	SB21UPLNBSLSC1205	Unknown	Juvenile	R	32	0.29	0.876	-
	SB21UPLNBSLSC1206	Unknown	Juvenile	R	36	0.35	0.759	-
	SB21UPLNBSLSC1207	Unknown	Juvenile	R	35	0.35	0.814	-
	SB21UPLNBSLSC1208	Unknown	Adult	R	48	0.89	0.804	Tapeworm
	SB21UPLNBSLSC1209	Unknown	Juvenile	R	38	0.40	0.734	-
	SB21UPLNBSLSC1210	Unknown	Unknown	R	41	0.56	0.810	-
	SB21UPLNBSLSC1211	Unknown	Unknown	R	40	0.52	0.808	-
Propeller Lake South Basin	SB21UPLSBSLSC2015	Unknown	Juvenile	R	46	0.36	0.368	-
	SB21UPLSBSLSC2016	Unknown	Unknown	R	41	0.55	0.794	-
	SB21UPLSBSLSC2017	Unknown	Unknown	R	51	1.00	0.754	-
	SB21UPLSBSLSC2018	Unknown	Unknown	R	44	0.63	0.734	-
	SB21UPLSBSLSC2019	Unknown	Unknown	R	50	0.96	0.765	-
	SB21UPLSBSLSC2020	Unknown	Unknown	R	46	0.80	0.827	-
	SB21UPLSBSLSC2021	Unknown	Unknown	R	49	0.77	0.654	-
	SB21UPLSBSLSC2056	Unknown	Juvenile	R	35	0.31	0.728	-
	SB21UPLSBSLSC2057	Unknown	Juvenile	R	35	0.29	0.686	-
	SB21UPLSBSLSC2059	Unknown	Juvenile	R	38	0.40	0.722	-
	SB21UPLSBSLSC2060	Unknown	Juvenile	R	30	0.28	1.043	-
	SB21UPLSBSLSC2061	Unknown	Juvenile	R	38	0.46	0.834	-
	SB21UPLSBSLSC2062	Unknown	Juvenile	R	36	0.37	0.798	-
	SB21UPLSBSLSC2063	Unknown	Juvenile	R	31	0.27	0.891	-
	SB21UPLSBSLSC2064	Unknown	Juvenile	R	36	0.37	0.786	-
	SB21UPLSBSLSC2065	Unknown	Juvenile	R	33	0.29	0.819	-
	SB21UPLSBSLSC2066	Unknown	Juvenile	R	31	0.26	0.860	-
	SB21UPLSBSLSC2067	Unknown	Juvenile	R	36	0.39	0.838	-
	SB21UPLSBSLSC2068	Unknown	Juvenile	R	34	0.30	0.769	-
	SB21UPLSBSLSC2070	Unknown	Juvenile	R	40	0.51	0.795	-
	SB21UPLSBSLSC2071	Unknown	Juvenile	R	32	0.36	1.105	-
	SB21UPLSBSLSC2072	Unknown	Juvenile	R	31	0.27	0.907	-
	SB21UPLSBSLSC2075	Unknown	Juvenile	R	46	0.96	0.987	-
	SB21UPLSBSLSC2076	Unknown	Juvenile	R	35	0.35	0.809	-
	SB21UPLSBSLSC2077	Unknown	Juvenile	R	40	0.52	0.805	-
	SB21UPLSBSLSC2078	Unknown	Juvenile	R	42	0.78	1.053	-
	SB21UPLSBSLSC2079	Unknown	Juvenile	R	36	0.32	0.684	-
	SB21UPLSBSLSC2080	Unknown	Juvenile	R	33	0.22	0.621	-
	SB21UPLSBSLSC2081	Unknown	Juvenile	R	36	0.32	0.681	-
	SB21UPLSBSLSC2082	Unknown	Juvenile	R	37	0.38	0.751	-
	SB21UPLSBSLSC2083	Unknown	Juvenile	R	41	0.53	0.765	-
	SB21UPLSBSLSC2094	Unknown	Juvenile	R	34	0.23	0.575	-
	SB21UPLSBSLSC2095	Unknown	Juvenile	R	39	0.41	0.698	-
	SB21UPLSBSLSC2096	Unknown	Unknown	R	40	0.56	0.867	-
	SB21UPLSBSLSC2097	Unknown	Juvenile	R	37	0.42	0.837	-
	SB21UPLSBSLSC2098	Unknown	Unknown	R	40	0.58	0.905	-
	SB21UPLSBSLSC2099	Unknown	Juvenile	R	32	0.30	0.919	-
	SB21UPLSBSLSC2100	Unknown	Juvenile	R	31	0.25	0.853	-
	SB21UPLSBSLSC2103	Unknown	Juvenile	R	37	0.37	0.734	-
	SB21UPLSBSLSC2104	Unknown	Juvenile	R	38	0.39	0.703	-
	SB21UPLSBSLSC2105	Unknown	Juvenile	R	34	0.33	0.829	-
	SB21UPLSBSLSC2106	Unknown	Juvenile	R	36	0.42	0.892	-
	SB21UPLSBSLSC2107	Unknown	Juvenile	R	32	0.28	0.839	-
	SB21UPLSBSLSC2108	Unknown	Juvenile	R	35	0.32	0.746	-
	SB21UPLSBSLSC2109	Unknown	Juvenile	R	34	0.32	0.801	-
	SB21UPLSBSLSC2112	Male	Adult	C	66	2.31	0.816	Tapeworm, no internal assessment
	SB21UPLSBSLSC2114	Unknown	Unknown	C	43	0.68	0.839	Tapeworm, no internal assessment
	SB21UPLSBSLSC2117	Male	Adult	C	45	0.65	0.719	Tapeworm, no internal assessment
	SB21UPLSBSLSC2118	Male	Adult	C	69	2.15	0.660	Tapeworm, no internal assessment
	SB21UPLSBSLSC2122	Male	Adult	C	53	2.76	1.879	Tapeworm, no internal assessment
	SB21UPLSBSLSC2125	Male	Adult	C	50	0.95	0.780	Tapeworm, no internal assessment
	SB21UPLSBSLSC2127	Unknown	Juvenile	C	42	0.56	0.738	Immature fish, no internal assessment
	SB21UPLSBSLSC2134	Unknown	Juvenile	R	39	0.49	0.829	-
	SB21UPLSBSLSC2142	Unknown	Juvenile	R	35	0.31	0.725	-
	SB21UPLSBSLSC2143	Unknown	Juvenile	R	31	0.27	0.896	-

a) Captured Slimy Sculpin were used for the lethal dissection to reach target non-parasitized fish numbers and/or target sex ratio, dissection was abandoned if fish had internal parasites or was immature. Fish Identification Number; R = released, C = captured and lethally processed; - =indicates data not applicable or not collected.

Table H-5: Data from Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	Sex	Life Stage	Maturation Code ^(a)	Standard Length (mm)	Total Length (mm)	Total Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Condition	LSI	GSI	Fecundity (eggs/fish)	Mean Egg Diameter (µm)	External Parasites	Internal Parasites	Tapeworm Weight (g)	Stomach Content (%)
Propeller Lake North Basin	SB21UPLNBSLSC1001	Male	Adult	22	65.18	78.57	4.1795	2.3303	0.0049	0.0548	0.862	1.31	0.117	-	-	0	1	0.4257	50
	SB21UPLNBSLSC1002	Female	Adult	12	71.34	87.21	5.3464	3.5697	0.0642	0.0961	0.806	1.80	1.20	177	385	0	1	0.3915	30
	SB21UPLNBSLSC1003	Female	Adult	12	43.38	49.79	1.1531	0.5679	0.0113	0.0284	0.934	2.46	0.980	-	-	0	1	0.1558	25
	SB21UPLNBSLSC1004	Female	Juvenile	11	41.64	49.24	1.0285	0.5325	0.0079	0.0265	0.861	2.58	0.768	-	-	0	2	0.1364	10
	SB21UPLNBSLSC1005	Male	Adult	22	48.69	58.63	1.4754	0.9285	0.0144	0.0328	0.732	2.22	0.976	-	-	0	0	-	50
	SB21UPLNBSLSC1006	Male	Adult	22	48.49	56.87	1.3363	0.8355	0.0068	0.0378	0.727	2.83	0.509	-	-	0	0	-	50
	SB21UPLNBSLSC1007	Female	Juvenile	11	42.94	50.83	1.0682	0.5664	0.0060	0.0249	0.813	2.33	0.562	-	-	0	2	0.0828	75
	SB21UPLNBSLSC1008	Male	Adult	22	42.69	52.45	1.1294	0.6318	0.0053	0.0125	0.783	1.11	0.469	-	-	0	1	0.1394	75
	SB21UPLNBSLSC1009	Male	Adult	22	45.44	55.36	1.1927	0.7279	0.0032	0.0251	0.703	2.10	0.268	-	-	0	2	0.0755	50
	SB21UPLNBSLSC1010	Female	Adult	12	60.74	74.44	4.1298	2.0877	0.0330	0.0867	1.00	2.10	0.799	127	421	0	3	0.7698	0
	SB21UPLNBSLSC1011	Female	Adult	12	48.39	58.90	1.5707	0.7875	0.0223	0.0391	0.769	2.49	1.42	-	-	0	1	0.0171	10
	SB21UPLNBSLSC1012	Female	Adult	12	46.34	56.76	1.4717	0.8784	0.0231	0.0456	0.805	3.10	1.57	140	387	0	0	-	50
	SB21UPLNBSLSC1013	Male	Adult	22	61.81	74.09	3.2643	1.9454	0.0214	0.0823	0.803	2.52	0.656	-	-	0	1	0.1124	80
	SB21UPLNBSLSC1014	Male	Adult	22	51.54	65.20	2.1988	1.2569	0.0392	0.0565	0.793	2.57	1.78	-	-	0	0	-	25
	SB21UPLNBSLSC1015	Male	Adult	22	60.79	72.35	3.2281	2.1453	0.0452	0.0903	0.852	2.80	1.40	-	-	0	0	-	25
	SB21UPLNBSLSC1016	Female	Adult	12	63.77	80.00	3.9099	2.5573	0.1029	0.1589	0.764	4.06	2.63	382	461	0	0	-	50
	SB21UPLNBSLSC1017	Male	Adult	23	52.25	66.75	2.4409	1.5568	0.0255	0.0832	0.821	3.41	1.04	-	-	0	0	-	0
	SB21UPLNBSLSC1018	Male	Adult	22	46.68	54.63	1.2128	0.7638	0.0221	0.0629	0.744	5.19	1.82	-	-	0	0	-	10
	SB21UPLNBSLSC1019	Male	Adult	22	47.51	55.97	1.5635	0.9418	0.0182	0.0263	0.892	1.68	1.16	-	-	0	1	0.1181	50
	SB21UPLNBSLSC1066	Female	Adult	12	53.25	65.00	2.6898	1.4838	0.0251	0.0589	0.979	2.19	0.933	77	402	0	1	0.4027	50
	SB21UPLNBSLSC1067	Male	Adult	22	60.25	71.80	3.3609	2.2289	0.0525	0.1292	0.908	3.84	1.56	-	-	0	0	-	90
	SB21UPLNBSLSC1068	Unknown	Adult	00	50.54	59.36	1.9970	1.0967	0.0217	0.0409	0.955	2.05	1.09	-	-	0	2	0.2976	50
	SB21UPLNBSLSC1069	Female	Adult	12	54.45	66.20	2.2427	1.2822	0.0431	0.0460	0.773	2.05	1.92	-	-	0	3	0.1738	25
	SB21UPLNBSLSC1070	Male	Adult	22	51.20	68.10	2.2076	1.5061	0.0261	0.0351	0.699	1.59	1.18	-	-	0	0	-	10
	SB21UPLNBSLSC1071	Male	Adult	23	55.76	65.66	1.7542	1.1123	0.0398	0.0398	0.620	2.27	2.27	-	-	0	0	-	50
	SB21UPLNBSLSC1072	Male	Adult	22	46.50	57.20	1.5198	0.8620	0.0361	0.0301	0.812	1.98	2.38	-	-	0	0	-	75
	SB21UPLNBSLSC1073	Male	Juvenile	21	44.73	51.44	1.5317	0.9783	0.0251	0.0310	1.13	2.02	1.64	-	-	0	1	0.1113	10
	SB21UPLNBSLSC1074	Female	Adult	17	53.86	60.34	1.6532	1.0131	0.0241	0.0440	0.753	2.66	1.46	-	-	0	1	0.0514	10
	SB21UPLNBSLSC1075	Female	Adult	12	53.29	62.26	1.6781	1.1076	0.0196	0.0393	0.695	2.34	1.17	-	-	0	1	0.0921	50
	SB21UPLNBSLSC1076	Female	Adult	12	40.27	48.81	0.9671	0.5562	0.0178	0.0238	0.832	2.46	1.84	-	-	0	1	0.0225	5
	SB21UPLNBSLSC1077	Female	Juvenile	11	43.76	51.00	1.1810	0.6412	0.0183	0.0415	0.890	3.51	1.55	-	-	0	1	0.0190	0
	SB21UPLNBSLSC1078	Male	Juvenile	21	41.24	50.49	0.9835	0.5281	0.0040	0.0346	0.764	3.52	0.41	-	-	0	1	0.0645	25
	SB21UPLNBSLSC1079	Male	Adult	22	43.46	53.15	1.2542	0.6729	0.0280	0.0345	0.835	2.75	2.23	-	-	0	0	-	25
	SB21UPLNBSLSC1080	Male	Adult	22	38.83	48.01	0.9503	0.5677	0.0072	0.0116	0.859	1.22	0.758	-	-	0	1	0.0829	25
	SB21UPLNBSLSC1081	Male	Adult	22	38.44	47.75	1.0223	0.6499	0.0172	0.0164	0.939	1.60	1.68	-	-	0	0	-	0
	SB21UPLNBSLSC1111	Male	Adult	22	53.50	66.10	2.6526	1.6722	0.0267	0.0583	0.918	2.20	1.01	-	-	0	1	0.1130	25
	SB21UPLNBSLSC1112	Male	Adult	22	48.92	59.23	1.4281	0.9264	0.0129	0.0304	0.687	2.13	0.903	-	-	0	0	-	25
	SB21UPLNBSLSC1114	Female	Adult	12	42.68	51.22	1.6035	0.6709	0.0234	0.0283	1.19	1.76	1.46	83	328	0	0	-	50
	SB21UPLNBSLSC1115	Male	Juvenile	21	35.19	49.81	1.0394	0.6159	0.0156	0.0279	0.841	2.68	1.50	-	-	0	0	-	50
	SB21UPLNBSLSC1116	Male	Adult	22	41.72	49.13	0.8090	0.5251	0.0123	0.0131	0.682	1.62	1.52	-	-	0	1	0.0105	25
	SB21UPLNBSLSC1117	Female	Adult	17	56.20	67.90	3.2936	1.4265	0.0215	0.0524	1.05	1.59	0.653	-	-	0	3	0.8928	50
	SB21UPLNBSLSC1118	Female	Adult	12	54.30	66.80	2.4863	1.6938	0.0673	0.0870	0.834	3.50	2.71	155	512	0	0	-	25
	SB21UPLNBSLSC1119	Female	Adult	12	51.20	61.40	2.0154	1.1639	0.0343	0.0944	0.871	4.68	1.70	119	514	0	0	-	25
	SB21UPLNBSLSC1120	Female	Adult	12	54.10	66.90	2.6710	1.6495	0.0376	0.0520	0.892	1.95	1.41	140	421	0	3	0.2010	0
	SB21UPLNBSLSC1121	Female	Adult	12	57.80	67.30	3.0775	1.3204	0.0436	0.0664	1.01	2.16	1.42	99	326	0	3	0.8107	0

