North Canyon Improvement District

P.O. Box 60,
Canyon, BC V0B 1C0
Telephone: 250-254-1215

Potable Water System Operational Summary 2023

Potable Water System Operations Summary

The potable water system continues to operate well, meeting all Canadian Drinking Water Standards.

In 2023 a Boil Water Advisory was issued from August 12th to August 25th for the entire district due to an electrical issue caused by a power outage resulting in low pressure in some areas of the system.

In 2023, a localized Boil Water Advisory was in place for the entire year due to low pressure issues on Mehrer Road. The properties affected by this localized Boil Water Advisory are: 4866 Mehrer Road, 4852 Mehrer Road and 4790 Samuelson Road.

2023 Water Rates

The bills for the annual Water Taxes & Tolls are sent to the water users in May of every year. The Water Taxes & Tolls are based upon the annual budget which is approved by the trustees at the end of the previous fiscal year. The Water Taxes & Tolls are billed based upon the allocations assigned to each property.

The 2023 Water Taxes & Tolls rates are as follows:

Parcel Tax - $208 per parcel
Infrastructure Renewal - $308 per property
Acreage Tax - $5.75 per acre
Domestic Connection Toll - $343 per domestic connection
Additional Domestic Connection Toll - $343 per additional domestic connection
Irrigation Sprinkler Toll - $160 per irrigation sprinkler
Commercial Operations Toll - $407 per commercial operation
School Toll - $2500 per school

2023 Facility Classification & Emergency Contact

The North Canyon Improvement District is classified as a Small Water Systems Facility.

NCID currently employs 1 part time administrator, 1 part time Small Water Systems Certified back-up operator, and a contract operator with the following qualifications:

- Water Distribution Level 2
- Water Treatment Level 1
- Wastewater Treatment Level 2

Operators are either on duty or on-call 24 hrs./day.

In case of Emergency, please contact the operator, Bob Adams at 250-402-3257

2023 Potable Water System Improvements

In the continuance of bringing the Goat River Well into our potable system, weekly bacterial testing was completed. There were no failed tests for either E. Coli or Coliforms for the Goat River Well in 2023.

Planning continued for the installation of a chlorinator at the Goat River Well, a construction permit for the chlorinator was issued by IHA in 2023. The plan is to have the Goat River Well in operation for the summer of 2024.

A grant application was submitted with the Investment Agriculture Foundation in the fall of 2023 for a replacement to the SCADA system at the reservoir and the installation of a SCADA system at the Goat River Well.

2023 Potable System Bacterial Testing

Weekly Bacterial Test samples were taken as required by BC Interior Health. There were no failed tests for either E. Coli or Coliforms and the localized boil water advisory as well as the system wide boil water advisory issued in 2023 were due to low pressure issues not due to the results of a failed test.

Potable Water Quality

Attached is the full analysis of the water quality test for the potable system completed in the fall of 2023. Next full analysis test to be completed in the Fall of 2024.

Goat River Well Raw Water Quality

Attached is the full analysis of the water quality test for the Goat River Well raw water completed in the fall of 2023. The water from the Goat River Well was not used in the potable system in 2023 and was only ran for testing purposes. Next full analysis test to be completed in the Fall of 2024. The plan is to have this well in production for the summer of 2024.

CERTIFICATE OF ANALYSIS

REPORTED TO	North Canyon Improvement District Box 60 Canyon, BC V0B 1C0		
ATTENTION	Bob Adams	**WORK ORDER**	23K0177
PO NUMBER		**RECEIVED / TEMP**	2023-11-01 13:35 / 6.5°C
PROJECT	N.C.I.D. Drinking Water	**REPORTED**	2023-11-08 16:45
PROJECT INFO	05347	**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.

By engaging our services, you are agreeing to CARO Analytical Service's Standard Terms and Conditions outlined here: https://www.caro.ca/terms-conditions

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

Authorized By:

Team CARO
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	North Canyon Improvement District	**WORK ORDER**	23K0177
PROJECT	N.C.I.D. Drinking Water	**REPORTED**	2023-11-08 16:45

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Goat River Well (23K0177-01) | Matrix: Water | Sampled: 2023-10-31 07:45						
Anions						
Chloride	**2.88**	AO ≤ 250	0.10	mg/L	2023-11-03	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-11-03	
Nitrate (as N)	**0.265**	MAC = 10	0.010	mg/L	2023-11-03	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-11-03	
Sulfate	**10.4**	AO ≤ 500	1.0	mg/L	2023-11-03	
Calculated Parameters						
Hardness, Total (as CaCO3)	**62.1**	None Required	0.500	mg/L	N/A	
Langelier Index	**-1.8**	N/A	-5.0		2023-11-08	CT6
Solids, Total Dissolved	**77.1**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**56.9**	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Bicarbonate (as CaCO3)	**56.9**	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-04	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2023-11-03	
Carbon, Total Organic	**0.91**	N/A	0.50	mg/L	2023-11-06	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-11-02	
Conductivity (EC)	**145**	N/A	2.0	µS/cm	2023-11-04	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2023-11-03	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2023-11-05	
pH	**6.78**	7.0-10.5	0.10	pH units	2023-11-04	HT2
Temperature, at pH	**22.3**	N/A		°C	2023-11-04	HT2
Turbidity	**0.12**	OG < 1	0.10	NTU	2023-11-02	
UV Transmittance @ 254 nm - Unfiltered	**99.0**	N/A	0.10	% T	2023-11-03	
Microbiological Parameters						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	HT3
Background Colonies	< 1	N/A	1	CFU/100 mL	2023-11-01	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	HT3
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-11-07	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-11-07	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2023-11-07	
Barium, total	**0.0127**	MAC = 2	0.0050	mg/L	2023-11-07	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-11-07	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-11-07	
Calcium, total	**15.4**	None Required	0.20	mg/L	2023-11-07	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-11-07	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-11-07	
Copper, total	**0.00092**	MAC = 2	0.00040	mg/L	2023-11-07	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	North Canyon Improvement District	**WORK ORDER**	23K0177
PROJECT	N.C.I.D. Drinking Water	**REPORTED**	2023-11-08 16:45

