



CERTIFICATE OF ANALYSIS

REPORTED TO Cherry Ridge Management
158 North Fork Road
Cherryville, BC V0E 2G3

ATTENTION Melanie Staker

PO NUMBER

PROJECT Creek Monitoring

PROJECT INFO

WORK ORDER 21K1857

RECEIVED / TEMP 2021-11-15 08:54 / 3.1°C

REPORTED 2021-11-22 10:56

COC NUMBER No Number

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/IEC 17025:2017 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.

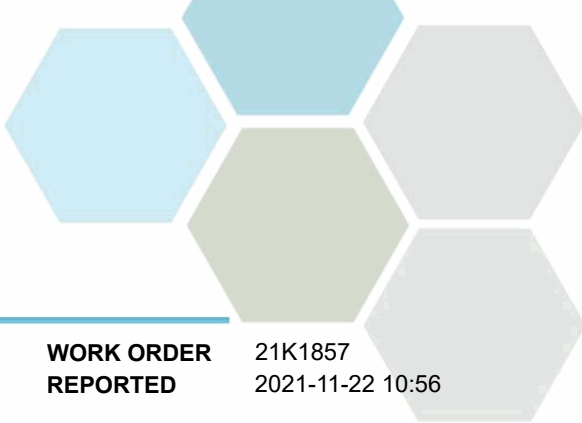
If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

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#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO PROJECT Cherry Ridge Management
Creek Monitoring

WORK ORDER REPORTED 21K1857
2021-11-22 10:56

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
North Fork (21K1857-01) Matrix: Water Sampled: 2021-11-14 11:20						F1, FILT, PRES

Anions

Bromide	< 0.10	N/A	0.10	mg/L	2021-11-17	
Chloride	0.10	AO ≤ 250	0.10	mg/L	2021-11-17	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2021-11-17	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2021-11-17	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-11-17	
Sulfate	9.8	AO ≤ 500	1.0	mg/L	2021-11-17	

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	

Dissolved Metals

Aluminum, dissolved	6.7	N/A	1.0	µg/L	2021-11-18	
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General Parameters

Alkalinity, Total (as CaCO3)	77.1	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Bicarbonate (as CaCO3)	77.1	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-11-17	
Conductivity (EC)	159	N/A	2.0	µS/cm	2021-11-18	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2021-11-19	
pH	7.68	7.0-10.5	0.10	pH units	2021-11-18	HT2
Phosphorus, Total (as P)	0.0116	N/A	0.0050	mg/L	2021-11-17	
Phosphorus, Total Dissolved	0.0072	N/A	0.0050	mg/L	2021-11-19	
Turbidity	0.55	OG < 1	0.10	NTU	2021-11-16	

Microbiological Parameters

Coliforms, Total	78	MAC = 0	1	MPN/100 mL	2021-11-15	
E. coli	2	MAC = 0	1	MPN/100 mL	2021-11-15	

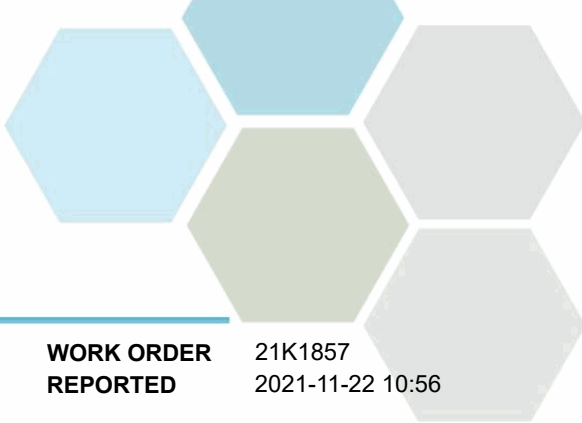
1/2 Mile Creek (21K1857-02) | Matrix: Water | Sampled: 2021-11-14 12:10

F1, FILT, PRES

Anions

Bromide	< 0.10	N/A	0.10	mg/L	2021-11-17	
Chloride	0.24	AO ≤ 250	0.10	mg/L	2021-11-17	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2021-11-17	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2021-11-17	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-11-17	
Sulfate	39.0	AO ≤ 500	1.0	mg/L	2021-11-17	

Calculated Parameters



TEST RESULTS

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
1/2 Mile Creek (21K1857-02) Matrix: Water Sampled: 2021-11-14 12:10, Continued						F1, FILT, PRES

Calculated Parameters, Continued

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	

Dissolved Metals

Aluminum, dissolved	1.6	N/A	1.0	µg/L	2021-11-18	
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General Parameters

Alkalinity, Total (as CaCO3)	193	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Bicarbonate (as CaCO3)	193	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-11-17	
Conductivity (EC)	396	N/A	2.0	µS/cm	2021-11-18	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2021-11-19	
pH	8.03	7.0-10.5	0.10	pH units	2021-11-18	HT2
Phosphorus, Total (as P)	0.0117	N/A	0.0050	mg/L	2021-11-17	
Phosphorus, Total Dissolved	0.0096	N/A	0.0050	mg/L	2021-11-17	
Turbidity	0.14	OG < 1	0.10	NTU	2021-11-16	