Table H-5: Data from Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	Sex	Life Stage	Maturation Code ^(a)	Standard Length (mm)	Total Length (mm)	Total Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Condition	LSI	GSI	Fecundity (eggs/fish)	Mean Egg Diameter (µm)	External Parasites	Internal Parasites	Tapeworm Weight (g)	Stomach Content (%)
Propeller Lake North Basin	SB21UPLNBSLSC1122	Male	Adult	22	47.37	56.83	1.3509	0.8595	0.0212	0.0333	0.736	2.47	1.57	-	-	0	0	-	50
	SB21UPLNBSLSC1123	Male	Adult	22	44.30	52.90	1.1547	0.6758	0.0096	0.0218	0.780	1.89	0.831	-	-	0	0	-	25
	SB21UPLNBSLSC1127	Female	Adult	12	41.81	50.85	1.0566	0.6962	0.0156	0.0363	0.804	3.44	1.48	126	405	0	0	-	0
	SB21UPLNBSLSC1128	Male	Adult	22	42.82	52.23	0.9790	0.6641	0.0091	0.0187	0.687	1.91	0.930	-	-	0	0	-	25
	SB21UPLNBSLSC1129	Male	Adult	22	43.20	53.00	1.2579	0.7780	0.0174	0.0230	0.845	1.83	1.38	-	-	0	0	-	75
	SB21UPLNBSLSC1130	Female	Adult	12	46.70	56.59	1.5038	0.7162	0.0175	0.0367	0.830	2.44	1.16	87	348	0	2	0.2168	50
	SB21UPLNBSLSC1132	Male	Adult	22	61.45	75.71	3.7047	1.7722	0.0155	0.0375	0.854	1.01	0.418	-	-	0	1	0.4276	10
	SB21UPLNBSLSC1133	Male	Adult	22	55.62	68.89	2.5369	1.5884	0.0077	0.0972	0.776	3.83	0.304	-	-	0	1	0.0092	0
	SB21UPLNBSLSC1134	Male	Adult	23	51.88	62.55	2.1565	1.3688	0.0200	0.1018	0.881	4.72	0.927	-	-	0	0	-	100
	SB21UPLNBSLSC1135	Male	Adult	22	54.81	66.32	2.2176	1.3446	0.0446	0.0382	0.760	1.72	2.01	-	-	0	0	-	50
	SB21UPLNBSLSC1138	Female	Adult	12	51.69	63.68	2.4146	1.5051	0.0136	0.0440	0.935	1.82	0.563	85	422	0	1	0.1785	0
	SB21UPLNBSLSC1139	Male	Adult	22	47.37	58.45	1.7333	1.0730	0.0216	0.0405	0.868	2.34	1.25	-	-	0	0	-	0
	SB21UPLNBSLSC1142	Female	Adult	12	76.62	90.08	6.8546	4.1513	0.0503	0.1702	0.938	2.48	0.734	220	392	0	1	0.6875	100
	SB21UPLNBSLSC1143	Female	Adult	17	64.35	77.76	4.3967	2.5235	0.0289	0.0973	0.935	2.21	0.657	80	401	0	2	0.6768	50
	SB21UPLNBSLSC1144	Female	Adult	12	65.58	76.38	3.3712	2.1675	0.0644	0.2396	0.757	7.11	1.91	133	541	0	0	-	0
	SB21UPLNBSLSC1146	Male	Adult	22	58.46	71.24	2.9107	1.9558	0.0199	0.0576	0.805	1.98	0.684	-	-	0	0	-	100
	SB21UPLNBSLSC1147	Female	Adult	12	49.92	61.37	1.6359	1.0565	0.0065	0.0313	0.708	1.91	0.397	-	-	0	0	-	0
	SB21UPLNBSLSC1149	Female	Adult	12	53.01	62.40	1.7210	1.2261	0.0076	0.0434	0.708	2.52	0.442	17	119	0	0	-	25
	SB21UPLNBSLSC1152	Male	Adult	22	45.30	56.14	1.2818	0.8248	0.0102	0.0288	0.724	2.25	0.796	-	-	0	0	-	0
	SB21UPLNBSLSC1154	Male	Adult	22	42.70	52.54	1.2234	0.7989	0.0130	0.0294	0.844	2.40	1.06	-	-	0	0	-	0
Propeller Lake South Basin	SB21UPLSBSLSC2001	Female	Adult	12	64.47	76.48	3.9498	2.3469	0.0754	0.2275	0.883	5.76	1.91	115	561	0	0	-	0
	SB21UPLSBSLSC2002	Male	Adult	22	48.07	58.36	1.6426	0.6997	0.0023	0.0177	0.826	1.08	0.140	-	-	0	1	0.2466	0
	SB21UPLSBSLSC2003	Female	Juvenile	11	38.52	47.08	0.8424	0.5233	0.0069	0.0183	0.807	2.17	0.819	-	-	0	1	0.0191	100
	SB21UPLSBSLSC2004	Female	Juvenile	11	41.49	50.22	0.9070	0.5644	0.0040	0.0231	0.716	2.55	0.441	-	-	0	1	0.0275	25
	SB21UPLSBSLSC2005	Female	Juvenile	11	39.46	46.73	0.8467	0.4896	0.0029	0.0137	0.830	1.62	0.343	-	-	0	1	0.0342	100
	SB21UPLSBSLSC2006	Female	Adult	12	53.29	61.78	2.6118	1.0658	0.0301	0.0335	1.11	1.28	1.15	89	423	0	3	0.7766	100
	SB21UPLSBSLSC2007	Female	Adult	12	46.87	56.01	1.4894	0.9545	0.0286	0.0461	0.848	3.10	1.92	70	419	0	0	-	25
	SB21UPLSBSLSC2008	Female	Adult	12	50.11	59.53	1.5617	1.0754	0.0214	0.0547	0.740	3.50	1.37	118	449	0	0	-	25
	SB21UPLSBSLSC2009	Female	Adult	17	48.64	57.56	1.6319	0.8110	0.0087	0.0242	0.856	1.48	0.533	-	-	0	1	0.2177	50
	SB21UPLSBSLSC2010	Female	Adult	12	45.01	54.09	1.2756	0.8544	0.0124	0.0483	0.806	3.79	0.972	38	329	0	0	-	25
	SB21UPLSBSLSC2011	Female	Juvenile	11	42.81	50.36	0.9426	0.6170	0.0062	0.0205	0.738	2.17	0.658	-	-	0	0	-	10
	SB21UPLSBSLSC2012	Female	Juvenile	11	37.37	45.11	0.9284	0.5594	0.0080	0.0425	1.01	4.58	0.862	-	-	0	0	-	0
	SB21UPLSBSLSC2022	Male	Adult	23	55.24	66.29	2.5032	1.6173	0.0305	0.0703	0.859	2.81	1.22	-	-	0	0	-	50
	SB21UPLSBSLSC2023	Male	Adult	22	52.58	62.24	2.2957	1.3649	0.0051	0.0324	0.952	1.41	0.222	-	-	0	1	0.2199	25
	SB21UPLSBSLSC2024	Female	Adult	12	46.36	57.80	1.6653	0.8822	0.0243	0.0727	0.862	4.37	1.46	110	455	0	0	-	75
	SB21UPLSBSLSC2025	Female	Adult	12	49.06	60.50	1.9881	1.1069	0.0257	0.0374	0.898	1.88	1.29	47	322	0	1	0.2883	0
	SB21UPLSBSLSC2026	Male	Adult	23	46.28	56.10	1.4567	0.9219	0.0276	0.0548	0.825	3.76	1.89	-	-	0	0	-	25
	SB21UPLSBSLSC2027	Male	Adult	22	46.36	55.04	1.4567	0.8176	0.0086	0.0144	0.874	0.99	0.590	-	-	0	1	0.2083	50
	SB21UPLSBSLSC2028	Female	Juvenile	11	40.20	49.29	0.9880	0.6229	0.0094	0.0328	0.825	3.32	0.951	-	-	0	0	-	25
	SB21UPLSBSLSC2029	Male	Adult	22	48.22	57.78	1.5856	1.0829	0.0023	0.0442	0.822	2.79	0.145	-	-	0	0	-	0
	SB21UPLSBSLSC2030	Male	Adult	22	50.64	61.24	2.3270	1.1135	0.0087	0.0494	1.01	2.12	0.374	-	-	0	2	0.5100	25
	SB21UPLSBSLSC2031	Male	Adult	22	43.17	51.23	0.9749	0.6020	0.0070	0.0213	0.725	2.18	0.718	-	-	0	1	0.0540	25
	SB21UPLSBSLSC2032	Female	Adult	12	49.31	58.8	1.5866	0.8208	0.0211	0.0298	0.780	1.88	1.33	26	249	0	1	0.2287	100
	SB21UPLSBSLSC2033	Male	Adult	22	47.11	56.09	1.3206	0.6698	0.0099	0.0339	0.748	2.57	0.750	-	-	0	0	-	25
	SB21UPLSBSLSC2034	Female	Adult	17	42.56	50.25	0.9997	0.4935	0.0061	0.0312	0.788	3.12	0.610	-	-	0	1	0.2332	10
	SB21UPLSBSLSC2035	Male	Juvenile	21	41.63	50.06	1.0278	0.5497	0.0023	0.0230	0.819	2.24	0.224	-	-	0	1	0.1160	0
	SB21UPLSBSLSC2036	Male	Adult	22	44.79	53.35	1.3262	0.6136	0.0032	0.0223	0.873	1.68	0.241	-	-	0	1	0.1006	10
	SB21UPLSBSLSC2037	Male	Adult	22	41.84	48.63	0.8868	0.5173	0.0038	0.0183	0.771	2.06	0.429	-	-	0	0	-	50
	SB21UPLSBSLSC2038	Female	Adult	12	59.50	71.50	3.2081	1.9655	0.0603	0.1849	0.878	5.76	1.88	138	563	0	0	-	25

