



# **Annual Drinking Water Quality Monitoring Report**

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2023

**Joseph Law, Utilities Superintendent**  
PUBLIC WORKS, UTILITIES DEPARTMENT | 1350 SWORD AVE

## **PURPOSE**

The City of Quesnel Annual Drinking Water Quality Monitoring Report is intended to make all water quality monitoring results from the 2023 calendar year available to the public. Such annual reporting is required of all water purveyors in British Columbia under the Drinking Water Protection Act and the related Drinking Water Protection Regulations.

The Drinking Water Protection Act also requires that:

- Water system construction proposals must be approved by Public Health Engineers.
- Water system operators must operate their systems in compliance with the requirements of the Act through operating permits, which may contain specific conditions that are set and approved by the Health Authority Drinking Water Officer.
- Minimum water treatment and water quality standards are met, and monitoring and testing carried out, as required.
- Water suppliers must have microbiological samples analyzed by a laboratory which has been approved by the Provincial Health Officer;
- Operators of drinking water systems serving more than 500 individuals must be certified as operators through the Environmental Operators Certification Program; and
- Public notification must be made in case of water quality problems. This ensures accountability to the community for the water service provided.

These requirements are set in place to ensure the delivery of safe, potable drinking water to all consumers.

## **WATER SYSTEM OVERVIEW**

The City of Quesnel water distribution system provides untreated potable drinking water to approximately 10,200 residents, commercial businesses, and local industry. The water system is comprised of:

### **Six Groundwater Production Wells**

- Well 3 – Rolph Street
- Well 6 – Rolph Street
- Well 9 – Carson Subdivision
- Well 7 – North Fraser Drive
- Well 8 – Hilborn Road
- Well 9 – Carson Subdivision

### **Seven Reservoirs**

- Sugarloaf Reservoir
- Pinecrest Reservoir
- South Quesnel Reservoir
- Shadow Heights Reservoir
- Dragon Hill Reservoir
- Abbott Heights Reservoir #1
- Abbott Heights Reservoir #2

### **Five Booster Pump Stations**

- Northstar Booster Station
- Healy Street Booster Station
- Dawson Ave Booster Station
- Pinecrest Booster Station
- Findlay Booster Station

### Three Main Pressure Reducing Valve (PRV) Stations

- Brownmiller PRV
- Johnston Ave PRV
- Lewis Drive PRV

There are approximately 114 km of water main, 460 fire hydrants, and 3642 individual service connections.

The City of Quesnel also operates a bulk water delivery site where, for a fee, customers may fill containers for personal use.

In 2023, water consumption (metered at the source) for the City of Quesnel amounted to 2,347,660 cubic meters of groundwater pumped by the production wells. This is an increase of 1.43% from the 2022 total volume of 2,323,333 cubic meters. For reference, 1 cubic meter of water contains 1000 liters.

### WATER MANAGEMENT

In the interest of public health and environmental protection, the Environmental Operators Certification Program (EOCP) is tasked by the Drinking Water Protection Act with the responsibility for classification of facilities and certification of water operators to enable the prudent management of water in British Columbia and the Yukon.

The EOCP requires that all facilities have (at minimum) one operator on each shift with a level of certification matching the facility classification. Furthermore, all system operators must be certified to a level appropriate to their role and level of responsibility. A facility's classification level is determined by its size, components, and level of complexity.

The City of Quesnel water distribution system is identified as a Class III facility by the EOCP. The experience and training requirements for an operator to receive a Level III certification are:

- Operator Level II Certificate *PLUS*
- 2 years related post-secondary or 90 CEUs (continuing education unit, 1 CEU equals 10 hours approved training) *PLUS*.
- 4 years operating experience at a Class II facility (or higher)
- Including 2 years Direct Responsible Charge at a Class II facility (or higher)

In 2023, staffing of the Water Distribution System consisted of:

- 1 Level III Water Distribution Operator position
- 6 Level II Water Distribution Operator positions
- 2 Level I Water Distribution Operator positions
- 2 Operator-in-training positions

As EOCP certified Water Distribution Operators, staff are required to achieve a minimum score of 70% on written examinations and must receive 24 hours of approved training in every two-year period to maintain their certification. Operator training is critical to maintaining facility classification and ensures that current industry standards and best practices are being met. Training also provides staff with an opportunity to network with other operators over common challenges faced in field operations.

Operator duties include, but are not limited to, operating system monitoring, routine maintenance, fire hydrant maintenance and repair, water quality sampling, emergency repairs, new construction, investigation of water quality complaints, responding to calls for service from the public, flushing of water mains, and responding to afterhours emergencies.

All operator time is also shared between duties within the City of Quesnel wastewater collection system, storm water collection system, snow removal operations, and in support provided to other departments as needed.

The City of Quesnel maintains an up-to-date Emergency Response Plan, which is reviewed and updated annually to ensure that standard operating procedures remain applicable and up to date. This is a requirement of the City of Quesnel water distribution system's Permit to Operate, which is issued by the Northern Health Authority.

A SCADA (Supervisory Control and Data Acquisition) Monitoring System is utilized by the City of Quesnel, which enables staff to observe real-time data and information related to water system operating conditions, including water well operation and reservoir levels. System operators can remotely respond to system conditions and demands, reducing equipment failure and increasing pumping efficiency.

In 2023 an investment (ongoing from 2022) of capital funds was put toward a SCADA System Upgrade Project. This project includes upgrades to existing communications systems, control systems modernization, installation at additional sites, hardware improvements, and an operating software platform overhaul. The project is ongoing and includes upgrades to the Wastewater Collection System.

The City of Quesnel also invested 2023 (also ongoing from 2022) capital funds in the much needed, Dragon Hill Reservoir Replacement Project to replace an existing (failing) concrete tank style reservoir which was constructed in the early 1980's. This construction was successfully completed, and the reservoir was in operation in early 2023. Some components of the project, such as demolition of the old reservoir and site restoration remain to be completed and are planned for the 2024 construction season.

## **WATER QUALITY MONITORING**

To ensure the delivery of safe drinking water, there is a sampling program in place to monitor water quality at the source and throughout the distribution system network.

The City of Quesnel sends water samples to a laboratory approved by the Provincial Health Officer for all sampling points and is notified of results and concerns.

The sampling parameters used to monitor potability are listed in the Guidelines for Canadian Drinking Water Quality (GCDWQ) and the British Columbia Drinking Water Regulations (BCDWR). These sampling parameters are used as indicators for bacteriological, chemical and physical contaminants.

Please note that in May 2019, the Guidelines for Canadian Drinking Water Quality were revised to include a Maximum Allowable Concentration (MAC) for manganese in drinking water. The MAC for total manganese in drinking water is 0.12 mg/L (120 µg/L). The aesthetic objective (AO) for total manganese in drinking water is 0.02 mg/L (20 µg/L).

The water produced by 5 of the 6 production wells does not meet the standard set by the Guidelines for Canadian Drinking Water Quality for manganese concentrations. Sampling results often show that

manganese levels in the distribution system vary from above to below the MAC due to mixing and settling.

On June 10, 2022, Northern Health placed a Water Quality Advisory on the City of Quesnel's water distribution system and required the City to issue a public notice containing information on manganese in drinking water.

In order to have the Water Quality Advisory lifted six corrective actions are needed:

1. Distribute updated notice and information to residents.
2. Continue additional sampling to determine the level of manganese in the distribution system.
3. Continue talks with a qualified drinking water professional to assess the water source and propose a suitable treatment system to reduce the level of manganese to below the Maximum Acceptable Concentration.
4. Submit the treatment proposal to Northern Health in the form of a Construction Permit Application.
5. Upon receipt of approval from a Northern Health Public Health Engineer, in the form of a Construction Permit, install the approved treatment system.
6. Conduct post-treatment samples in accordance with the conditions of the Construction Permit to verify treatment efficacy.

The City of Quesnel is working with qualified drinking water professionals to create a water treatment system designed to remove manganese from the drinking water. The project is currently in the design phase with a conceptual design and pilot testing completed.

## **WATER QUALITY**

The number of samples to be taken from the source and distribution system as required by provincial regulations is based on the population served. Given a population of approximately 10,200 people, the City is required to collect a minimum of 13 samples per month. The City of Quesnel exceeds that number of monthly samples; Drinking water samples are collected at 16 individual sites bi-weekly, and analyzed for total coliforms, E. coli, heterotrophic plate count (HPC), and turbidity. All reservoirs and wells are tested monthly for bacterial contaminants. In addition to the bacteriological parameters, additional testing is done for chemical & physical parameters. Samples are taken at the start, middle and end of the entire City water distribution system.

If it is observed during testing that certain parameters exceed the limits specified in the Guidelines for Canadian Drinking Water Quality or the British Columbia Drinking Water Regulation, a procedure is in place for re-testing and notification for any results or conditions that render or could render the water unfit to drink.

The standard protocol when a water sample is found to contain the presence of coliforms, is to resample the water immediately at the same location and resubmit for testing. The provincial

Environmental Health Officer will determine if any action by the City of Quesnel is necessary only after a second test also shows the presence of coliforms.

In accordance with the regulations of our operating permit, the City has a plan in effect to respond to emergencies to ensure the delivery of safe drinking water to all its residents.

Water sampling in 2023 showed:

- 362 samples tested for E. coli resulting in 0 (zero) exceedances.
- 362 samples tested for Total Coliform resulting in 12 exceedances - with subsequent testing proving negative for total coliforms.

In all cases of exceedance Northern Health was notified immediately and approved of the re-sampling plans.

Complaints regarding water quality are addressed and followed up on a case-by-case basis. Most customer complaints are of “dirty” or black water. This is due to sediment, mainly comprised of manganese, which adheres to pipe walls in the distribution system until it is disturbed or breaks free. Homeowners are advised to run a cold tap until the water clears. In some cases, operators will flush the water mains through a hydrant or blowoff. All mains are flushed each fall to remove mineral scale and buildup in the lines in addition to ensuring proper operation and maintenance of all fire hydrants.

There are occasional complaints of cold water smelling like rotten eggs or sulfur. This is often caused by the water having a reaction with the small diameter “feed line” tubing which connects the household plumbing to the faucet under the sink. It is most common in homes that have new or recently upgraded taps or plumbing fixtures. A corrective measure for this is to suggest homeowners replace the feed lines with metal tubing such as copper or alternatively clean the lines with sodium hypochlorite (household bleach), then rinse and reinstall.

City of Quesnel Bylaw 1567 of 2004 was adopted in 2005 to ensure provisions for the elimination of Cross Connections between potable water and any non-potable source. The City of Quesnel has two certified Backflow Assembly Testers on staff who annually test assemblies in parks and the water supply system to protect against potential backflows and cross connections. They also install backflow prevention devices, which are a secondary line of defence for backflow prevention. It is the responsibility of the owner or operator of private buildings to install and test the approved backflow assembly upon installation and annually thereafter by a certified tester. Following the test, a copy of the report is to be forwarded to the City of Quesnel. A full Cross Connection Control Program has not been completely implemented as there is a lack of resources and staff to track and account for these assemblies. What staff time is available is focused on communication with contractors, plumbers, and high-risk users. The main groups addressed are industrial, commercial and institutions. Utilities Department staff communicate concerns and keep a watchful eye out for any potential cross connections.

## **CONCLUSION**

The 2023 City of Quesnel Annual Drinking Water Quality Monitoring Report is made available to the public and presented to Council as required by the Drinking Water Protection Act and related British

Columbia Drinking Water Regulations. This requirement is in place to ensure accountability to the community for the water service provided.

Additional information may be obtained from the City of Quesnel Public Works, Utilities Department at (250)992-6330, attention: Joseph Law, Utilities Superintendent.

## **ATTACHMENTS**

### **Attachment "A"**

- A list of the sampling point sites, and the parameters tested for the City of Quesnel

### **Attachment "B"**

- Water sampling result summary reports for 2023

## **LINKS**

The Health Canada website ( [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca) ) contains "Summary of Guidelines for Canadian Drinking Water Quality", which Health Canada publishes on current guidelines and updates each spring on their website.

