CERTIFICATE OF ANALYSIS

REPORTED TO	Campbell Scientific Canada Corp. 1030 Sugar Lake Rd Cherryville, BC V0E 2G2		
ATTENTION	Claude Labine	**WORK ORDER**	9082450
PO NUMBER		**RECEIVED / TEMP**	2019-08-26 14:14 / 15°C
PROJECT	Cherryville Water Stewart	**REPORTED**	2019-08-30 15:06
PROJECT INFO		**COC NUMBER**	B74304

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

TEST RESULTS

REPORTED TO	Campbell Scientific Canada Corp.	**WORK ORDER**	9082450
PROJECT	Cherryville Water Stewart	**REPORTED**	2019-08-30 15:06

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Reiter Creek @ Shuswap River (9082450-01) | Matrix: Water | Sampled: 2019-08-26 11:09						FILT, PRES
Anions						
Chloride	**0.12**	AO ≤ 250	0.10	mg/L	2019-08-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2019-08-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2019-08-27	
Sulfate	**7.5**	AO ≤ 500	1.0	mg/L	2019-08-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A	
General Parameters						
Conductivity (EC)	**216**	N/A	2.0	µS/cm	2019-08-27	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2019-08-29	
pH	**8.14**	7.0-10.5	0.10	pH units	2019-08-27	HT2
Phosphorus, Total (as P)	**0.0051**	N/A	0.0020	mg/L	2019-08-28	
Phosphorus, Total Dissolved	**0.0044**	N/A	0.0020	mg/L	2019-08-28	
Turbidity	**0.29**	OG < 1	0.10	NTU	2019-08-27	
Microbiological Parameters						
Coliforms, Total	**≥ 160**	MAC = 0	1	CFU/100 mL	2019-08-27	
Background Colonies	**> 200**	N/A	200	CFU/100 mL	2019-08-27	
Coliforms, Fecal	**2**	N/A	1	CFU/100 mL	2019-08-27	
E. coli	**2**	MAC = 0	1	CFU/100 mL	2019-08-27	
Shuswap River @ Sihlis Rd (9082450-02) | Matrix: Water | Sampled: 2019-08-26 10:27						FILT, PRES
Anions						
Chloride	< 0.10	AO ≤ 250	0.10	mg/L	2019-08-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2019-08-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2019-08-27	
Sulfate	**3.7**	AO ≤ 500	1.0	mg/L	2019-08-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	**0.0700**	N/A	0.0500	mg/L	N/A	
General Parameters						
Conductivity (EC)	**64.4**	N/A	2.0	µS/cm	2019-08-27	
Nitrogen, Total Kjeldahl	**0.070**	N/A	0.050	mg/L	2019-08-29	
pH	**7.60**	7.0-10.5	0.10	pH units	2019-08-27	HT2
Phosphorus, Total (as P)	**0.0045**	N/A	0.0020	mg/L	2019-08-28	
Phosphorus, Total Dissolved	**0.0027**	N/A	0.0020	mg/L	2019-08-28	
Turbidity	**0.23**	OG < 1	0.10	NTU	2019-08-27	

CARO ANALYTICAL SERVICES

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Shuswap River @ Sihlis Rd (9082450-02) | Matrix: Water | Sampled: 2019-08-26 10:27, Continued						FILT, PRES
Microbiological Parameters						
Coliforms, Total	420	MAC = 0	1	CFU/100 mL	2019-08-27	
Background Colonies	**> 200**	N/A	200	CFU/100 mL	2019-08-27	
Coliforms, Fecal	< 1	N/A	1	CFU/100 mL	2019-08-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2019-08-27	
Cherry Creek @ Sihlis Rd (9082450-03) | Matrix: Water | Sampled: 2019-08-26 12:27						FILT, PRES
Anions						
Chloride	**1.03**	AO ≤ 250	0.10	mg/L	2019-08-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2019-08-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2019-08-27	
Sulfate	**14.4**	AO ≤ 500	1.0	mg/L	2019-08-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A	
General Parameters						
Conductivity (EC)	**219**	N/A	2.0	µS/cm	2019-08-27	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2019-08-29	
pH	**8.17**	7.0-10.5	0.10	pH units	2019-08-27	HT2
Phosphorus, Total (as P)	**0.0043**	N/A	0.0020	mg/L	2019-08-28	
Phosphorus, Total Dissolved	**0.0038**	N/A	0.0020	mg/L	2019-08-28	
Turbidity	**0.22**	OG < 1	0.10	NTU	2019-08-27	
Microbiological Parameters						
Coliforms, Total	140	MAC = 0	1	CFU/100 mL	2019-08-27	
Background Colonies	**> 200**	N/A	200	CFU/100 mL	2019-08-27	
Coliforms, Fecal	**2**	N/A	1	CFU/100 mL	2019-08-27	
E. coli	1	MAC = 0	1	CFU/100 mL	2019-08-27	
Cherry Creek @ Hall (9082450-04) | Matrix: Water | Sampled: 2019-08-26 11:59						FILT, PRES
Anions						
Chloride	**1.76**	AO ≤ 250	0.10	mg/L	2019-08-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2019-08-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2019-08-27	
Sulfate	**14.8**	AO ≤ 500	1.0	mg/L	2019-08-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A	

