

## CERTIFICATE OF ANALYSIS

**REPORTED TO** Wynndel Irrigation District  
5127 A Wynndel Road  
WYNNDEL, BC V0B 2N2

**ATTENTION** Bob Adams

**PO NUMBER**  
**PROJECT** Drinking Water  
**PROJECT INFO**

**WORK ORDER** 23K0167

**RECEIVED / TEMP** 2023-11-01 13:35 / 4.4°C  
**REPORTED** 2023-11-08 16:38  
**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>

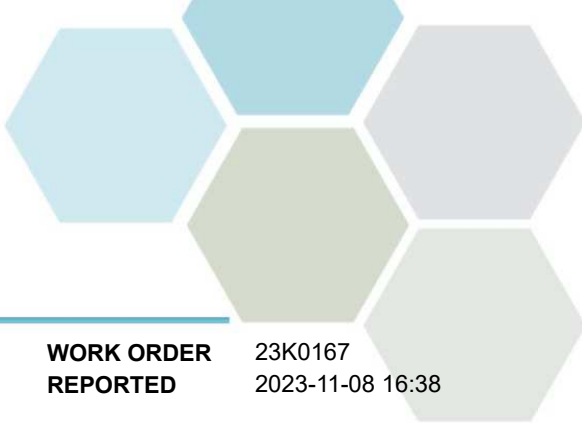
If you have any questions or concerns, please contact me at [TeamCaro@caro.ca](mailto:TeamCaro@caro.ca)

### Authorized By:

Team CARO  
Client Service Representative

1-888-311-8846 | [www.caro.ca](http://www.caro.ca)

#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** Wynndel Irrigation District  
Drinking Water

**WORK ORDER REPORTED** 23K0167  
2023-11-08 16:38

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
---------	--------	-----------	----------	----------	-----------

**Reservoir (23K0167-01) | Matrix: Water | Sampled: 2023-10-31 09:00**

**Anions**

Chloride	0.40	AO ≤ 250	0.10 mg/L	2023-11-02	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2023-11-02	
Nitrate (as N)	0.020	MAC = 10	0.010 mg/L	2023-11-02	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-11-02	
Sulfate	8.1	AO ≤ 500	1.0 mg/L	2023-11-02	

**Calculated Parameters**

Hardness, Total (as CaCO3)	109	None Required	0.500 mg/L	N/A	
Langelier Index	-0.6	N/A	-5.0	2023-11-08	CT6
Nitrate+Nitrite (as N)	0.0197	N/A	0.0100 mg/L	N/A	
Nitrogen, Total	< 0.0500	N/A	0.0500 mg/L	N/A	
Solids, Total Dissolved	115	AO ≤ 500	1.00 mg/L	N/A	

**General Parameters**

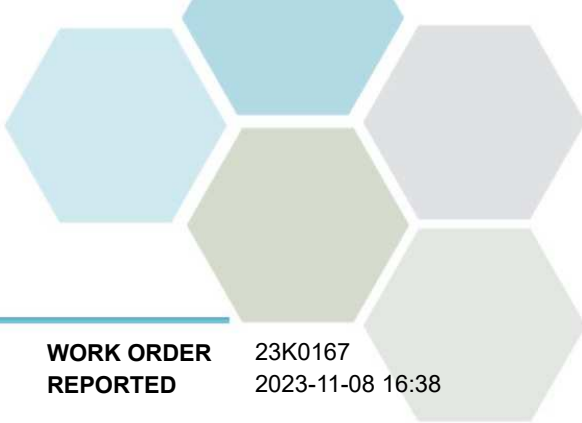
Alkalinity, Total (as CaCO3)	112	N/A	1.0 mg/L	2023-11-04	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-04	
Alkalinity, Bicarbonate (as CaCO3)	112	N/A	1.0 mg/L	2023-11-04	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-04	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-11-04	
Ammonia, Total (as N)	< 0.050	None Required	0.050 mg/L	2023-11-03	
Carbon, Total Organic	1.63	N/A	0.50 mg/L	2023-11-06	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2023-11-02	
Conductivity (EC)	196	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	7.54	7.0-10.5	0.10 pH units	2023-11-04	HT2
Temperature, at pH	22.1	N/A	°C	2023-11-04	HT2
Turbidity	0.18	OG < 1	0.10 NTU	2023-11-02	
UV Transmittance @ 254 nm - Unfiltered	98.1	N/A	0.10 % T	2023-11-03	
UV Transmittance @ 254nm	98.1	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	2023-11-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-11-06	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2023-11-06	
Barium, total	0.0984	MAC = 2	0.0050 mg/L	2023-11-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-11-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-11-06	
Calcium, total	24.1	None Required	0.20 mg/L	2023-11-06	



