

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: KS2301067	Page	: 1 of 6
Client	: Thompson Nicola Regional District	Laboratory	: Kamloops - Environmental
Contact	: Tyrone McCabe	Account Manager	: Amanda Lampreau
Address	: 300 - 465 Victoria Street Kamloops BC Canada V2C 2A9	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	: (250)377-8673	Telephone	: 1 250 372 3588
Project	: Blue River - Full Potability	Date Samples Received	: 05-Apr-2023 09:30
PO	: ----	Date Analysis Commenced	: 05-Apr-2023
C-O-C number	: ----	Issue Date	: 12-Apr-2023 15:33
Sampler	: Don Turtiak		
Site	: Blue River CWS		
Quote number	: 20GMNI100KS02		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

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>
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Brianna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kate Dimitrova	Analysyt	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
5825 Murtle Lake Road (BRCWS Pump Station)	Water	Lead, total		BCDWQG	MAC	0.0149 mg/L	0.005 mg/L

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.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	Description
µS/cm	microsiemens per centimetre
CFU/100mL	colony forming units per hundred millilitres
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.

<: less than.

Red shading is applied where the result is greater than the Guideline Upper Limit or the result is lower than the Guideline Lower Limit.

For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.



Analytical Results Evaluation

Matrix: Water

			Client sample ID	5825 Murtle Lake Road (BRCWS Pump Station)	----	----	----	----	----	----
			Sampling date/time	04-Apr-2023 11:30	----	----	----	----	----	----
			Sub-Matrix	Water	----	----	----	----	----	----
Analyte	CAS Number	Unit	KS2301067-001	-----	-----	-----	-----	-----	-----	-----
Physical Tests										
Alkalinity, total (as CaCO3)	----	mg/L	42.6	----	----	----	----	----	----	----
Colour, true	----	CU	<5.0	----	----	----	----	----	----	----
Conductivity	----	µS/cm	98.9	----	----	----	----	----	----	----
pH	----	pH units	7.68	----	----	----	----	----	----	----
Solids, total dissolved [TDS]	----	mg/L	60	----	----	----	----	----	----	----
Turbidity	----	NTU	0.11	----	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	mg/L	42.9	----	----	----	----	----	----	----
Anions and Nutrients										
Chloride	16887-00-6	mg/L	<0.50	----	----	----	----	----	----	----
Fluoride	16984-48-8	mg/L	0.043	----	----	----	----	----	----	----
Nitrate (as N)	14797-55-8	mg/L	0.117	----	----	----	----	----	----	----
Nitrite (as N)	14797-65-0	mg/L	<0.0010	----	----	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	mg/L	6.90	----	----	----	----	----	----	----
Microbiological Tests										
Coliforms, total	----	CFU/100mL	<1	----	----	----	----	----	----	----
coliforms, total background	----	CFU/100mL	<1	----	----	----	----	----	----	----
Coliforms, Escherichia coli [E. coli]	----	CFU/100mL	<1	----	----	----	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	mg/L	<0.0100	----	----	----	----	----	----	----
Antimony, total	7440-36-0	mg/L	<0.00050	----	----	----	----	----	----	----
Arsenic, total	7440-38-2	mg/L	<0.00010	----	----	----	----	----	----	----
Barium, total	7440-39-3	mg/L	<0.0200	----	----	----	----	----	----	----
Boron, total	7440-42-8	mg/L	<0.100	----	----	----	----	----	----	----
Cadmium, total	7440-43-9	mg/L	<0.000200	----	----	----	----	----	----	----
Calcium, total	7440-70-2	mg/L	13.4	----	----	----	----	----	----	----