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Cherry Creek @ Hall (9082450-04) | Matrix: Water | Sampled: 2019-08-26 11:59, Continued						FILT, PRES
General Parameters						
Conductivity (EC)	**226**	N/A	2.0	µS/cm	2019-08-27	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2019-08-29	
pH	**8.15**	7.0-10.5	0.10	pH units	2019-08-27	HT2
Phosphorus, Total (as P)	**0.0041**	N/A	0.0020	mg/L	2019-08-28	
Phosphorus, Total Dissolved	**0.0037**	N/A	0.0020	mg/L	2019-08-28	
Turbidity	**0.20**	OG < 1	0.10	NTU	2019-08-27	
Microbiological Parameters						
Coliforms, Total	**≥ 150**	MAC = 0	1	CFU/100 mL	2019-08-27	
Background Colonies	**> 200**	N/A	200	CFU/100 mL	2019-08-27	
Coliforms, Fecal	**2**	N/A	1	CFU/100 mL	2019-08-27	
E. coli	**1**	MAC = 0	1	CFU/100 mL	2019-08-27	
Shuswap River @ Ferry Creek (9082450-05) | Matrix: Water | Sampled: 2019-08-26 12:46						FILT, PRES
Anions						
Chloride	**0.39**	AO ≤ 250	0.10	mg/L	2019-08-27	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2019-08-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2019-08-27	
Sulfate	**9.9**	AO ≤ 500	1.0	mg/L	2019-08-27	
Calculated Parameters						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	**0.160**	N/A	0.0500	mg/L	N/A	
General Parameters						
Conductivity (EC)	**145**	N/A	2.0	µS/cm	2019-08-27	
Nitrogen, Total Kjeldahl	**0.160**	N/A	0.050	mg/L	2019-08-29	
pH	**7.97**	7.0-10.5	0.10	pH units	2019-08-27	HT2
Phosphorus, Total (as P)	**0.0061**	N/A	0.0020	mg/L	2019-08-28	
Phosphorus, Total Dissolved	**0.0030**	N/A	0.0020	mg/L	2019-08-28	
Turbidity	**0.23**	OG < 1	0.10	NTU	2019-08-27	
Microbiological Parameters						
Coliforms, Total	**≥ 250**	MAC = 0	1	CFU/100 mL	2019-08-27	
Background Colonies	**> 200**	N/A	200	CFU/100 mL	2019-08-27	
Coliforms, Fecal	**1**	N/A	1	CFU/100 mL	2019-08-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2019-08-27	

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Sample Qualifiers:

FILT	The sample has been filtered for TDP in the laboratory. Results may not reflect conditions at the time of sampling.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
PRES	Sample has been preserved for TDP in the laboratory and the holding time has been extended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Campbell Scientific Canada Corp.	**WORK ORDER**	9082450
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Analysis Description	Method Ref.	Technique	Location
Anions in Water	SM 4110 B (2017)	Ion Chromatography	Kelowna
Coliforms, Fecal in Water	SM 9222 D (2017)	Membrane Filtration / m-FC Agar	Kelowna
Coliforms, Total in Water	SM 9222 B (2017)	Membrane Filtration / m-Endo Agar	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	Kelowna
E. coli in Water	SM 9222 G (2017)	Membrane Filtration / Nutrient Agar with MUG	Kelowna
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	Kelowna
pH in Water	SM 4500-H+ B (2017)	Electrometry	Kelowna
Phosphorus, Total Dissolved in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	Kelowna
Turbidity in Water	SM 2130 B (2017)	Nephelometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
>	Greater than the specified Result
>=	Greater than or equal to the specified Result
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, ph > 7 = basic
µS/cm	Microsiemens per centimetre
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Health Canada, Feb 2017)

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user

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General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing. The quality control (QC) data is available upon request

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager:teamcaro@caro.ca