Table H-5: Data from Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	Sex	Life Stage	Maturation Code ^(a)	Standard Length (mm)	Total Length (mm)	Total Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Condition	LSI	GSI	Fecundity (eggs/fish)	Mean Egg Diameter (µm)	External Parasites	Internal Parasites	Tapeworm Weight (g)	Stomach Content (%)
Propeller Lake South Basin	SB21UPLSBSLSC2039	Male	Adult	23	59.00	68.70	2.6598	1.5906	0.0316	0.0672	0.820	2.53	1.19	-	-	0	0	-	10
	SB21UPLSBSLSC2040	Male	Adult	22	56.00	67.00	3.0104	1.6815	0.0155	0.0766	1.00	2.54	0.515	-	-	0	1	0.2525	25
	SB21UPLSBSLSC2041	Unknown	Unknown	00	45.55	54.88	1.1360	0.6851	-	0.0222	0.687	1.95	-	-	-	0	1	0.0067	0
	SB21UPLSBSLSC2042	Female	Adult	17	44.51	53.84	1.1308	0.6932	0.0064	0.0253	0.725	2.24	0.566	-	-	0	1	0.0500	50
	SB21UPLSBSLSC2043	Male	Juvenile	21	40.79	49.24	0.8136	0.4882	0.0052	0.0165	0.681	2.03	0.639	-	-	0	1	0.0426	50
	SB21UPLSBSLSC2044	Male	Adult	22	51.26	54.80	1.3760	0.7692	0.0060	0.0371	0.836	2.70	0.436	-	-	0	1	0.0600	0
	SB21UPLSBSLSC2045	Male	Adult	23	42.06	50.84	1.0830	0.6596	0.0166	0.0273	0.824	2.52	1.53	-	-	0	0	-	25
	SB21UPLSBSLSC2046	Male	Adult	22	46.75	50.79	0.9594	0.4576	0.0049	0.0221	0.732	2.30	0.511	-	-	0	1	0.0728	25
	SB21UPLSBSLSC2047	Male	Adult	23	44.80	55.00	1.2646	0.8843	0.0176	0.0314	0.760	2.48	1.39	-	-	0	0	-	0
	SB21UPLSBSLSC2048	Male	Adult	22	40.74	50.08	0.9089	0.5339	0.0061	0.0174	0.724	1.91	0.671	-	-	0	1	0.0362	0
	SB21UPLSBSLSC2049	Unknown	Juvenile	01	38.20	45.84	0.7472	0.4720	0.0022	0.0102	0.776	1.37	0.294	-	-	0	0	-	50
	SB21UPLSBSLSC2050	Female	Adult	12	39.50	47.03	0.8046	0.4894	0.0124	0.0223	0.773	2.77	1.54	-	-	0	1	0.0249	75
	SB21UPLSBSLSC2051	Female	Juvenile	11	40.77	47.98	0.8606	0.4983	0.0105	0.0128	0.779	1.49	1.22	-	-	0	1	0.0571	25
	SB21UPLSBSLSC2052	Male	Adult	22	39.86	48.33	0.9066	0.5278	0.0046	0.0192	0.803	2.12	0.507	-	-	0	2	0.0819	100
	SB21UPLSBSLSC2053	Female	Adult	17	41.12	49.13	0.8025	0.5047	0.0046	0.0192	0.677	2.39	0.573	-	-	0	1	0.0312	25
	SB21UPLSBSLSC2110	Female	Adult	12	51.66	62.30	2.0404	1.1520	0.0178	0.0440	0.844	2.16	0.872	33	383	0	1	0.3006	25
	SB21UPLSBSLSC2111	Female	Adult	17	56.83	66.99	3.1586	1.5506	0.0135	0.0827	1.05	2.62	0.427	-	-	0	2	0.6042	50
	SB21UPLSBSLSC2113	Female	Adult	12	41.24	50.31	0.9298	0.6133	0.0111	0.0243	0.730	2.61	1.19	40	428	0	0	-	25
	SB21UPLSBSLSC2115	Female	Adult	12	51.71	63.51	2.1144	1.3570	0.0380	0.1198	0.825	5.67	1.80	158	481	0	0	-	10
	SB21UPLSBSLSC2116	Female	Adult	12	43.43	51.99	1.1456	0.6357	0.0193	0.0338	0.815	2.95	1.68	65	356	0	0	-	75
	SB21UPLSBSLSC2119	Female	Adult	12	56.61	68.24	2.6759	1.7164	0.0571	0.0923	0.842	3.45	2.13	129	494	0	0	-	100
	SB21UPLSBSLSC2120	Female	Adult	12	51.56	62.48	1.9524	1.2013	0.0364	0.0797	0.800	4.08	1.86	82	478	0	0	-	100
	SB21UPLSBSLSC2121	Male	Adult	22	31.49	47.99	1.7822	1.1797	0.0476	0.0353	1.61	1.98	2.67	-	-	0	0	-	0
	SB21UPLSBSLSC2123	Male	Adult	22	36.69	47.54	1.7570	1.0339	0.0188	0.0353	1.64	2.01	1.07	-	-	0	0	-	10
	SB21UPLSBSLSC2124	Male	Adult	23	47.39	56.72	1.4011	0.8149	0.0201	0.0346	0.768	2.47	1.43	-	-	0	0	-	100
	SB21UPLSBSLSC2126	Male	Adult	22	39.24	48.37	0.7819	0.4739	0.0029	0.0189	0.691	2.42	0.371	-	-	0	0	-	25

a) See Table 10.2-2 for definitions of maturity histology codes.
LSI = liver somatic index; GSI = gonad somatic index; - = not applicable or not collected.

Table H-6: Pathology Data from Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	Sex	Life Stage	Body Deformities	Eyes	Skin	Thymus	Opercles	Gills	Pseudo-branches	Fins	Hindgut	Mesenteric Fat	Liver	Spleen	Gall Bladder	Gall Bladder (%)	Kidney	Comments
Propeller Lake North Basin	SB21UPLNBSLSC1001	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	Pale liver
	SB21UPLNBSLSC1002	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	0	Normal	Pale orange liver
	SB21UPLNBSLSC1003	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	Pale orange liver
	SB21UPLNBSLSC1004	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	Pale orange liver
	SB21UPLNBSLSC1005	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	Pale orange liver
	SB21UPLNBSLSC1006	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	Pale orange liver
	SB21UPLNBSLSC1007	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	Pale orange liver
	SB21UPLNBSLSC1008	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	Pale orange liver
	SB21UPLNBSLSC1009	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	Pale orange liver
	SB21UPLNBSLSC1010	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	Pale liver
	SB21UPLNBSLSC1011	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	Pale liver
	SB21UPLNBSLSC1012	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Fatty	Normal	Normal	20	Normal	-
	SB21UPLNBSLSC1013	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	Pale liver
	SB21UPLNBSLSC1014	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	Pale liver, one otolith
	SB21UPLNBSLSC1015	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	Pale liver
	SB21UPLNBSLSC1016	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	Pale liver
	SB21UPLNBSLSC1017	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	Pale liver
	SB21UPLNBSLSC1018	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	Pale liver
	SB21UPLNBSLSC1019	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	Pale liver
	SB21UPLNBSLSC1066	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1067	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	75	Normal	One otolith
	SB21UPLNBSLSC1068	Unknown	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1069	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	5 small parasites
	SB21UPLNBSLSC1070	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	70	Normal	-
	SB21UPLNBSLSC1071	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	0	Normal	-
	SB21UPLNBSLSC1072	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	-
	SB21UPLNBSLSC1073	Male	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1074	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1075	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1076	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	10	Normal	Maturity and sex difficult to distinguish
	SB21UPLNBSLSC1077	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1078	Male	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	-
	SB21UPLNBSLSC1079	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1080	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1081	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	-
	SB21UPLNBSLSC1111	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1112	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	75	Normal	-
	SB21UPLNBSLSC1114	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1115	Male	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1116	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1117	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	7 parasites
	SB21UPLNBSLSC1118	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1119	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	-
	SB21UPLNBSLSC1120	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	4 parasites
	SB21UPLNBSLSC1121	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	10 parasites
	SB21UPLNBSLSC1122	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLNBSLSC1123	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	25	Normal	-
	SB21UPLNBSLSC1127	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1128	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	75	Normal	-
	SB21UPLNBSLSC1129	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1130	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	0	Normal	-
	SB21UPLNBSLSC1132	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1133	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	-
	SB21UPLNBSLSC1134	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	-
	SB21UPLNBSLSC1135	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-

Table H-6: Pathology Data from Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	Sex	Life Stage	Body Deformities	Eyes	Skin	Thymus	Opercles	Gills	Pseudo-branches	Fins	Hindgut	Mesenteric Fat	Liver	Spleen	Gall Bladder	Gall Bladder (%)	Kidney	Comments
Propeller Lake North Basin	SB21UPLNBSLSC1138	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	-
	SB21UPLNBSLSC1139	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLNBSLSC1142	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1143	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1144	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1146	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1147	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	-	Normal	-
	SB21UPLNBSLSC1149	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLNBSLSC1152	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	-	Normal	Normal	Normal	50	Normal	-
Propeller Lake South Basin	SB21UPLSBSLSC2001	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	0	Normal	-
	SB21UPLSBSLSC2002	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	0	Normal	-
	SB21UPLSBSLSC2003	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2004	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2005	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2006	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2007	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2008	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2009	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2010	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	General discoloration	Normal	Normal	100	Normal	Liver has coffee-cream colour
	SB21UPLSBSLSC2011	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2012	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	100	Normal	Liver has coffee-cream colour
	SB21UPLSBSLSC2022	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLSBSLSC2023	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	-
	SB21UPLSBSLSC2024	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2025	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLSBSLSC2026	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2027	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	Difficult to determine stage due to parasite
	SB21UPLSBSLSC2028	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	-
	SB21UPLSBSLSC2029	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2030	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2031	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2032	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2033	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	General discoloration	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2034	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2035	Male	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2036	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2037	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2038	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2039	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2040	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2041	Unknown	Unknown	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2042	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2043	Male	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	General discoloration	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2044	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	2 parasites
	SB21UPLSBSLSC2045	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLSBSLSC2046	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLSBSLSC2047	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	25	Normal	-
	SB21UPLSBSLSC2048	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	-

Table H-6: Pathology Data from Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	Sex	Life Stage	Body Deformities	Eyes	Skin	Thymus	Opercles	Gills	Pseudo-branches	Fins	Hindgut	Mesenteric Fat	Liver	Spleen	Gall Bladder	Gall Bladder (%)	Kidney	Comments
Propeller Lake South Basin	SB21UPLSBSLSC2049	Unknown	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	80	Normal	-
	SB21UPLSBSLSC2050	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2051	Female	Juvenile	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLSBSLSC2052	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	3 parasites, 1 otolith
	SB21UPLSBSLSC2053	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	General discoloration	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2110	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2111	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	2 large parasites
	SB21UPLSBSLSC2113	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2115	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	20	Normal	-
	SB21UPLSBSLSC2116	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	10	Normal	-
	SB21UPLSBSLSC2119	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2120	Female	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	50	Normal	-
	SB21UPLSBSLSC2121	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal		Normal	-
	SB21UPLSBSLSC2123	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	< 50%	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2124	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	100	Normal	-
	SB21UPLSBSLSC2126	Male	Adult	None	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	General discoloration	Normal	Normal	100	Normal	-

< = less than; - = no data.

Table H-7: Gonad Histology Laboratory Results for Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	AVC Lab Number	Preservation	Histology Code ^(a)	AVC Lab Number	Total Length (mm)	Total Body Weight (g)	Comment
Propeller Lake North Basin	SB21UPLNBSLSC1001	U22658-21	10% Formalin	2,1	A	78.57	4.1795	-
	SB21UPLNBSLSC1002	U22658-21	10% Formalin	1,1 (7)	A	87.21	5.3464	-
	SB21UPLNBSLSC1003	U22658-21	10% Formalin	1,2	B	49.79	1.1531	-
	SB21UPLNBSLSC1004	U22658-21	10% Formalin	1,1 (7)	B	49.24	1.0285	-
	SB21UPLNBSLSC1005	U22658-21	10% Formalin	2,2	C	58.63	1.4754	-
	SB21UPLNBSLSC1006	U22658-21	10% Formalin	2,2	C	56.87	1.3363	-
	SB21UPLNBSLSC1007	U22658-21	10% Formalin	1,1 (7)	D	50.83	1.0682	-
	SB21UPLNBSLSC1008	U22658-21	10% Formalin	ND	D	52.45	1.1294	Kidney Tissue
	SB21UPLNBSLSC1009	U22658-21	10% Formalin	2,1	E	55.36	1.1927	-
	SB21UPLNBSLSC1010	U22658-21	10% Formalin	1,2	E	74.44	4.1298	-
	SB21UPLNBSLSC1011	U22658-21	10% Formalin	ND	F	58.90	1.5707	Kidney Tissue
	SB21UPLNBSLSC1012	U22658-21	10% Formalin	1,2	F	56.76	1.4717	-
	SB21UPLNBSLSC1013	U22658-21	10% Formalin	2	G	74.09	3.2643	Degeneration
	SB21UPLNBSLSC1014	U22658-21	10% Formalin	2,2	G	65.20	2.1988	-
	SB21UPLNBSLSC1015	U22658-21	10% Formalin	2,2	H	72.35	3.2281	-
	SB21UPLNBSLSC1016	U22658-21	10% Formalin	1,1 (7)	H	80.00	3.9099	-
	SB21UPLNBSLSC1017	U22658-21	10% Formalin	2,3	I	66.75	2.4409	-
	SB21UPLNBSLSC1018	U22658-21	10% Formalin	2,2	I	54.63	1.2128	-
	SB21UPLNBSLSC1019	U22658-21	10% Formalin	2,1	J	55.97	1.5635	-
	SB21UPLNBSLSC1066	U22658-21	10% Formalin	1,1 (7)	J	65.00	2.6898	-
	SB21UPLNBSLSC1067	U22658-21	10% Formalin	2,2	K	71.80	3.3609	-
	SB21UPLNBSLSC1068	U22658-21	10% Formalin	ND	K	59.36	1.9970	Kidney Tissue
	SB21UPLNBSLSC1069	U22658-21	10% Formalin	1,1 (7)	L	66.20	2.2427	-
	SB21UPLNBSLSC1070	U22658-21	10% Formalin	2,2	L	68.10	2.2076	-
	SB21UPLNBSLSC1071	U22658-21	10% Formalin	2,2	M	65.66	1.7542	-
	SB21UPLNBSLSC1071	U22658-21	10% Formalin	2,3	M	65.66	1.7542	-
	SB21UPLNBSLSC1072	U22658-21	10% Formalin	2,1	N	57.20	1.5198	-
	SB21UPLNBSLSC1073	U22658-21	10% Formalin	2,1	N	51.44	1.5317	-
	SB21UPLNBSLSC1074	U22658-21	10% Formalin	1,1 (7)	O	60.34	1.6532	-
	SB21UPLNBSLSC1075	U22658-21	10% Formalin	1,1 (7)	O	62.26	1.6781	-
	SB21UPLNBSLSC1076	U22658-21	10% Formalin	1,1 (7)	P	48.81	0.9671	-
	SB21UPLNBSLSC1077	U22658-21	10% Formalin	1,1 (7)	P	51.00	1.1810	-
	SB21UPLNBSLSC1078	U22658-21	10% Formalin	ND	Q	50.49	0.9835	Kidney Tissue
	SB21UPLNBSLSC1079	U22658-21	10% Formalin	2,1	Q	53.15	1.2542	-
	SB21UPLNBSLSC1080	U22658-21	10% Formalin	2,2	R	48.01	0.9503	-
	SB21UPLNBSLSC1081	U22658-21	10% Formalin	2,2	R	47.75	1.0223	-
	SB21UPLNBSLSC1111	U22658-21	10% Formalin	2,2	S	66.10	2.6526	-
	SB21UPLNBSLSC1112	U22658-21	10% Formalin	1,2	S	59.23	1.4281	-
	SB21UPLNBSLSC1114	U22658-21	10% Formalin	2,2	T	51.22	1.6035	-
	SB21UPLNBSLSC1115	U22658-21	10% Formalin	2,1	T	49.81	1.0394	-
	SB21UPLNBSLSC1116	U22658-21	10% Formalin	2,1	U	49.13	0.8090	-
	SB21UPLNBSLSC1117	U22658-21	10% Formalin	1,2	U	67.90	3.2936	-
	SB21UPLNBSLSC1118	U22658-21	10% Formalin	1,2	V	66.80	2.4863	-
	SB21UPLNBSLSC1119	U22658-21	10% Formalin	1,2	V	61.40	2.0154	-
	SB21UPLNBSLSC1120	U22658-21	10% Formalin	1,2	W	66.90	2.6710	-
	SB21UPLNBSLSC1121	U22658-21	10% Formalin	2,2	W	67.30	3.0775	-
	SB21UPLNBSLSC1122	U22658-21	10% Formalin	2,2	X	56.83	1.3509	-
	SB21UPLNBSLSC1123	U22658-21	10% Formalin	1,2	X	52.90	1.1547	-
	SB21UPLNBSLSC1127	U22658-21	10% Formalin	1,1 (7)	Y	50.85	1.0566	-
	SB21UPLNBSLSC1128	U22658-21	10% Formalin	2,2	Y	52.23	0.9790	-
	SB21UPLNBSLSC1129	U22658-21	10% Formalin	1,2	Z	53.00	1.2579	-
	SB21UPLNBSLSC1130	U22658-21	10% Formalin	ND	Z	56.59	1.5038	Kidney Tissue
	SB21UPLNBSLSC1132	U22658-21	10% Formalin	2,0	AA	75.71	3.7047	Degeneration Evident
	SB21UPLNBSLSC1133	U22658-21	10% Formalin	2,2	AA	68.89	2.5369	-
	SB21UPLNBSLSC1134	U22658-21	10% Formalin	2,3	AB	62.55	2.1565	-
	SB21UPLNBSLSC1135	U22658-21	10% Formalin	1,2	AB	66.32	2.2176	-
	SB21UPLNBSLSC1138	U22658-21	10% Formalin	2,3	AC	63.68	2.4146	-
	SB21UPLNBSLSC1139	U22658-21	10% Formalin	1,2	AC	58.45	1.7333	-
	SB21UPLNBSLSC1142	U22658-21	10% Formalin	1,2	AD	90.08	6.8546	-
	SB21UPLNBSLSC1143	U22658-21	10% Formalin	1,2	AD	77.76	4.3967	-
	SB21UPLNBSLSC1144	U22658-21	10% Formalin	2,2	AE	76.38	3.3712	-
	SB21UPLNBSLSC1146	U22658-21	10% Formalin	2,2	AE	71.24	2.9107	-
	SB21UPLNBSLSC1147	U22658-21	10% Formalin	1.1 (7)	AF	61.37	1.6359	-
	SB21UPLNBSLSC1149	U22658-21	10% Formalin	2,2	AF	62.40	1.7210	-
	SB21UPLNBSLSC1152	U22658-21	10% Formalin	2,3	AG	56.14	1.2818	-
	SB21UPLNBSLSC1154	U22658-21	10% Formalin	2,3	AG	52.54	1.2234	-