Analytical Results Evaluation

Matrix: Water			Client sample ID	5825 Murtle Lake Road (BRCWS Pump Station)	----	----	----	----	----	----
			Sampling date/time	04-Apr-2023 11:30	----	----	----	----	----	----
			Sub-Matrix	Water	----	----	----	----	----	----
Analyte	CAS Number	Unit		KS2301067-001	-----	-----	-----	-----	-----	-----
Total Metals										
Chromium, total	7440-47-3	mg/L		<0.00200	----	----	----	----	----	----
Copper, total	7440-50-8	mg/L		0.0312	----	----	----	----	----	----
Iron, total	7439-89-6	mg/L		<0.030	----	----	----	----	----	----
Lead, total	7439-92-1	mg/L		0.0149	----	----	----	----	----	----
Magnesium, total	7439-95-4	mg/L		2.30	----	----	----	----	----	----
Manganese, total	7439-96-5	mg/L		<0.00200	----	----	----	----	----	----
Mercury, total	7439-97-6	mg/L		<0.0000050	----	----	----	----	----	----
Potassium, total	7440-09-7	mg/L		0.942	----	----	----	----	----	----
Selenium, total	7782-49-2	mg/L		<0.00100	----	----	----	----	----	----
Sodium, total	7440-23-5	mg/L		<2.00	----	----	----	----	----	----
Uranium, total	7440-61-1	mg/L		0.000342	----	----	----	----	----	----
Zinc, total	7440-66-6	mg/L		0.174	----	----	----	----	----	----

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



Summary of Guideline Limits

Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Physical Tests									
Alkalinity, total (as CaCO ₃)	----	mg/L							
Colour, true	----	CU	15 CU						
Conductivity	----	µS/cm							
Hardness (as CaCO ₃), from total Ca/Mg	----	mg/L							
pH	----	pH units	7 - 10.5 pH units						
Solids, total dissolved [TDS]	----	mg/L	500 mg/L						
Turbidity	----	NTU			1 NTU				
Anions and Nutrients									
Chloride	16887-00-6	mg/L	250 mg/L						
Fluoride	16984-48-8	mg/L		1.5 mg/L					
Nitrate (as N)	14797-55-8	mg/L		10 mg/L					
Nitrite (as N)	14797-65-0	mg/L		1 mg/L					
Sulfate (as SO ₄)	14808-79-8	mg/L	500 mg/L						
Microbiological Tests									
Coliforms, Escherichia coli [E. coli]	----	CFU/100mL		1 CFU/100mL					
coliforms, total background	----	CFU/100mL							
Coliforms, total	----	CFU/100mL		1 CFU/100mL					
Total Metals									
Aluminum, total	7429-90-5	mg/L		2.9 mg/L					
Antimony, total	7440-36-0	mg/L		0.006 mg/L					
Arsenic, total	7440-38-2	mg/L		0.01 mg/L					
Barium, total	7440-39-3	mg/L		2 mg/L					
Boron, total	7440-42-8	mg/L		5 mg/L					
Cadmium, total	7440-43-9	mg/L		0.007 mg/L					
Calcium, total	7440-70-2	mg/L							
Chromium, total	7440-47-3	mg/L		0.05 mg/L					
Copper, total	7440-50-8	mg/L	1 mg/L	2 mg/L					
Iron, total	7439-89-6	mg/L	0.3 mg/L						
Lead, total	7439-92-1	mg/L		0.005 mg/L					
Magnesium, total	7439-95-4	mg/L							
Manganese, total	7439-96-5	mg/L	0.02 mg/L	0.12 mg/L					
Mercury, total	7439-97-6	mg/L		0.001 mg/L					
Potassium, total	7440-09-7	mg/L							
Selenium, total	7782-49-2	mg/L		0.05 mg/L					
Sodium, total	7440-23-5	mg/L	200 mg/L						
Uranium, total	7440-61-1	mg/L		0.02 mg/L					



Analyte	CAS Number	Unit	BCDWQG AO	BCDWQG MAC	BCDWQG OG				
Total Metals - Continued									
Zinc, total	7440-66-6	mg/L	5 mg/L						

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

- Key:
- BCDWQG

AO

MAC

OG
- British Columbia Drinking Water Quality Guidelines (JAN, 2020)

Aesthetic Objective/Other Value

Maximum Acceptable Concentrations

Operational Guidance

CERTIFICATE OF ANALYSIS

Work Order : **KS2301067**
Client : **Thompson Nicola Regional District**
Contact : Tyrone McCabe
Address : 300 - 465 Victoria Street
Kamloops BC Canada V2C 2A9
Telephone : (250)377-8673
Project : Blue River - Full Potability
PO : ----
C-O-C number : ----
Sampler : Don Turtiak
Site : Blue River CWS
Quote number : 20GMNI100KS02
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 4
Laboratory : Kamloops - Environmental
Account Manager : Amanda Lampreau
Address : 1445 McGill Road, Unit 2B
Kamloops BC Canada V2C 6K7
Telephone : 1 250 372 3588
Date Samples Received : 05-Apr-2023 09:30
Date Analysis Commenced : 05-Apr-2023
Issue Date : 12-Apr-2023 15:33

