Annual Report of Monitoring

Lister Water System

Developed in accordance with the
British Columbia Drinking Water Protection Act

rdck.ca

BALFOUR WATER SYSTEM	
Period of Monitoring Covered by this Report:	January 1 - December 31, 2022
Interior Health Permit to Operate Facility Number:	12-098-00372
EOCP Classification:	SWS
IHA Permit:	Drinking Water System 15 - 300 Connections
Location of Water Supply System:	Lister, BC

Contact Information:
Regional District of Central Kootenay
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1. Introduction

Lister is a community located 16 km southeast of Creston within RDCK Electoral Area B. This system was first developed in 1929 and underwent significant upgrades in the 60s, 70s, and 80s. It was converted to a RDCK service in 1982 services 196 active connections. A new groundwater well and reservoir was commissioned in 2013. The RDCK receives community-specific advice and policy guidance from the Lister Commission of Management.

As part of the British Columbia Provincial *Drinking Water Protection Act (2001)* and *Drinking Water Protection Regulation (2003)* an annual water system report to water users is required. This annual report summarizes information collected and recorded throughout the reporting period, and details additional relevant information to the water system.

2. Water Treatment Objectives

The provincial technical document Drinking Water Treatment Objectives (Microbiological) for Ground Water Supplies in British Columbia (2015) provides guidelines on determination of ground water at risk of containing pathogens. If a ground water well is determined to be at risk, disinfection must be provided. Microbiological treatment objectives for Groundwater at Risk of Containing Pathogens (GARP) – Virus Only are as followings:

- 4-log reduction (99.99%) reduction of viruses
- Turbidity less than 1 NTU (Nephelometric Turbidity Unit)
- Zero total and fecal coliforms (E. coli)

Prior to release of the provincial technical document, a new well and reservoir were commissioned in Lister. Early bacteriological monitoring indicated the reoccurring presence of coliforms in water sample testing results, which suggested the well could be at risk of containing pathogens. As a result, sodium hypochlorite disinfection was implemented.

The Lister water treatment plant provides biologically safe drinking water and the Regional District continues to monitor water quality.

3. Water System Overview

Lister Water System's water source is a groundwater well. A reservoir commissioned in late 2013 combined with chlorine disinfection continues to be effective for improved water quality in the Lister system.

4. Monitoring

The Lister water system includes monitoring for bacteriological testing (total/fecal coliforms), turbidity, chlorine residual (free), consumption, and chemical constituents.

4.1 Bacteriological

Sampling is done from various locations within the distribution system. Tests for total and fecal coliforms are performed in accordance with the methods outlines in the Standard Methods for the Examination of Water and Wastewater (2005). Colony forming units (cfu) per 100 ml are determined for each sample. There were no adverse sample results in 2022, which indicates that the Lister water system consistently met guidelines for bacteriological parameters.

4.2 Turbidity

Turbidity is measured at the reservoir and two locations within the distribution system using handheld turbidity meters. The Regional District targets a turbidity level post reservoir below 1 NTU. Figure 1 outlines reservoir water turbidity levels.

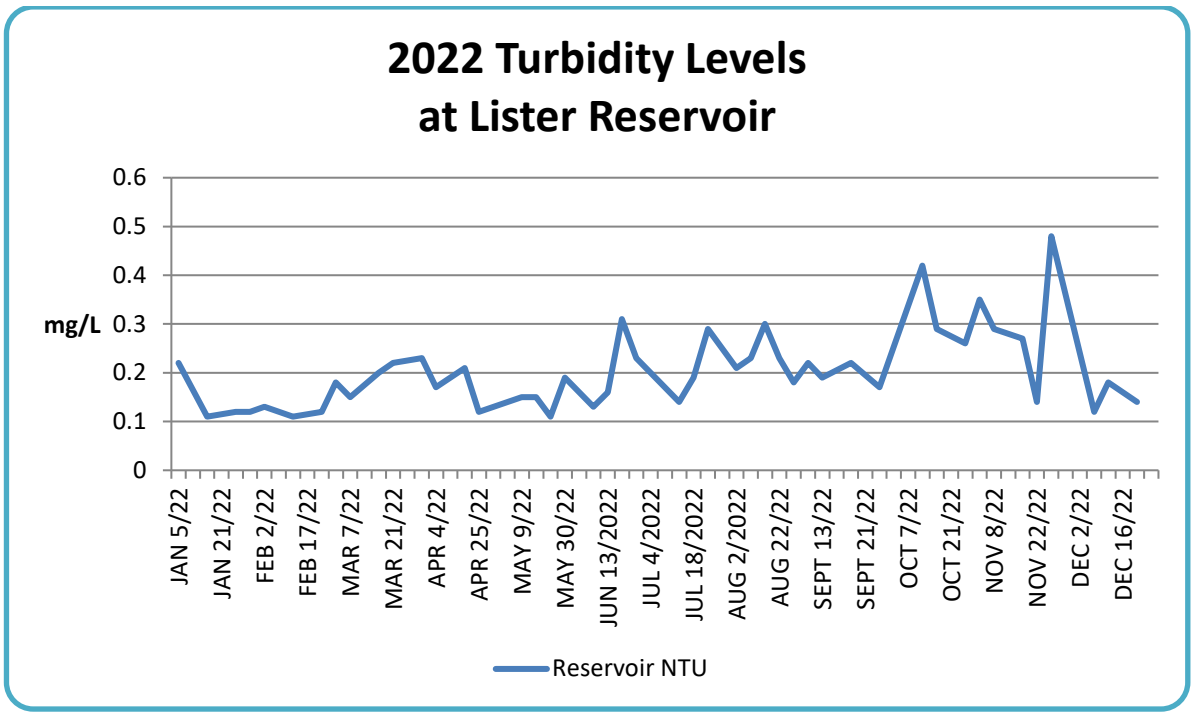

Figure 1 – Reservoir Turbidity Levels for Reporting Period

4.3 Chlorine Residual

The Lister treatment system measures free chlorine residual at the reservoir using an online chlorine analyser. The Regional District targets a minimum chlorine residual of 0.7 mg/L at the reservoir to meet the required 0.20 mg/L within the distribution system. Figure 1 shows the chlorine residual levels at the Lister Reservoir. Consumption was low enough and reservoir levels high enough to provide adequate disinfection to the first customer during events where chlorine residual was below 0.7 mg/L.