# Attachment "A"

## City of Quesnel Water Quality Monitoring Program

SITE	LOCATION	PARAMETERS
<i>BI-WEEKLY (Distribution System)</i>		
<b>FIRST WEEK</b>		
<b>Water Trax Locator #</b>		
94 E4	Airport	Parameters: Total coliforms, E. coli, HPC's, turbidity, temp
94 E5	Mills Rd	
94 E7	Marsh Dr	
94 E8	Graham Avenue	
94 E9	West Fraser Rd	
94 FO	Pedersen Rd	
35D91K	Carson Pit	
179 CA	Dennis Road	
<b>THIRD WEEK</b>		
94 E6	Carradice Rd	Parameters: Total coliforms, E. coli, HPC's, turbidity, temp
94 F1	Dixon St	
94 F2	Front St – Hospital	
94 F3	Nason St	
94 F4	N. Star Dragon Hill	
94 F6	N Star South Hill	
94 F7	Chew Rd	
21 D9B	Bulk Water on North Star	

<b>MONTHLY (Reservoirs)</b>		
94 EA	R-1 Shadow Heights	Parameters: Total coliforms, E. coli, Temp
94 F9	R-2 Pinecrest	
94 FA	R-3 Sugar Loaf	
94 EB	R-4 Abbott Dr 1	
94 EC	R-4 Abbott Dr 2	
94 FC	R-5 Dragon Hill	
94 FF	R-6 New Tatchell Reservoir	
<b>MONTHLY (Wells)</b>		
94 ED	Well, A Sword Rd	Parameters: Total coliforms, E. coli, Temp
94 D1	Well 3 Rolph at Roddis	
94 DC	Well 6 Rolph at Robertson	
94 EO	Well 7 N. Fraser Dr	
94 E1	Well 8 Hilborn Rd	
94 DF	Well 9 Carson Sub	
28000	Well 10 Hilborn Rd	

<b>SEMI - ANNUALLY (Distribution System)</b> (first week April & Oct)		
94 E5	Mills Rd (94E5)	Parameters: Copper, Zinc, Lead, Iron, Vinyl chloride, Manganese, Temperature
94 FO	Pederson Rd (94F0)	
35D91K	Carson Pit	

<b>ANNUALLY (Wells)</b>		
94 D1	Well 3 Rolph at Roddis	Parameters: Enhanced Potability, Metals, Langelier saturation index (LSI), Volatile Organic Compounds, Temp.
94 DC	Well 6 Rolph at Robertson	
94 EO	Well 7 N. Fraser Drive	
94 E1	Well 8 Hilborn Rd	
94 DF	Well 9 Carson Sub	
28000	Well 10 Hilborn Rd	

<b>QUARTERLY (Wells)</b>		
94 D1	Well 3 Rolph at Roddis	Parameters: Chloride, Nitrate, Nitrite
94 DC	Well 6 Rolph at Robertson	
94 EO	Well 7 N. Fraser Drive	
94 E1	Well 8 Hilborn Rd	
94 DF	Well 9 Carson Sub	
28000	Well 10 Hilborn Rd	

# Attachment "B"

All Water sample report results from weekly sampling as per parameters in Attachment A.



## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23A0385
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-01-05 13:45 / 6.3°C 2023-01-12 15:24
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### 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>

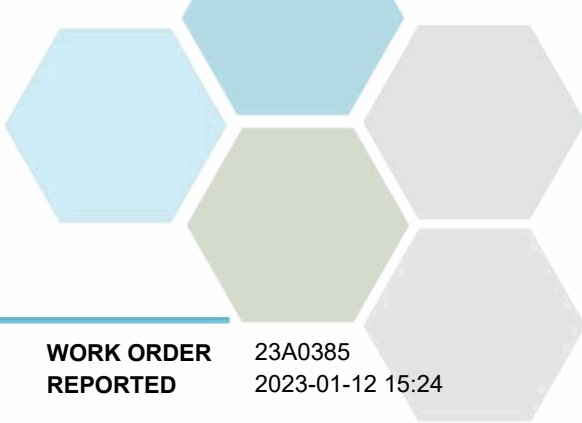
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### Authorized By:

Brent Whitehead  
Account Manager

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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23A0385  
2023-01-12 15:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E4 - S-Airport (23A0385-01) | Matrix: Water | Sampled: 2023-01-04 11:45**

**Field Parameters**

Temperature, field	5.9	AO ≤ 15		°C	2023-01-04	
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**General Parameters**

Turbidity	0.30	OG < 1	0.10	NTU	2023-01-06	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	

**Total Metals**

Manganese, total	0.00057	MAC = 0.12	0.00020	mg/L	2023-01-12	
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**WT# 94E5 - S-Mills Rd (23A0385-02) | Matrix: Water | Sampled: 2023-01-04 09:50**

**Field Parameters**

Temperature, field	6.3	AO ≤ 15		°C	2023-01-04	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-01-06	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	HT3

**Total Metals**

Manganese, total	0.00162	MAC = 0.12	0.00020	mg/L	2023-01-12	
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**WT# 94E7 - S-Marsh Drive (23A0385-03) | Matrix: Water | Sampled: 2023-01-04 11:00**

**Field Parameters**

Temperature, field	5.8	AO ≤ 15		°C	2023-01-04	
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**General Parameters**

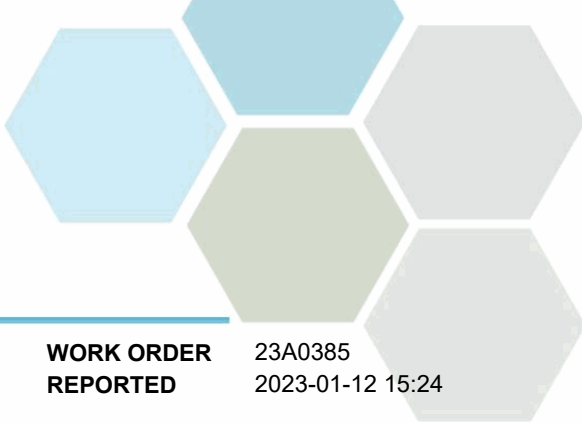
Turbidity	0.17	OG < 1	0.10	NTU	2023-01-06	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	

**Total Metals**

Manganese, total	0.00971	MAC = 0.12	0.00020	mg/L	2023-01-12	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23A0385  
2023-01-12 15:24

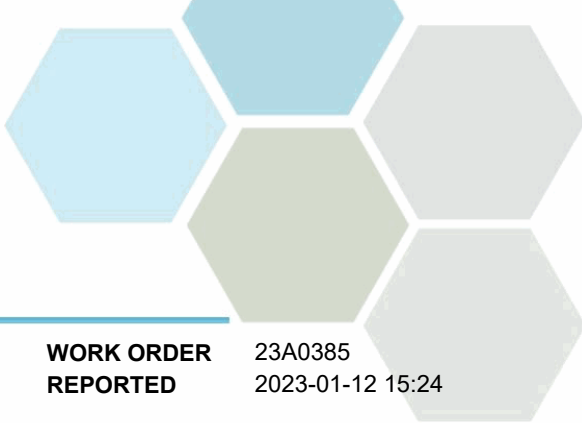
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E8 - S-Graham Ave (23A0385-04)   Matrix: Water   Sampled: 2023-01-04 13:40</b>						
<i>Field Parameters</i>						
Temperature, field	4.7	AO ≤ 15		°C	2023-01-04	
<i>General Parameters</i>						
Turbidity	0.25	OG < 1	0.10	NTU	2023-01-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
<i>Total Metals</i>						
Manganese, total	0.0517	MAC = 0.12	0.00020	mg/L	2023-01-12	

**WT# 94E9 - S-West Fraser Rd (23A0385-05) | Matrix: Water | Sampled: 2023-01-04 10:45**

<i>Field Parameters</i>						
Temperature, field	4.5	AO ≤ 15		°C	2023-01-04	
<i>General Parameters</i>						
Turbidity	0.15	OG < 1	0.10	NTU	2023-01-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
<i>Total Metals</i>						
Manganese, total	0.0116	MAC = 0.12	0.00020	mg/L	2023-01-12	

**WT# 94F0 - S-Pederson Rd (23A0385-06) | Matrix: Water | Sampled: 2023-01-04 15:05**

<i>Field Parameters</i>						
Temperature, field	7.6	AO ≤ 15		°C	2023-01-04	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-01-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
<i>Total Metals</i>						
Manganese, total	0.0444	MAC = 0.12	0.00020	mg/L	2023-01-12	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23A0385  
2023-01-12 15:24

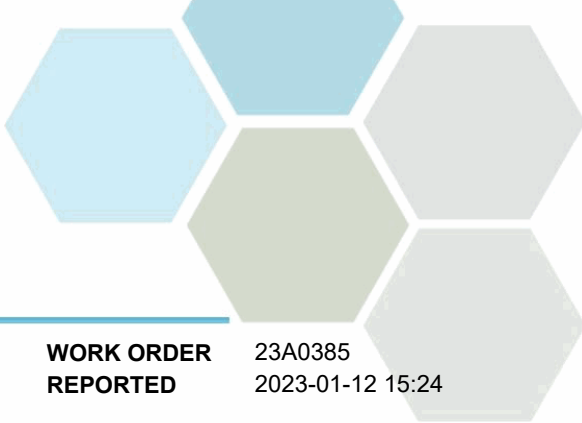
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 35D91k - New Carson Pit (23A0385-07)   Matrix: Water   Sampled: 2023-01-04 13:15</b>						
<i>Field Parameters</i>						
Temperature, field	5.0	AO ≤ 15		°C	2023-01-04	
<i>General Parameters</i>						
Turbidity	0.26	OG < 1	0.10	NTU	2023-01-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
<i>Total Metals</i>						
Manganese, total	0.00380	MAC = 0.12	0.00020	mg/L	2023-01-12	

**WT# 179CA - S-Dennis Rd (23A0385-08) | Matrix: Water | Sampled: 2023-01-04 14:25**

<i>Field Parameters</i>						
Temperature, field	7.1	AO ≤ 15		°C	2023-01-04	
<i>General Parameters</i>						
Turbidity	0.53	OG < 1	0.10	NTU	2023-01-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-05	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-05	
<i>Total Metals</i>						
Manganese, total	0.143	MAC = 0.12	0.00020	mg/L	2023-01-12	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23A0385  
2023-01-12 15:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2017)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (2017)	Nephelometry	✓	Kelowna

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

### Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
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 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. 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

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23B1069
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-02-09 14:30 / 7.9°C 2023-02-15 12:04
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### Introduction:

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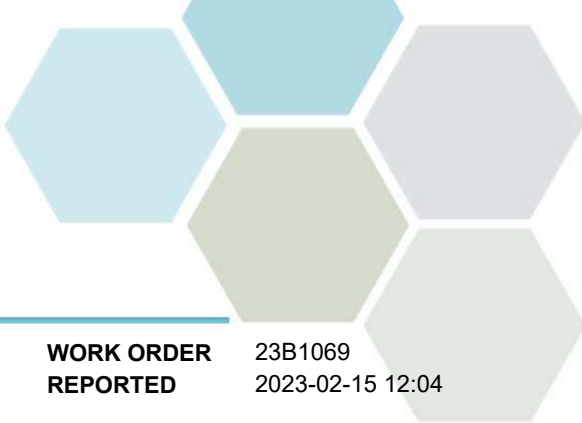
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### Authorized By:

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23B1069  
2023-02-15 12:04

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E4 - S-Airport (23B1069-01)   Matrix: Water   Sampled: 2023-02-08 09:30</b>						
<b>General Parameters</b>						
Turbidity	0.17	OG < 1	0.10	NTU	2023-02-11	
<b>Microbiological Parameters</b>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	HT3
<b>Total Metals</b>						
Manganese, total	0.00060	MAC = 0.12	0.00020	mg/L	2023-02-14	

**WT# 94E5 - S-Mills Rd (23B1069-02) | Matrix: Water | Sampled: 2023-02-08 11:20**

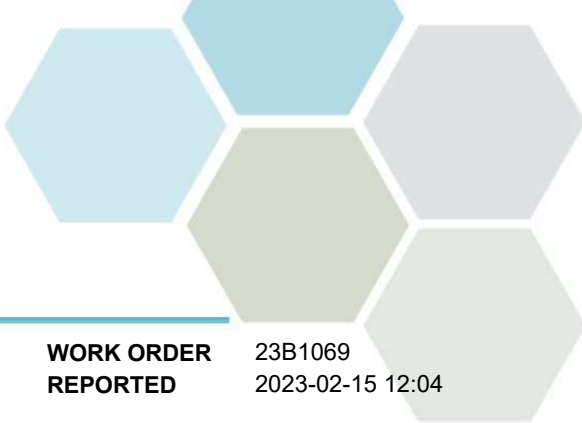
<b>Field Parameters</b>						
Temperature, field	5.2	AO ≤ 15		°C	2023-02-08	
<b>General Parameters</b>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-02-11	
<b>Microbiological Parameters</b>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
<b>Total Metals</b>						
Manganese, total	0.00234	MAC = 0.12	0.00020	mg/L	2023-02-14	