Table H-7: Gonad Histology Laboratory Results for Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	AVC Lab Number	Preservation	Histology Code ^(a)	AVC Lab Number	Total Length (mm)	Total Body Weight (g)	Comment
Propeller Lake South Basin	SB21UPLSBSLSC2001	U22659-21	10% Formalin	1,2	A	76.48	3.9498	-
	SB21UPLSBSLSC2002	U22659-21	10% Formalin	ND	A	58.36	1.6426	Bladder
	SB21UPLSBSLSC2003	U22659-21	10% Formalin	1,1 (7)	B	47.08	0.8424	-
	SB21UPLSBSLSC2004	U22659-21	10% Formalin	1,1 (7)	B	50.22	0.9070	-
	SB21UPLSBSLSC2005	U22659-21	10% Formalin	1,1 (7)	C	46.73	0.8467	-
	SB21UPLSBSLSC2006	U22659-21	10% Formalin	1,2	C	61.78	2.6118	-
	SB21UPLSBSLSC2007	U22659-21	10% Formalin	1,2	D	56.01	1.4894	-
	SB21UPLSBSLSC2008	U22659-21	10% Formalin	1,2	D	59.53	1.5617	-
	SB21UPLSBSLSC2009	U22659-21	10% Formalin	1,1 (7)	E	57.56	1.6319	-
	SB21UPLSBSLSC2010	U22659-21	10% Formalin	1,1 (7)	E	54.09	1.2756	-
	SB21UPLSBSLSC2011	U22659-21	10% Formalin	1,1 (7)	F	50.36	0.9426	-
	SB21UPLSBSLSC2012	U22659-21	10% Formalin	1,1 (7)	F	45.11	0.9284	-
	SB21UPLSBSLSC2022	U22659-21	10% Formalin	2,3	G	66.29	2.5032	-
	SB21UPLSBSLSC2023	U22659-21	10% Formalin	2,1	G	62.24	2.2957	-
	SB21UPLSBSLSC2024	U22659-21	10% Formalin	1,2	H	57.80	1.6653	-
	SB21UPLSBSLSC2025	U22659-21	10% Formalin	1,2	H	60.50	1.9881	-
	SB21UPLSBSLSC2026	U22659-21	10% Formalin	2,3	I	56.10	1.4567	-
	SB21UPLSBSLSC2027	U22659-21	10% Formalin	2,1	I	55.04	1.4567	-
	SB21UPLSBSLSC2028	U22659-21	10% Formalin	1,1 (7)	J	49.29	0.9880	-
	SB21UPLSBSLSC2029	U22659-21	10% Formalin	2,2	J	57.78	1.5856	-
	SB21UPLSBSLSC2030	U22659-21	10% Formalin	2,1	K	61.24	2.3270	-
	SB21UPLSBSLSC2031	U22659-21	10% Formalin	ND	K	51.23	0.9749	Kidney Tissue
	SB21UPLSBSLSC2032	U22659-21	10% Formalin	1,2	L	58.80	1.5866	-
	SB21UPLSBSLSC2033	U22659-21	10% Formalin	2,2	L	56.09	1.3206	-
	SB21UPLSBSLSC2034	U22659-21	10% Formalin	1,1 (7)	M	50.25	0.9997	-
	SB21UPLSBSLSC2035	U22659-21	10% Formalin	2,1	M	50.06	1.0278	-
	SB21UPLSBSLSC2036	U22659-21	10% Formalin	2,1	N	53.35	1.3262	-
	SB21UPLSBSLSC2037	U22659-21	10% Formalin	2,2	N	48.63	0.8868	-
	SB21UPLSBSLSC2038	U22659-21	10% Formalin	1,2	O	71.50	3.2081	-
	SB21UPLSBSLSC2039	U22659-21	10% Formalin	2,3	O	68.70	2.6598	-
	SB21UPLSBSLSC2040	U22659-21	10% Formalin	2,2	P	67.00	3.0104	-
	SB21UPLSBSLSC2041	U22659-21	10% Formalin	ND	P	54.88	1.1360	Kidney Tissue
	SB21UPLSBSLSC2042	U22659-21	10% Formalin	1,1 (7)	Q	53.84	1.1308	-
	SB21UPLSBSLSC2043	U22659-21	10% Formalin	2,1	Q	49.24	0.8136	-
	SB21UPLSBSLSC2044	U22659-21	10% Formalin	ND	R	54.80	1.3760	Kidney Tissue
	SB21UPLSBSLSC2045	U22659-21	10% Formalin	2,3	R	50.84	1.0830	-
	SB21UPLSBSLSC2046	U22659-21	10% Formalin	2,1	S	50.79	0.9594	-
	SB21UPLSBSLSC2047	U22659-21	10% Formalin	2,3	S	55.00	1.2646	-
	SB21UPLSBSLSC2048	U22659-21	10% Formalin	2,1	T	50.08	0.9089	-
	SB21UPLSBSLSC2049	U22659-21	10% Formalin	ND	T	45.84	0.7472	Kidney Tissue
	SB21UPLSBSLSC2050	U22659-21	10% Formalin	1,1 (7)	U	47.03	0.8046	-
	SB21UPLSBSLSC2051	U22659-21	10% Formalin	1,1 (7)	U	47.98	0.8606	-
	SB21UPLSBSLSC2052	U22659-21	10% Formalin	ND	V	48.33	0.9066	Kidney Tissue
	SB21UPLSBSLSC2053	U22659-21	10% Formalin	1,1 (7)	V	49.13	0.8025	-
	SB21UPLSBSLSC2110	U22659-21	10% Formalin	1,2	W	62.30	2.0404	-
	SB21UPLSBSLSC2111	U22659-21	10% Formalin	ND	W	66.99	3.1586	Kidney Tissue
	SB21UPLSBSLSC2113	U22659-21	10% Formalin	1,2	X	50.31	0.9298	-
	SB21UPLSBSLSC2115	U22659-21	10% Formalin	1,2	X	63.51	2.1144	-
	SB21UPLSBSLSC2116	U22659-21	10% Formalin	1,2	Y	51.99	1.1456	-
	SB21UPLSBSLSC2119	U22659-21	10% Formalin	1,2	Y	68.24	2.6759	-
	SB21UPLSBSLSC2120	U22659-21	10% Formalin	1,2	Z	62.48	1.9524	-
	SB21UPLSBSLSC2121	U22659-21	10% Formalin	2,2	Z	47.99	1.7822	-
	SB21UPLSBSLSC2123	U22659-21	10% Formalin	2,2	AA	47.54	1.7570	-
	SB21UPLSBSLSC2124	U22659-21	10% Formalin	2,3	AA	56.72	1.4011	-
	SB21UPLSBSLSC2126	U22659-21	10% Formalin	2,2	AB	48.37	0.7819	-

a) Refer to Section 10, Table 10.2-2 for a list of reproductive stage classifications.
FIN = Fish identification number; AVC = Atlantic Veterinary College; "-" = data not available or applicable.

Table H-8: Fecundity Laboratory Results and Calculations for Lethally Sampled Slimy Sculpin from Propeller Lake, 2021

Area	Fish ID	# of Eggs in Sample	Total Gonad Weight (g)	Lobe Weight - Field (g)	Lobe Weight - Lab (g)	Fecundity ^(a)	Mean Egg Diameter (µm)	Comments
Propeller Lake North Basin	SB-21-U-PLNB-SLSC-1002	177	0.0642	0.0323	0.0352	323	385.2	
	SB-21-U-PLNB-SLSC-1010	127	0.0330	0.0185	0.0240	175	421.2	
	SB-21-U-PLNB-SLSC-1011	-	0.0223	0.0100	0.0121	-	-	
	SB-21-U-PLNB-SLSC-1012	140	0.0231	0.0113	0.0146	221	387	
	SB-21-U-PLNB-SLSC-1016	382	0.1029	0.0438	0.0458	858	460.8	
	SB-21-U-PLNB-SLSC-1066	77	0.0251	0.0076	0.0098	197	402.3	
	SB-21-U-PLNB-SLSC-1069	-	0.0431	0.0148	0.0181	-	-	Immature and undeveloped
	SB-21-U-PLNB-SLSC-1114	83	0.0234	0.0076	0.0092	211	327.6	Worm present
	SB-21-U-PLNB-SLSC-1117	-	0.0215	0.0073	0.0080	-	-	Immature and undeveloped
	SB-21-U-PLNB-SLSC-1118	155	0.0673	0.0268	0.0321	325	512.1	
	SB-21-U-PLNB-SLSC-1119	119	0.0343	0.0190	0.0203	201	513.9	
	SB-21-U-PLNB-SLSC-1120	140	0.0376	0.0151	0.0170	310	421.1	
	SB-21-U-PLNB-SLSC-1121	99	0.0436	0.0208	0.0225	192	325.8	Worm present
	SB-21-U-PLNB-SLSC-1127	126	0.0156	0.0057	0.0076	259	405	
	SB-21-U-PLNB-SLSC-1130	87	0.0175	-	0.0108	141	347.5	
	SB-21-U-PLNB-SLSC-1132	-	0.0155	0.0066	0.0078	-	-	Immature and undeveloped
	SB-21-U-PLNB-SLSC-1138	85	0.0136	0.0078	0.0088	131	422.1	Worms present & immature/underdeveloped
	SB-21-U-PLNB-SLSC-1142	220	0.0503	0.0276	0.0280	395	391.5	
	SB-21-U-PLNB-SLSC-1143	80	0.0289	0.0157	0.0171	135	401.4	
	SB-21-U-PLNB-SLSC-1144	133	0.0644	0.0230	0.0255	336	540.9	
	SB-21-U-PLNB-SLSC-1149	17	0.0076	0.0044	0.0059	22	118.8	
Propeller Lake South Basin	SB-21-U-PLSB-SLSC-2001	115	0.0754	0.0253	0.0277	313	560.7	
	SB-21-U-PLSB-SLSC-2005	-	0.0029	0.0010	0.0021	-	-	Immature and undeveloped
	SB-21-U-PLSB-SLSC-2006	89	0.0301	0.0119	0.0147	182	423	
	SB-21-U-PLSB-SLSC-2007	70	0.0286	0.0161	0.0106	189	519.3	
	SB-21-U-PLSB-SLSC-2008	118	0.0214	0.0096	0.0130	194	449.1	
	SB-21-U-PLSB-SLSC-2010	38	0.0124	0.0049	0.0059	80	328.5	
	SB-21-U-PLSB-SLSC-2024	110	0.0243	0.0115	0.0130	206	455.4	
	SB-21-U-PLSB-SLSC-2025	47	0.0257	0.0078	0.0098	123	322.2	
	SB-21-U-PLSB-SLSC-2032	26	0.0211	0.0038	0.0051	108	249.3	
	SB-21-U-PLSB-SLSC-2038	138	0.0603	0.0277	0.0325	255	563.4	
	SB-21-U-PLSB-SLSC-2050	-	0.0124	0.0052	0.0028	-	-	Immature and undeveloped
	SB-21-U-PLSB-SLSC-2110	33	0.0178	0.0059	0.0075	78	382.5	
	SB-21-U-PLSB-SLSC-2111	-	0.0135	0.0098	0.0117	-	-	Immature and undeveloped
	SB-21-U-PLSB-SLSC-2113	40	0.0111	0.0035	0.0055	81	428.4	
	SB-21-U-PLSB-SLSC-2115	158	0.0380	0.0194	0.0248	242	480.6	
	SB-21-U-PLSB-SLSC-2116	65	0.0193	0.0063	0.0082	153	356.4	
	SB-21-U-PLSB-SLSC-2119	129	0.0571	0.0263	0.0285	258	494.1	
	SB-21-U-PLSB-SLSC-2120	82	0.0364	0.0191	0.0216	138	477.9	

a) Fecundity = (# of eggs in sample X total gonad weight)/(laboratory sample weight)