Microbiological Parameters

Coliforms, Total	35	MAC = 0	1	MPN/100 mL	2021-11-15	
E. coli	< 1	MAC = 0	1	MPN/100 mL	2021-11-15	

Cherry Creek @ Hall (21K1857-03) | Matrix: Water | Sampled: 2021-11-14 11:47

F1, FILT, PRES

Anions

Bromide	< 0.10	N/A	0.10	mg/L	2021-11-17	
Chloride	2.01	AO ≤ 250	0.10	mg/L	2021-11-17	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2021-11-17	
Nitrate (as N)	0.020	MAC = 10	0.010	mg/L	2021-11-17	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-11-17	
Sulfate	15.7	AO ≤ 500	1.0	mg/L	2021-11-17	

Calculated Parameters

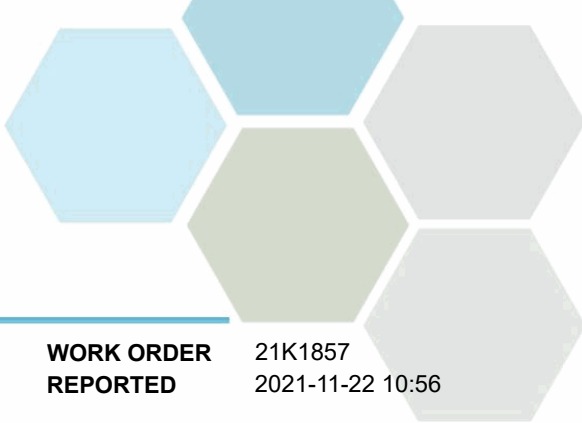
Nitrate+Nitrite (as N)	0.0202	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.132	N/A	0.0500	mg/L	N/A	

Dissolved Metals

Aluminum, dissolved	4.4	N/A	1.0	µg/L	2021-11-18	
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General Parameters

Alkalinity, Total (as CaCO3)	111	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	



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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Cherry Creek @ Hall (21K1857-03) Matrix: Water Sampled: 2021-11-14 11:47, Continued						F1, FILT, PRES

General Parameters, Continued

Alkalinity, Bicarbonate (as CaCO3)	111	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-11-17	
Conductivity (EC)	224	N/A	2.0	µS/cm	2021-11-18	
Nitrogen, Total Kjeldahl	0.112	N/A	0.050	mg/L	2021-11-19	
pH	7.86	7.0-10.5	0.10	pH units	2021-11-18	HT2
Phosphorus, Total (as P)	0.0162	N/A	0.0050	mg/L	2021-11-17	
Phosphorus, Total Dissolved	0.0111	N/A	0.0050	mg/L	2021-11-17	
Turbidity	3.01	OG < 1	0.10	NTU	2021-11-16	

Microbiological Parameters

Coliforms, Total	308	MAC = 0	1	MPN/100 mL	2021-11-15	
E. coli	8	MAC = 0	1	MPN/100 mL	2021-11-15	

Picnic Shuswap (21K1857-04) | Matrix: Water | Sampled: 2021-11-14 10:10

F1, FILT, PRES

Anions

Bromide	< 0.10	N/A	0.10	mg/L	2021-11-17	
Chloride	0.28	AO ≤ 250	0.10	mg/L	2021-11-17	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2021-11-17	
Nitrate (as N)	0.016	MAC = 10	0.010	mg/L	2021-11-17	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-11-17	
Sulfate	5.8	AO ≤ 500	1.0	mg/L	2021-11-17	

Calculated Parameters

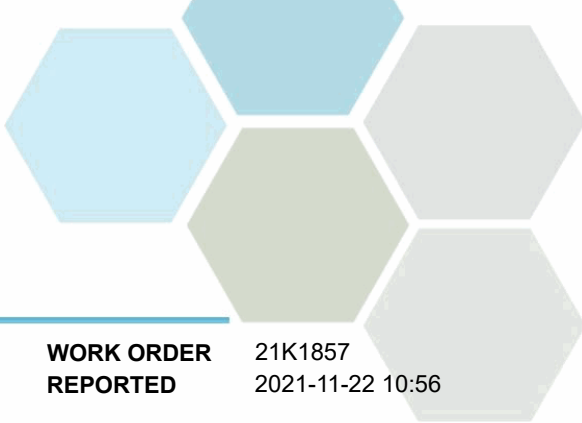
Nitrate+Nitrite (as N)	0.0160	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500	mg/L	N/A	

Dissolved Metals

Aluminum, dissolved	5.2	N/A	1.0	µg/L	2021-11-18	
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General Parameters

Alkalinity, Total (as CaCO3)	48.8	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Bicarbonate (as CaCO3)	48.8	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-11-17	
Conductivity (EC)	101	N/A	2.0	µS/cm	2021-11-18	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2021-11-19	
pH	7.51	7.0-10.5	0.10	pH units	2021-11-18	HT2
Phosphorus, Total (as P)	0.0071	N/A	0.0050	mg/L	2021-11-19	



