CERTIFICATE OF ANALYSIS

Work Order	: **VA23B6588**	Page	: 1 of 4
Client	: **Squamish-Lillooet Reg. District**	Laboratory	: ALS Environmental - Vancouver
Contact	: Edward Witwicki	Account Manager	: Thomas Chang
Address	: Box 219 - 1350 Aster Street Pemberton BC Canada V0N 2L0	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 604 894 6371	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 20-Jul-2023 11:00
PO	: ----	Date Analysis Commenced	: 20-Jul-2023
C-O-C number	: 20-1038951	Issue Date	: 26-Jul-2023 11:20
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Kate Dimitrova	Analsyt	Inorganics, 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).

Unit	*Description*
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
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.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Devine #1	Devine #2	Devine #3	----	----
					Client sampling date / time	18-Jul-2023 09:30	18-Jul-2023 09:32	18-Jul-2023 09:35	----	----
						VA23B6588-001	VA23B6588-002	VA23B6588-003	--------	--------
						Result	Result	Result	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		31.7	----	----	----	----
Colour, true	----	E329/VA	5.0	CU		<5.0	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		68.3	----	----	----	----
pH	----	E108/VA	0.10	pH units		7.44	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		42	----	----	----	----
Turbidity	----	E121/VA	0.10	NTU		23.8	----	----	----	----
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		<0.50	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.020	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0909	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		3.00	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		----	2.27	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		----	0.00014	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		----	0.00394	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		----	0.0431	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L		----	0.000032	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		----	0.000094	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		----	<0.010	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		----	0.0000314	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		----	7.71	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		----	0.000273	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		----	0.0106	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		----	0.00261	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		----	0.0166	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		----	4.35	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Devine #1	Devine #2	Devine #3	----	----
					Client sampling date / time	18-Jul-2023 09:30	18-Jul-2023 09:32	18-Jul-2023 09:35	----	----
						VA23B6588-001	VA23B6588-002	VA23B6588-003	--------	--------
						Result	Result	Result	----	----
Total Metals										
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		----	0.00357	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		----	0.0025	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		----	5.21	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		----	0.100	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		----	----	0.0000223	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		----	0.00122	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		----	0.0129	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		----	0.098	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		----	1.61	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		----	0.00234	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		----	0.000146	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		----	6.65	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		----	0.000025	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		----	1.16	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		----	0.0678	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		----	0.84	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		----	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		----	0.000021	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		----	0.00016	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		----	0.00021	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		----	0.138	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		----	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		----	0.000234	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		----	0.00725	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		----	0.0306	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		----	0.00030	----	----	----

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

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

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B6588**	Page	: 1 of 8
Client	: **Squamish-Lillooet Reg. District**	Laboratory	: ALS Environmental - Vancouver
Contact	: Edward Witwicki	Account Manager	: Thomas Chang
Address	: Box 219 - 1350 Aster Street Pemberton BC Canada V0N 2L0	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 604 894 6371	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 20-Jul-2023 11:00
PO	: ----	Issue Date	: 26-Jul-2023 11:20
C-O-C number	: 20-1038951		
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
Devine #1	E235.Br-L	18-Jul-2023	21-Jul-2023	28 days	3 days	✓	21-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Devine #1	E235.Cl	18-Jul-2023	21-Jul-2023	28 days	3 days	✓	21-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Devine #1	E235.F	18-Jul-2023	21-Jul-2023	28 days	3 days	✓	21-Jul-2023	25 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Devine #1	E235.NO3-L	18-Jul-2023	21-Jul-2023	3 days	3 days	✓	21-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Devine #1	E235.NO2-L	18-Jul-2023	21-Jul-2023	3 days	3 days	✓	21-Jul-2023	0 days	0 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Devine #1	E235.SO4	18-Jul-2023	21-Jul-2023	28 days	3 days	✓	21-Jul-2023	25 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Devine #1	E290	18-Jul-2023	21-Jul-2023	14 days	3 days	✓	21-Jul-2023	11 days	0 days	✓

Matrix: **Water**

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

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE Devine #1	E329	18-Jul-2023	21-Jul-2023	3 days	3 days	✓	21-Jul-2023	0 days	0 days	✓
Physical Tests : Conductivity in Water										
HDPE Devine #1	E100	18-Jul-2023	21-Jul-2023	28 days	3 days	✓	21-Jul-2023	25 days	0 days	✓
Physical Tests : pH by Meter										
HDPE Devine #1	E108	18-Jul-2023	21-Jul-2023	1.05 hrs	0.25 hrs	× EHTR-FM	21-Jul-2023	-68.29 hrs	1.05 hrs	× UCP
Physical Tests : TDS by Gravimetry										
HDPE Devine #1	E162	18-Jul-2023	----	----	----		25-Jul-2023	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE Devine #1	E121	18-Jul-2023	----	----	----		20-Jul-2023	3 days	2 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Devine #3	E508	18-Jul-2023	22-Jul-2023	28 days	4 days	✓	22-Jul-2023	24 days	0 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Devine #2	E420	18-Jul-2023	22-Jul-2023	180 days	4 days	✓	23-Jul-2023	176 days	1 days	✓