APPENDIX I

2021 Slimy Sculpin Tissue Chemistry

Table I-1 Slimy Sculpin Composite Samples Submitted for Fish Tissue Chemistry Analysis, 2021

Area	Maturity Code ^(a)	Sex	FIN	Standard Length (mm)	Total Length (mm)	Carcass Weight (g)	Total Body Weight (g)	Composite Sample ID
Propeller Lake North Basin	22	Male	SB21UPLNBSLSC1008	42.69	52.45	0.6318	1.1294	PLNB-M-1
	21	Male	SB21UPLNBSLSC1073	44.73	51.44	0.9783	1.5317	
	11	Female	SB21UPLNBSLSC1077	43.76	51.00	0.6412	1.181	
	22	Male	SB21UPLNBSLSC1123	44.30	52.90	0.6758	1.1547	
	22	Male	SB21UPLNBSLSC1128	42.82	52.23	0.6641	0.979	
	22	Male	SB21UPLNBSLSC1129	43.20	53.00	0.7780	1.2579	
	22	Male	SB21UPLNBSLSC1154	42.70	52.54	0.7989	1.2234	PLNB-M-2
	22	Male	SB21UPLNBSLSC1005	48.69	58.63	0.9285	1.4754	
	22	Male	SB21UPLNBSLSC1006	48.49	56.87	0.8355	1.3363	
	22	Male	SB21UPLNBSLSC1072	46.50	57.20	0.8620	1.5198	
	22	Male	SB21UPLNBSLSC1122	47.37	56.83	0.8595	1.3509	
	22	Male	SB21UPLNBSLSC1139	47.37	58.45	1.0730	1.7333	
	22	Male	SB21UPLNBSLSC1152	45.3	56.14	0.8248	1.2818	PLNB-M-3
	22	Male	SB21UPLNBSLSC1014	51.54	65.20	1.2569	2.1988	
	23	Male	SB21UPLNBSLSC1017	52.25	66.75	1.5568	2.4409	
	23	Male	SB21UPLNBSLSC1071	55.76	65.66	1.1123	1.7542	
	22	Male	SB21UPLNBSLSC1135	54.81	66.32	1.3446	2.2176	PLNB-M-4
	22	Male	SB21UPLNBSLSC1015	60.79	72.35	2.1453	3.2281	
	22	Male	SB21UPLNBSLSC1067	60.25	71.80	2.2289	3.3609	
	22	Male	SB21UPLNBSLSC1146	58.46	71.24	1.9558	2.9107	PLNB-F-1
	12	Female	SB21UPLNBSLSC1012	46.34	56.76	0.8784	1.4717	
	12	Female	SB21UPLNBSLSC1011	48.39	58.90	0.7875	1.5707	
	12	Female	SB21UPLNBSLSC1119	51.20	61.40	1.1639	2.0154	
	12	Female	SB21UPLNBSLSC1149	53.01	62.40	1.2261	1.7210	
	12	Female	SB21UPLNBSLSC1138	51.69	63.68	1.5051	2.4146	PLNB-F-2
	12	Female	SB21UPLNBSLSC1066	53.25	65.00	1.4838	2.6898	
	12	Female	SB21UPLNBSLSC1118	54.30	66.80	1.6938	2.4863	
	12	Female	SB21UPLNBSLSC1120	54.10	66.90	1.6495	2.6710	
	12	Female	SB21UPLNBSLSC1117	56.20	67.90	1.4265	3.2936	PLNB-F-3
	22	Male	SB21UPLNBSLSC1132	61.45	75.71	1.7722	3.7047	
	12	Female	SB21UPLNBSLSC1144	65.58	76.38	2.1675	3.3712	
	12	Female	SB21UPLNBSLSC1016	63.77	80.00	2.5573	3.9099	PLNB-F-4
	12	Female	SB21UPLNBSLSC1002	71.34	87.21	3.5697	5.3464	
	12	Female	SB21UPLNBSLSC1142	76.62	90.08	4.1513	6.8546	
Propeller Lake South Basin	11	Female	SB21UPLSBSLSC2003	38.52	47.08	0.5233	0.8424	PLSB-M-1
	11	Female	SB21UPLSBSLSC2012	37.37	45.11	0.5594	0.9284	
	11	Female	SB21UPLSBSLSC2028	40.20	49.29	0.6229	0.9880	
	22	Male	SB21UPLSBSLSC2037	41.84	48.63	0.5173	0.8868	
	01	Unknown	SB21UPLSBSLSC2049	38.2	45.84	0.4720	0.7472	
	22	Male	SB21UPLSBSLSC2121	31.49	47.99	1.1797	1.7822	
	22	Male	SB21UPLSBSLSC2123	36.69	47.54	1.0339	1.7570	PLSB-M-2
	22	Male	SB21UPLSBSLSC2126	39.24	48.37	0.4739	0.7819	
	11	Female	SB21UPLSBSLSC2004	41.49	50.22	0.5644	0.9070	
	11	Female	SB21UPLSBSLSC2011	42.81	50.36	0.6170	0.9426	
	22	Male	SB21UPLSBSLSC2031	43.17	51.23	0.6020	0.9749	
	21	Male	SB21UPLSBSLSC2035	41.63	50.06	0.5497	1.0278	
	22	Male	SB21UPLSBSLSC2036	44.79	53.35	0.6136	1.3262	
	17	Female	SB21UPLSBSLSC2042	44.51	53.84	0.6932	1.1308	PLSB-M-3
	23	Male	SB21UPLSBSLSC2045	42.06	50.84	0.6596	1.0830	
	22	Male	SB21UPLSBSLSC2046	46.75	50.79	0.4576	0.9594	
	22	Male	SB21UPLSBSLSC2048	40.74	50.08	0.5339	0.9089	
	23	Male	SB21UPLSBSLSC2026	46.28	56.10	0.9219	1.4567	
	22	Male	SB21UPLSBSLSC2027	46.36	55.04	0.8176	1.4567	PLSB-M-4
	22	Male	SB21UPLSBSLSC2029	48.22	57.78	1.0829	1.5856	
	22	Male	SB21UPLSBSLSC2033	47.11	56.09	0.6698	1.3206	
	23	Male	SB21UPLSBSLSC2047	44.80	55.00	0.8843	1.2646	
	23	Male	SB21UPLSBSLSC2124	47.39	56.72	0.8149	1.4011	PLSB-F-1
	23	Male	SB21UPLSBSLSC2022	55.24	66.29	1.6173	2.5032	
	22	Male	SB21UPLSBSLSC2023	52.58	62.24	1.3649	2.2957	
	23	Male	SB21UPLSBSLSC2039	59.00	68.70	1.5906	2.6598	
	22	Male	SB21UPLSBSLSC2040	56.00	67.00	1.6815	3.0104	PLSB-F-2
	11	Female	SB21UPLSBSLSC2005	39.46	46.73	0.4896	0.8467	
	12	Female	SB21UPLSBSLSC2050	39.50	47.03	0.4894	0.8046	
	12	Female	SB21UPLSBSLSC2113	41.24	50.31	0.6133	0.9298	
	12	Female	SB21UPLSBSLSC2116	43.43	51.99	0.6357	1.1456	
	12	Female	SB21UPLSBSLSC2007	46.87	56.01	0.9545	1.4894	PLSB-F-3
	12	Female	SB21UPLSBSLSC2010	45.01	54.09	0.8544	1.2756	
	12	Female	SB21UPLSBSLSC2024	46.36	57.80	0.8822	1.6653	
	12	Female	SB21UPLSBSLSC2008	50.11	59.53	1.0754	1.5617	
	12	Female	SB21UPLSBSLSC2025	49.06	60.50	1.1069	1.9881	PLSB-F-4
	12	Female	SB21UPLSBSLSC2006	53.29	61.78	1.0658	2.6118	
	12	Female	SB21UPLSBSLSC2110	51.66	62.30	1.1520	2.0404	
	17	Female	SB21UPLSBSLSC2111	56.83	66.99	1.5506	3.1586	
	12	Female	SB21UPLSBSLSC2115	51.71	63.51	1.3570	2.1144	PLSB-F-3
	12	Female	SB21UPLSBSLSC2119	56.61	68.24	1.7164	2.6759	
	12	Female	SB21UPLSBSLSC2120	51.56	62.48	1.2013	1.9524	
	12	Female	SB21UPLSBSLSC2038	59.50	71.50	1.9655	3.2081	PLSB-F-4
	12	Female	SB21UPLSBSLSC2001	64.47	76.48	2.3469	3.9498	

FIN = Fish Identification Number; ID = Identification; PLNB = Propeller Lake North Basin; PLSB = Propeller Lake South Basin
a) See Table 6-1 for maturity code definitions.

Table I-2 Fish Tissue Chemistry Data for Slimy Sculpin Collected from Propeller Lake, 2021

Metal (mg/kg ww)	Detection Limit	PLNB-M-1 COMP	PLNB-M-2 COMP	PLNB-M-3 COMP	PLNB-M-4 COMP	PLNB-F-1 COMP	PLNB-F-2 COMP	PLNB-F-3 COMP	PLNB-F-4 COMP	PLSB-M-1 COMP	PLSB-M-2 COMP	PLSB-M-3 COMP	PLSB-M-4 COMP	PLSB-F-1 COMP	PLSB-F-2 COMP	PLSB-F-3 COMP	PLSB-F-4 COMP
Aluminum	1.0	1.1	1.7	1.3	2.1	2	1.1	2.3	<1.0	2.1	1	1.3	<1.0	2.4	1.1	2.1	<1.0
Antimony	0.0020	<0.0020	<0.0020	<0.0020	0.0025	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic	0.0060	0.0197	0.0225	0.0246	0.0187	0.021	0.0162	0.0216	0.0242	0.0257	0.0266	0.0229	0.0245	0.0225	0.0276	0.0232	0.0195
Barium	0.01	3.03	4.66	4.19	4.51	3.09	3.8	2.77	3.26	4.91	4.1	4.56	4.17	3.05	7.52	3.77	3.08
Beryllium	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium	0.0020	0.0085	0.0074	0.008	0.0064	0.0068	0.0065	0.0048	0.0062	0.0116	0.0056	0.0067	0.0053	0.0121	0.0075	0.0111	0.0043
Calcium	4	7500	11700	11100	13300	8420	9410	8440	9260	9990	9640	10600	7700	7150	8970	7940	8330
Cesium	0.0010	0.0117	0.0136	0.012	0.0087	0.018	0.0094	0.0074	0.0079	0.0202	0.0174	0.0198	0.0129	0.0255	0.0143	0.0159	0.0167
Chromium	0.040	0.08	0.066	0.045	0.138	0.049	0.079	0.112	<0.040	0.166	0.056	0.063	0.588	0.067	0.072	0.313	0.051
Cobalt	0.0040	0.0433	0.0385	0.0708	0.0518	0.0469	0.0336	0.044	0.0531	0.0712	0.0371	0.0273	0.0311	0.05	0.0641	0.0565	0.0403
Copper	0.040	0.47	0.564	0.464	0.538	0.521	0.522	0.406	0.598	0.548	0.507	0.493	0.514	0.459	0.514	0.487	0.448
Iron	1.0	8	12.8	12.3	17.3	11.2	11.2	16.7	10.3	16.9	12.3	9.4	12	13.6	11.1	15.4	13.5
Lead	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lithium	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium	0.4	380	504	472	472	432	401	381	388	442	445	437	391	397	379	384	398
Manganese	0.010	8.79	10.3	12	11.2	7.38	8.15	6.96	4.97	9.34	6.45	7.35	4.76	4.53	8.62	7.62	3.62
Mercury	0.0010	0.0637	0.0635	0.0796	0.0682	0.0744	0.0775	0.136	0.0909	0.105	0.0716	0.0824	0.105	0.0785	0.0803	0.114	0.109
Molybdenum	0.0080	0.016	0.0152	0.0145	0.0254	0.017	0.0113	0.0138	0.0084	0.0165	0.0133	0.0126	0.131	0.0118	0.01	0.0179	0.0129
Nickel	0.040	1.88	1.86	3.44	0.821	1.32	0.707	5.23	1.7	11.4	2.93	0.85	2.93	4.41	19.3	6.14	5.2
Phosphorus	2	6710	9820	8720	10000	7120	7820	6900	7710	8150	8040	8590	6830	6640	7530	6810	7060
Potassium	4	3590	4000	3680	3660	3820	3720	3440	3480	4000	3860	3770	3780	3560	3540	3670	3730
Rubidium	0.01	3.96	4.54	4.55	3.34	4.06	3.54	3.54	4.84	5.3	4.78	4.05	3.84	4.28	4.9	4.04	3.2
Selenium	0.020	0.294	0.332	0.355	0.316	0.318	0.343	0.308	0.351	0.342	0.266	0.278	0.272	0.294	0.295	0.343	0.253
Silver	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium	4	854	936	944	908	898	907	858	1030	984	886	871	887	836	966	921	862
Strontium	0.02	14.2	21.6	18.2	23.1	14.4	15.9	14	16.4	18.8	17.4	17.3	13.1	12.7	17.5	13.1	13.5
Tellurium	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium	0.00040	0.0102	0.0117	0.016	0.0113	0.0106	0.01	0.0132	0.00753	0.00903	0.0102	0.0076	0.00986	0.00903	0.00738	0.0126	0.0108
Tin	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.062	<0.020	<0.020	<0.020	0.025	<0.020	<0.020	<0.020	<0.020
Titanium	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	<0.10	<0.10	<0.10
Uranium	0.00040	0.00155	0.00196	0.00241	0.00214	0.00158	0.00169	0.00168	0.00149	0.00173	0.00191	0.00199	0.00134	0.0015	0.00159	0.002	0.00151
Vanadium	0.020	0.033	0.072	0.074	0.083	0.044	0.036	0.059	0.06	0.042	0.036	0.037	0.031	0.031	0.036	0.041	0.053
Zinc	0.2	26.2	31.7	36.7	39	29.4	22.5	32.7	26.6	42.6	27.3	30.3	27.1	28.3	28	34	30.2
Zirconium	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.043	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

mg/kg ww = milligram per kilogram wet weight; - = not analyzed

CERTIFICATE OF ANALYSIS

Work Order : **VA21C2528**
Client : **Golder Associates Ltd.**
Contact : Collin Arens
Address : 16820 107 Ave NW
 Edmonton AB Canada T5P 4C3
Telephone : 780 483 3499
Project : 20412211/2500
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Vancouver Standing Offer
No. of samples received : 94
No. of samples analysed : 16

Page : 1 of 10
Laboratory : Vancouver - Environmental
Account Manager : Amber Springer
Address : 8081 Lougheed Highway
 Burnaby BC Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 06-Oct-2021 13:00
Date Analysis Commenced : 14-Dec-2021
Issue Date : 28-Jan-2022 13:23

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.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Ragini Saini	Lab Assistant	Metals, 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).