# TEST RESULTS

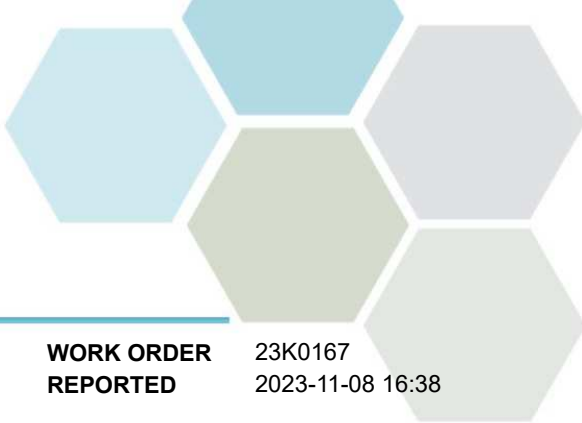
**REPORTED TO PROJECT** Wynndel Irrigation District  
Drinking Water

**WORK ORDER REPORTED** 23K0167  
2023-11-08 16:38

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>Reservoir (23K0167-01)   Matrix: Water   Sampled: 2023-10-31 09:00, Continued</b>					
<i>Total Metals, Continued</i>					
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-06	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-11-06	
Copper, total	<b>0.00366</b>	MAC = 2	0.00040 mg/L	2023-11-06	
Iron, total	<b>0.011</b>	AO ≤ 0.3	0.010 mg/L	2023-11-06	
Lead, total	<b>0.00031</b>	MAC = 0.005	0.00020 mg/L	2023-11-06	
Magnesium, total	<b>11.8</b>	None Required	0.010 mg/L	2023-11-06	
Manganese, total	<b>0.00086</b>	MAC = 0.12	0.00020 mg/L	2023-11-06	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2023-11-06	
Molybdenum, total	<b>0.00038</b>	N/A	0.00010 mg/L	2023-11-06	
Nickel, total	< 0.00040	N/A	0.00040 mg/L	2023-11-06	
Potassium, total	<b>1.08</b>	N/A	0.10 mg/L	2023-11-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-11-06	
Sodium, total	<b>1.28</b>	AO ≤ 200	0.10 mg/L	2023-11-06	
Strontium, total	<b>0.0479</b>	MAC = 7	0.0010 mg/L	2023-11-06	
Uranium, total	<b>0.000698</b>	MAC = 0.02	0.000020 mg/L	2023-11-06	
Zinc, total	<b>0.0078</b>	AO ≤ 5	0.0040 mg/L	2023-11-06	

**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 PROJECT** Wynndel Irrigation District  
Drinking Water

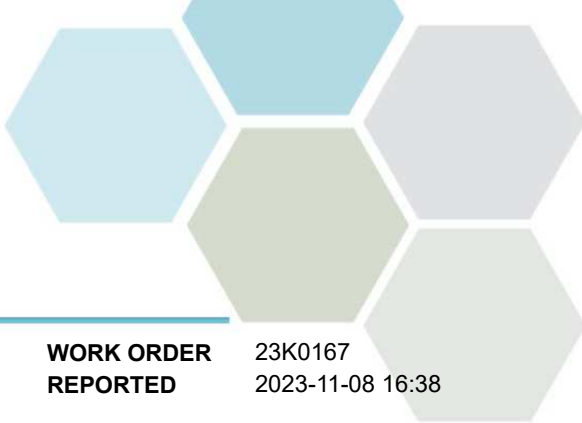
**WORK ORDER REPORTED** 23K0167  
2023-11-08 16:38

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
Transmittance at 254 nm 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** Wynndel Irrigation District  
**PROJECT** Drinking Water

**WORK ORDER** 23K0167  
**REPORTED** 2023-11-08 16:38

**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](mailto: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*