**WT# 94E7 - S-Marsh Drive (23B1069-03) | Matrix: Water | Sampled: 2023-02-08 15:20**

<b>Field Parameters</b>						
Temperature, field	5.3	AO ≤ 15		°C	2023-02-08	
<b>General Parameters</b>						
Turbidity	0.84	OG < 1	0.10	NTU	2023-02-11	
<b>Microbiological Parameters</b>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
<b>Total Metals</b>						
Manganese, total	0.00741	MAC = 0.12	0.00020	mg/L	2023-02-14	

**WT# 94E8 - S-Graham Ave (23B1069-04) | Matrix: Water | Sampled: 2023-02-08 10:05**

**Field Parameters**



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23B1069  
2023-02-15 12:04

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E8 - S-Graham Ave (23B1069-04) | Matrix: Water | Sampled: 2023-02-08 10:05, Continued**

**Field Parameters, Continued**

Temperature, field	6.0	AO ≤ 15		°C	2023-02-08	
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**General Parameters**

Turbidity	0.14	OG < 1	0.10	NTU	2023-02-11	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	

**Total Metals**

Manganese, total	0.0664	MAC = 0.12	0.00020	mg/L	2023-02-14	
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**WT# 94E9 - S-West Fraser Rd (23B1069-05) | Matrix: Water | Sampled: 2023-02-08 10:45**

**Field Parameters**

Temperature, field	3.7	AO ≤ 15		°C	2023-02-08	
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**General Parameters**

Turbidity	0.19	OG < 1	0.10	NTU	2023-02-11	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	

**Total Metals**

Manganese, total	0.0205	MAC = 0.12	0.00020	mg/L	2023-02-14	
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**WT# 94F0 - S-Pederson Rd (23B1069-06) | Matrix: Water | Sampled: 2023-02-08 13:20**

**Field Parameters**

Temperature, field	6.3	AO ≤ 15		°C	2023-02-08	
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**General Parameters**

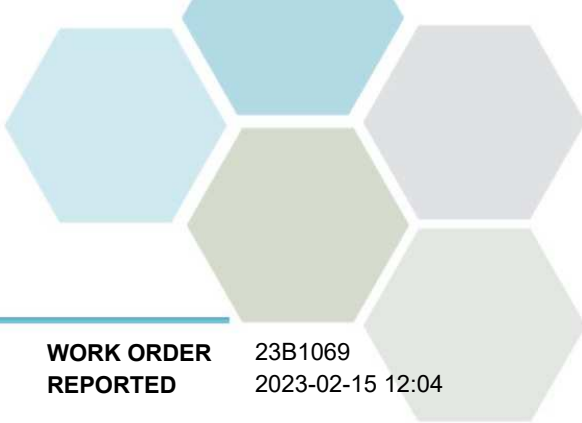
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-02-11	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	

**Total Metals**

Manganese, total	0.0415	MAC = 0.12	0.00020	mg/L	2023-02-14	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23B1069  
2023-02-15 12:04

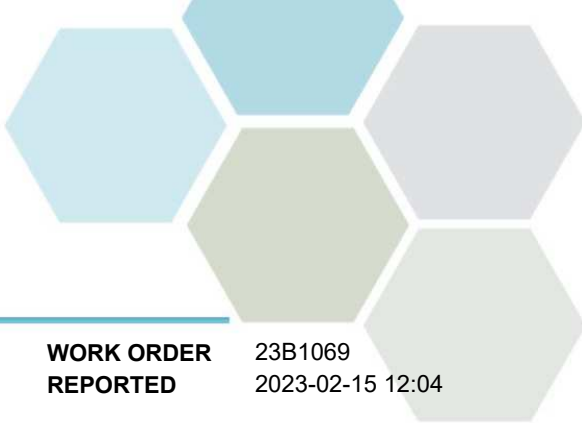
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 35D91k - New Carson Pit (23B1069-07)   Matrix: Water   Sampled: 2023-02-08 11:50</b>						
<i>Field Parameters</i>						
Temperature, field	6.5	AO ≤ 15		°C	2023-02-08	
<i>General Parameters</i>						
Turbidity	0.10	OG < 1	0.10	NTU	2023-02-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
<i>Total Metals</i>						
Manganese, total	0.00748	MAC = 0.12	0.00020	mg/L	2023-02-14	

**WT# 179CA - S-Dennis Rd (23B1069-08) | Matrix: Water | Sampled: 2023-02-08 14:00**

<i>Field Parameters</i>						
Temperature, field	6.7	AO ≤ 15		°C	2023-02-08	
<i>General Parameters</i>						
Turbidity	0.16	OG < 1	0.10	NTU	2023-02-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-09	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-09	
<i>Total Metals</i>						
Manganese, total	0.148	MAC = 0.12	0.00020	mg/L	2023-02-14	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23B1069  
2023-02-15 12:04

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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**CERTIFICATE OF ANALYSIS**

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23C0286
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-03-02 15:13 / 6.6°C 2023-03-07 13:30
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT PROJECT INFO</b>	Semi Annually Distribution System		

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**Authorized By:**

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E4 - S Airport (23C0286-01)   Matrix: Water   Sampled: 2023-03-01 00:00 To 2023-03-01 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	3.1	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	HT3

**WT# 94E5 - S Mills Rd (23C0286-02) | Matrix: Water | Sampled: 2023-03-01 10:45**

<i>Calculated Parameters</i>						
Hardness, Total (as CaCO3)	129	None Required	0.500	mg/L	N/A	
<i>Field Parameters</i>						
Temperature, field	6.2	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	0.29	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
<i>Total Metals</i>						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-03-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-03-06	
Arsenic, total	0.00095	MAC = 0.01	0.00050	mg/L	2023-03-06	
Barium, total	0.0426	MAC = 2	0.0050	mg/L	2023-03-06	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-03-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-03-06	
Calcium, total	37.2	None Required	0.20	mg/L	2023-03-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-03-06	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Copper, total	0.00785	MAC = 2	0.00040	mg/L	2023-03-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-03-06	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-03-06	
Lithium, total	0.00133	N/A	0.00010	mg/L	2023-03-06	
Magnesium, total	8.71	None Required	0.010	mg/L	2023-03-06	
Manganese, total	0.00270	MAC = 0.12	0.00020	mg/L	2023-03-06	
Molybdenum, total	0.00177	N/A	0.00010	mg/L	2023-03-06	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E5 - S Mills Rd (23C0286-02)   Matrix: Water   Sampled: 2023-03-01 10:45, Continued</b>						
<i>Total Metals, Continued</i>						
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-03-06	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-03-06	
Potassium, total	<b>1.12</b>	N/A	0.10	mg/L	2023-03-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-03-06	
Silicon, total	<b>6.2</b>	N/A	1.0	mg/L	2023-03-06	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-03-06	
Sodium, total	<b>6.49</b>	AO ≤ 200	0.10	mg/L	2023-03-06	
Strontium, total	<b>0.193</b>	MAC = 7	0.0010	mg/L	2023-03-06	
Sulfur, total	<b>7.1</b>	N/A	3.0	mg/L	2023-03-06	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-03-06	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-03-06	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-03-06	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-03-06	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-03-06	
Uranium, total	<b>0.000467</b>	MAC = 0.02	0.000020	mg/L	2023-03-06	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-03-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2023-03-06	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	

**WT# 94E8 - S Graham Dr (23C0286-03) | Matrix: Water | Sampled: 2023-03-01 10:50**

<i>Field Parameters</i>						
Temperature, field	<b>6.1</b>	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	<b>0.33</b>	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	

**WT# 94E9 - S West Fraser (23C0286-04) | Matrix: Water | Sampled: 2023-03-01 11:20**

<i>Field Parameters</i>						
Temperature, field	<b>6.4</b>	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**WT# 94E9 - S West Fraser (23C0286-04) | Matrix: Water | Sampled: 2023-03-01 11:20, Continued**

*Microbiological Parameters, Continued*

E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
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**WT# 94F0 - S Pederson (23C0286-05) | Matrix: Water | Sampled: 2023-03-01 13:40**

*Calculated Parameters*

Hardness, Total (as CaCO3)	111	None Required	0.500 mg/L	N/A	
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*Field Parameters*

Temperature, field	8.0	AO ≤ 15	°C	2023-03-01	
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*General Parameters*

Turbidity	0.17	OG < 1	0.10 NTU	2023-03-04	
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*Microbiological Parameters*

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5 CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	

*Total Metals*

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-03-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-03-06	
Arsenic, total	0.00102	MAC = 0.01	0.00050 mg/L	2023-03-06	
Barium, total	0.0653	MAC = 2	0.0050 mg/L	2023-03-06	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-03-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-03-06	
Calcium, total	32.2	None Required	0.20 mg/L	2023-03-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Copper, total	0.00136	MAC = 2	0.00040 mg/L	2023-03-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-03-06	
Lead, total	0.00029	MAC = 0.005	0.00020 mg/L	2023-03-06	
Lithium, total	0.00141	N/A	0.00010 mg/L	2023-03-06	
Magnesium, total	7.31	None Required	0.010 mg/L	2023-03-06	
Manganese, total	0.0250	MAC = 0.12	0.00020 mg/L	2023-03-06	
Molybdenum, total	0.00170	N/A	0.00010 mg/L	2023-03-06	
Nickel, total	< 0.00040	N/A	0.00040 mg/L	2023-03-06	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2023-03-06	
Potassium, total	0.92	N/A	0.10 mg/L	2023-03-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Silicon, total	6.2	N/A	1.0 mg/L	2023-03-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2023-03-06	
Sodium, total	4.08	AO ≤ 200	0.10 mg/L	2023-03-06	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94F0 - S Pederson (23C0286-05)   Matrix: Water   Sampled: 2023-03-01 13:40, Continued</b>					
<i>Total Metals, Continued</i>					
Strontium, total	0.187	MAC = 7	0.0010 mg/L	2023-03-06	
Sulfur, total	5.9	N/A	3.0 mg/L	2023-03-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2023-03-06	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2023-03-06	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2023-03-06	
Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-03-06	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-03-06	
Uranium, total	0.000297	MAC = 0.02	0.000020 mg/L	2023-03-06	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-03-06	
Zinc, total	0.111	AO ≤ 5	0.0040 mg/L	2023-03-06	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	

**WT# 35D91k - NEW CARSON PIT (23C0286-06) | Matrix: Water | Sampled: 2023-03-01 13:00**

<i>Calculated Parameters</i>					
Hardness, Total (as CaCO3)	111	None Required	0.500 mg/L	N/A	
<i>Field Parameters</i>					
Temperature, field	4.5	AO ≤ 15	°C	2023-03-01	
<i>General Parameters</i>					
Turbidity	0.28	OG < 1	0.10 NTU	2023-03-04	
<i>Microbiological Parameters</i>					
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5 CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	

<i>Total Metals</i>					
Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-03-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-03-06	
Arsenic, total	0.00105	MAC = 0.01	0.00050 mg/L	2023-03-06	
Barium, total	0.0649	MAC = 2	0.0050 mg/L	2023-03-06	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-03-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-03-06	
Calcium, total	32.4	None Required	0.20 mg/L	2023-03-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Copper, total	0.00447	MAC = 2	0.00040 mg/L	2023-03-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-03-06	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-03-06	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 35D91k - NEW CARSON PIT (23C0286-06) | Matrix: Water | Sampled: 2023-03-01 13:00, Continued**

**Total Metals, Continued**

Lithium, total	0.00133	N/A	0.00010	mg/L	2023-03-06	
Magnesium, total	7.40	None Required	0.010	mg/L	2023-03-06	
Manganese, total	0.00888	MAC = 0.12	0.00020	mg/L	2023-03-06	
Molybdenum, total	0.00178	N/A	0.00010	mg/L	2023-03-06	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-03-06	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-03-06	
Potassium, total	0.95	N/A	0.10	mg/L	2023-03-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-03-06	
Silicon, total	6.1	N/A	1.0	mg/L	2023-03-06	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-03-06	
Sodium, total	4.30	AO ≤ 200	0.10	mg/L	2023-03-06	
Strontium, total	0.189	MAC = 7	0.0010	mg/L	2023-03-06	
Sulfur, total	6.2	N/A	3.0	mg/L	2023-03-06	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-03-06	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-03-06	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-03-06	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-03-06	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-03-06	
Uranium, total	0.000317	MAC = 0.02	0.000020	mg/L	2023-03-06	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-03-06	
Zinc, total	0.0754	AO ≤ 5	0.0040	mg/L	2023-03-06	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	

**WT# 179CA - S Dennis Rd (23C0286-07) | Matrix: Water | Sampled: 2023-03-01 14:15**

**Field Parameters**

Temperature, field	7.9	AO ≤ 15		°C	2023-03-01	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-04	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	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
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
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 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: [bwhitehead@caro.ca](mailto: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.*

## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23C3203
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-03-29 14:37 / 4.3°C 2023-04-05 10:49
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### 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.