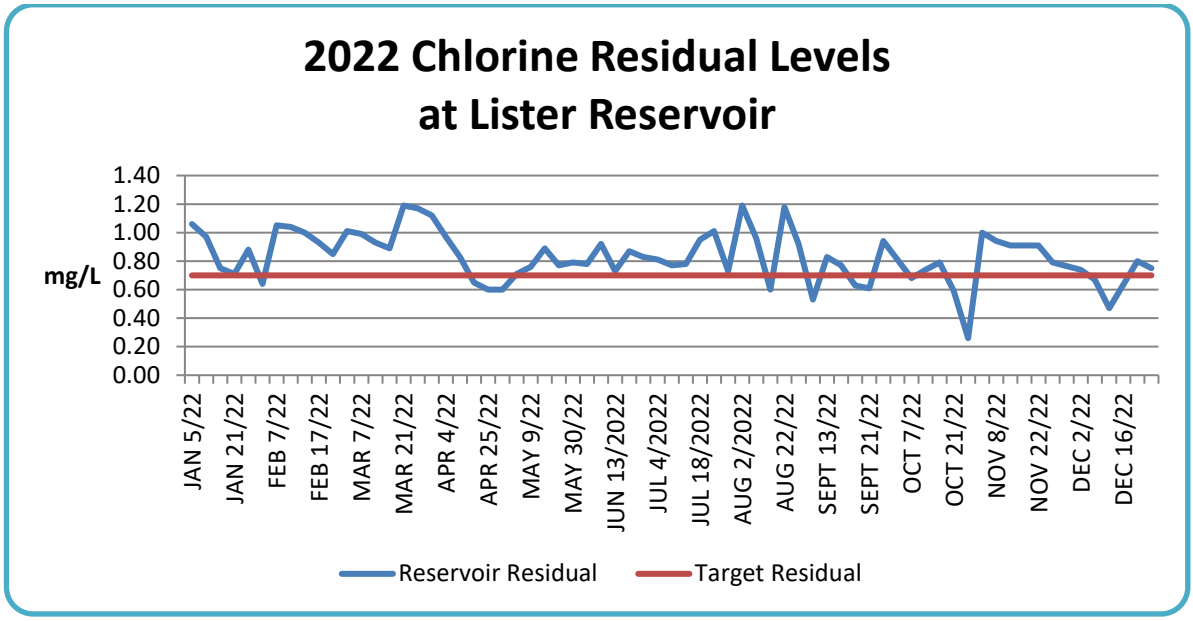

Figure 2 – Free Chlorine Residual Levels for Reporting Period

4.4 Consumption

Flow rates are measured at the Lister well in cubic meters. The total flow recorded for the reporting period was 203,446 cubic meters. The average monthly flow was 16,954 cubic meters. Figure 3 shows the monthly flow at the Lister well.

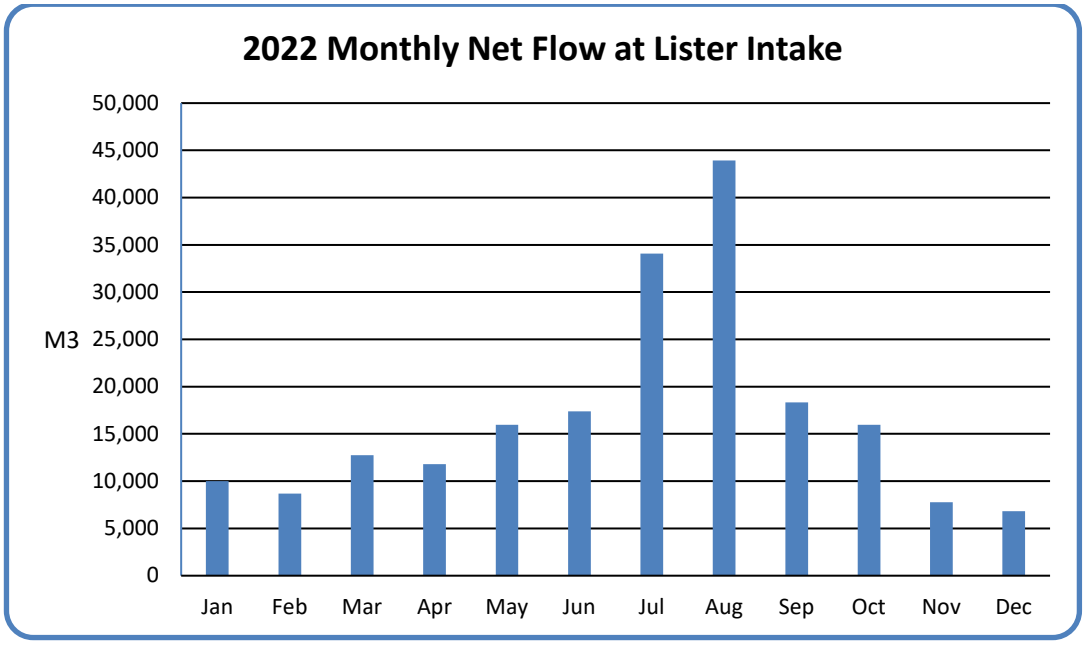

Figure 3 – Treated Water Volumes for Reporting Period

4.5 Chemistry

A comprehensive chemical analysis of a sample from the reservoir was completed on June 20th, 2018. A comprehensive chemical analysis of a sample from the well source was completed on December 14th, 2018, which showed a lead level above the Maximum Acceptable Concentration (MAC). A resample taken December 28th, 2018 at a different sample point showed lead levels below the MAC. This would suggest that the sample point itself was the source of the elevated lead levels, and the results do not reflect the source water's lead concentration. These test results can be found in Appendix A.

The RDCK also tested for the chemical disinfection by-products Trihalomethanes and Volatile Organic Compounds in June at the reservoir and a point in the distribution system. These results are presented in Appendix B. The results show that levels are below the MAC as outlined in the *Guidelines*.