<i>Unit</i>	<i>Description</i>
%	percent
mg/kg ww	milligrams per kilogram wet weight

<: less than.

>: greater than.

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

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

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



Analytical Results

Sub-Matrix: Tissue					Client sample ID				
(Matrix: Biota)					PLNB-M-1 COMP	PLNB-M-2 COMP	PLNB-M-3 COMP	PLNB-M-4 COMP	PLNB-F-1 COMP
Client sampling date / time					01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-080	VA21C2528-081	VA21C2528-082	VA21C2528-083	VA21C2528-084
					Result	Result	Result	Result	Result
Physical Tests									
moisture	----	E144-H	2.0	%	69.7	69.8	70.4	71.0	69.0
Metals									
aluminum	7429-90-5	E472A	1.0	mg/kg wwt	1.1	1.7	1.3	2.1	2.0
antimony	7440-36-0	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	0.0025	<0.0020
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt	0.0197	0.0225	0.0246	0.0187	0.0210
barium	7440-39-3	E472A	0.010	mg/kg wwt	3.03	4.66	4.19	4.51	3.09
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
boron	7440-42-8	E472A	0.20	mg/kg wwt	<0.20	<0.20	<0.20	<0.20	<0.20
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt	0.0085	0.0074	0.0080	0.0064	0.0068
calcium	7440-70-2	E472A	4.0	mg/kg wwt	7500	11700	11100	13300	8420
cesium	7440-46-2	E472A	0.0010	mg/kg wwt	0.0117	0.0136	0.0120	0.0087	0.0180
chromium	7440-47-3	E472A	0.040	mg/kg wwt	0.080	0.066	0.045	0.138	0.049
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt	0.0433	0.0385	0.0708	0.0518	0.0469
copper	7440-50-8	E472A	0.040	mg/kg wwt	0.470	0.564	0.464	0.538	0.521
iron	7439-89-6	E472A	1.0	mg/kg wwt	8.0	12.8	12.3	17.3	11.2
lead	7439-92-1	E472A	0.010	mg/kg wwt	<0.010	<0.010	<0.010	<0.010	<0.010
lithium	7439-93-2	E472A	0.10	mg/kg wwt	<0.10	<0.10	<0.10	<0.10	<0.10
magnesium	7439-95-4	E472A	0.40	mg/kg wwt	380	504	472	472	432
manganese	7439-96-5	E472A	0.010	mg/kg wwt	8.79	10.3	12.0	11.2	7.38
mercury	7439-97-6	E511A	0.0010	mg/kg wwt	0.0637	0.0635	0.0796	0.0682	0.0744
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt	0.0160	0.0152	0.0145	0.0254	0.0170
nickel	7440-02-0	E472A	0.040	mg/kg wwt	1.88	1.86	3.44	0.821	1.32
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt	6710	9820	8720	10000	7120
potassium	7440-09-7	E472A	4.0	mg/kg wwt	3590	4000	3680	3660	3820
rubidium	7440-17-7	E472A	0.010	mg/kg wwt	3.96	4.54	4.55	3.34	4.06
selenium	7782-49-2	E472A	0.020	mg/kg wwt	0.294	0.332	0.355	0.316	0.318
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sodium	7440-23-5	E472A	4.0	mg/kg wwt	854	936	944	908	898
strontium	7440-24-6	E472A	0.020	mg/kg wwt	14.2	21.6	18.2	23.1	14.4
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040



Analytical Results

Sub-Matrix: Tissue (Matrix: Biota)					Client sample ID	PLNB-M-1 COMP	PLNB-M-2 COMP	PLNB-M-3 COMP	PLNB-M-4 COMP	PLNB-F-1 COMP
Client sampling date / time						01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-080	VA21C2528-081	VA21C2528-082	VA21C2528-083	VA21C2528-084	
					Result	Result	Result	Result	Result	
Metals										
thallium	7440-28-0	E472A	0.00040	mg/kg wwt	0.0102	0.0117	0.0160	0.0113	0.0106	
tin	7440-31-5	E472A	0.020	mg/kg wwt	<0.020	<0.020	<0.020	<0.020	<0.020	
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt	<0.10	<0.10	<0.10	<0.10	<0.10	
uranium	7440-61-1	E472A	0.00040	mg/kg wwt	0.00155	0.00196	0.00241	0.00214	0.00158	
vanadium	7440-62-2	E472A	0.020	mg/kg wwt	0.033	0.072	0.074	0.083	0.044	
zinc	7440-66-6	E472A	0.20	mg/kg wwt	26.2	31.7	36.7	39.0	29.4	
zirconium	7440-67-7	E472A	0.040	mg/kg wwt	<0.040	<0.040	<0.040	<0.040	<0.040	

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



Analytical Results

Sub-Matrix: Tissue					Client sample ID	PLNB-F-2 COMP	PLNB-F-3 COMP	PLNB-F-4 COMP	PLSB-M-1 COMP	PLSB-M-2 COMP
(Matrix: Biota)										
Client sampling date / time					01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-085	VA21C2528-086	VA21C2528-087	VA21C2528-088	VA21C2528-089	
					Result	Result	Result	Result	Result	
Physical Tests										
moisture	----	E144-H	2.0	%	71.3	71.4	71.4	72.7	71.0	
Metals										
aluminum	7429-90-5	E472A	1.0	mg/kg wwt	1.1	2.3	<1.0	2.1	1.0	
antimony	7440-36-0	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt	0.0162	0.0216	0.0242	0.0257	0.0266	
barium	7440-39-3	E472A	0.010	mg/kg wwt	3.80	2.77	3.26	4.91	4.10	
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
boron	7440-42-8	E472A	0.20	mg/kg wwt	<0.20	<0.20	<0.20	<0.20	<0.20	
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt	0.0065	0.0048	0.0062	0.0116	0.0056	
calcium	7440-70-2	E472A	4.0	mg/kg wwt	9410	8440	9260	9990	9640	
cesium	7440-46-2	E472A	0.0010	mg/kg wwt	0.0094	0.0074	0.0079	0.0202	0.0174	
chromium	7440-47-3	E472A	0.040	mg/kg wwt	0.079	0.112	<0.040	0.166	0.056	
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt	0.0336	0.0440	0.0531	0.0712	0.0371	
copper	7440-50-8	E472A	0.040	mg/kg wwt	0.522	0.406	0.598	0.548	0.507	
iron	7439-89-6	E472A	1.0	mg/kg wwt	11.2	16.7	10.3	16.9	12.3	
lead	7439-92-1	E472A	0.010	mg/kg wwt	<0.010	<0.010	<0.010	<0.010	<0.010	
lithium	7439-93-2	E472A	0.10	mg/kg wwt	<0.10	<0.10	<0.10	<0.10	<0.10	
magnesium	7439-95-4	E472A	0.40	mg/kg wwt	401	381	388	442	445	
manganese	7439-96-5	E472A	0.010	mg/kg wwt	8.15	6.96	4.97	9.34	6.45	
mercury	7439-97-6	E511A	0.0010	mg/kg wwt	0.0775	0.136	0.0909	0.105	0.0716	
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt	0.0113	0.0138	0.0084	0.0165	0.0133	
nickel	7440-02-0	E472A	0.040	mg/kg wwt	0.707	5.23	1.70	11.4	2.93	
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt	7820	6900	7710	8150	8040	
potassium	7440-09-7	E472A	4.0	mg/kg wwt	3720	3440	3480	4000	3860	
rubidium	7440-17-7	E472A	0.010	mg/kg wwt	3.54	3.54	4.84	5.30	4.78	
selenium	7782-49-2	E472A	0.020	mg/kg wwt	0.343	0.308	0.351	0.342	0.266	
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	
sodium	7440-23-5	E472A	4.0	mg/kg wwt	907	858	1030	984	886	
strontium	7440-24-6	E472A	0.020	mg/kg wwt	15.9	14.0	16.4	18.8	17.4	
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
thallium	7440-28-0	E472A	0.00040	mg/kg wwt	0.0100	0.0132	0.00753	0.00903	0.0102	



Analytical Results

Sub-Matrix: Tissue (Matrix: Biota)					Client sample ID	PLNB-F-2 COMP	PLNB-F-3 COMP	PLNB-F-4 COMP	PLSB-M-1 COMP	PLSB-M-2 COMP
Client sampling date / time						01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-085	VA21C2528-086	VA21C2528-087	VA21C2528-088	VA21C2528-089	
					Result	Result	Result	Result	Result	
Metals										
tin	7440-31-5	E472A	0.020	mg/kg wwt	<0.020	<0.020	0.062	<0.020	<0.020	
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt	<0.10	<0.10	<0.10	<0.10	<0.10	
uranium	7440-61-1	E472A	0.00040	mg/kg wwt	0.00169	0.00168	0.00149	0.00173	0.00191	
vanadium	7440-62-2	E472A	0.020	mg/kg wwt	0.036	0.059	0.060	0.042	0.036	
zinc	7440-66-6	E472A	0.20	mg/kg wwt	22.5	32.7	26.6	42.6	27.3	
zirconium	7440-67-7	E472A	0.040	mg/kg wwt	<0.040	<0.040	<0.040	0.043	<0.040	

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



Analytical Results

Sub-Matrix: Tissue (Matrix: Biota)					Client sample ID	PLSB-M-3 COMP	PLSB-M-4 COMP	PLSB-F-1 COMP	PLSB-F-2 COMP	PLSB-F-3 COMP
Client sampling date / time					01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-090	VA21C2528-091	VA21C2528-092	VA21C2528-093	VA21C2528-094	
					Result	Result	Result	Result	Result	
Physical Tests										
moisture	----	E144-H	2.0	%	69.5	78.2	68.8	69.0	71.3	
Metals										
aluminum	7429-90-5	E472A	1.0	mg/kg wwt	1.3	<1.0	2.4	1.1	2.1	
antimony	7440-36-0	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt	0.0229	0.0245	0.0225	0.0276	0.0232	
barium	7440-39-3	E472A	0.010	mg/kg wwt	4.56	4.17	3.05	7.52	3.77	
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
boron	7440-42-8	E472A	0.20	mg/kg wwt	<0.20	<0.20	<0.20	<0.20	<0.20	
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt	0.0067	0.0053	0.0121	0.0075	0.0111	
calcium	7440-70-2	E472A	4.0	mg/kg wwt	10600	7700	7150	8970	7940	
cesium	7440-46-2	E472A	0.0010	mg/kg wwt	0.0198	0.0129	0.0255	0.0143	0.0159	
chromium	7440-47-3	E472A	0.040	mg/kg wwt	0.063	0.588	0.067	0.072	0.313	
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt	0.0273	0.0311	0.0500	0.0641	0.0565	
copper	7440-50-8	E472A	0.040	mg/kg wwt	0.493	0.514	0.459	0.514	0.487	
iron	7439-89-6	E472A	1.0	mg/kg wwt	9.4	12.0	13.6	11.1	15.4	
lead	7439-92-1	E472A	0.010	mg/kg wwt	<0.010	<0.010	<0.010	<0.010	<0.010	
lithium	7439-93-2	E472A	0.10	mg/kg wwt	<0.10	<0.10	<0.10	<0.10	<0.10	
magnesium	7439-95-4	E472A	0.40	mg/kg wwt	437	391	397	379	384	
manganese	7439-96-5	E472A	0.010	mg/kg wwt	7.35	4.76	4.53	8.62	7.62	
mercury	7439-97-6	E511A	0.0010	mg/kg wwt	0.0824	0.105	0.0785	0.0803	0.114	
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt	0.0126	0.131	0.0118	0.0100	0.0179	
nickel	7440-02-0	E472A	0.040	mg/kg wwt	0.850	2.93	4.41	19.3	6.14	
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt	8590	6830	6640	7530	6810	
potassium	7440-09-7	E472A	4.0	mg/kg wwt	3770	3780	3560	3540	3670	
rubidium	7440-17-7	E472A	0.010	mg/kg wwt	4.05	3.84	4.28	4.90	4.04	
selenium	7782-49-2	E472A	0.020	mg/kg wwt	0.278	0.272	0.294	0.295	0.343	
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
sodium	7440-23-5	E472A	4.0	mg/kg wwt	871	887	836	966	921	
strontium	7440-24-6	E472A	0.020	mg/kg wwt	17.3	13.1	12.7	17.5	13.1	
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	
thallium	7440-28-0	E472A	0.00040	mg/kg wwt	0.00760	0.00986	0.00903	0.00738	0.0126	