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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.

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

#### Authorized By:

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23C3203  
2023-04-05 10:49

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E4 - S Airport (23C3203-01)   Matrix: Water   Sampled: 2023-03-28 09:50</b>						
<i>Field Parameters</i>						
Temperature, field	5.4	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.00094	MAC = 0.12	0.00020	mg/L	2023-04-01	

**WT# 94E5 - S Mills Rd (23C3203-02) | Matrix: Water | Sampled: 2023-03-28 10:30**

<i>Field Parameters</i>						
Temperature, field	4.7	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.00387	MAC = 0.12	0.00020	mg/L	2023-04-01	

**WT# 94E8 - S Graham Dr (23C3203-03) | Matrix: Water | Sampled: 2023-03-28 11:40**

<i>Field Parameters</i>						
Temperature, field	5.1	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.0780	MAC = 0.12	0.00020	mg/L	2023-04-01	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23C3203  
2023-04-05 10:49

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E9 - S-West Fraser Rd (23C3203-04)   Matrix: Water   Sampled: 2023-03-28 14:00</b>						
<i>Field Parameters</i>						
Temperature, field	6.4	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.0241	MAC = 0.12	0.00020	mg/L	2023-04-01	

<b>WT# 94F0 - S Pederson (23C3203-05)   Matrix: Water   Sampled: 2023-03-28 13:20</b>						
<i>Field Parameters</i>						
Temperature, field	7.4	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.0258	MAC = 0.12	0.00020	mg/L	2023-04-01	

<b>WT# 35D91 - NEW CARSON PIT (23C3203-06)   Matrix: Water   Sampled: 2023-03-28 11:00</b>						
<i>Field Parameters</i>						
Temperature, field	4.6	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.00673	MAC = 0.12	0.00020	mg/L	2023-04-01	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23C3203  
2023-04-05 10:49

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 179CA - S Dennis Rd (23C3203-07)   Matrix: Water   Sampled: 2023-03-28 12:20</b>						
<i>Field Parameters</i>						
Temperature, field	7.6	AO ≤ 15		°C	2023-03-28	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-29	
<i>Total Metals</i>						
Manganese, total	0.155	MAC = 0.12	0.00020	mg/L	2023-04-01	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23C3203  
2023-04-05 10:49

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23D2837
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-04-26 14:30 / 9.1°C 2023-05-02 12:31
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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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*



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

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23D2837  
2023-05-02 12:31

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E4 - S Airport (23D2837-01)   Matrix: Water   Sampled: 2023-04-25 09:20</b>						
<i>Field Parameters</i>						
Temperature, field	6.6	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	0.18	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	HT3
<i>Total Metals</i>						
Manganese, total	0.0355	MAC = 0.12	0.00020	mg/L	2023-05-01	

**WT# 94E5 - S Mills Rd (23D2837-02) | Matrix: Water | Sampled: 2023-04-25 10:00**

<i>Field Parameters</i>						
Temperature, field	6.4	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.00506	MAC = 0.12	0.00020	mg/L	2023-05-01	

**WT# 94E7 - S-Marsh Drive (23D2837-03) | Matrix: Water | Sampled: 2023-04-25 10:45**

<i>Field Parameters</i>						
Temperature, field	9.1	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.00475	MAC = 0.12	0.00020	mg/L	2023-05-01	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23D2837  
2023-05-02 12:31

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E8 - S-Graham Ave (23D2837-04)   Matrix: Water   Sampled: 2023-04-25 13:20</b>						
<i>Field Parameters</i>						
Temperature, field	7.1	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.0256	MAC = 0.12	0.00020	mg/L	2023-05-01	

**WT# 94E9 - S-West Fraser Rd (23D2837-05) | Matrix: Water | Sampled: 2023-04-25 11:35**

<i>Field Parameters</i>						
Temperature, field	5.0	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.00796	MAC = 0.12	0.00020	mg/L	2023-05-01	

**WT# 94F0 - S-Pederson Rd (23D2837-06) | Matrix: Water | Sampled: 2023-04-25 14:20**

<i>Field Parameters</i>						
Temperature, field	7.1	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	0.18	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.0463	MAC = 0.12	0.00020	mg/L	2023-05-01	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23D2837  
2023-05-02 12:31

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 35D91 - NEW CARSON PIT (23D2837-07)   Matrix: Water   Sampled: 2023-04-25 12:45</b>						
<i>Field Parameters</i>						
Temperature, field	6.0	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	0.28	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.0339	MAC = 0.12	0.00020	mg/L	2023-05-01	

**WT# 179CA - S Dennis Rd (23D2837-08) | Matrix: Water | Sampled: 2023-04-25 13:40**

<i>Field Parameters</i>						
Temperature, field	6.2	AO ≤ 15		°C	2023-04-25	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-04-27	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-26	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-26	
<i>Total Metals</i>						
Manganese, total	0.148	MAC = 0.12	0.00020	mg/L	2023-05-01	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23D2837  
2023-05-02 12:31

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### General Comments:

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23E3005
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-05-24 15:15 / 18.1°C 2023-05-30 09:23
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### 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.

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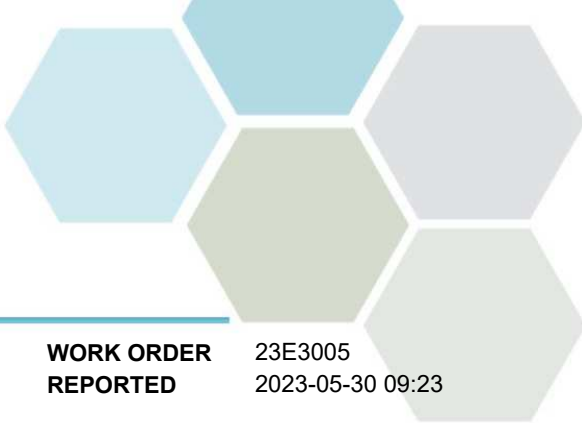
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23E3005  
2023-05-30 09:23

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E4 - S Airport (23E3005-01) | Matrix: Water | Sampled: 2023-05-23 09:50**

**Field Parameters**

Temperature, field	9.1	AO ≤ 15		°C	2023-05-23	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-27	HT1
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	HT3

**Total Metals**

Manganese, total	0.00153	MAC = 0.12	0.00020	mg/L	2023-05-29	
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**WT# 94E5 - S Mills Rd (23E3005-02) | Matrix: Water | Sampled: 2023-05-23 10:30**

**Field Parameters**

Temperature, field	8.6	AO ≤ 15		°C	2023-05-23	
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**General Parameters**

Turbidity	0.10	OG < 1	0.10	NTU	2023-05-27	HT1
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	HT3

**Total Metals**

Manganese, total	0.00533	MAC = 0.12	0.00020	mg/L	2023-05-29	
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**WT# 94E7 - S-Marsh Drive (23E3005-03) | Matrix: Water | Sampled: 2023-05-23 10:40**

**Field Parameters**

Temperature, field	11.4	AO ≤ 15		°C	2023-05-23	
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**General Parameters**

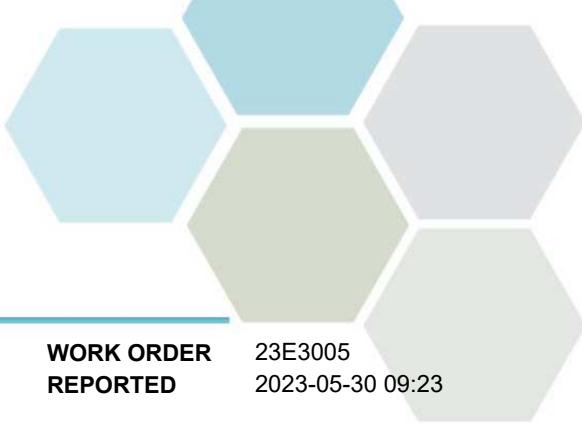
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-28	HT1
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	

**Total Metals**

Manganese, total	0.0508	MAC = 0.12	0.00020	mg/L	2023-05-29	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23E3005  
2023-05-30 09:23

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E8 - S-Graham Ave (23E3005-04) | Matrix: Water | Sampled: 2023-05-23 11:45**

**Field Parameters**

Temperature, field	11.4	AO ≤ 15		°C	2023-05-23	
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**General Parameters**

Turbidity	0.12	OG < 1	0.10	NTU	2023-05-28	HT1
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	

**Total Metals**

Manganese, total	0.0394	MAC = 0.12	0.00020	mg/L	2023-05-29	
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**WT# 94E9 - S-West Fraser Rd (23E3005-05) | Matrix: Water | Sampled: 2023-05-23 11:10**

**Field Parameters**

Temperature, field	8.9	AO ≤ 15		°C	2023-05-23	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-28	HT1
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	

**Total Metals**

Manganese, total	0.0116	MAC = 0.12	0.00020	mg/L	2023-05-29	
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**WT# 94F0 - S-Pederson Rd (23E3005-06) | Matrix: Water | Sampled: 2023-05-23 13:05**

**Field Parameters**

Temperature, field	8.2	AO ≤ 15		°C	2023-05-23	
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**General Parameters**

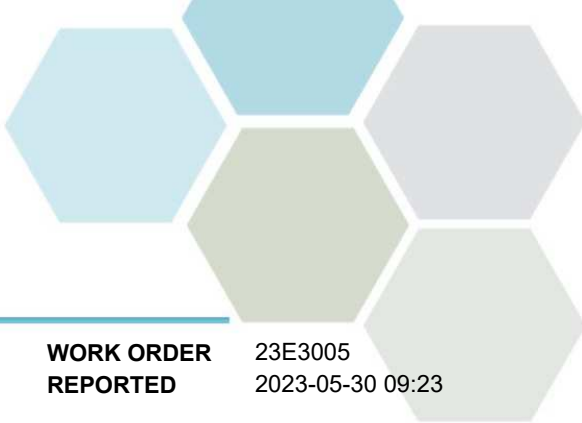
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-28	HT1
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	

**Total Metals**

Manganese, total	0.0638	MAC = 0.12	0.00020	mg/L	2023-05-29	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23E3005  
2023-05-30 09:23

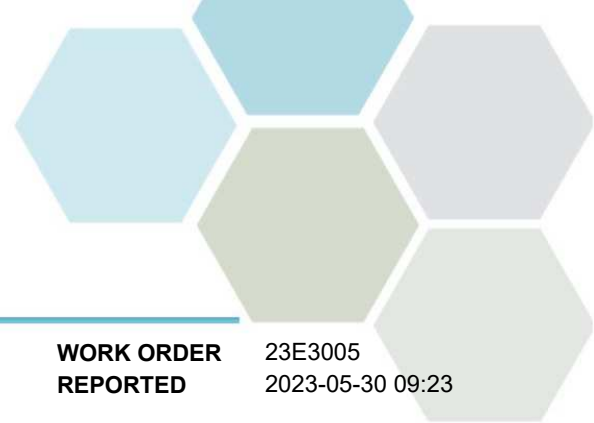
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 35D91 - NEW CARSON PIT (23E3005-07)   Matrix: Water   Sampled: 2023-05-23 13:55</b>						
<i>Field Parameters</i>						
Temperature, field	10.0	AO ≤ 15		°C	2023-05-23	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-28	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
<i>Total Metals</i>						
Manganese, total	0.00249	MAC = 0.12	0.00020	mg/L	2023-05-29	