5. Advisories Issued

The following table describes the Notices and Advisories issued for the reporting period.

Table 1 – Notices and Advisories Issued

Notice/Advisory Type	Dates in Effect	Reason
Boil Water Notice - localized (3024 - 3747 24th St and 2451 – 2591 Settlement Rd)	Jan 19 – Jan 20, 2023	Water main repair

Each Notice/Advisory was issued a Rescind Notice to notify the public once action was completed and water quality sampling results demonstrated good water quality.

6. Events and Improvements

There were no capital improvement projects in 2022. The following projects were completed in 2022:

- Annual flushing and valve exercising
- Installation of a new water main, 95 meters in length
- Installation of a new water service to property line at end of Lloyd Road
- 2 Water main break/leak repairs on 14th St and Lister Road
- Gate service valve and curb stop upgrade on Crestview Road

7. Water Conservation

Mandatory Stage 1 water conservation measures are in place from June 1 to September 30 every year. Stage 1 measures permit the watering of lawns, gardens, trees and shrubs only from 7pm to 10am daily. Watering using drip irrigation, a watering can or a hand held hose is permitted anytime. The RDCK did not implement water conservation measures higher than Stage 1 in 2022.

8. Planned Improvements

8.1 Improvements Required by Operating Permit or Drinking Water Officer

There are no improvements required on the Interior Health Issued Operating Permit.

8.2 Future Improvements

There is currently a backlog of approximately $3.2 million in water line replacements identified in asset management planning. An assessment study was completed in 2019 to determine long term asset replacement and an upgrade schedule. A complementary Long Term Infrastructure Capacity Assessment was also undertaken, with the purpose of obtaining a greater understanding into the possibility of expanding the Lister Water System to include adjacent properties and community water systems. Studies were presented to the

Commission in January, 2020, and are available on the RDCK Water Systems webpage under the Lister Water System tab (https://rdck.ca/EN/main/services/water/rdck-water-systems/lister-water-system/lister-water-system-studies.html).

The RDCK plans to procure a back-up power generator in 2023. Distribution system pipe replacement is planned for 2024, 2025 and 2026.

9. Training and Certification

Table 2 – Operator Certification

OPERATOR	ACTIVE EOCP LEVELS
Allan K. Richardson	WD-II, WT-II, WWC-II, MWWT-I, CH
Cody Peck	WT-II, WD-II, CH
Evan Bjarnason	WT-II, WD-II, CH

10. Emergency Response Plan

The Emergency Response Plan (ERP) for the Lister water system is updated annually. The ERP includes emergency contact information, a communications plan, and detailed procedures for the following types of incidents:

- broken water main;
- source contamination;
- elevated turbidity levels in treated water;
- fire in a building;
- flood conditions;
- loss of source;
- presence of coliforms or E. coli;
- pump failure;
- power failure; and
- low chlorine residuals.

The *Drinking Water Protection Regulation (2003)*, under Section 13, requires that water suppliers provide an ERP to address any potential emergencies that may impact the delivery of water and health of those being supplied by the water system. The ERP must be made accessible to the staff of the water supplier and a copy submitted to the local Environmental Health Officer. The RDCK has fulfilled these requirements for the Lister Water System.

Appendix A: Comprehensive Chemistry Analysis Results

CERTIFICATE OF ANALYSIS

REPORTED TO	Regional District of Central Kootenay - Erickson 531B 16th Ave. South CRESTON, BC V0B 1G5		
ATTENTION	Robin Douville	**WORK ORDER**	8061382
PO NUMBER		**RECEIVED / TEMP**	2018-06-13 09:30 / 15°C
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15
PROJECT INFO	Lister Water	**COC NUMBER**	B37908

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 estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lister Reservoir Discharge (8061382-01) | Matrix: Water | Sampled: 2018-06-11 09:30						
Anions						
Chloride	**0.84**	AO ≤ 250	0.10	mg/L	2018-06-15	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2018-06-15	
Nitrate (as N)	**0.159**	MAC = 10	0.010	mg/L	2018-06-15	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2018-06-15	HT1
Sulfate	**9.2**	AO ≤ 500	1.0	mg/L	2018-06-15	
General Parameters						
Alkalinity, Total (as CaCO3)	**56.0**	N/A	1.0	mg/L	2018-06-19	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2018-06-19	
Alkalinity, Bicarbonate (as CaCO3)	**56.0**	N/A	1.0	mg/L	2018-06-19	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2018-06-19	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2018-06-19	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2018-06-16	HT1
Conductivity (EC)	**134**	N/A	2.0	µS/cm	2018-06-19	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2018-06-15	
pH	**7.40**	7.0-10.5	0.10	pH units	2018-06-19	HT2
Temperature, at pH	**22.1**	N/A		°C	2018-06-19	HT2
Turbidity	**0.16**	OG < 1	0.10	NTU	2018-06-15	HT1
Calculated Parameters						
Total Trihalomethanes	< 0.00400	MAC = 0.1	0.00400	mg/L	N/A	
Hardness, Total (as CaCO3)	**61.1**	None Required	0.500	mg/L	N/A	
Langelier Index	**-1.0**	N/A	-5.0	-	2018-06-20	
Solids, Total Dissolved	**72.3**	AO ≤ 500	1.00	mg/L	N/A	
Total Metals						
Aluminum, total	**0.0064**	OG < 0.1	0.0050	mg/L	2018-06-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2018-06-18	
Arsenic, total	**0.00788**	MAC = 0.01	0.00050	mg/L	2018-06-18	
Barium, total	< 0.0050	MAC = 1	0.0050	mg/L	2018-06-18	
Boron, total	**0.0123**	MAC = 5	0.0050	mg/L	2018-06-18	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2018-06-18	
Calcium, total	**20.9**	None Required	0.20	mg/L	2018-06-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2018-06-18	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2018-06-18	
Copper, total	**0.00403**	AO ≤ 1	0.00040	mg/L	2018-06-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2018-06-18	
Lead, total	**0.00035**	MAC = 0.01	0.00020	mg/L	2018-06-18	
Magnesium, total	**2.15**	None Required	0.010	mg/L	2018-06-18	
Manganese, total	< 0.00020	AO ≤ 0.05	0.00020	mg/L	2018-06-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2018-06-19	
Molybdenum, total	**0.00113**	N/A	0.00010	mg/L	2018-06-18	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2018-06-18	

