

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: KS2402828	Page	: 1 of 5
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Project	: Savona CWS	Date Samples Received	: 22-Jul-2024 13:22
PO	: ----	Date Analysis Commenced	: 22-Jul-2024
C-O-C number	: ----	Issue Date	: 06-Aug-2024 15:18
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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.

Signatories	Position	Laboratory Department
Ellie Milner	Account Manager	Microbiology, Kamloops, British Columbia
Ghazaleh Khanmirzaei	Analyst	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
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Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Stephanie Pinheiro	Team Leader - LCMS	LCMS, Waterloo, Ontario

General Comments

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

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

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

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
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
mg/L	milligrams per litre
MPN/100mL	most probable number per hundred millilitres
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.

<: less than.

Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).

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

				Client sample ID	Raw Water - Intake					
Sub-Matrix: Water (Matrix: Water)				Sampling date/time	22-Jul-2024 12:35					
Analyte	Method/Lab	LOR	Unit	KS2402828-001	BCDWQG AO	BCDWQG MAC	BCDWQG OG	--	--	--
Physical Tests										
Alkalinity, total (as CaCO ₃)	E290/VA	1.0	mg/L	33.2	--	--	--	--	--	--
Colour, true	E329/VA	5.0	CU	6.5	15 CU	--	--	--	--	--
Conductivity	E100/VA	2.0	µS/cm	80.1	--	--	--	--	--	--
pH	E108/VA	0.10	pH units	7.79	--	--	7 - 10.5 pH units	--	--	--
Solids, total dissolved [TDS]	E162/VA	10	mg/L	63	500 mg/L	--	--	--	--	--
Turbidity	E121/VA	0.10	NTU	1.06	--	1 NTU	--	--	--	--
Hardness (as CaCO ₃), from total Ca/Mg	EC100A/VA	0.60	mg/L	36.0	--	--	--	--	--	--
Anions and Nutrients										
Chloride	E235.Cl/VA	0.50	mg/L	<0.50	250 mg/L	--	--	--	--	--
Fluoride	E235.F/VA	0.020	mg/L	0.044	--	1.5 mg/L	--	--	--	--
Nitrate (as N)	E235.NO3-L/VA	0.0050	mg/L	0.0534	--	10 mg/L	--	--	--	--
Nitrite (as N)	E235.NO2-L/VA	0.0010	mg/L	<0.0010	--	1 mg/L	--	--	--	--
Sulfate (as SO ₄)	E235.SO4/VA	0.30	mg/L	6.80	500 mg/L	--	--	--	--	--
Microbiological Tests										
Coliforms, total	E010/KS	1	MPN/100mL	79	--	1 MPN/100mL	--	--	--	--
Coliforms, Escherichia coli [E. coli]	E010/KS	1	MPN/100mL	<1	--	1 MPN/100mL	--	--	--	--
Total Metals										
Aluminum, total	E420/VA	0.0100	mg/L	0.0719	--	2.9 mg/L	--	--	--	--
Antimony, total	E420/VA	0.00050	mg/L	<0.00050	--	0.006 mg/L	--	--	--	--
Arsenic, total	E420/VA	0.00010	mg/L	0.00012	--	0.01 mg/L	--	--	--	--
Barium, total	E420/VA	0.0200	mg/L	<0.0200	--	2 mg/L	--	--	--	--
Boron, total	E420/VA	0.100	mg/L	<0.100	--	5 mg/L	--	--	--	--
Cadmium, total	E420/VA	0.000200	mg/L	<0.000200	--	0.007 mg/L	--	--	--	--
Calcium, total	E420/VA	0.100	mg/L	11.5	--	--	--	--	--	--
Chromium, total	E420/VA	0.00200	mg/L	<0.00200	--	0.05 mg/L	--	--	--	--
Copper, total	E420/VA	0.00100	mg/L	0.00182	1 mg/L	2 mg/L	--	--	--	--
Iron, total	E420/VA	0.030	mg/L	0.086	0.3 mg/L	--	--	--	--	--
Lead, total	E420/VA	0.000500	mg/L	<0.000500	--	0.005 mg/L	--	--	--	--
Magnesium, total	E420/VA	0.100	mg/L	1.77	--	--	--	--	--	--



Analyte	Method/Lab	LOR	Unit	KS2402828-001 (Continued)	BCDWQG AO	BCDWQG MAC	BCDWQG OG	--	--	--
Total Metals - Continued										
Manganese, total	E420/VA	0.00200	mg/L	0.00334	0.02 mg/L	0.12 mg/L	--	--	--	--
Mercury, total	E508/VA	0.0000050	mg/L	<0.0000050	--	0.001 mg/L	--	--	--	--
Potassium, total	E420/VA	0.100	mg/L	0.800	--	--	--	--	--	--
Selenium, total	E420/VA	0.00100	mg/L	<0.00100	--	0.05 mg/L	--	--	--	--
Sodium, total	E420/VA	2.00	mg/L	<2.00	200 mg/L	--	--	--	--	--
Uranium, total	E420/VA	0.000100	mg/L	0.000228	--	0.02 mg/L	--	--	--	--
Zinc, total	E420/VA	0.0500	mg/L	<0.0500	5 mg/L	--	--	--	--	--

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.

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
Raw Water - Intake	Water	Turbidity		BCDWQG	MAC	1.06 NTU	1 NTU
	Water	Coliforms, total		BCDWQG	MAC	79 MPN/100mL	1 MPN/100mL

Key:

BCDWQG

British Columbia Drinking Water Quality Guidelines (JAN, 2023)

AO

Aesthetic Objective/Other Value

MAC

Maximum Acceptable Concentrations

OG

Operational Guidance



Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	Treated Water - Steelhead					
				Sampling date/time	22-Jul-2024 10:35					
Analyte	Method/Lab	LOR	Unit	KS2402828-002	BCDWQG MAC	--	--	--	--	--
Volatile Organic Compounds [THMs]										
Bromodichloromethane	E611B/VA	1.0	µg/L	1.3	--	--	--	--	--	--
Bromoform	E611B/VA	1.0	µg/L	<1.0	--	--	--	--	--	--
Chloroform	E611B/VA	1.0	µg/L	74.8	--	--	--	--	--	--
Dibromochloromethane	E611B/VA	1.0	µg/L	<1.0	--	--	--	--	--	--
Trihalomethanes [THMs], total	E611B/VA	2.0	µg/L	76.1	100 µg/L	--	--	--	--	--
Bromofluorobenzene, 4-	E611B/VA	1.0	%	90.9	--	--	--	--	--	--
Difluorobenzene, 1,4-	E611B/VA	1.0	%	105	--	--	--	--	--	--
Haloacetic Acids										
Bromochloroacetic acid	E750/WT	1.00	µg/L	<1.00	--	--	--	--	--	--
Dibromoacetic acid	E750/WT	1.00	µg/L	<1.00	--	--	--	--	--	--
Dichloroacetic acid	E750/WT	1.00	µg/L	20.0	--	--	--	--	--	--
Monobromoacetic acid	E750/WT	1.00	µg/L	<1.00	--	--	--	--	--	--
Monochloroacetic acid	E750/WT	1.00	µg/L	<1.00	--	--	--	--	--	--
Trichloroacetic acid	E750/WT	1.00	µg/L	22.0	--	--	--	--	--	--
Haloacetic acids, total [HAA5]	E750/WT	5.00	µg/L	42.0	80 µg/L	--	--	--	--	--

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.

No Breaches Found

Key:

BCDWQGBritish Columbia Drinking Water Quality Guidelines (JAN, 2023)

MACMaximum Acceptable Concentrations