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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>
Amanda Lampreau	Laboratory _ Supervisor	Microbiology, Kamloops, British Columbia
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kate Dimitrova	Analyst	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Owen Cheng		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
µS/cm	microsiemens per centimetre
CFU/100mL	colony forming units per hundred millilitres
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)

Client sample ID

5825 Murtle
 Lake Road
 (BRCWS Pump
 Station)

Client sampling date / time

04-Apr-2023
 11:30

Analyte	CAS Number	Method	LOR	Unit	KS2301067-001	Result	Result	Result	Result
Physical Tests					Result	---	---	---	---
Alkalinity, total (as CaCO3)	---	E290	1.0	mg/L	42.6	---	---	---	---
Colour, true	---	E329	5.0	CU	<5.0	---	---	---	---
Conductivity	---	E100	2.0	µS/cm	98.9	---	---	---	---
pH	---	E108	0.10	pH units	7.68	---	---	---	---
Solids, total dissolved [TDS]	---	E162	10	mg/L	60	---	---	---	---
Turbidity	---	E121	0.10	NTU	0.11	---	---	---	---
Hardness (as CaCO3), from total Ca/Mg	---	EC100A	0.60	mg/L	42.9	---	---	---	---
Anions and Nutrients									
Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	---	---	---	---
Fluoride	16984-48-8	E235.F	0.020	mg/L	0.043	---	---	---	---
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.117	---	---	---	---
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	---	---	---	---
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	6.90	---	---	---	---
Microbiological Tests									
Coliforms, total	---	E012.TC	1	CFU/100mL	<1	---	---	---	---
coliforms, total background	---	E012.BG.TC	1	CFU/100mL	<1	---	---	---	---
Coliforms, Escherichia coli [E. coli]	---	E012.EC	1	CFU/100mL	<1	---	---	---	---
Total Metals									
Aluminum, total	7429-90-5	E420	0.0100	mg/L	<0.0100	---	---	---	---
Antimony, total	7440-36-0	E420	0.00050	mg/L	<0.00050	---	---	---	---
Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	---	---	---	---
Barium, total	7440-39-3	E420	0.0200	mg/L	<0.0200	---	---	---	---
Boron, total	7440-42-8	E420	0.100	mg/L	<0.100	---	---	---	---
Cadmium, total	7440-43-9	E420	0.000200	mg/L	<0.000200	---	---	---	---
Calcium, total	7440-70-2	E420	0.100	mg/L	13.4	---	---	---	---
Chromium, total	7440-47-3	E420	0.00200	mg/L	<0.00200	---	---	---	---
Copper, total	7440-50-8	E420	0.00100	mg/L	0.0312	---	---	---	---



Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	5825 Murtle Lake Road (BRCWS Pump Station)	----	----	----	----
					Client sampling date / time	04-Apr-2023 11:30	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	KS2301067-001	-----	-----	-----	-----	
					Result	----	----	----	----	
Total Metals										
Iron, total	7439-89-6	E420	0.030	mg/L	<0.030	----	----	----	----	
Lead, total	7439-92-1	E420	0.000500	mg/L	0.0149	----	----	----	----	
Magnesium, total	7439-95-4	E420	0.100	mg/L	2.30	----	----	----	----	
Manganese, total	7439-96-5	E420	0.00200	mg/L	<0.00200	----	----	----	----	
Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	----	----	----	----	
Potassium, total	7440-09-7	E420	0.100	mg/L	0.942	----	----	----	----	
Selenium, total	7782-49-2	E420	0.00100	mg/L	<0.00100	----	----	----	----	
Sodium, total	7440-23-5	E420	2.00	mg/L	<2.00	----	----	----	----	
Uranium, total	7440-61-1	E420	0.000100	mg/L	0.000342	----	----	----	----	
Zinc, total	7440-66-6	E420	0.0500	mg/L	0.174	----	----	----	----	