TEST RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lister Reservoir Discharge (8061382-01) | Matrix: Water | Sampled: 2018-06-11 09:30, Continued						
Total Metals, Continued						
Potassium, total	**1.46**	N/A	0.10	mg/L	2018-06-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2018-06-18	
Sodium, total	**2.86**	AO ≤ 200	0.10	mg/L	2018-06-18	
Strontium, total	**0.0527**	N/A	0.0010	mg/L	2018-06-18	
Uranium, total	**0.00109**	MAC = 0.02	0.000020	mg/L	2018-06-18	
Zinc, total	**0.0085**	AO ≤ 5	0.0040	mg/L	2018-06-18	
Volatile Organic Compounds (VOC)						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2018-06-18	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2018-06-18	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2018-06-18	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2018-06-18	
Surrogate: Toluene-d8	*78*		*70-130*	%	*2018-06-18*	
Surrogate: 4-Bromofluorobenzene	*92*		*70-130*	%	*2018-06-18*	

Sample Qualifiers:

HT1 The sample was prepared and/or analyzed past the recommended holding time.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

Analysis Description	Method Ref.	Technique	Location
Alkalinity in Water	SM 2320 B* (2011)	Titration with H2SO4	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Colour, True in Water	SM 2120 C (2011)	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	SM 2510 B (2011)	Conductivity Meter	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	Kelowna
Hardness in Water	SM 2340 B* (2011)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	N/A
Langelier Index in Water	SM 2330 B (2010)	Calculation	N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2011)	Calculation: 100 x ([Cations]-[Anions])/([Cations]+[Anions])	N/A
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	Richmond
Turbidity in Water	SM 2130 B (2011)	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
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
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
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8F1212										
Blank (B8F1212-BLK1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B8F1212-BS1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Chloride	16.1	0.10	mg/L	16.0		100	90-110			
Fluoride	3.87	0.10	mg/L	4.00		97	88-108			
Nitrate (as N)	3.93	0.010	mg/L	4.00		98	93-108			
Nitrite (as N)	2.08	0.010	mg/L	2.00		104	85-114			
Sulfate	16.0	1.0	mg/L	16.0		100	91-109			
General Parameters, Batch B8F1137										
Blank (B8F1137-BLK1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B8F1137-BS1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Cyanide, Total	0.0210	0.0020	mg/L	0.0200		105	82-120			
LCS Dup (B8F1137-BSD1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Cyanide, Total	0.0197	0.0020	mg/L	0.0200		98	82-120	6	10	
General Parameters, Batch B8F1214										
Blank (B8F1214-BLK1)				Prepared: 2018-06-16, Analyzed: 2018-06-16						
Colour, True	< 5.0	5.0	CU							
LCS (B8F1214-BS1)				Prepared: 2018-06-16, Analyzed: 2018-06-16						
Colour, True	9.5	5.0	CU	10.0		95	85-115			
Duplicate (B8F1214-DUP1)				**Source: 8061382-01**	Prepared: 2018-06-16, Analyzed: 2018-06-16					
Colour, True	< 5.0	5.0	CU		< 5.0				15	

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REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8F1258										
Blank (B8F1258-BLK1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Turbidity	< 0.10	0.10	NTU							
LCS (B8F1258-BS1)				Prepared: 2018-06-15, Analyzed: 2018-06-15						
Turbidity	38.0	0.10	NTU	40.0		95	90-110			
General Parameters, Batch B8F1500										
Blank (B8F1500-BLK1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Blank (B8F1500-BLK2)				Prepared: 2018-06-19, Analyzed: 2018-06-19						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B8F1500-BS1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Alkalinity, Total (as CaCO3)	100	1.0	mg/L	100		100	92-106			
LCS (B8F1500-BS2)				Prepared: 2018-06-19, Analyzed: 2018-06-19						
Alkalinity, Total (as CaCO3)	99.4	1.0	mg/L	100		99	92-106			
LCS (B8F1500-BS3)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Conductivity (EC)	1400	2.0	µS/cm	1410		100	95-104			
LCS (B8F1500-BS4)				Prepared: 2018-06-19, Analyzed: 2018-06-19						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-104			
Reference (B8F1500-SRM1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
pH	7.02	0.10	pH units	7.01		100	98-102			HT2
Reference (B8F1500-SRM2)				Prepared: 2018-06-19, Analyzed: 2018-06-19						
pH	7.03	0.10	pH units	7.01		100	98-102			HT2
Total Metals, Batch B8F1417										
Blank (B8F1417-BLK1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0050	0.0050	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8F1417, Continued										
Blank (B8F1417-BLK1), Continued				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
LCS (B8F1417-BS1)				Prepared: 2018-06-18, Analyzed: 2018-06-20						
Aluminum, total	0.0214	0.0050	mg/L	0.0200		107	80-120			
Antimony, total	0.0214	0.00020	mg/L	0.0200		107	80-120			
Arsenic, total	0.0206	0.00050	mg/L	0.0200		103	80-120			
Barium, total	0.0198	0.0050	mg/L	0.0200		99	80-120			
Boron, total	0.0223	0.0050	mg/L	0.0200		112	80-120			
Cadmium, total	0.0212	0.000010	mg/L	0.0200		106	80-120			
Calcium, total	2.09	0.20	mg/L	2.00		104	80-120			
Chromium, total	0.0205	0.00050	mg/L	0.0200		102	80-120			
Cobalt, total	0.0205	0.00010	mg/L	0.0200		103	80-120			
Copper, total	0.0217	0.00040	mg/L	0.0200		109	80-120			
Iron, total	2.06	0.010	mg/L	2.00		103	80-120			
Lead, total	0.0215	0.00020	mg/L	0.0200		107	80-120			
Magnesium, total	2.21	0.010	mg/L	2.00		110	80-120			
Manganese, total	0.0205	0.00020	mg/L	0.0200		102	80-120			
Molybdenum, total	0.0200	0.00010	mg/L	0.0200		100	80-120			
Nickel, total	0.0210	0.00040	mg/L	0.0200		105	80-120			
Potassium, total	2.14	0.10	mg/L	2.00		107	80-120			
Selenium, total	0.0222	0.00050	mg/L	0.0200		111	80-120			
Sodium, total	2.16	0.10	mg/L	2.00		108	80-120			
Strontium, total	0.0200	0.0010	mg/L	0.0200		100	80-120			
Uranium, total	0.0201	0.000020	mg/L	0.0200		100	80-120			
Zinc, total	0.0221	0.0040	mg/L	0.0200		111	80-120			
Reference (B8F1417-SRM1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Aluminum, total	0.330	0.0050	mg/L	0.303		109	82-114			
Antimony, total	0.0480	0.00020	mg/L	0.0511		94	88-115			
Arsenic, total	0.124	0.00050	mg/L	0.118		105	88-111			
Barium, total	0.737	0.0050	mg/L	0.823		89	83-110			
Boron, total	3.45	0.0050	mg/L	3.45		100	80-118			
Cadmium, total	0.0488	0.000010	mg/L	0.0495		99	90-110			
Calcium, total	12.2	0.20	mg/L	11.6		105	85-113			
Chromium, total	0.249	0.00050	mg/L	0.250		99	88-111			
Cobalt, total	0.0410	0.00010	mg/L	0.0377		109	90-114			
Copper, total	0.535	0.00040	mg/L	0.486		110	90-117			
Iron, total	0.543	0.010	mg/L	0.488		111	90-116			
Lead, total	0.205	0.00020	mg/L	0.204		101	90-110			
Magnesium, total	4.29	0.010	mg/L	3.79		113	88-116			
Manganese, total	0.118	0.00020	mg/L	0.109		108	88-108			
Molybdenum, total	0.195	0.00010	mg/L	0.198		98	88-110			
Nickel, total	0.261	0.00040	mg/L	0.249		105	90-112			
Potassium, total	8.38	0.10	mg/L	7.21		116	87-116			
Selenium, total	0.140	0.00050	mg/L	0.121		116	90-122			
Sodium, total	8.61	0.10	mg/L	7.54		114	86-118			
Strontium, total	0.379	0.0010	mg/L	0.375		101	86-110			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8061382
PROJECT	General Potability	**REPORTED**	2018-06-20 17:15