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Goat River Well (23K0177-01) | Matrix: Water | Sampled: 2023-10-31 07:45, Continued						
Total Metals, Continued						
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-11-07	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-11-07	
Magnesium, total	**5.73**	None Required	0.010	mg/L	2023-11-07	
Manganese, total	< 0.00020	MAC = 0.12	0.00020	mg/L	2023-11-07	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-11-06	
Molybdenum, total	**0.00039**	N/A	0.00010	mg/L	2023-11-07	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-11-07	
Potassium, total	**0.75**	N/A	0.10	mg/L	2023-11-07	
Selenium, total	**0.00067**	MAC = 0.05	0.00050	mg/L	2023-11-07	
Sodium, total	**6.08**	AO ≤ 200	0.10	mg/L	2023-11-07	
Strontium, total	**0.0523**	MAC = 7	0.0010	mg/L	2023-11-07	
Uranium, total	**0.00168**	MAC = 0.02	0.000020	mg/L	2023-11-07	
Zinc, total	**0.0052**	AO ≤ 5	0.0040	mg/L	2023-11-07	
Reservior (23K0177-02) | Matrix: Water | Sampled: 2023-10-31 08:15						
Anions						
Chloride	**0.48**	AO ≤ 250	0.10	mg/L	2023-11-03	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-11-03	
Nitrate (as N)	**0.168**	MAC = 10	0.010	mg/L	2023-11-03	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-11-03	
Sulfate	**9.0**	AO ≤ 500	1.0	mg/L	2023-11-03	
Calculated Parameters						
Hardness, Total (as CaCO3)	**85.6**	None Required	0.500	mg/L	N/A	
Langelier Index	**-0.9**	N/A	-5.0		2023-11-08	CT6
Solids, Total Dissolved	**98.6**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**84.8**	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Bicarbonate (as CaCO3)	**84.8**	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-04	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-11-04	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2023-11-03	
Carbon, Total Organic	< 0.50	N/A	0.50	mg/L	2023-11-06	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-11-02	
Conductivity (EC)	**172**	N/A	2.0	µS/cm	2023-11-04	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2023-11-03	
Nitrogen, Total Kjeldahl	< 0.050	N/A	0.050	mg/L	2023-11-05	
pH	**7.28**	7.0-10.5	0.10	pH units	2023-11-04	HT2
Temperature, at pH	**22.5**	N/A		°C	2023-11-04	HT2
Turbidity	**0.17**	OG < 1	0.10	NTU	2023-11-02	

CARO ANALYTICAL SERVICES

TEST RESULTS

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PROJECT	N.C.I.D. Drinking Water	**REPORTED**	2023-11-08 16:45

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Reservior (23K0177-02) | Matrix: Water | Sampled: 2023-10-31 08:15, Continued						
General Parameters, Continued						
UV Transmittance @ 254 nm - Unfiltered	**99.8**	N/A	0.10	% T	2023-11-03	
Microbiological Parameters						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	HT3
Background Colonies	< 1	N/A	1	CFU/100 mL	2023-11-01	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	HT3
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-11-07	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-11-07	
Arsenic, total	**0.00354**	MAC = 0.01	0.00050	mg/L	2023-11-07	
Barium, total	< 0.0050	MAC = 2	0.0050	mg/L	2023-11-07	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-11-07	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-11-07	
Calcium, total	**28.6**	None Required	0.20	mg/L	2023-11-07	
Chromium, total	**0.00071**	MAC = 0.05	0.00050	mg/L	2023-11-07	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-11-07	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2023-11-07	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-11-07	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-11-07	
Magnesium, total	**3.42**	None Required	0.010	mg/L	2023-11-07	
Manganese, total	< 0.00020	MAC = 0.12	0.00020	mg/L	2023-11-07	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-11-06	
Molybdenum, total	**0.00089**	N/A	0.00010	mg/L	2023-11-07	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-11-07	
Potassium, total	**1.35**	N/A	0.10	mg/L	2023-11-07	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-11-07	
Sodium, total	**3.25**	AO ≤ 200	0.10	mg/L	2023-11-07	
Strontium, total	**0.0559**	MAC = 7	0.0010	mg/L	2023-11-07	
Uranium, total	**0.00144**	MAC = 0.02	0.000020	mg/L	2023-11-07	
Zinc, total	**0.0043**	AO ≤ 5	0.0040	mg/L	2023-11-07	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
HT3	Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	North Canyon Improvement District	**WORK ORDER**	23K0177
PROJECT	N.C.I.D. Drinking Water	**REPORTED**	2023-11-08 16:45

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Carbon, Total Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO2 Detection	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Transmittance at 254 nm - Unfiltered in Water	SM 5910 B* (2021)	Ultraviolet Absorption	✓	Kelowna
Turbidity in Water	SM 2130 B (2020)	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)
% T	Percent Transmittance
<	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
CFU/100 mL	Colony Forming Units per 100 millilitres
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

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	North Canyon Improvement District	**WORK ORDER**	23K0177
PROJECT	N.C.I.D. Drinking Water	**REPORTED**	2023-11-08 16:45

General Comments:

The results in this report apply to the received 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. Caro will dispose of all samples within 30 days of sample receipt, unless otherwise agreed. 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

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.