Analytical Results

Sub-Matrix: Tissue (Matrix: Biota)					Client sample ID	PLSB-M-3 COMP	PLSB-M-4 COMP	PLSB-F-1 COMP	PLSB-F-2 COMP	PLSB-F-3 COMP
Client sampling date / time						01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021	01-Aug-2021
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-090	VA21C2528-091	VA21C2528-092	VA21C2528-093	VA21C2528-094	
					Result	Result	Result	Result	Result	
Metals										
tin	7440-31-5	E472A	0.020	mg/kg wwt	<0.020	0.025	<0.020	<0.020	<0.020	<0.020
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt	<0.10	<0.10	0.15	<0.10	<0.10	<0.10
uranium	7440-61-1	E472A	0.00040	mg/kg wwt	0.00199	0.00134	0.00150	0.00159	0.00200	
vanadium	7440-62-2	E472A	0.020	mg/kg wwt	0.037	0.031	0.031	0.036	0.041	
zinc	7440-66-6	E472A	0.20	mg/kg wwt	30.3	27.1	28.3	28.0	34.0	
zirconium	7440-67-7	E472A	0.040	mg/kg wwt	<0.040	<0.040	<0.040	<0.040	<0.040	

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



Analytical Results

Sub-Matrix: Tissue					Client sample ID	PLSB-F-4 COMP	----	----	----	----
(Matrix: Biota)										
					Client sampling date / time	01-Aug-2021	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-095	-----	-----	-----	-----	-----
					Result	----	----	----	----	----
Physical Tests										
moisture	----	E144-H	2.0	%	68.0	----	----	----	----	----
Metals										
aluminum	7429-90-5	E472A	1.0	mg/kg wwt	<1.0	----	----	----	----	----
antimony	7440-36-0	E472A	0.0020	mg/kg wwt	<0.0020	----	----	----	----	----
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt	0.0195	----	----	----	----	----
barium	7440-39-3	E472A	0.010	mg/kg wwt	3.08	----	----	----	----	----
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt	<0.0020	----	----	----	----	----
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt	<0.0020	----	----	----	----	----
boron	7440-42-8	E472A	0.20	mg/kg wwt	<0.20	----	----	----	----	----
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt	0.0043	----	----	----	----	----
calcium	7440-70-2	E472A	4.0	mg/kg wwt	8330	----	----	----	----	----
cesium	7440-46-2	E472A	0.0010	mg/kg wwt	0.0167	----	----	----	----	----
chromium	7440-47-3	E472A	0.040	mg/kg wwt	0.051	----	----	----	----	----
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt	0.0403	----	----	----	----	----
copper	7440-50-8	E472A	0.040	mg/kg wwt	0.448	----	----	----	----	----
iron	7439-89-6	E472A	1.0	mg/kg wwt	13.5	----	----	----	----	----
lead	7439-92-1	E472A	0.010	mg/kg wwt	<0.010	----	----	----	----	----
lithium	7439-93-2	E472A	0.10	mg/kg wwt	<0.10	----	----	----	----	----
magnesium	7439-95-4	E472A	0.40	mg/kg wwt	398	----	----	----	----	----
manganese	7439-96-5	E472A	0.010	mg/kg wwt	3.62	----	----	----	----	----
mercury	7439-97-6	E511A	0.0010	mg/kg wwt	0.109	----	----	----	----	----
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt	0.0129	----	----	----	----	----
nickel	7440-02-0	E472A	0.040	mg/kg wwt	5.20	----	----	----	----	----
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt	7060	----	----	----	----	----
potassium	7440-09-7	E472A	4.0	mg/kg wwt	3730	----	----	----	----	----
rubidium	7440-17-7	E472A	0.010	mg/kg wwt	3.20	----	----	----	----	----
selenium	7782-49-2	E472A	0.020	mg/kg wwt	0.253	----	----	----	----	----
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt	<0.0010	----	----	----	----	----
sodium	7440-23-5	E472A	4.0	mg/kg wwt	862	----	----	----	----	----
strontium	7440-24-6	E472A	0.020	mg/kg wwt	13.5	----	----	----	----	----
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt	<0.0040	----	----	----	----	----
thallium	7440-28-0	E472A	0.00040	mg/kg wwt	0.0108	----	----	----	----	----



Analytical Results

Sub-Matrix: Tissue					Client sample ID	PLSB-F-4 COMP	---	---	---	---
(Matrix: Biota)										
					Client sampling date / time	01-Aug-2021	---	---	---	---
Analyte	CAS Number	Method	LOR	Unit	VA21C2528-095	-----	-----	-----	-----	-----
					Result	---	---	---	---	---
Metals										
tin	7440-31-5	E472A	0.020	mg/kg ww	<0.020	---	---	---	---	---
titanium	7440-32-6	E472A.Ti	0.10	mg/kg ww	<0.10	---	---	---	---	---
uranium	7440-61-1	E472A	0.00040	mg/kg ww	0.00151	---	---	---	---	---
vanadium	7440-62-2	E472A	0.020	mg/kg ww	0.053	---	---	---	---	---
zinc	7440-66-6	E472A	0.20	mg/kg ww	30.2	---	---	---	---	---
zirconium	7440-67-7	E472A	0.040	mg/kg ww	<0.040	---	---	---	---	---

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: VA21C2528	Page	: 1 of 14
Client	: Golder Associates Ltd.	Laboratory	: Vancouver - Environmental
Contact	: Collin Arens	Account Manager	: Amber Springer
Address	: 16820 107 Ave NW Edmonton AB Canada T5P 4C3	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 780 483 3499	Telephone	: +1 604 253 4188
Project	: 20412211/2500	Date Samples Received	: 06-Oct-2021 13:00
PO	: ----	Issue Date	: 28-Jan-2022 13:23
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 94		
No. of samples analysed	: 16		

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

- Reference Material (RM) Sample outliers occur - please see the following pages for full details.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

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



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Biota

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG4-3673830 02	----	molybdenum	7439-98-7	E472A	121 % MES	80.0-120%	Recovery greater than upper control limit
Metals	QC-MRG4-3673830 02	----	zirconium	7440-67-7	E472A	121 % MES	80.0-120%	Recovery greater than upper 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).

Reference Material (RM) Sample								
Metals	QC-MRG4-3673830 03	----	lead	7439-92-1	E472A	135 % RM-H	70.0-130%	Recovery greater than upper control limit

Result Qualifiers

Qualifier	Description
RM-H	Reference Material recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.



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: **Biota**

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

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-F-1 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-F-2 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-F-3 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-F-4 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-M-1 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-M-2 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-M-3 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓



Matrix: **Biota**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLNB-M-4 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-F-1 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-F-2 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-F-3 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-F-4 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-M-1 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-M-2 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-M-3 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag PLSB-M-4 COMP	E511A	01-Aug-2021	20-Dec-2021	----	----		12-Jan-2022	365 days	165 days	✓



Matrix: Biota

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-1 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-2 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-3 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-4 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-1 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-2 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-3 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-4 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-1 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓



Matrix: **Biota** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-2 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-3 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-4 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-1 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-3 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-4 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-2 COMP	E472A	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	180 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-1 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-2 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓



Matrix: Biota Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-3 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-F-4 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-1 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-2 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-3 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLNB-M-4 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-1 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-2 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-F-3 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓



Matrix: **Biota** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-F-4 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-M-1 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-M-2 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-M-3 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-M-4 COMP	E472A.Ag	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-F-1 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-F-2 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-F-3 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-F-4 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	



Matrix: **Biota** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-M-1 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-M-2 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-M-3 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLNB-M-4 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-F-1 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-F-2 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-F-3 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-F-4 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)											
LDPE bag PLSB-M-1 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓	



Matrix: Biota

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-2 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-3 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag PLSB-M-4 COMP	E472A.Ti	01-Aug-2021	20-Dec-2021	----	----		20-Dec-2021	730 days	142 days	✓
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-F-1 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-F-2 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-F-3 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-F-4 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-M-1 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-M-2 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	



Matrix: Biota

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-M-3 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLNB-M-4 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-F-1 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-F-2 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-F-3 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-F-4 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-M-1 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-M-2 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-M-3 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	

Page : 12 of 14
 Work Order : VA21C2528
 Client : Golder Associates Ltd.
 Project : 20412211/2500



Matrix: **Biota** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag PLSB-M-4 COMP	E144-H	01-Aug-2021	----	----	----		14-Dec-2021	----	----	

Legend & Qualifier Definitions

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



Quality Control Parameter Frequency Compliance

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

Matrix: **Biota**

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)							
Mercury in Biota by CVAAS (WET units, Micro)	E511A	367385	1	16	6.2	5.0	✔
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A	367386	2	16	12.5	5.0	✔
Moisture Content by Gravimetry (Micro)	E144-H	367381	1	16	6.2	5.0	✔
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag	367383	1	16	6.2	5.0	✔
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti	367384	1	16	6.2	5.0	✔
Laboratory Control Samples (LCS)							
Mercury in Biota by CVAAS (WET units, Micro)	E511A	367385	2	16	12.5	10.0	✔
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A	367386	3	16	18.7	10.0	✔
Moisture Content by Gravimetry (Micro)	E144-H	367381	1	16	6.2	5.0	✔
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag	367383	2	16	12.5	10.0	✔
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti	367384	1	16	6.2	10.0	✖
Method Blanks (MB)							
Mercury in Biota by CVAAS (WET units, Micro)	E511A	367385	1	16	6.2	5.0	✔
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A	367386	1	16	6.2	5.0	✔
Moisture Content by Gravimetry (Micro)	E144-H	367381	1	16	6.2	5.0	✔
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag	367383	1	16	6.2	5.0	✔
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti	367384	1	16	6.2	5.0	✔



Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry (Micro)	E144-H Vancouver - Environmental	Biota	Puget Sound Water Quality Authority/BC MOE Lab Manual	Moisture is measured gravimetrically by drying the sample at <60°C for a minimum of 3 days to constant weight. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of soil, expressed as a percentage.
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	<p>Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO₃, HCl, and H₂O₂. Analysis is by Collision/Reaction Cell ICPMS.</p> <p>Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.</p>
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	<p>Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO₃, HCl, and H₂O₂. Analysis is by Collision/Reaction Cell ICPMS.</p> <p>Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.</p>
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	<p>Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO₃, HCl, and H₂O₂. Analysis is by High Resolution ICPMS.</p> <p>Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.</p>
Mercury in Biota by CVAAS (WET units, Micro)	E511A Vancouver - Environmental	Biota	EPA 200.3/1631E (mod)	Samples are homogenized and sub-sampled prior to hotblock digestion with nitric acid, hydrochloric acid, and hydrogen peroxide. Analysis is by CVAAS.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals and Mercury Biota Digestion (Micro)	EP472 Vancouver - Environmental	Biota	EPA 200.3	This method, designed for small sample amounts, uses a heated strong acid digestion with HNO ₃ , HCl, and H ₂ O ₂ and is intended to provide a conservative estimate of bio-available metals.



Environmental

QUALITY CONTROL REPORT

Work Order : **VA21C2528**

Page : 1 of 10

Client : Golder Associates Ltd.
Contact : Collin Arens
Address : 16820 107 Ave NW
Edmonton AB Canada T5P 4C3
Telephone : 780 483 3499
Project : 20412211/2500
PO : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : Vancouver Standing Offer
No. of samples received : 94
No. of samples analysed : 16

Laboratory : Vancouver - Environmental
Account Manager : Amber Springer
Address : 8081 Lougheed Highway
Burnaby, British Columbia Canada V5A 1W9
Telephone : +1 604 253 4188
Date Samples Received : 06-Oct-2021 13:00
Date Analysis Commenced : 14-Dec-2021
Issue Date : 28-Jan-2022 13:23

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.

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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: Biota					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: 367381)											
VA21C2528-090	PLSB-M-3 COMP	moisture	----	E144-H	2.0	%	69.5	69.0	0.849%	20%	----
Metals (QC Lot: 367383)											
VA21C2528-090	PLSB-M-3 COMP	silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt	<0.0010	<0.0010	0	Diff <2x LOR	----
Metals (QC Lot: 367384)											
VA21C2528-090	PLSB-M-3 COMP	titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt	<0.10	<0.10	0	Diff <2x LOR	----
Metals (QC Lot: 367385)											
VA21C2528-090	PLSB-M-3 COMP	mercury	7439-97-6	E511A	0.0010	mg/kg wwt	0.0824	0.0733	11.7%	40%	----
Metals (QC Lot: 367386)											
VA21C2528-090	PLSB-M-3 COMP	nickel	7440-02-0	E472A	0.040	mg/kg wwt	0.850	1.02	18.0%	40%	----
VA21C2528-090	PLSB-M-3 COMP	aluminum	7429-90-5	E472A	1.0	mg/kg wwt	1.3	1.3	0.03	Diff <2x LOR	----
		antimony	7440-36-0	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		arsenic	7440-38-2	E472A	0.0060	mg/kg wwt	0.0229	0.0212	0.0017	Diff <2x LOR	----
		barium	7440-39-3	E472A	0.010	mg/kg wwt	4.56	4.14	9.46%	40%	----
		beryllium	7440-41-7	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		bismuth	7440-69-9	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		boron	7440-42-8	E472A	0.20	mg/kg wwt	<0.20	<0.20	0	Diff <2x LOR	----
		cadmium	7440-43-9	E472A	0.0020	mg/kg wwt	0.0067	0.0073	0.0006	Diff <2x LOR	----
		calcium	7440-70-2	E472A	4.0	mg/kg wwt	10600	9430	11.7%	60%	----
		cesium	7440-46-2	E472A	0.0010	mg/kg wwt	0.0198	0.0205	3.40%	40%	----
		chromium	7440-47-3	E472A	0.040	mg/kg wwt	0.063	0.055	0.008	Diff <2x LOR	----
		cobalt	7440-48-4	E472A	0.0040	mg/kg wwt	0.0273	0.0275	0.730%	40%	----
		copper	7440-50-8	E472A	0.040	mg/kg wwt	0.493	0.471	4.64%	40%	----
		iron	7439-89-6	E472A	1.0	mg/kg wwt	9.4	9.0	4.77%	40%	----
		lead	7439-92-1	E472A	0.010	mg/kg wwt	<0.010	<0.010	0	Diff <2x LOR	----
		lithium	7439-93-2	E472A	0.10	mg/kg wwt	<0.10	<0.10	0	Diff <2x LOR	----
		magnesium	7439-95-4	E472A	0.40	mg/kg wwt	437	423	3.18%	40%	----
		manganese	7439-96-5	E472A	0.010	mg/kg wwt	7.35	5.98	20.5%	40%	----
		molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt	0.0126	0.0128	0.0003	Diff <2x LOR	----
		phosphorus	7723-14-0	E472A	2.0	mg/kg wwt	8590	7960	7.55%	40%	----
		potassium	7440-09-7	E472A	4.0	mg/kg wwt	3770	3800	0.727%	40%	----
		rubidium	7440-17-7	E472A	0.010	mg/kg wwt	4.05	4.12	1.68%	40%	----