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8F1417, Continued										
Reference (B8F1417-SRM1), Continued				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Uranium, total	0.0296	0.000020	mg/L	0.0306		97	88-112			
Zinc, total	2.67	0.0040	mg/L	2.49		107	90-113			
Total Metals, Batch B8F1490										
Blank (B8F1490-BLK1)				Prepared: 2018-06-18, Analyzed: 2018-06-19						
Mercury, total	< 0.000010	0.000010	mg/L							
Reference (B8F1490-SRM1)				Prepared: 2018-06-18, Analyzed: 2018-06-19						
Mercury, total	0.00410	0.000010	mg/L	0.00489		84	80-120			
Volatile Organic Compounds (VOC), Batch B8F1501										
Blank (B8F1501-BLK1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Bromodichloromethane	< 0.0010	0.0010	mg/L							
Bromoform	< 0.0010	0.0010	mg/L							
Chloroform	< 0.0010	0.0010	mg/L							
Dibromochloromethane	< 0.0010	0.0010	mg/L							
Surrogate: Toluene-d8	*0.0174*		*mg/L*	0.0262		*66*	*70-130*			*S02*
Surrogate: 4-Bromofluorobenzene	*0.0166*		*mg/L*	0.0250		*66*	*70-130*			*S02*
LCS (B8F1501-BS1)				Prepared: 2018-06-18, Analyzed: 2018-06-18						
Bromodichloromethane	0.0195	0.0010	mg/L	0.0200		98	70-130			
Bromoform	0.0119	0.0010	mg/L	0.0202		59	70-130			SPK
Chloroform	0.0218	0.0010	mg/L	0.0202		108	70-130			
Dibromochloromethane	0.0132	0.0010	mg/L	0.0201		66	70-130			SPK
Surrogate: Toluene-d8	*0.0193*		*mg/L*	0.0262		*74*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0220*		*mg/L*	0.0250		*88*	*70-130*			

QC Qualifiers:

HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.
SPK	The recovery of this analyte was outside of established control limits.

CERTIFICATE OF ANALYSIS

REPORTED TO	Interior Health Authority - Kamloops 519 Columbia Street Kamloops, BC V2C 2T8		
ATTENTION	Jessy Bhatti	**WORK ORDER**	8120658
PO NUMBER		**RECEIVED / TEMP**	2018-12-07 09:15 / 4°C
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26
PROJECT INFO	Lister Water System	**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 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 jnobrega@caro.ca

Authorized By:

Jessica Nobrega, B.Sc.
Client Service Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lister Well (8120658-01) | Matrix: Water | Sampled: 2018-12-04 12:00						
Anions						
Chloride	**0.29**	AO ≤ 250	0.10	mg/L	2018-12-09	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2018-12-09	
Nitrate (as N)	**0.204**	MAC = 10	0.010	mg/L	2018-12-09	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2018-12-09	HT1
Sulfate	**9.1**	AO ≤ 500	1.0	mg/L	2018-12-09	
Calculated Parameters						
Hardness, Total (as CaCO3)	**54.8**	None Required	0.500	mg/L	N/A	
Solids, Total Dissolved	**34.3**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Langelier Index	**-9.3**	N/A			2018-12-08	
Alkalinity, Total (as CaCO3)	**57.5**	N/A	1.0	mg/L	2018-12-12	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2018-12-12	
Alkalinity, Bicarbonate (as CaCO3)	**57.5**	N/A	1.0	mg/L	2018-12-12	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2018-12-12	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2018-12-12	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2018-12-08	HT1
Conductivity (EC)	**128**	N/A	2.0	µS/cm	2018-12-12	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2018-12-12	
Cation-Anion Balance	**-5.6**	N/A			2018-12-12	
pH	**7.60**	7.0-10.5	0.10	pH units	2018-12-10	HT2
Temperature, at pH	**22.0**	N/A		°C	2018-12-10	HT2
Turbidity	**0.19**	OG < 1	0.10	NTU	2018-12-08	
Total Metals						
Aluminum, total	**0.0093**	OG < 0.1	0.0050	mg/L	2018-12-13	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2018-12-13	
Arsenic, total	**0.00783**	MAC = 0.01	0.00050	mg/L	2018-12-13	
Barium, total	< 0.0050	MAC = 1	0.0050	mg/L	2018-12-13	
Boron, total	**0.0066**	MAC = 5	0.0050	mg/L	2018-12-13	
Cadmium, total	**0.000059**	MAC = 0.005	0.000010	mg/L	2018-12-13	
Calcium, total	**18.6**	None Required	0.20	mg/L	2018-12-13	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2018-12-13	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2018-12-13	
Copper, total	**0.0289**	AO ≤ 1	0.00040	mg/L	2018-12-13	
Iron, total	**0.124**	AO ≤ 0.3	0.010	mg/L	2018-12-13	
Lead, total	**0.0210**	MAC = 0.01	0.00020	mg/L	2018-12-13	
Magnesium, total	**2.01**	None Required	0.010	mg/L	2018-12-13	
Manganese, total	**0.00088**	AO ≤ 0.05	0.00020	mg/L	2018-12-13	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2018-12-13	
Molybdenum, total	**0.00112**	N/A	0.00010	mg/L	2018-12-13	
Nickel, total	**0.00720**	N/A	0.00040	mg/L	2018-12-13	

TEST RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lister Well (8120658-01) | Matrix: Water | Sampled: 2018-12-04 12:00, Continued						
Total Metals, Continued						
Potassium, total	**1.26**	N/A	0.10	mg/L	2018-12-13	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2018-12-13	
Sodium, total	**2.14**	AO ≤ 200	0.10	mg/L	2018-12-13	
Strontium, total	**0.0541**	N/A	0.0010	mg/L	2018-12-13	
Uranium, total	**0.00103**	MAC = 0.02	0.000020	mg/L	2018-12-13	
Zinc, total	**0.107**	AO ≤ 5	0.0040	mg/L	2018-12-13	

Sample Qualifiers:

HT1 The sample was prepared and/or analyzed past the recommended holding time.