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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Picnic Shuswap (21K1857-04) Matrix: Water Sampled: 2021-11-14 10:10, Continued						F1, FILT, PRES

General Parameters, Continued

Phosphorus, Total Dissolved	< 0.0050	N/A	0.0050	mg/L	2021-11-19	
Turbidity	0.73	OG < 1	0.10	NTU	2021-11-16	

Microbiological Parameters

Coliforms, Total	1050	MAC = 0	1	MPN/100 mL	2021-11-15	
E. coli	1	MAC = 0	1	MPN/100 mL	2021-11-15	

Ferry Creek (21K1857-05) | Matrix: Water | Sampled: 2021-11-14 10:50

F1, FILT, PRES

Anions

Bromide	< 0.10	N/A	0.10	mg/L	2021-11-17	
Chloride	1.06	AO ≤ 250	0.10	mg/L	2021-11-17	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2021-11-17	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2021-11-17	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-11-17	
Sulfate	31.8	AO ≤ 500	1.0	mg/L	2021-11-17	

Calculated Parameters

Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
Nitrogen, Total	0.0620	N/A	0.0500	mg/L	N/A	

Dissolved Metals

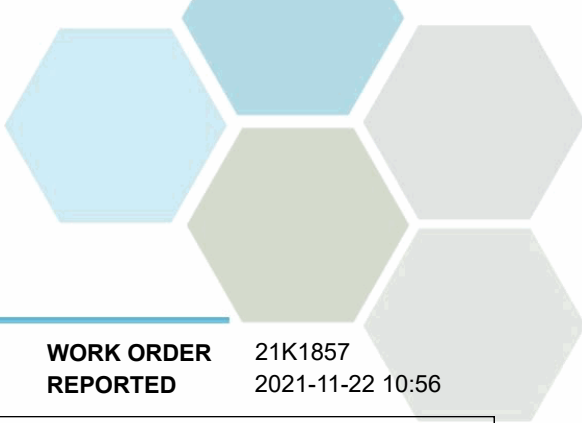
Aluminum, dissolved	2.7	N/A	1.0	µg/L	2021-11-18	
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General Parameters

Alkalinity, Total (as CaCO3)	155	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Bicarbonate (as CaCO3)	155	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-11-18	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2021-11-17	
Conductivity (EC)	337	N/A	2.0	µS/cm	2021-11-18	
Nitrogen, Total Kjeldahl	0.062	N/A	0.050	mg/L	2021-11-19	
pH	8.07	7.0-10.5	0.10	pH units	2021-11-18	HT2
Phosphorus, Total (as P)	0.0117	N/A	0.0050	mg/L	2021-11-19	
Phosphorus, Total Dissolved	0.0105	N/A	0.0050	mg/L	2021-11-19	
Turbidity	0.27	OG < 1	0.10	NTU	2021-11-16	

Microbiological Parameters

Coliforms, Total	411	MAC = 0	1	MPN/100 mL	2021-11-15	
E. coli	2	MAC = 0	1	MPN/100 mL	2021-11-15	



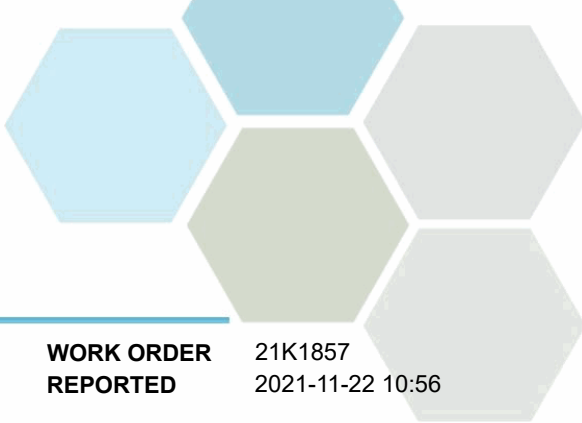
TEST RESULTS

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Sample Qualifiers:

- F1 The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals.
- 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 PROJECT Cherry Ridge Management Creek Monitoring

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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
E. coli in Water	NA / SM 9223 (2017)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	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

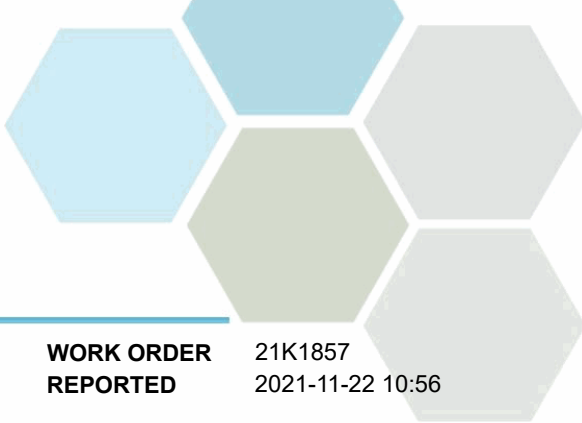
Glossary of Terms:

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
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
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 \(Health Canada, June 2019\)](#)

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



APPENDIX 1: SUPPORTING INFORMATION

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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 or once samples expire, whichever comes first. Longer hold is possible if 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

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