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

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: KS2301067	Page	: 1 of 9
Client	: Thompson Nicola Regional District	Laboratory	: Kamloops - Environmental
Contact	: Tyrone McCabe	Account Manager	: Amanda Lampreau
Address	: 300 - 465 Victoria Street Kamloops BC Canada V2C 2A9	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	: (250)377-8673	Telephone	: 1 250 372 3588
Project	: Blue River - Full Potability	Date Samples Received	: 05-Apr-2023 09:30
PO	: ----	Issue Date	: 12-Apr-2023 15:34
C-O-C number	: ----		
Sampler	: Don Turtiak		
Site	: Blue River CWS		
Quote number	: 20GMNI100KS02		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- 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 : Chloride in Water by IC										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E235.Cl	04-Apr-2023	06-Apr-2023	----	----		07-Apr-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E235.F	04-Apr-2023	06-Apr-2023	----	----		07-Apr-2023	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E235.NO3-L	04-Apr-2023	06-Apr-2023	----	----		07-Apr-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E235.NO2-L	04-Apr-2023	06-Apr-2023	----	----		07-Apr-2023	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E235.SO4	04-Apr-2023	06-Apr-2023	----	----		07-Apr-2023	28 days	2 days	✓
Microbiological Tests : E. coli (MF-NA-MUG)										
Sterile HDPE (Sodium thiosulphate) 5825 Murtle Lake Road (BRCWS Pump Station)	E012.EC	04-Apr-2023	----	----	----		05-Apr-2023	30 hrs	23 hrs	✓
Microbiological Tests : Total Coliforms (MF-mEndo)										
Sterile HDPE (Sodium thiosulphate) 5825 Murtle Lake Road (BRCWS Pump Station)	E012.TC	04-Apr-2023	----	----	----		05-Apr-2023	30 hrs	23 hrs	✓



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	
Microbiological Tests : Total Coliforms Background (MF-mEndo)										
Sterile HDPE (Sodium thiosulphate) 5825 Murtle Lake Road (BRCWS Pump Station)	E012.BG.TC	04-Apr-2023	----	----	----		05-Apr-2023	30 hrs	23 hrs	✓
Physical Tests : Alkalinity Species by Titration										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E290	04-Apr-2023	06-Apr-2023	----	----		08-Apr-2023	14 days	4 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E329	04-Apr-2023	06-Apr-2023	----	----		06-Apr-2023	3 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E100	04-Apr-2023	06-Apr-2023	----	----		08-Apr-2023	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E108	04-Apr-2023	06-Apr-2023	----	----		08-Apr-2023	0.25 hrs	41.25 hrs	✖ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E162	04-Apr-2023	----	----	----		11-Apr-2023	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE 5825 Murtle Lake Road (BRCWS Pump Station)	E121	04-Apr-2023	----	----	----		10-Apr-2023	3 days	6 days	✖ EHT
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) 5825 Murtle Lake Road (BRCWS Pump Station)	E508	04-Apr-2023	07-Apr-2023	----	----		07-Apr-2023	28 days	3 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE - total (lab preserved) 5825 Murtle Lake Road (BRCWS Pump Station)	E420	04-Apr-2023	10-Apr-2023	----	----		11-Apr-2023	180 days	7 days	✓

[Legend & Qualifier Definitions](#)

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Work Order : KS2301067
Client : Thompson Nicola Regional District
Project : Blue River - Full Potability