**WT# 179CA - S Dennis Rd (23E3005-08) | Matrix: Water | Sampled: 2023-05-23 13:15**

<i>Field Parameters</i>						
Temperature, field	7.7	AO ≤ 15		°C	2023-05-23	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-28	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-24	
<i>Total Metals</i>						
Manganese, total	0.150	MAC = 0.12	0.00020	mg/L	2023-05-29	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23E3005  
2023-05-30 09:23

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23G2343
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-07-19 14:30 / 22.2°C 2023-07-26 16:55
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### 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>

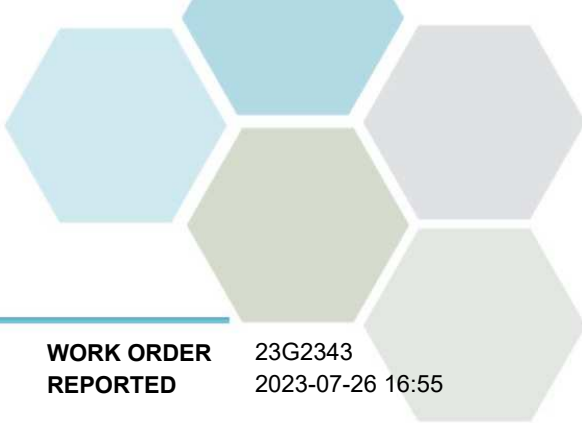
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23G2343  
2023-07-26 16:55

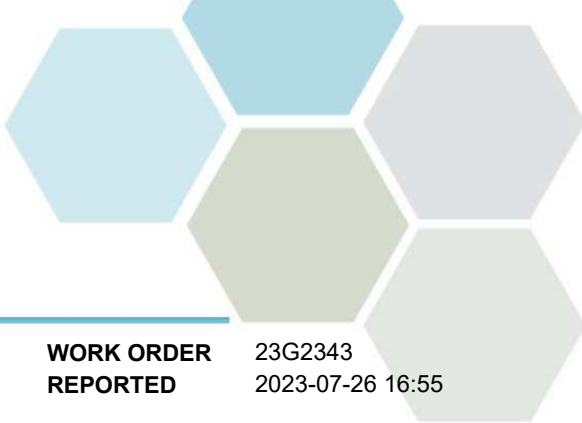
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E4 S Airport (23G2343-01)   Matrix: Ground Water   Sampled: 2023-07-18 10:00</b>						
<i>Field Parameters</i>						
Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
<i>General Parameters</i>						
Turbidity	0.26	OG < 1	0.10	NTU	2023-07-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	HT3
<i>Total Metals</i>						
Manganese, total	0.00264	MAC = 0.12	0.00020	mg/L	2023-07-21	

**94E5 S Mills Rd. (23G2343-02) | Matrix: Ground Water | Sampled: 2023-07-18 10:30**

<i>Field Parameters</i>						
Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-07-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
<i>Total Metals</i>						
Manganese, total	0.00578	MAC = 0.12	0.00020	mg/L	2023-07-21	

**94E7 S Marsh Dr. (23G2343-03) | Matrix: Ground Water | Sampled: 2023-07-18 11:00**

<i>Field Parameters</i>						
Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
<i>General Parameters</i>						
Turbidity	0.35	OG < 1	0.10	NTU	2023-07-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
<i>Total Metals</i>						
Manganese, total	0.00392	MAC = 0.12	0.00020	mg/L	2023-07-21	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23G2343  
2023-07-26 16:55

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**94E8 S Graham Ave. (23G2343-04) | Matrix: Ground Water | Sampled: 2023-07-18 13:00**

**Field Parameters**

Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
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**General Parameters**

Turbidity	0.52	OG < 1	0.10	NTU	2023-07-20	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	

**Total Metals**

Manganese, total	0.0400	MAC = 0.12	0.00020	mg/L	2023-07-21	
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**94E9S West Fraser Rd. (23G2343-05) | Matrix: Ground Water | Sampled: 2023-07-18 11:30**

**Field Parameters**

Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
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**General Parameters**

Turbidity	0.32	OG < 1	0.10	NTU	2023-07-20	
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**Microbiological Parameters**

Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	

**Total Metals**

Manganese, total	0.0145	MAC = 0.12	0.00020	mg/L	2023-07-21	
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**94F0 S Pedersen Rd. (23G2343-06) | Matrix: Ground Water | Sampled: 2023-07-18 13:30**

**Field Parameters**

Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
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**General Parameters**

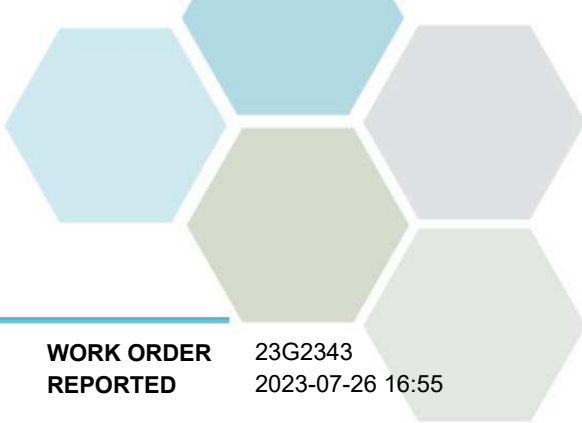
Turbidity	0.54	OG < 1	0.10	NTU	2023-07-20	
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**Microbiological Parameters**

Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	6	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	

**Total Metals**

Manganese, total	0.0970	MAC = 0.12	0.00020	mg/L	2023-07-21	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23G2343  
2023-07-26 16:55

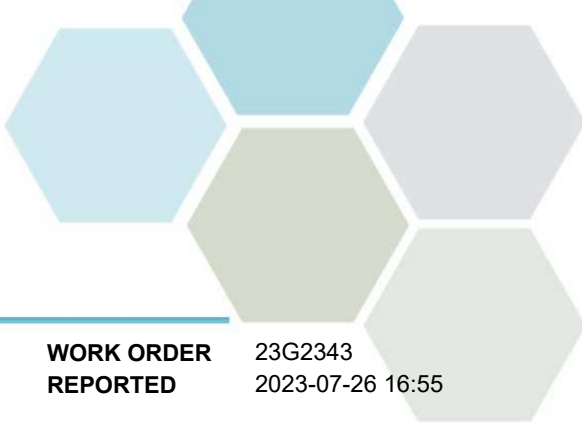
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>35D91k New Carson Pit (23G2343-07)   Matrix: Ground Water   Sampled: 2023-07-18 14:30</b>						
<i>Field Parameters</i>						
Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-07-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	2	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
<i>Total Metals</i>						
Manganese, total	0.0870	MAC = 0.12	0.00020	mg/L	2023-07-21	

**179CA S Dennis Rd. (23G2343-08) | Matrix: Ground Water | Sampled: 2023-07-18 14:00**

<i>Field Parameters</i>						
Temperature, field	0.0	AO ≤ 15		°C	2023-07-18	
<i>General Parameters</i>						
Turbidity	0.20	OG < 1	0.10	NTU	2023-07-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-19	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-19	
<i>Total Metals</i>						
Manganese, total	0.154	MAC = 0.12	0.00020	mg/L	2023-07-21	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23G2343  
2023-07-26 16:55

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
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 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: [bwhitehead@caro.ca](mailto: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.*



## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	2311508
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-09-13 16:13 / 14.6°C 2023-09-21 15:55
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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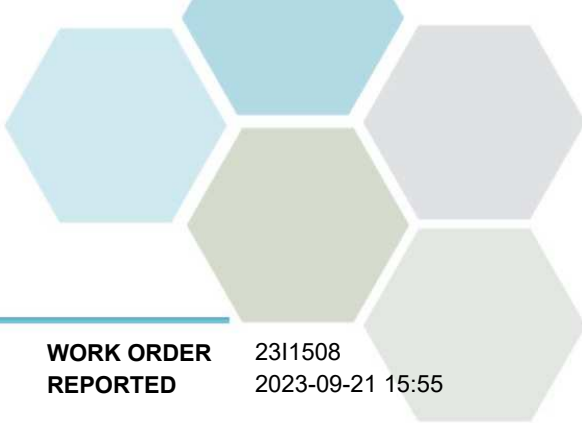
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#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 2311508  
2023-09-21 15:55

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**94E4 S Airport (2311508-01) | Matrix: Ground Water | Sampled: 2023-09-12 10:15**

**Field Parameters**

Temperature, field	15.6	AO ≤ 15		°C	2023-09-12	
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**General Parameters**

Turbidity	0.33	OG < 1	0.10	NTU	2023-09-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	HT3

**Total Metals**

Manganese, total	0.00122	MAC = 0.12	0.00020	mg/L	2023-09-18	
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**94E5 S Mills Rd. (2311508-02) | Matrix: Ground Water | Sampled: 2023-09-12 10:45**

**Field Parameters**

Temperature, field	11.9	AO ≤ 15		°C	2023-09-12	
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**General Parameters**

Turbidity	0.40	OG < 1	0.10	NTU	2023-09-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	

**Total Metals**

Manganese, total	0.00346	MAC = 0.12	0.00020	mg/L	2023-09-18	
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**94E7 S Marsh Dr. (2311508-03) | Matrix: Ground Water | Sampled: 2023-09-12 11:15**

**Field Parameters**

Temperature, field	10.1	AO ≤ 15		°C	2023-09-12	
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**General Parameters**

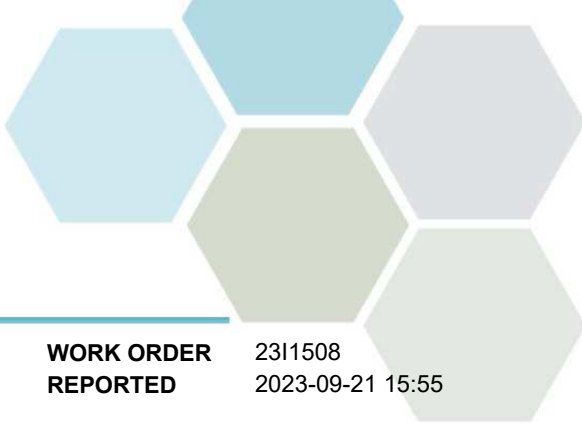
Turbidity	0.10	OG < 1	0.10	NTU	2023-09-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	

**Total Metals**

Manganese, total	0.00216	MAC = 0.12	0.00020	mg/L	2023-09-18	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 2311508  
2023-09-21 15:55

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**94E8 S Graham Ave. (2311508-04) | Matrix: Ground Water | Sampled: 2023-09-12 11:45**

**Field Parameters**

Temperature, field	9.9	AO ≤ 15		°C	2023-09-12	
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**General Parameters**

Turbidity	0.56	OG < 1	0.10	NTU	2023-09-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	6	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	

**Total Metals**

Manganese, total	0.0468	MAC = 0.12	0.00020	mg/L	2023-09-18	
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**94E9 S West Fraser Rd. (2311508-05) | Matrix: Ground Water | Sampled: 2023-09-12 13:15**

**Field Parameters**

Temperature, field	14.4	AO ≤ 15		°C	2023-09-12	
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**General Parameters**

Turbidity	0.21	OG < 1	0.10	NTU	2023-09-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	

**Total Metals**

Manganese, total	0.00137	MAC = 0.12	0.00020	mg/L	2023-09-18	
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**35D91 New Carson Pit (2311508-06) | Matrix: Ground Water | Sampled: 2023-09-12 15:00**

**Field Parameters**

Temperature, field	13.1	AO ≤ 15		°C	2023-09-12	
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**General Parameters**

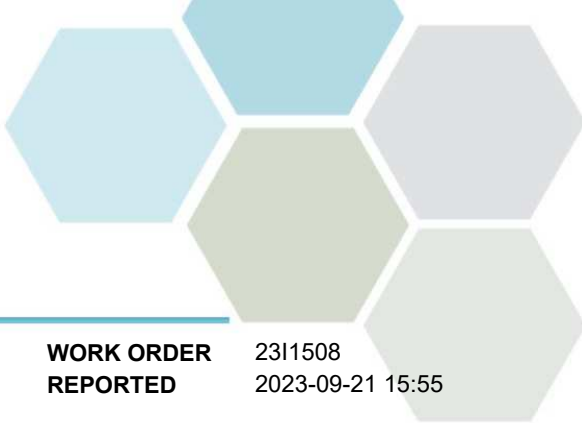
Turbidity	0.53	OG < 1	0.10	NTU	2023-09-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	310	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	

**Total Metals**

Manganese, total	0.0368	MAC = 0.12	0.00020	mg/L	2023-09-18	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 2311508  
2023-09-21 15:55