Legend & Qualifier Definitions

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

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1049212	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1049209	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1049207	1	18	5.5	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1049214	1	13	7.6	5.0	✓
Conductivity in Water	E100	1049211	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1049204	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1049205	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1049206	1	20	5.0	5.0	✓
pH by Meter	E108	1049210	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1049208	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1053970	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1051245	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1048329	1	19	5.2	5.0	✓
Turbidity by Nephelometry	E121	1048985	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1049212	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1049209	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1049207	1	18	5.5	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1049214	1	13	7.6	5.0	✓
Conductivity in Water	E100	1049211	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1049204	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1049205	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1049206	1	20	5.0	5.0	✓
pH by Meter	E108	1049210	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1049208	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1053970	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1051245	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1048329	1	19	5.2	5.0	✓
Turbidity by Nephelometry	E121	1048985	1	10	10.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1049212	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1049209	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1049207	1	18	5.5	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1049214	1	13	7.6	5.0	✓
Conductivity in Water	E100	1049211	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Fluoride in Water by IC	E235.F	1049204	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1049205	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1049206	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1049208	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1053970	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1051245	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1048329	1	19	5.2	5.0	✓
Turbidity by Nephelometry	E121	1048985	1	10	10.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1049209	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	1049207	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1049204	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1049205	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1049206	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1049208	1	18	5.5	5.0	✓
Total Mercury in Water by CVAAS	E508	1051245	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	1048329	1	19	5.2	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
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Colour (True) by Spectrometer (5 CU)	E329 ALS Environmental - Vancouver	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS