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 (%)		
Analytical Methods			QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	889781	1	12	8.3	5.0	✔
Chloride in Water by IC	E235.Cl	889783	1	10	10.0	5.0	✔
Colour (True) by Spectrometer (5 CU)	E329	889795	1	5	20.0	5.0	✔
Conductivity in Water	E100	889780	1	12	8.3	5.0	✔
E. coli (MF-NA-MUG)	E012.EC	889119	1	10	10.0	10.0	✔
Fluoride in Water by IC	E235.F	889786	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	889784	1	14	7.1	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	889785	1	18	5.5	5.0	✔
pH by Meter	E108	889779	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	889782	1	10	10.0	5.0	✔
TDS by Gravimetry	E162	893176	1	20	5.0	5.0	✔
Total Coliforms (MF-mEndo)	E012.TC	889118	1	10	10.0	10.0	✔
Total Coliforms Background (MF-mEndo)	E012.BG.TC	889117	1	10	10.0	10.0	✔
Total Mercury in Water by CVAAS	E508	890031	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	891281	1	19	5.2	5.0	✔
Turbidity by Nephelometry	E121	891934	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	889781	1	12	8.3	5.0	✔
Chloride in Water by IC	E235.Cl	889783	1	10	10.0	5.0	✔
Colour (True) by Spectrometer (5 CU)	E329	889795	1	5	20.0	5.0	✔
Conductivity in Water	E100	889780	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	889786	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	889784	1	14	7.1	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	889785	1	18	5.5	5.0	✔
pH by Meter	E108	889779	1	13	7.6	5.0	✔
Sulfate in Water by IC	E235.SO4	889782	1	10	10.0	5.0	✔
TDS by Gravimetry	E162	893176	1	20	5.0	5.0	✔
Total Mercury in Water by CVAAS	E508	890031	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	891281	1	19	5.2	5.0	✔
Turbidity by Nephelometry	E121	891934	1	20	5.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	889781	1	12	8.3	5.0	✔
Chloride in Water by IC	E235.Cl	889783	1	10	10.0	5.0	✔
Colour (True) by Spectrometer (5 CU)	E329	889795	1	5	20.0	5.0	✔
Conductivity in Water	E100	889780	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							
E. coli (MF-NA-MUG)	E012.EC	889119	1	10	10.0	5.0	✔
Fluoride in Water by IC	E235.F	889786	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	889784	1	14	7.1	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	889785	1	18	5.5	5.0	✔
Sulfate in Water by IC	E235.SO4	889782	1	10	10.0	5.0	✔
TDS by Gravimetry	E162	893176	1	20	5.0	5.0	✔
Total Coliforms (MF-mEndo)	E012.TC	889118	2	10	20.0	15.0	✔
Total Coliforms Background (MF-mEndo)	E012.BG.TC	889117	1	10	10.0	5.0	✔
Total Mercury in Water by CVAAS	E508	890031	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	891281	1	19	5.2	5.0	✔
Turbidity by Nephelometry	E121	891934	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	889783	1	10	10.0	5.0	✔
Fluoride in Water by IC	E235.F	889786	1	10	10.0	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	889784	1	14	7.1	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	889785	1	18	5.5	5.0	✔
Sulfate in Water by IC	E235.SO4	889782	1	10	10.0	5.0	✔
Total Mercury in Water by CVAAS	E508	890031	1	20	5.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	891281	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
Total Coliforms Background (MF-mEndo)	E012.BG.TC Kamloops - Environmental	Water	APHA 9222B (mod)	Noncoliform bacteria observed on Total Coliform plates are enumerated.
E. coli (MF-NA-MUG)	E012.EC Kamloops - Environmental	Water	APHA 9222I (mod)	Positive Total or Thermotolerant Coliform filters are transferred to NA-MUG and incubated at 35.0 ±0.5°C for 4 hours. Colonies exhibiting fluorescence are enumerated.
Total Coliforms (MF-mEndo)	E012.TC Kamloops - Environmental	Water	APHA 9222B (mod)	Following filtration (0.45 µm), and incubation at 35.0 ±0.5°C for 24 hours, colonies exhibiting characteristic morphology of the target organism are enumerated and confirmed.
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 ± 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 Vancouver - Environmental	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 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 ± 2°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.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
Colour (True) by Spectrometer (5 CU)	E329 Vancouver - Environmental	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 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO ₃), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