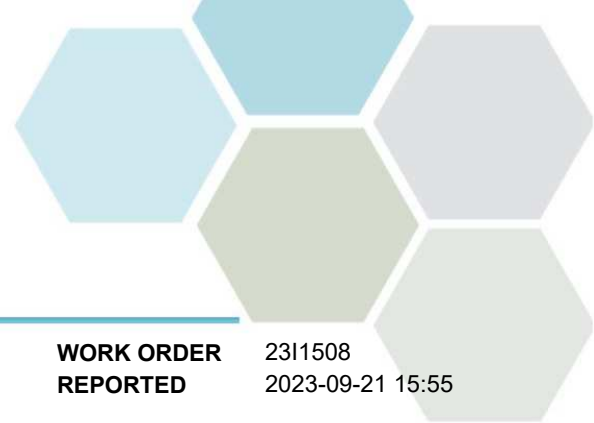
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>179CA S Dennis Rd. (2311508-07)   Matrix: Ground Water   Sampled: 2023-09-12 13:45</b>						
<i>Field Parameters</i>						
Temperature, field	12.9	AO ≤ 15		°C	2023-09-12	
<i>General Parameters</i>						
Turbidity	0.15	OG < 1	0.10	NTU	2023-09-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
<i>Total Metals</i>						
Manganese, total	0.124	MAC = 0.12	0.00020	mg/L	2023-09-18	

**94F0 S Pedersen Rd. (2311508-08) | Matrix: Ground Water | Sampled: 2023-09-12 14:15**

<i>Field Parameters</i>						
Temperature, field	10.9	AO ≤ 15		°C	2023-09-12	
<i>General Parameters</i>						
Turbidity	0.21	OG < 1	0.10	NTU	2023-09-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-09-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-13	
<i>Total Metals</i>						
Manganese, total	0.0178	MAC = 0.12	0.00020	mg/L	2023-09-18	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 2311508  
2023-09-21 15:55

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### General Comments:

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23J1579
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-10-13 14:21 / 9.4°C 2023-10-18 17:57
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### Introduction:

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#### *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>

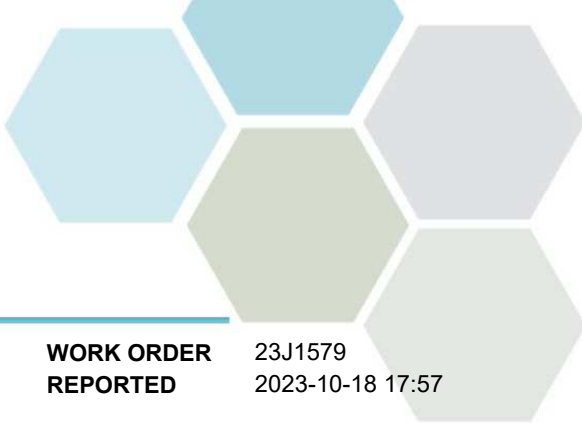
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### Authorized By:

Brent Whitehead  
Account Manager

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

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23J1579  
2023-10-18 17:57

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E4 S Airport (23J1579-01)   Matrix: Ground Water   Sampled: 2023-10-12 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.3	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.17	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	2	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.00139	MAC = 0.12	0.00020	mg/L	2023-10-17	

**94E5 S Mills Rd. (23J1579-02) | Matrix: Ground Water | Sampled: 2023-10-12 10:10**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.00165	MAC = 0.12	0.00020	mg/L	2023-10-17	

**94E7 S Marsh Dr. (23J1579-03) | Matrix: Ground Water | Sampled: 2023-10-12 10:40**

<i>Field Parameters</i>						
Temperature, field	12.0	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.0261	MAC = 0.12	0.00020	mg/L	2023-10-17	

# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23J1579  
2023-10-18 17:57

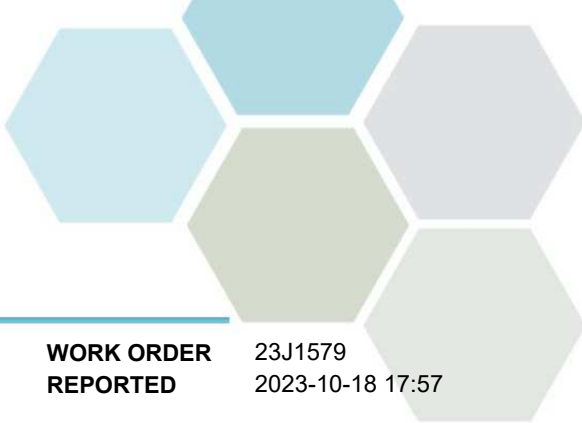
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E8 S Graham Ave. (23J1579-04)   Matrix: Ground Water   Sampled: 2023-10-12 12:20</b>						
<i>Field Parameters</i>						
Temperature, field	13.0	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.0728	MAC = 0.12	0.00020	mg/L	2023-10-17	

**94E9 S West Fraser Rd. (23J1579-05) | Matrix: Ground Water | Sampled: 2023-10-12 11:20**

<i>Field Parameters</i>						
Temperature, field	13.0	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.0152	MAC = 0.12	0.00020	mg/L	2023-10-17	

**94F0 S Pedersen Rd. (23J1579-06) | Matrix: Ground Water | Sampled: 2023-10-12 13:45**

<i>Field Parameters</i>						
Temperature, field	13.2	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.0343	MAC = 0.12	0.00020	mg/L	2023-10-17	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23J1579  
2023-10-18 17:57

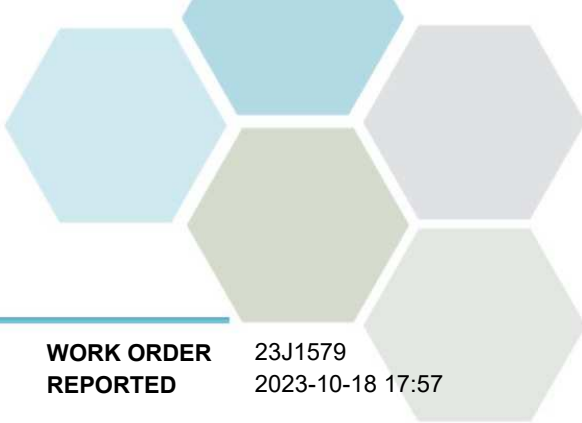
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>35D91k New Carson Pit (23J1579-07)   Matrix: Ground Water   Sampled: 2023-10-12</b>						
<i>Field Parameters</i>						
Temperature, field	12.6	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	84	N/A	5	CFU/mL	2023-10-13	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.0371	MAC = 0.12	0.00020	mg/L	2023-10-17	

**179CA S Dennis Rd. (23J1579-08) | Matrix: Ground Water | Sampled: 2023-10-12 13:50**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-10-12	
<i>General Parameters</i>						
Turbidity	0.16	OG < 1	0.10	NTU	2023-10-16	HT1
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
Heterotrophic Plate Count	5	N/A	5	CFU/mL	2023-10-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-13	
<i>Total Metals</i>						
Manganese, total	0.144	MAC = 0.12	0.00020	mg/L	2023-10-17	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23J1579  
2023-10-18 17:57

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (2020)	Nephelometry	✓	Kelowna

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

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CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Bi-Weekly - First Week  
**PROJECT INFO**

**WORK ORDER** 23K3398

**RECEIVED / TEMP** 2023-11-29 14:19 / 9.6°C  
**REPORTED** 2023-12-05 11:13  
**COC NUMBER** No Number

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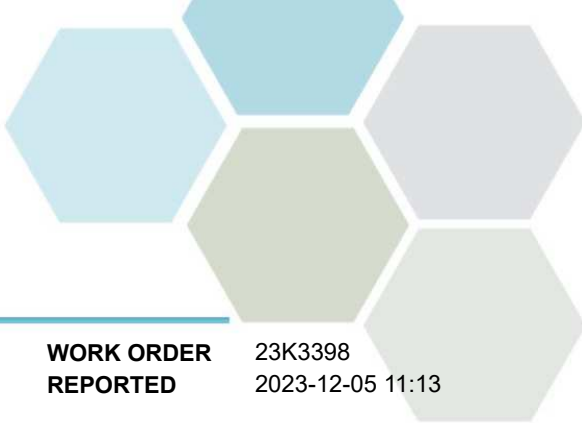
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23K3398  
2023-12-05 11:13

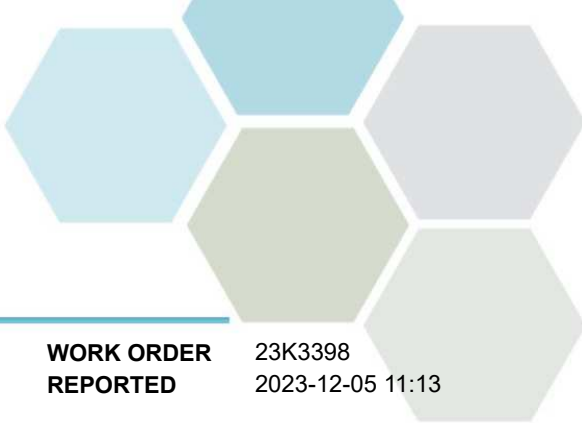
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E4 S Airport (23K3398-01)   Matrix: Ground Water   Sampled: 2023-11-28 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	9.2	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.40	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.00068	MAC = 0.12	0.00020	mg/L	2023-12-01	

**94E5 S Mills Rd. (23K3398-02) | Matrix: Ground Water | Sampled: 2023-11-28 10:45**

<i>Field Parameters</i>						
Temperature, field	9.7	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.28	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.00200	MAC = 0.12	0.00020	mg/L	2023-12-02	

**94E7 S Marsh Dr. (23K3398-03) | Matrix: Ground Water | Sampled: 2023-11-28 11:15**

<i>Field Parameters</i>						
Temperature, field	8.3	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.25	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.0217	MAC = 0.12	0.00020	mg/L	2023-12-02	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23K3398  
2023-12-05 11:13

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E8 S Graham Ave. (23K3398-04)   Matrix: Ground Water   Sampled: 2023-11-28 11:45</b>						
<i>Field Parameters</i>						
Temperature, field	8.8	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.0525	MAC = 0.12	0.00020	mg/L	2023-12-01	

**94E9 S West Fraser Rd. (23K3398-05) | Matrix: Ground Water | Sampled: 2023-11-28 13:15**

<i>Field Parameters</i>						
Temperature, field	8.0	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.74	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.00677	MAC = 0.12	0.00020	mg/L	2023-12-01	

**94F0 S Pedersen Rd. (23K3398-06) | Matrix: Ground Water | Sampled: 2023-11-28 14:00**

<i>Field Parameters</i>						
Temperature, field	9.6	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.41	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.0790	MAC = 0.12	0.00020	mg/L	2023-12-02	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23K3398  
2023-12-05 11:13

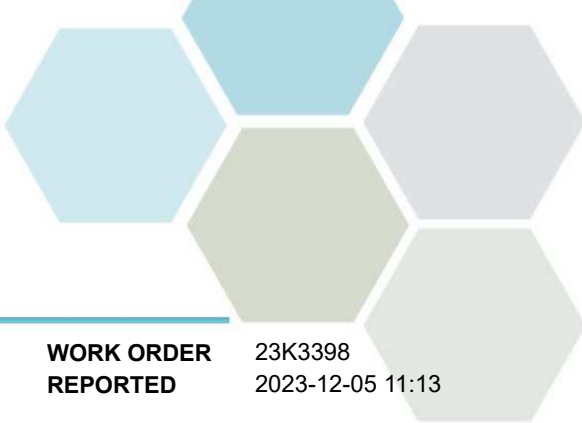
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>35D91k New Carson Pit (23K3398-07)   Matrix: Ground Water   Sampled: 2023-11-28 15:00</b>						
<i>Field Parameters</i>						
Temperature, field	7.6	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.38	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	36	N/A	5	CFU/mL	2023-11-29	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.00098	MAC = 0.12	0.00020	mg/L	2023-12-01	

**179CA S Dennis Rd. (23K3398-08) | Matrix: Ground Water | Sampled: 2023-11-28 14:30**

<i>Field Parameters</i>						
Temperature, field	8.1	AO ≤ 15		°C	2023-11-28	
<i>General Parameters</i>						
Turbidity	0.31	OG < 1	0.10	NTU	2023-11-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-29	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-29	
<i>Total Metals</i>						
Manganese, total	0.144	MAC = 0.12	0.00020	mg/L	2023-12-02	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23K3398  
2023-12-05 11:13