Sub-Matrix: Biota					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
Metals (QC Lot: 367386) - continued											
VA21C2528-090	PLSB-M-3 COMP	selenium	7782-49-2	E472A	0.020	mg/kg ww	0.278	0.291	4.34%	40%	----
		sodium	7440-23-5	E472A	4.0	mg/kg ww	871	870	0.0938%	40%	----
		strontium	7440-24-6	E472A	0.020	mg/kg ww	17.3	15.7	9.88%	60%	----
		tellurium	13494-80-9	E472A	0.0040	mg/kg ww	<0.0040	<0.0040	0	Diff <2x LOR	----
		thallium	7440-28-0	E472A	0.00040	mg/kg ww	0.00760	0.00704	7.61%	40%	----
		tin	7440-31-5	E472A	0.020	mg/kg ww	<0.020	<0.020	0	Diff <2x LOR	----
		uranium	7440-61-1	E472A	0.00040	mg/kg ww	0.00199	0.00172	0.00027	Diff <2x LOR	----
		vanadium	7440-62-2	E472A	0.020	mg/kg ww	0.037	0.037	0.0003	Diff <2x LOR	----
		zinc	7440-66-6	E472A	0.20	mg/kg ww	30.3	29.7	1.93%	40%	----
		zirconium	7440-67-7	E472A	0.040	mg/kg ww	<0.040	<0.040	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: Biota

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 367381)						
moisture	----	E144-H	2	%	<2.0	----
Metals (QCLot: 367383)						
silver	7440-22-4	E472A.Ag	0.001	mg/kg ww	<0.0010	----
Metals (QCLot: 367384)						
titanium	7440-32-6	E472A.Ti	0.1	mg/kg ww	<0.10	----
Metals (QCLot: 367385)						
mercury	7439-97-6	E511A	0.001	mg/kg ww	<0.0010	----
Metals (QCLot: 367386)						
aluminum	7429-90-5	E472A	1	mg/kg ww	<1.0	----
antimony	7440-36-0	E472A	0.002	mg/kg ww	<0.0020	----
arsenic	7440-38-2	E472A	0.006	mg/kg ww	<0.0060	----
barium	7440-39-3	E472A	0.01	mg/kg ww	<0.010	----
beryllium	7440-41-7	E472A	0.002	mg/kg ww	<0.0020	----
bismuth	7440-69-9	E472A	0.002	mg/kg ww	<0.0020	----
boron	7440-42-8	E472A	0.2	mg/kg ww	<0.20	----
cadmium	7440-43-9	E472A	0.002	mg/kg ww	<0.0020	----
calcium	7440-70-2	E472A	4	mg/kg ww	<4.0	----
cesium	7440-46-2	E472A	0.001	mg/kg ww	<0.0010	----
chromium	7440-47-3	E472A	0.04	mg/kg ww	<0.040	----
cobalt	7440-48-4	E472A	0.004	mg/kg ww	<0.0040	----
copper	7440-50-8	E472A	0.04	mg/kg ww	<0.040	----
iron	7439-89-6	E472A	1	mg/kg ww	<1.0	----
lead	7439-92-1	E472A	0.01	mg/kg ww	<0.010	----
lithium	7439-93-2	E472A	0.1	mg/kg ww	<0.10	----
magnesium	7439-95-4	E472A	0.4	mg/kg ww	<0.40	----
manganese	7439-96-5	E472A	0.01	mg/kg ww	<0.010	----
molybdenum	7439-98-7	E472A	0.008	mg/kg ww	<0.0080	----
nickel	7440-02-0	E472A	0.04	mg/kg ww	<0.040	----
phosphorus	7723-14-0	E472A	2	mg/kg ww	<2.0	----
potassium	7440-09-7	E472A	4	mg/kg ww	<4.0	----
rubidium	7440-17-7	E472A	0.01	mg/kg ww	<0.010	----
selenium	7782-49-2	E472A	0.02	mg/kg ww	<0.020	----
sodium	7440-23-5	E472A	4	mg/kg ww	<4.0	----



Sub-Matrix: Biota

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 367386) - continued						
strontium	7440-24-6	E472A	0.02	mg/kg ww	<0.020	----
tellurium	13494-80-9	E472A	0.004	mg/kg ww	<0.0040	----
thallium	7440-28-0	E472A	0.0004	mg/kg ww	<0.00040	----
tin	7440-31-5	E472A	0.02	mg/kg ww	<0.020	----
uranium	7440-61-1	E472A	0.0004	mg/kg ww	<0.00040	----
vanadium	7440-62-2	E472A	0.02	mg/kg ww	<0.020	----
zinc	7440-66-6	E472A	0.2	mg/kg ww	<0.20	----
zirconium	7440-67-7	E472A	0.04	mg/kg ww	<0.040	----



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: Biota					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 367381)									
moisture	----	E144-H	2	%	100 %	100	90.0	110	----
Metals (QCLot: 367383)									
silver	7440-22-4	E472A.Ag	0.001	mg/kg ww	1 mg/kg ww	108	80.0	120	----
Metals (QCLot: 367384)									
titanium	7440-32-6	E472A.Ti	0.1	mg/kg ww	2.5 mg/kg ww	109	80.0	120	----
Metals (QCLot: 367385)									
mercury	7439-97-6	E511A	0.001	mg/kg ww	0.02 mg/kg ww	111	80.0	120	----
Metals (QCLot: 367386)									
aluminum	7429-90-5	E472A	1	mg/kg ww	20 mg/kg ww	114	80.0	120	----
antimony	7440-36-0	E472A	0.002	mg/kg ww	10 mg/kg ww	116	80.0	120	----
arsenic	7440-38-2	E472A	0.006	mg/kg ww	10 mg/kg ww	112	80.0	120	----
barium	7440-39-3	E472A	0.01	mg/kg ww	2.5 mg/kg ww	116	80.0	120	----
beryllium	7440-41-7	E472A	0.002	mg/kg ww	1 mg/kg ww	111	80.0	120	----
bismuth	7440-69-9	E472A	0.002	mg/kg ww	10 mg/kg ww	110	80.0	120	----
boron	7440-42-8	E472A	0.2	mg/kg ww	10 mg/kg ww	111	80.0	120	----
cadmium	7440-43-9	E472A	0.002	mg/kg ww	1 mg/kg ww	112	80.0	120	----
calcium	7440-70-2	E472A	4	mg/kg ww	500 mg/kg ww	111	80.0	120	----
cesium	7440-46-2	E472A	0.001	mg/kg ww	0.5 mg/kg ww	116	80.0	120	----
chromium	7440-47-3	E472A	0.04	mg/kg ww	2.5 mg/kg ww	111	80.0	120	----
cobalt	7440-48-4	E472A	0.004	mg/kg ww	2.5 mg/kg ww	110	80.0	120	----
copper	7440-50-8	E472A	0.04	mg/kg ww	2.5 mg/kg ww	107	80.0	120	----
iron	7439-89-6	E472A	1	mg/kg ww	10 mg/kg ww	110	80.0	120	----
lead	7439-92-1	E472A	0.01	mg/kg ww	5 mg/kg ww	114	80.0	120	----
lithium	7439-93-2	E472A	0.1	mg/kg ww	2.5 mg/kg ww	114	80.0	120	----
magnesium	7439-95-4	E472A	0.4	mg/kg ww	500 mg/kg ww	110	80.0	120	----
manganese	7439-96-5	E472A	0.01	mg/kg ww	2.5 mg/kg ww	111	80.0	120	----
molybdenum	7439-98-7	E472A	0.008	mg/kg ww	2.5 mg/kg ww	# 121	80.0	120	MES
nickel	7440-02-0	E472A	0.04	mg/kg ww	5 mg/kg ww	107	80.0	120	----
phosphorus	7723-14-0	E472A	2	mg/kg ww	100 mg/kg ww	120	80.0	120	----
potassium	7440-09-7	E472A	4	mg/kg ww	500 mg/kg ww	115	80.0	120	----
rubidium	7440-17-7	E472A	0.01	mg/kg ww	1 mg/kg ww	114	80.0	120	----
selenium	7782-49-2	E472A	0.02	mg/kg ww	10 mg/kg ww	107	80.0	120	----
sodium	7440-23-5	E472A	4	mg/kg ww	500 mg/kg ww	112	80.0	120	----



Sub-Matrix: Biota

Sub-Matrix: Biota					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 367386) - continued									
strontium	7440-24-6	E472A	0.02	mg/kg wwt	2.5 mg/kg wwt	118	80.0	120	----
tellurium	13494-80-9	E472A	0.004	mg/kg wwt	1 mg/kg wwt	112	80.0	120	----
thallium	7440-28-0	E472A	0.0004	mg/kg wwt	10 mg/kg wwt	111	80.0	120	----
tin	7440-31-5	E472A	0.02	mg/kg wwt	5 mg/kg wwt	114	80.0	120	----
uranium	7440-61-1	E472A	0.0004	mg/kg wwt	0.05 mg/kg wwt	116	80.0	120	----
vanadium	7440-62-2	E472A	0.02	mg/kg wwt	5 mg/kg wwt	114	80.0	120	----
zinc	7440-66-6	E472A	0.2	mg/kg wwt	5 mg/kg wwt	105	80.0	120	----
zirconium	7440-67-7	E472A	0.04	mg/kg wwt	1 mg/kg wwt	# 121	80.0	120	MES

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).



Reference Material (RM) Report

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

Sub-Matrix: Biota

Sub-Matrix: Biota					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method			Low	High	
Metals (QCLot: 367383)									
QC-367383-003	RM	silver	7440-22-4	E472A.Ag	2.05 mg/kg wwt	97.5	70.0	130	----
Metals (QCLot: 367385)									
QC-367385-003	RM	mercury	7439-97-6	E511A	0.331 mg/kg wwt	110	70.0	130	----
Metals (QCLot: 367386)									
QC-367386-003	RM	aluminum	7429-90-5	E472A	11.2 mg/kg wwt	97.9	70.0	130	----
QC-367386-003	RM	arsenic	7440-38-2	E472A	34.6 mg/kg wwt	102	70.0	130	----
QC-367386-003	RM	bismuth	7440-69-9	E472A	0.0247 mg/kg wwt	112	60.0	140	----
QC-367386-003	RM	cadmium	7440-43-9	E472A	14.5 mg/kg wwt	99.5	70.0	130	----
QC-367386-003	RM	calcium	7440-70-2	E472A	550 mg/kg wwt	100	70.0	130	----
QC-367386-003	RM	cesium	7440-46-2	E472A	0.0712 mg/kg wwt	101	70.0	130	----
QC-367386-003	RM	chromium	7440-47-3	E472A	1.96 mg/kg wwt	120	70.0	130	----
QC-367386-003	RM	cobalt	7440-48-4	E472A	0.267 mg/kg wwt	97.7	70.0	130	----
QC-367386-003	RM	copper	7440-50-8	E472A	35 mg/kg wwt	103	70.0	130	----
QC-367386-003	RM	iron	7439-89-6	E472A	1070 mg/kg wwt	101	70.0	130	----
QC-367386-003	RM	lead	7439-92-1	E472A	0.162 mg/kg wwt	# 135	70.0	130	RM-H
QC-367386-003	RM	magnesium	7439-95-4	E472A	940 mg/kg wwt	101	70.0	130	----
QC-367386-003	RM	manganese	7439-96-5	E472A	8.91 mg/kg wwt	102	70.0	130	----
QC-367386-003	RM	molybdenum	7439-98-7	E472A	1.41 mg/kg wwt	102	70.0	130	----
QC-367386-003	RM	nickel	7440-02-0	E472A	1.57 mg/kg wwt	84.4	70.0	130	----
QC-367386-003	RM	phosphorus	7723-14-0	E472A	11500 mg/kg wwt	109	70.0	130	----
QC-367386-003	RM	potassium	7440-09-7	E472A	14400 mg/kg wwt	109	70.0	130	----
QC-367386-003	RM	rubidium	7440-17-7	E472A	5.11 mg/kg wwt	101	70.0	130	----
QC-367386-003	RM	selenium	7782-49-2	E472A	8 mg/kg wwt	105	70.0	130	----
QC-367386-003	RM	sodium	7440-23-5	E472A	10673 mg/kg wwt	103	70.0	130	----
QC-367386-003	RM	strontium	7440-24-6	E472A	3.92 mg/kg wwt	103	70.0	130	----
QC-367386-003	RM	thallium	7440-28-0	E472A	0.013 mg/kg wwt	94.5	70.0	130	----
QC-367386-003	RM	uranium	7440-61-1	E472A	0.0786 mg/kg wwt	105	70.0	130	----



Sub-Matrix: Biota

Sub-Matrix: Biota					Reference Material (RM) Report				
					RM Target Concentration	Recovery (%) RM	Recovery Limits (%)		Qualifier
							Low	High	
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method					
Metals (QCLot: 367386) - continued									
QC-367386-003	RM	vanadium	7440-62-2	E472A	0.51 mg/kg wwt	101	70.0	130	----
QC-367386-003	RM	zinc	7440-66-6	E472A	105.3 mg/kg wwt	101	70.0	130	----

Qualifiers

Qualifier	Description
RM-H	Reference Material recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.



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2528



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