QUALITY CONTROL REPORT

Work Order	: KS2301067	Page	: 1 of 10
Client	: Thompson Nicola Regional District	Laboratory	: Kamloops - Environmental
Contact	: Tyrone McCabe	Account Manager	: Amanda Lampreau
Address	: 300 - 465 Victoria Street Kamloops BC Canada V2C 2A9	Address	: 1445 McGill Road, Unit 2B Kamloops, British Columbia Canada V2C 6K7
Telephone	:	Telephone	: 1 250 372 3588
Project	: Blue River - Full Potability	Date Samples Received	: 05-Apr-2023 09:30
PO	: ----	Date Analysis Commenced	: 05-Apr-2023
C-O-C number	: ----	Issue Date	: 12-Apr-2023 15:33
Sampler	: Don Turtiak (250)377-8673		
Site	: Blue River CWS		
Quote number	: 20GMNI100KS02		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	Position	Laboratory Department
Amanda Lampreau	Laboratory _ Supervisor	Kamloops Microbiology, Kamloops, British Columbia
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Caitlin Macey	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Kate Dimitrova	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

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Work Order : KS2301067
Client : Thompson Nicola Regional District
Project : Blue River - Full Potability



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: 889779)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	pH	----	E108	0.10	pH units	7.68	7.70	0.260%	4%	----
Physical Tests (QC Lot: 889780)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Conductivity	----	E100	2.0	µS/cm	98.9	98.0	0.914%	10%	----
Physical Tests (QC Lot: 889781)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	42.6	42.5	0.235%	20%	----
Physical Tests (QC Lot: 889795)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 891934)											
FJ2300738-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.38	0.41	0.04	Diff <2x LOR	----
Physical Tests (QC Lot: 893176)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Solids, total dissolved [TDS]	----	E162	13	mg/L	60	62	2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 889782)											
VA23A7356-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	495	502	1.48%	20%	----
Anions and Nutrients (QC Lot: 889783)											
VA23A7356-001	Anonymous	Chloride	16887-00-6	E235.Cl	10.0	mg/L	32.0	33.6	1.64	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 889784)											
VA23A7356-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	70.9	72.0	1.45%	20%	----
Anions and Nutrients (QC Lot: 889785)											
VA23A7356-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	13.7	13.9	1.46%	20%	----
Anions and Nutrients (QC Lot: 889786)											
VA23A7356-001	Anonymous	Fluoride	16984-48-8	E235.F	0.400	mg/L	1.25	1.23	0.018	Diff <2x LOR	----
Microbiological Tests (QC Lot: 889117)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	coliforms, total background	----	E012.BG.TC	1	CFU/100mL	<1	<1	0	Diff <2x LOR	----
Microbiological Tests (QC Lot: 889118)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Coliforms, total	----	E012.TC	1	CFU/100mL	<1	<1	0	Diff <2x LOR	----
Microbiological Tests (QC Lot: 889119)											



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
Microbiological Tests (QC Lot: 889119) - continued											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Coliforms, Escherichia coli [E. coli]	----	E012.EC	1	CFU/100mL	<1	<1	0	Diff <2x LOR	----
Total Metals (QC Lot: 890031)											
FJ2300731-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 891281)											
KS2301067-001	5825 Murtle Lake Road (BRCWS Pump Station)	Aluminum, total	7429-90-5	E420	0.0100	mg/L	<0.0100	0.0123	0.0023	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.100	mg/L	13.4	13.4	0.163%	20%	----
		Chromium, total	7440-47-3	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	0.0312	0.0316	1.34%	20%	----
		Iron, total	7439-89-6	E420	0.030	mg/L	<0.030	0.031	0.001	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	0.0149	0.0147	1.50%	20%	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	2.30	2.33	1.51%	20%	----
		Manganese, total	7439-96-5	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	0.942	0.950	0.009	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000100	mg/L	0.000342	0.000338	0.000005	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0500	mg/L	0.174	0.178	0.0038	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: 889780)						
Conductivity	----	E100	1	µS/cm	1.6	----
Physical Tests (QCLot: 889781)						
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 889795)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 891934)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 893176)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 889782)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 889783)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 889784)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 889785)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 889786)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Microbiological Tests (QCLot: 889117)						
coliforms, total background	----	E012.BG.TC	1	CFU/100mL	<1	----
Microbiological Tests (QCLot: 889118)						
Coliforms, total	----	E012.TC	1	CFU/100mL	<1	----
Microbiological Tests (QCLot: 889119)						
Coliforms, Escherichia coli [E. coli]	----	E012.EC	1	CFU/100mL	<1	----
Total Metals (QCLot: 890031)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 891281)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 891281) - continued						
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	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
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	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----