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### General Comments:

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23L3037
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-12-28 14:52 / 5.6°C 2024-01-04 15:36
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

### 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 [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### Authorized By:

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23L3037  
2024-01-04 15:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E4 S Airport (23L3037-01)   Matrix: Ground Water   Sampled: 2023-12-27 10:15</b>						
<i>Field Parameters</i>						
Temperature, field	6.9	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.00677	MAC = 0.12	0.00020	mg/L	2024-01-04	

**94E5 S Mills Rd. (23L3037-02) | Matrix: Ground Water | Sampled: 2023-12-27 11:00**

<i>Field Parameters</i>						
Temperature, field	7.2	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.00158	MAC = 0.12	0.00020	mg/L	2024-01-04	

**94E7 S Marsh Dr. (23L3037-03) | Matrix: Ground Water | Sampled: 2023-12-27 11:30**

<i>Field Parameters</i>						
Temperature, field	7.6	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.23	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.0591	MAC = 0.12	0.00020	mg/L	2024-01-04	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23L3037  
2024-01-04 15:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E8 S Graham Ave. (23L3037-04)   Matrix: Ground Water   Sampled: 2023-12-27 13:30</b>						
<i>Field Parameters</i>						
Temperature, field	7.3	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.21	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	8	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.0409	MAC = 0.12	0.00020	mg/L	2024-01-04	

**94E9 S West Fraser Rd. (23L3037-05) | Matrix: Ground Water | Sampled: 2023-12-27 14:00**

<i>Field Parameters</i>						
Temperature, field	7.1	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.23	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.0163	MAC = 0.12	0.00020	mg/L	2024-01-04	

**94F0 S Pedersen Rd. (23L3037-06) | Matrix: Ground Water | Sampled: 2023-12-27 14:45**

<i>Field Parameters</i>						
Temperature, field	8.4	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.32	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.112	MAC = 0.12	0.00020	mg/L	2024-01-04	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23L3037  
2024-01-04 15:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>35D91 New Carson Pit (23L3037-07)   Matrix: Ground Water   Sampled: 2023-12-27 13:00</b>						
<i>Field Parameters</i>						
Temperature, field	6.3	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.27	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.00507	MAC = 0.12	0.00020	mg/L	2024-01-04	

**179CA S Dennis Rd. (23L3037-08) | Matrix: Ground Water | Sampled: 2023-12-27 15:00**

<i>Field Parameters</i>						
Temperature, field	7.7	AO ≤ 15		°C	2023-12-27	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-12-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-28	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-28	
<i>Total Metals</i>						
Manganese, total	0.148	MAC = 0.12	0.00020	mg/L	2024-01-04	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23L3037  
2024-01-04 15:36

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (2020)	Nephelometry	✓	Kelowna

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

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AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	24A1125
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2024-01-11 14:09 / 1.8°C 2024-01-17 11:21
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 24A1125  
2024-01-17 11:21

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E6 - S-Carradice Rd. (24A1125-01) | Matrix: Water | Sampled: 2024-01-10 09:20**

**Field Parameters**

Temperature, field	4.7	AO ≤ 15		°C	2024-01-10	
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**General Parameters**

Turbidity	0.37	OG < 1	0.10	NTU	2024-01-12	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	HT3

**Total Metals**

Manganese, total	0.197	MAC = 0.12	0.00020	mg/L	2024-01-14	
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**WT# 94F1 - S-Dixon St. (24A1125-02) | Matrix: Water | Sampled: 2024-01-10 10:15**

**Field Parameters**

Temperature, field	7.3	AO ≤ 15		°C	2024-01-10	
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**General Parameters**

Turbidity	0.36	OG < 1	0.10	NTU	2024-01-12	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	HT3

**Total Metals**

Manganese, total	0.0237	MAC = 0.12	0.00020	mg/L	2024-01-14	
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**WT# 94F2 - S-Hospital (24A1125-03) | Matrix: Water | Sampled: 2024-01-10 10:00**

**Field Parameters**

Temperature, field	7.1	AO ≤ 15		°C	2024-01-10	
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**General Parameters**

Turbidity	0.31	OG < 1	0.10	NTU	2024-01-12	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	HT3

**Total Metals**

Manganese, total	0.186	MAC = 0.12	0.00020	mg/L	2024-01-14	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 24A1125  
2024-01-17 11:21

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (24A1125-04) | Matrix: Water | Sampled: 2024-01-10 11:00**

**Field Parameters**

Temperature, field	7.2	AO ≤ 15		°C	2024-01-10	
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**General Parameters**

Turbidity	0.20	OG < 1	0.10	NTU	2024-01-12	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	

**Total Metals**

Manganese, total	0.125	MAC = 0.12	0.00020	mg/L	2024-01-14	
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**WT# 94F4 - S-N Star Dragon Hill (24A1125-05) | Matrix: Water | Sampled: 2024-01-10 14:00**

**Field Parameters**

Temperature, field	7.2	AO ≤ 15		°C	2024-01-10	
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**General Parameters**

Turbidity	0.16	OG < 1	0.10	NTU	2024-01-12	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	

**Total Metals**

Manganese, total	0.125	MAC = 0.12	0.00020	mg/L	2024-01-14	
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**WT# 94F6 - S-N Star South Hill (24A1125-06) | Matrix: Water | Sampled: 2024-01-10 14:30**

**Field Parameters**

Temperature, field	7.4	AO ≤ 15		°C	2024-01-10	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2024-01-12	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	

**Total Metals**

Manganese, total	0.150	MAC = 0.12	0.00020	mg/L	2024-01-14	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 24A1125  
2024-01-17 11:21

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (24A1125-07)   Matrix: Water   Sampled: 2024-01-10 13:20</b>						
<i>Field Parameters</i>						
Temperature, field	8.3	AO ≤ 15		°C	2024-01-10	
<i>General Parameters</i>						
Turbidity	0.28	OG < 1	0.10	NTU	2024-01-12	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
Heterotrophic Plate Count	89	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
<i>Total Metals</i>						
Manganese, total	0.158	MAC = 0.12	0.00020	mg/L	2024-01-14	

**WT# 21D9B - Bulk Water Site 1 (24A1125-08) | Matrix: Water | Sampled: 2024-01-10 11:30**

<i>Field Parameters</i>						
Temperature, field	7.1	AO ≤ 15		°C	2024-01-10	
<i>General Parameters</i>						
Turbidity	0.15	OG < 1	0.10	NTU	2024-01-12	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2024-01-11	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2024-01-11	
<i>Total Metals</i>						
Manganese, total	0.0255	MAC = 0.12	0.00020	mg/L	2024-01-14	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 24A1125  
2024-01-17 11:21

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
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 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: [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23A1714
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-01-18 13:50 / 6.0°C 2023-01-25 11:12
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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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.

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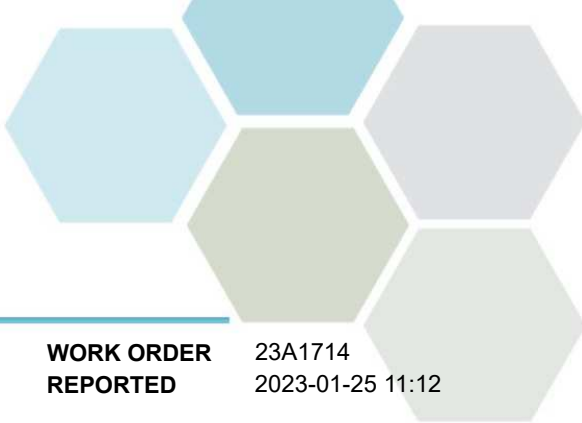
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23A1714  
2023-01-25 11:12

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23A1714-01)   Matrix: Water   Sampled: 2023-01-17 09:20</b>						
<i>Field Parameters</i>						
Temperature, field	8.0	AO ≤ 15		°C	2023-01-17	
<i>General Parameters</i>						
Turbidity	0.18	OG < 1	0.10	NTU	2023-01-19	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	HT3
<i>Total Metals</i>						
Manganese, total	0.170	MAC = 0.12	0.00020	mg/L	2023-01-24	

<b>WT# 94F1 - S-Dixon St. (23A1714-02)   Matrix: Water   Sampled: 2023-01-17 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	6.7	AO ≤ 15		°C	2023-01-17	
<i>General Parameters</i>						
Turbidity	0.24	OG < 1	0.10	NTU	2023-01-19	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
<i>Total Metals</i>						
Manganese, total	0.00801	MAC = 0.12	0.00020	mg/L	2023-01-24	

<b>WT# 94F2 - S-Hospital (23A1714-03)   Matrix: Water   Sampled: 2023-01-17 10:15</b>						
<i>Field Parameters</i>						
Temperature, field	6.5	AO ≤ 15		°C	2023-01-17	
<i>General Parameters</i>						
Turbidity	0.29	OG < 1	0.10	NTU	2023-01-19	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
<i>Total Metals</i>						
Manganese, total	0.169	MAC = 0.12	0.00020	mg/L	2023-01-24	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23A1714  
2023-01-25 11:12

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23A1714-04) | Matrix: Water | Sampled: 2023-01-17 11:00**

**Field Parameters**

Temperature, field	7.2	AO ≤ 15		°C	2023-01-17	
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**General Parameters**

Turbidity	0.20	OG < 1	0.10	NTU	2023-01-19	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	

**Total Metals**

Manganese, total	0.106	MAC = 0.12	0.00020	mg/L	2023-01-24	
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**WT# 94F4 - S-N Star Dragon Hill (23A1714-05) | Matrix: Water | Sampled: 2023-01-17 13:40**

**Field Parameters**

Temperature, field	8.7	AO ≤ 15		°C	2023-01-17	
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**General Parameters**

Turbidity	0.11	OG < 1	0.10	NTU	2023-01-19	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	

**Total Metals**

Manganese, total	0.0455	MAC = 0.12	0.00020	mg/L	2023-01-24	
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**WT# 94F6 - S-N Star South Hill (23A1714-06) | Matrix: Water | Sampled: 2023-01-17 13:50**

**Field Parameters**

Temperature, field	8.9	AO ≤ 15		°C	2023-01-17	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-01-19	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	

**Total Metals**

Manganese, total	0.137	MAC = 0.12	0.00020	mg/L	2023-01-24	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23A1714  
2023-01-25 11:12

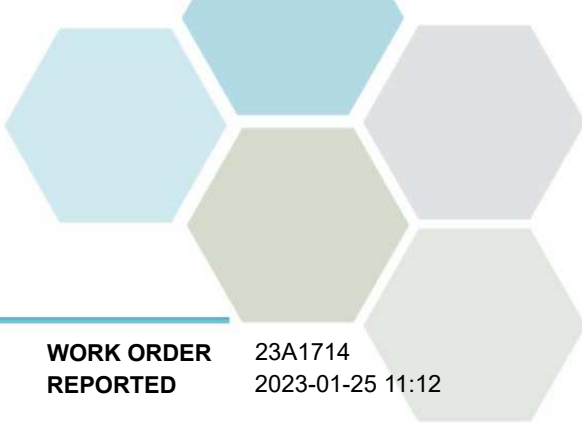
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23A1714-07)   Matrix: Water   Sampled: 2023-01-17 11:30</b>						
<i>Field Parameters</i>						
Temperature, field	7.4	AO ≤ 15		°C	2023-01-17	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-01-19	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
<i>Total Metals</i>						
Manganese, total	0.144	MAC = 0.12	0.00020	mg/L	2023-01-24	

**WT# 21D9B - Bulk Water Site 1 (23A1714-08) | Matrix: Water | Sampled: 2023-01-17 13:00**

<i>Field Parameters</i>						
Temperature, field	7.9	AO ≤ 15		°C	2023-01-17	
<i>General Parameters</i>						
Turbidity	0.24	OG < 1	0.10	NTU	2023-01-19	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-01-18	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-18	
<i>Total Metals</i>						
Manganese, total	0.0358	MAC = 0.12	0.00020	mg/L	2023-01-24	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23A1714  
2023-01-25 11:12