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analysis Description	Method Ref.	Technique	Location
Alkalinity in Water	SM 2320 B* (2011)	Titration with H2SO4	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Colour, True in Water	SM 2120 C (2011)	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	SM 2510 B (2011)	Conductivity Meter	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	Kelowna
Hardness in Water	SM 2340 B* (2011)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2011)	Calculation: 100 x ([Cations]-[Anions])/([Cations]+[Anions])	N/A
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Turbidity in Water	SM 2130 B (2011)	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
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
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
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8L0574										
Blank (B8L0574-BLK1)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B8L0574-BLK2)				Prepared: 2018-12-09, Analyzed: 2018-12-09						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B8L0574-BLK3)				Prepared: 2018-12-09, Analyzed: 2018-12-09						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B8L0574-BS1)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Chloride	16.0	0.10	mg/L	16.0		100	90-110			
Fluoride	4.00	0.10	mg/L	4.00		100	88-108			
Nitrate (as N)	4.04	0.010	mg/L	4.00		101	93-108			
Nitrite (as N)	2.06	0.010	mg/L	2.00		103	85-114			
Sulfate	16.0	1.0	mg/L	16.0		100	91-109			
LCS (B8L0574-BS2)				Prepared: 2018-12-09, Analyzed: 2018-12-09						
Chloride	16.1	0.10	mg/L	16.0		101	90-110			
Fluoride	3.87	0.10	mg/L	4.00		97	88-108			
Nitrate (as N)	4.06	0.010	mg/L	4.00		102	93-108			
Nitrite (as N)	2.04	0.010	mg/L	2.00		102	85-114			
Sulfate	15.9	1.0	mg/L	16.0		100	91-109			
LCS (B8L0574-BS3)				Prepared: 2018-12-09, Analyzed: 2018-12-09						
Chloride	16.1	0.10	mg/L	16.0		101	90-110			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B8L0574, Continued										
LCS (B8L0574-BS3), Continued				Prepared: 2018-12-09, Analyzed: 2018-12-09						
Fluoride	4.01	0.10	mg/L	4.00		100	88-108			
Nitrate (as N)	3.98	0.010	mg/L	4.00		100	93-108			
Nitrite (as N)	2.05	0.010	mg/L	2.00		102	85-114			
Sulfate	16.0	1.0	mg/L	16.0		100	91-109			
General Parameters, Batch B8L0583										
Blank (B8L0583-BLK1)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Turbidity	< 0.10	0.10	NTU							
Blank (B8L0583-BLK2)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Turbidity	< 0.10	0.10	NTU							
LCS (B8L0583-BS1)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Turbidity	40.1	0.10	NTU	40.0		100	90-110			
LCS (B8L0583-BS2)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Turbidity	40.2	0.10	NTU	40.0		100	90-110			
General Parameters, Batch B8L0586										
Blank (B8L0586-BLK1)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Langelier Index	<		CU							
Colour, True	< 5.0	5.0	CU							
Blank (B8L0586-BLK2)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Langelier Index	<		CU							
Colour, True	< 5.0	5.0	CU							
LCS (B8L0586-BS1)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Colour, True	20	5.0	CU	20.0		98	85-115			
LCS (B8L0586-BS2)				Prepared: 2018-12-08, Analyzed: 2018-12-08						
Colour, True	19	5.0	CU	20.0		96	85-115			
General Parameters, Batch B8L0629										
Reference (B8L0629-SRM1)				Prepared: 2018-12-10, Analyzed: 2018-12-10						
pH	7.00	0.10	pH units	7.01		100	98-102			
Reference (B8L0629-SRM2)				Prepared: 2018-12-10, Analyzed: 2018-12-10						
pH	6.99	0.10	pH units	7.01		100	98-102			
Reference (B8L0629-SRM3)				Prepared: 2018-12-10, Analyzed: 2018-12-10						
pH	6.99	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B8L0808										
Blank (B8L0808-BLK1)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8L0808, Continued										
Blank (B8L0808-BLK1), Continued				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Cation-Anion Balance	0.0		mg/L							
Blank (B8L0808-BLK2)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Cation-Anion Balance	0.0		mg/L							
LCS (B8L0808-BS1)				Prepared: 2018-12-11, Analyzed: 2018-12-11						
Alkalinity, Total (as CaCO3)	103	1.0	mg/L	100		103	92-106			
LCS (B8L0808-BS2)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Alkalinity, Total (as CaCO3)	103	1.0	mg/L	100		103	92-106			
LCS (B8L0808-BS3)				Prepared: 2018-12-11, Analyzed: 2018-12-11						
Conductivity (EC)	1430	2.0	µS/cm	1410		101	95-104			
LCS (B8L0808-BS4)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Conductivity (EC)	1420	2.0	µS/cm	1410		100	95-104			
General Parameters, Batch B8L0823										
Blank (B8L0823-BLK1)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B8L0823-BS1)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Cyanide, Total	0.0198	0.0020	mg/L	0.0200		99	82-120			
LCS Dup (B8L0823-BSD1)				Prepared: 2018-12-12, Analyzed: 2018-12-12						
Cyanide, Total	0.0203	0.0020	mg/L	0.0200		102	82-120	3	10	
Total Metals, Batch B8L0836										
Blank (B8L0836-BLK1)				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0050	0.0050	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8L0836, Continued										
Blank (B8L0836-BLK1), Continued				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
Blank (B8L0836-BLK2)				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0050	0.0050	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
Blank (B8L0836-BLK3)				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0050	0.0050	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
Blank (B8L0836-BLK4)				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8L0836, Continued										
Blank (B8L0836-BLK4), Continued				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0050	0.0050	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							
LCS (B8L0836-BS1)				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Aluminum, total	0.0218	0.0050	mg/L	0.0200		109	80-120			
Antimony, total	0.0204	0.00020	mg/L	0.0200		102	80-120			
Arsenic, total	0.0222	0.00050	mg/L	0.0200		111	80-120			
Barium, total	0.0205	0.0050	mg/L	0.0200		103	80-120			
Boron, total	0.0219	0.0050	mg/L	0.0200		110	80-120			
Cadmium, total	0.0214	0.000010	mg/L	0.0200		107	80-120			
Calcium, total	2.13	0.20	mg/L	2.00		107	80-120			
Chromium, total	0.0210	0.00050	mg/L	0.0200		105	80-120			
Cobalt, total	0.0219	0.00010	mg/L	0.0200		110	80-120			
Copper, total	0.0210	0.00040	mg/L	0.0200		105	80-120			
Iron, total	1.99	0.010	mg/L	2.00		100	80-120			
Lead, total	0.0215	0.00020	mg/L	0.0200		107	80-120			
Magnesium, total	2.13	0.010	mg/L	2.00		107	80-120			
Manganese, total	0.0199	0.00020	mg/L	0.0200		100	80-120			
Molybdenum, total	0.0203	0.00010	mg/L	0.0200		101	80-120			
Nickel, total	0.0215	0.00040	mg/L	0.0200		108	80-120			
Potassium, total	1.93	0.10	mg/L	2.00		97	80-120			
Selenium, total	0.0230	0.00050	mg/L	0.0200		115	80-120			
Sodium, total	2.19	0.10	mg/L	2.00		109	80-120			
Strontium, total	0.0201	0.0010	mg/L	0.0200		100	80-120			
Uranium, total	0.0212	0.000020	mg/L	0.0200		106	80-120			
Zinc, total	0.0222	0.0040	mg/L	0.0200		111	80-120			
Reference (B8L0836-SRM1)				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Aluminum, total	0.291	0.0050	mg/L	0.303		96	82-114			
Antimony, total	0.0520	0.00020	mg/L	0.0511		102	88-115			
Arsenic, total	0.125	0.00050	mg/L	0.118		106	88-111			
Barium, total	0.794	0.0050	mg/L	0.823		96	83-110			
Boron, total	3.67	0.0050	mg/L	3.45		106	80-118			
Cadmium, total	0.0510	0.000010	mg/L	0.0495		103	90-110			
Calcium, total	10.5	0.20	mg/L	11.6		91	85-113			
Chromium, total	0.251	0.00050	mg/L	0.250		100	88-111			
Cobalt, total	0.0405	0.00010	mg/L	0.0377		107	90-114			
Copper, total	0.525	0.00040	mg/L	0.486		108	90-117			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Interior Health Authority - Kamloops	**WORK ORDER**	8120658
PROJECT	Comprehensive Testing 2018 (Jessy Bhatti)	**REPORTED**	2018-12-14 15:26

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8L0836, Continued										
Reference (B8L0836-SRM1), Continued				Prepared: 2018-12-12, Analyzed: 2018-12-13						
Iron, total	0.477	0.010	mg/L	0.488		98	90-116			
Lead, total	0.210	0.00020	mg/L	0.204		103	90-110			
Magnesium, total	3.97	0.010	mg/L	3.79		105	88-116			
Manganese, total	0.105	0.00020	mg/L	0.109		96	88-108			
Molybdenum, total	0.199	0.00010	mg/L	0.198		101	88-110			
Nickel, total	0.257	0.00040	mg/L	0.249		103	90-112			
Potassium, total	6.98	0.10	mg/L	7.21		97	87-116			
Selenium, total	0.137	0.00050	mg/L	0.121		113	90-122			
Sodium, total	7.71	0.10	mg/L	7.54		102	86-118			
Strontium, total	0.367	0.0010	mg/L	0.375		98	86-110			
Uranium, total	0.0311	0.000020	mg/L	0.0306		102	88-112			
Zinc, total	2.67	0.0040	mg/L	2.49		107	90-113			
Total Metals, Batch B8L0959										
Blank (B8L0959-BLK1)				Prepared: 2018-12-13, Analyzed: 2018-12-13						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B8L0959-BLK2)				Prepared: 2018-12-13, Analyzed: 2018-12-13						
Mercury, total	< 0.000010	0.000010	mg/L							
Reference (B8L0959-SRM1)				Prepared: 2018-12-13, Analyzed: 2018-12-13						
Mercury, total	0.00489	0.000010	mg/L	0.00489		100	80-120			
Reference (B8L0959-SRM2)				Prepared: 2018-12-13, Analyzed: 2018-12-13						
Mercury, total	0.00494	0.000010	mg/L	0.00489		101	80-120			