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: 889779)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 889780)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 889781)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 889795)									
Colour, true	----	E329	5	CU	100 CU	104	85.0	115	----
Physical Tests (QCLot: 891934)									
Turbidity	----	E121	0.1	NTU	200 NTU	97.0	85.0	115	----
Physical Tests (QCLot: 893176)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 889782)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 889783)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 889784)									
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: 889785)									
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: 889786)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Total Metals (QCLot: 890031)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	98.1	80.0	120	----
Total Metals (QCLot: 891281)									
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	107	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	97.4	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	106	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Analyte	CAS Number	Method	LOR	Unit					
Total Metals (QCLot: 891281) - continued									
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.1	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	106	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	101	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	112	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	104	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	107	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: 889782)										
VA23A7274-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 889783)										
VA23A7274-001	Anonymous	Chloride	16887-00-6	E235.Cl	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 889784)										
VA23A7274-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.52 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 889785)										
VA23A7274-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.507 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 889786)										
VA23A7274-001	Anonymous	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Total Metals (QCLot: 890031)										
FJ2300731-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000980 mg/L	0.0001 mg/L	98.0	70.0	130	----
Total Metals (QCLot: 891281)										
KS2301068-001	Anonymous	Aluminum, total	7429-90-5	E420	0.178 mg/L	0.2 mg/L	89.2	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Boron, total	7440-42-8	E420	0.092 mg/L	0.1 mg/L	92.1	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00402 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Iron, total	7439-89-6	E420	1.86 mg/L	2 mg/L	93.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Potassium, total	7440-09-7	E420	3.82 mg/L	4 mg/L	95.5	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00398 mg/L	0.004 mg/L	99.6	70.0	130	----
				Zinc, total	7440-66-6	E420	0.384 mg/L	0.4 mg/L	95.9	70.0



Sub-Matrix: Water					Matrix Spike (MS) Report				
					Spike		Recovery (%)	Recovery Limits (%)	
					Concentration	Target	MS	Low	High
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method					Qualifier

[illegible]



BC and YUKON Drinking Water Declaration Form

In British Columbia, the *Drinking Water Protection Act* requires laboratories to immediately report positive results for *Faecal Coliform* and *Escherichia coli* in drinking water samples directly to the Water Supplier, the Drinking Water Officer, and the Medical Health Officer in the region the water samples were taken. Immediate reporting is not required if the sample is water for which a public advisory to boil for drinking water has been issued, or if the sample is not a drinking water. In Yukon Territories, the Public Health and Safety Act requires the laboratory to immediately report any results that exceeds the acceptable concentration for any health-related parameter set out in the Guidelines for Canadian Drinking Water Quality to Environmental Health Services.

Water Suppliers are required by the Act to ensure the laboratory conducting the testing is aware of the applicable standards.

Please submit this completed form and an ALS Chain of Custody with your sample.

1. Are your samples currently used for human consumption in BC or the Yukon?

☒ YES ☐ NO

If you selected YES, proceed to #2. If you selected NO, proceed to #5.

2. Are your samples from a water supply system that either:
a) serves more than 1 single family residence in BC, or

☒ YES ☐ NO

b) serves more than 15 connections, or is trucked to more than 5 sites in the Yukon Territory

☒ YES ☐ NO

If you selected YES to either a) or b), proceed to #3. If you selected NO, proceed to #5.

3. Is your water supply under a boil water advisory?

☐ YES ☒ NO

If you selected NO, proceed to #4. If you selected YES, proceed to #5.

4. Please indicate (✓) which Health Authority Region your samples were collected in, and provide the contact details for the applicable Drinking Water and Medical Health Officers:

- ☐ Northern ☒ Interior ☐ Vancouver Island
☐ Vancouver Coastal ☐ Fraser ☐ Yukon

Water Supplier Name	Phone & email:
TND Blue River Water Service	250-327-7056 tmcabe@car.ca
Drinking Water Officer:	Phone:
Medical Health Officer:	Phone:

5. Name of Sampler: Don Tunkl
Released by (signature):
Date: Apr 04 2023
Phone: 250 675 8212

ALS Kamloops can receive samples Monday to Thursday (8:30am to 1:30pm). Please contact ALS for testing limitations around statutory holidays.