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QUALITY CONTROL REPORT

Work Order	: **VA23B6588**	Page	: 1 of 11
Client	: Squamish-Lillooet Reg. District	Laboratory	: ALS Environmental - Vancouver
Contact	: Edward Witwicki	Account Manager	: Thomas Chang
Address	: Box 219 - 1350 Aster Street Pemberton BC Canada V0N 2L0	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 20-Jul-2023 11:00
PO	: ----	Date Analysis Commenced	: 20-Jul-2023
C-O-C number	: 20-1038951	Issue Date	: 26-Jul-2023 11:20
Sampler	: ---- 604 894 6371		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Analsyt	Vancouver Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1048985)											
VA23B6568-005	Anonymous	Turbidity	----	E121	0.10	NTU	19.8	20.6	3.46%	15%	----
Physical Tests (QC Lot: 1049210)											
VA23B6558-002	Anonymous	pH	----	E108	0.10	pH units	8.12	8.13	0.123%	4%	----
Physical Tests (QC Lot: 1049211)											
VA23B6558-002	Anonymous	Conductivity	----	E100	2.0	µS/cm	905	887	2.01%	10%	----
Physical Tests (QC Lot: 1049212)											
VA23B6558-002	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	149	148	0.739%	20%	----
Physical Tests (QC Lot: 1049214)											
VA23B6428-001	Anonymous	Colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1053970)											
VA23B6566-002	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	830	821	1.09%	20%	----
Anions and Nutrients (QC Lot: 1049204)											
VA23B6588-001	Devine #1	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1049205)											
VA23B6588-001	Devine #1	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0909	0.0890	2.08%	20%	----
Anions and Nutrients (QC Lot: 1049206)											
VA23B6588-001	Devine #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: 1049207)											
VA23B6588-001	Devine #1	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1049208)											
VA23B6588-001	Devine #1	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.00	3.01	0.212%	20%	----
Anions and Nutrients (QC Lot: 1049209)											
VA23B6588-001	Devine #1	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1048329)											
FJ2301768-008	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1048329) - continued											
FJ2301768-008	Anonymous	Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1051245)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1051245) - continued											
VA23B6583-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1048985)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1049211)						
Conductivity	----	E100	1	µS/cm	1.2	----
Physical Tests (QCLot: 1049212)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1049214)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 1053970)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1049204)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1049205)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1049206)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1049207)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1049208)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1049209)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Total Metals (QCLot: 1048329)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1048329) - continued						
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1051245)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1048985)									
Turbidity	----	E121	0.1	NTU	200 NTU	99.5	85.0	115	----
Physical Tests (QCLot: 1049210)									
pH	----	E108	----	pH units	7 pH units	99.7	98.0	102	----
Physical Tests (QCLot: 1049211)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	99.6	90.0	110	----
Physical Tests (QCLot: 1049212)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1049214)									
Colour, true	----	E329	5	CU	100 CU	102	85.0	115	----
Physical Tests (QCLot: 1053970)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	111	85.0	115	----
Anions and Nutrients (QCLot: 1049204)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1049205)									
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: 1049206)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1049207)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1049208)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1049209)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Total Metals (QCLot: 1048329)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	110	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	110	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1048329) - continued									
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.0	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	109	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	106	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	112	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	110	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	104	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	89.9	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	95.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	107	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	99.5	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.2	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	95.7	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	104	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	110	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	106	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Total Metals (QCLot: 1051245)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	101	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: 1049204)										
VA23B6679-001	Anonymous	Fluoride	16984-48-8	E235.F	5.08 mg/L	5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1049205)										
VA23B6679-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.9 mg/L	12.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1049206)										
VA23B6679-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1049207)										
VA23B6679-001	Anonymous	Chloride	16887-00-6	E235.Cl	513 mg/L	500 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1049208)										
VA23B6679-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	504 mg/L	500 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1049209)										
VA23B6679-001	Anonymous	Bromide	24959-67-9	E235.Br-L	2.59 mg/L	2.5 mg/L	104	75.0	125	----
Total Metals (QCLot: 1048329)										
VA23B6251-026	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	20 mg/L	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	1.99 mg/L	2 mg/L	99.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	3.97 mg/L	4 mg/L	99.3	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.990 mg/L	1 mg/L	99.0	70.0	130	----
		Boron, total	7440-42-8	E420	9.52 mg/L	10 mg/L	95.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	400 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	1.01 mg/L	1 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E420	4.12 mg/L	4 mg/L	103	70.0	130	----
		Cobalt, total	7440-48-4	E420	2.06 mg/L	2 mg/L	103	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	200 mg/L	ND	70.0	130	----
		Lead, total	7439-92-1	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Lithium, total	7439-93-2	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	100 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1048329) - continued										
VA23B6251-026	Anonymous	Manganese, total	7439-96-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	1.98 mg/L	2 mg/L	98.8	70.0	130	----
		Nickel, total	7440-02-0	E420	4.08 mg/L	4 mg/L	102	70.0	130	----
		Phosphorus, total	7723-14-0	E420	960 mg/L	1000 mg/L	96.0	70.0	130	----
		Potassium, total	7440-09-7	E420	426 mg/L	400 mg/L	107	70.0	130	----
		Rubidium, total	7440-17-7	E420	2.03 mg/L	2 mg/L	101	70.0	130	----
		Selenium, total	7782-49-2	E420	4.19 mg/L	4 mg/L	105	70.0	130	----
		Silicon, total	7440-21-3	E420	991 mg/L	1000 mg/L	99.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.406 mg/L	0.4 mg/L	102	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	200 mg/L	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	2.22 mg/L	2 mg/L	111	70.0	130	----
		Sulfur, total	7704-34-9	E420	2100 mg/L	2000 mg/L	105	70.0	130	----
		Tellurium, total	13494-80-9	E420	3.84 mg/L	4 mg/L	96.0	70.0	130	----
		Thallium, total	7440-28-0	E420	ND mg/L	0.4 mg/L	ND	70.0	130	----
		Thorium, total	7440-29-1	E420	2.21 mg/L	2 mg/L	110	70.0	130	----
		Tin, total	7440-31-5	E420	1.94 mg/L	2 mg/L	97.2	70.0	130	----
		Titanium, total	7440-32-6	E420	4.13 mg/L	4 mg/L	103	70.0	130	----
		Tungsten, total	7440-33-7	E420	1.86 mg/L	2 mg/L	92.9	70.0	130	----
		Uranium, total	7440-61-1	E420	0.388 mg/L	0.4 mg/L	97.1	70.0	130	----
		Vanadium, total	7440-62-2	E420	10.5 mg/L	10 mg/L	105	70.0	130	----
		Zinc, total	7440-66-6	E420	ND mg/L	40 mg/L	ND	70.0	130	----
		Zirconium, total	7440-67-7	E420	4.18 mg/L	4 mg/L	104	70.0	130	----
Total Metals (QCLot: 1051245)										
VA23B6583-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000868 mg/L	0.0001 mg/L	86.8	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1038951

Canada Toll Free: 1 800 668 9878

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Report To	Contact and company name below will appear on the final report
Company:	SLRD
Contact:	Edward Witwicki
Phone:	604 698 6041
	Company address below will appear on the final report
Street:	1350 Aster St.
City/Province:	Pemberton
Postal Code:	V0N 2L1
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company:	SLRD
Contact:	Edward Witwicki

Reports / Recipients

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

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

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

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: ewitwicki@slrd.bc.ca

Email 2: Vreid@slrd.bc.ca

Email 3:

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: Vreid@slrd.bc.ca

Email 2:

Turnaround Time (TAT) Requested

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

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

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

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

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

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

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

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

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

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

Oil and Gas Required Fields (client use)

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

Analysis Request

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

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General Water	Total metals	Total Merc.	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Devine #1	18-07-23	9:30am	Gen.	1	X					
	Devine #2	"	9:32am	metals	1		X				
	Devine #3	"	9:35am	merc	1			X			

Environmental Division
Vancouver
Work Order Reference
VA23B6588

Telephone : +1 604 253 4188

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

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

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

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

SAMPLE RECEIPT DETAILS (ALS use only)

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

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

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

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
					24		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: JC	Date: 20/7/23	Time: 11am
E.Witwicki	July 19 2023	12:00PM						

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

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

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