Interior Health
Every person matters

2018 Comprehensive Requisitio

8120658

Interior Health Authority – Kamloops
Project: Comprehensive Testing 2018 (Jessy Bhatti)
Email to receive report: Jastinder.Bhatti@interiorhealth.ca

Lab Number:
Date Reported:

DWO/EHO: Pouria Mojtahedi Cell #: 250-551-1911 Email: pouria.mojtahedi@th.ca

Facility Name: Lister Water system
Facility #: 12-098-0037

Site Address: Lister well

Phone #: 250-428-6179 Email: rdouville@rdck.bc.ca Fax #:

Sampler's Name: Al Richardson
Phone #:
Cell #: 250-551-2403
Email: arichardson@rdck.bc.ca

Date Collected DD/MM/YYYY: 04/12/2018
Time Collected HH/MM: 12:00 **am or (pm)**
"Raw water"

Sampling Site Location: ◀◀ ◀◀ *SAMPLER MUST FILL IN SAMPLE SITE*

Analysis
Alkalinity, all (KEL)
Coliforms, Total & Fecal by MPN (KEL)
Conductivity in Water (KEL)
Cyanide, Free in Water, Auto (KEL)
E. coli MPN Package (KEL)
Fluoride in Water, IC (KEL)
Langelier Index (CALC)
Mercury, total CVAFS Reg & Low (RMD)
Metals, total, All, Low (RMD)
Nitrogen, NO2 in water, IC (KEL)
Nitrogen, NO3 in water, IC (KEL)
pH in Water (KEL)
Sulfate in Water, IC (KEL)
Temperature (KEL)

Dec. 7/18 0915 PURO
BL 4°C

CERTIFICATE OF ANALYSIS

REPORTED TO	Regional District of Central Kootenay - Erickson 531B 16th Ave. South CRESTON, BC V0B 1G5		
ATTENTION	Robin Douville	**WORK ORDER**	8121657
PO NUMBER	RDCK- Erickson	**RECEIVED / TEMP**	2018-12-19 10:30 / 8°C
PROJECT	Lead Testing	**REPORTED**	2018-12-28 15:23
PROJECT INFO		**COC NUMBER**	B37909

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 estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

TEST RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8121657
PROJECT	Lead Testing	**REPORTED**	2018-12-28 15:23

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lead (8121657-01) | Matrix: Water | Sampled: 2018-12-18 10:00						
Total Metals						
Lead, total	**0.00075**	MAC = 0.01	0.00020	mg/L	2018-12-24	

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	8121657
PROJECT	Lead Testing	**REPORTED**	2018-12-28 15:23

Analysis Description	Method Ref.	Technique	Location
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond

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)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

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

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

Appendix B: Trihalomethanes/Haloacetic Acid and Volatile Organic Compounds Monitoring Results

CERTIFICATE OF ANALYSIS

REPORTED TO	Regional District of Central Kootenay - Erickson 531B 16th Ave. South CRESTON, BC V0B 1G5		
ATTENTION	Allan Richardson	**WORK ORDER**	21F3842
PO NUMBER	RDCK- Erickson	**RECEIVED / TEMP**	2021-06-29 15:10 / 25.0°C
PROJECT	THM Analysis	**REPORTED**	2021-07-06 15:25
PROJECT INFO		**COC NUMBER**	B37912

Introduction:

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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 bwhitehead@caro.ca

Authorized By:

Brent Whitehead
Client Scientist - Team Lead

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO Regional District of Central Kootenay - Erickson
PROJECT THM Analysis

WORK ORDER 21F3842
REPORTED 2021-07-06 15:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
14th Street Sample Tap (21F3842-01) | Matrix: Water | Sampled: 2021-06-28 09:30						
Calculated Parameters						
Total Trihalomethanes	< 0.00400	MAC = 0.1	0.00400	mg/L	N/A	
Haloacetic Acids						
Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Dichloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Trichloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Total Haloacetic Acids (HAA5)	< 0.00200	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	*98*		*70-130*	%	*2021-07-01*	
Volatile Organic Compounds (VOC)						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Surrogate: Toluene-d8	*77*		*70-130*	%	*2021-07-03*	
Surrogate: 4-Bromofluorobenzene	*74*		*70-130*	%	*2021-07-03*	
28th Street (21F3842-02) | Matrix: Water | Sampled: 2021-06-28 09:15						
Haloacetic Acids						
Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Dichloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Trichloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Total Haloacetic Acids (HAA5)	< 0.00200	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	*101*		*70-130*	%	*2021-07-01*	
Lister Well (21F3842-03) | Matrix: Water | Sampled: 2021-06-28 09:46						
Calculated Parameters						
Total Trihalomethanes	< 0.00400	MAC = 0.1	0.00400	mg/L	N/A	
Haloacetic Acids						
Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Dichloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Trichloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2021-07-01	
Total Haloacetic Acids (HAA5)	< 0.00200	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	*100*		*70-130*	%	*2021-07-01*	

TEST RESULTS

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	21F3842
PROJECT	THM Analysis	**REPORTED**	2021-07-06 15:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Lister Well (21F3842-03) | Matrix: Water | Sampled: 2021-06-28 09:46, Continued						
Volatile Organic Compounds (VOC)						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Chloroform	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2021-07-03	
Surrogate: Toluene-d8	*82*		*70-130*	%	*2021-07-03*	
Surrogate: 4-Bromofluorobenzene	*77*		*70-130*	%	*2021-07-03*	

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Regional District of Central Kootenay - Erickson	**WORK ORDER**	21F3842
PROJECT	THM Analysis	**REPORTED**	2021-07-06 15:25

Analysis Description	Method Ref.	Technique	Accredited	Location
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond

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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

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

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:bwhitehead@caro.ca

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.