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23B1617
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-02-15 14:38 / 3.4°C 2023-02-23 09:25
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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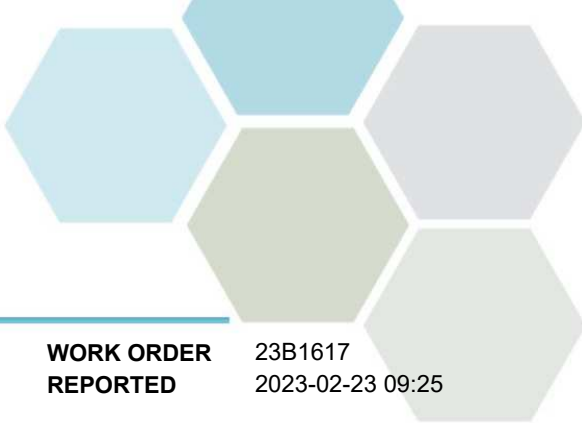
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23B1617  
2023-02-23 09:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23B1617-01)   Matrix: Water   Sampled: 2023-02-14 09:20</b>						
<i>Field Parameters</i>						
Temperature, field	6.1	AO ≤ 15		°C	2023-02-14	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-02-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	HT3
<i>Total Metals</i>						
Manganese, total	0.143	MAC = 0.12	0.00020	mg/L	2023-02-21	

**WT# 94F1 - S-Dixon St. (23B1617-02) | Matrix: Water | Sampled: 2023-02-14 10:35**

<i>Field Parameters</i>						
Temperature, field	5.4	AO ≤ 15		°C	2023-02-14	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-02-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
<i>Total Metals</i>						
Manganese, total	0.0151	MAC = 0.12	0.00020	mg/L	2023-02-21	

**WT# 94F2 - S-Hospital (23B1617-03) | Matrix: Water | Sampled: 2023-02-14 09:50**

<i>Field Parameters</i>						
Temperature, field	5.9	AO ≤ 15		°C	2023-02-14	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-02-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
<i>Total Metals</i>						
Manganese, total	0.0133	MAC = 0.12	0.00020	mg/L	2023-02-21	

# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23B1617  
2023-02-23 09:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23B1617-04) | Matrix: Water | Sampled: 2023-02-14 11:20**

**Field Parameters**

Temperature, field	6.1	AO ≤ 15		°C	2023-02-14	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-02-16	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	

**Total Metals**

Manganese, total	0.117	MAC = 0.12	0.00020	mg/L	2023-02-21	
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**WT# 94F4 - S-N Star Dragon Hill (23B1617-05) | Matrix: Water | Sampled: 2023-02-14 14:30**

**Field Parameters**

Temperature, field	7.5	AO ≤ 15		°C	2023-02-14	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-02-16	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	

**Total Metals**

Manganese, total	0.100	MAC = 0.12	0.00020	mg/L	2023-02-21	
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**WT# 94F6 - S-N Star South Hill (23B1617-06) | Matrix: Water | Sampled: 2023-02-14 14:45**

**Field Parameters**

Temperature, field	7.6	AO ≤ 15		°C	2023-02-14	
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**General Parameters**

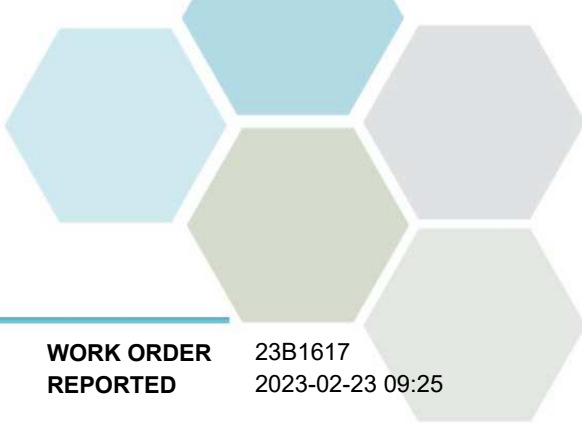
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-02-16	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	

**Total Metals**

Manganese, total	0.144	MAC = 0.12	0.00020	mg/L	2023-02-21	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23B1617  
2023-02-23 09:25

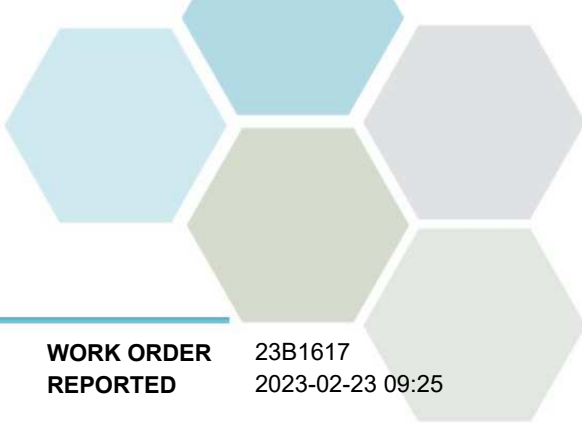
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23B1617-07)   Matrix: Water   Sampled: 2023-02-14 13:45</b>						
<i>Field Parameters</i>						
Temperature, field	6.7	AO ≤ 15		°C	2023-02-14	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-02-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
<i>Total Metals</i>						
Manganese, total	0.147	MAC = 0.12	0.00020	mg/L	2023-02-21	

**WT# 21D9B - Bulk Water Site 1 (23B1617-08) | Matrix: Water | Sampled: 2023-02-14 11:45**

<i>Field Parameters</i>						
Temperature, field	7.3	AO ≤ 15		°C	2023-02-14	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-02-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-02-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-15	
<i>Total Metals</i>						
Manganese, total	0.0640	MAC = 0.12	0.00020	mg/L	2023-02-21	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23B1617  
2023-02-23 09:25

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Bi-Weekly - Third Week  
**PROJECT INFO**

**WORK ORDER** 23C1690

**RECEIVED / TEMP** 2023-03-15 14:30 / 5.5°C  
**REPORTED** 2023-03-22 12:45  
**COC NUMBER** No Number

### Introduction:

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#### *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.

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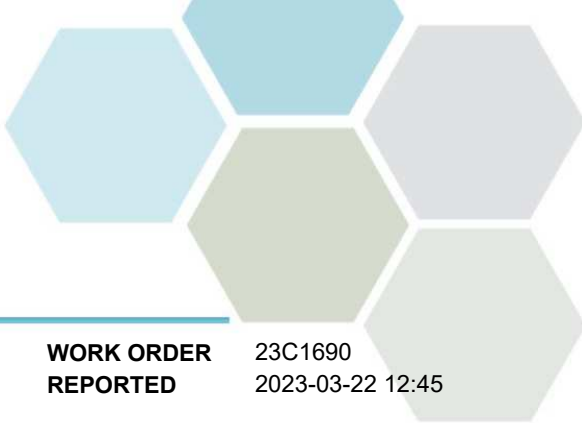
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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

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# TEST RESULTS

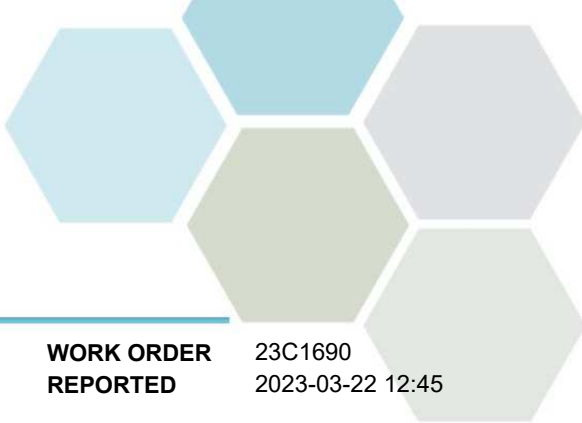
**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23C1690  
2023-03-22 12:45

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23C1690-01)   Matrix: Water   Sampled: 2023-03-14 09:15</b>						
<i>Field Parameters</i>						
Temperature, field	8.1	AO ≤ 15		°C	2023-03-14	
<i>General Parameters</i>						
Turbidity	0.16	OG < 1	0.10	NTU	2023-03-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	HT3
<i>Total Metals</i>						
Manganese, total	0.0138	MAC = 0.12	0.00020	mg/L	2023-03-21	

<b>WT# 94F1 - S-Dixon St. (23C1690-02)   Matrix: Water   Sampled: 2023-03-14 10:20</b>						
<i>Field Parameters</i>						
Temperature, field	7.2	AO ≤ 15		°C	2023-03-14	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-03-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
<i>Total Metals</i>						
Manganese, total	0.00979	MAC = 0.12	0.00020	mg/L	2023-03-21	

<b>WT# 94F2 - S-Hospital (23C1690-03)   Matrix: Water   Sampled: 2023-03-14 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	7.5	AO ≤ 15		°C	2023-03-14	
<i>General Parameters</i>						
Turbidity	0.47	OG < 1	0.10	NTU	2023-03-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	HT3
<i>Total Metals</i>						
Manganese, total	0.488	MAC = 0.12	0.00020	mg/L	2023-03-21	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23C1690  
2023-03-22 12:45

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F4 - S-N Star Dragon Hill (23C1690-04) | Matrix: Water | Sampled: 2023-03-14 13:20**

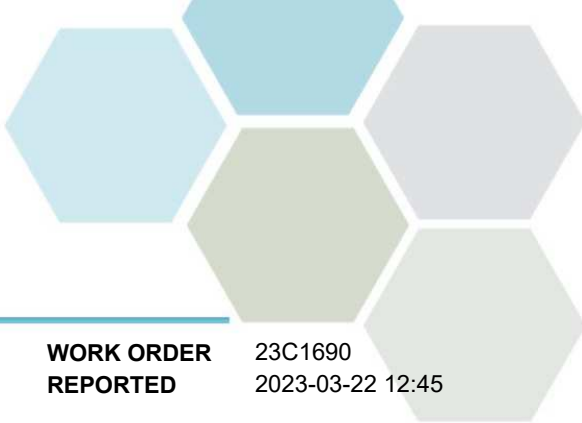
<i>Field Parameters</i>						
Temperature, field	8.2	AO ≤ 15		°C	2023-03-14	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
<i>Total Metals</i>						
Manganese, total	0.144	MAC = 0.12	0.00020	mg/L	2023-03-21	

**WT# 94F6 - S-N Star South Hill (23C1690-05) | Matrix: Water | Sampled: 2023-03-14 13:30**

<i>Field Parameters</i>						
Temperature, field	7.9	AO ≤ 15		°C	2023-03-14	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-03-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
<i>Total Metals</i>						
Manganese, total	0.0252	MAC = 0.12	0.00020	mg/L	2023-03-21	

**WT# 94F7 - S-Chew Rd. (23C1690-06) | Matrix: Water | Sampled: 2023-03-14 11:00**

<i>Field Parameters</i>						
Temperature, field	7.6	AO ≤ 15		°C	2023-03-14	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-03-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
<i>Total Metals</i>						
Manganese, total	0.153	MAC = 0.12	0.00020	mg/L	2023-03-21	



## TEST RESULTS

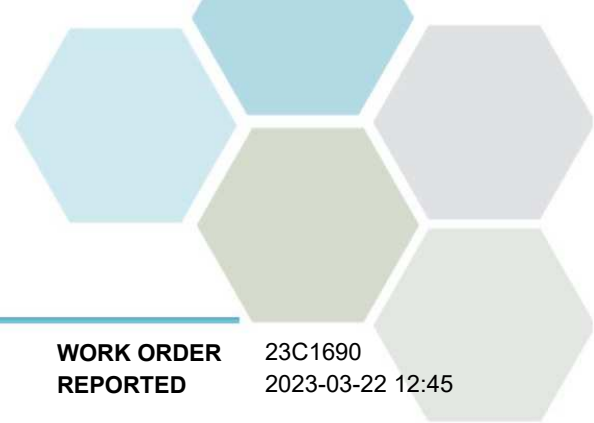
**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23C1690  
2023-03-22 12:45

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 21D9B - Bulk Water Site 1 (23C1690-07)   Matrix: Water   Sampled: 2023-03-14 11:30</b>						
<b>Field Parameters</b>						
Temperature, field	7.8	AO ≤ 15		°C	2023-03-14	
<b>General Parameters</b>						
Turbidity	0.19	OG < 1	0.10	NTU	2023-03-16	
<b>Microbiological Parameters</b>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-15	
<b>Total Metals</b>						
Manganese, total	0.0338	MAC = 0.12	0.00020	mg/L	2023-03-21	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23C1690  
2023-03-22 12:45

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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*

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AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23D1044
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-04-12 14:33 / 4.4°C 2023-04-19 13:40
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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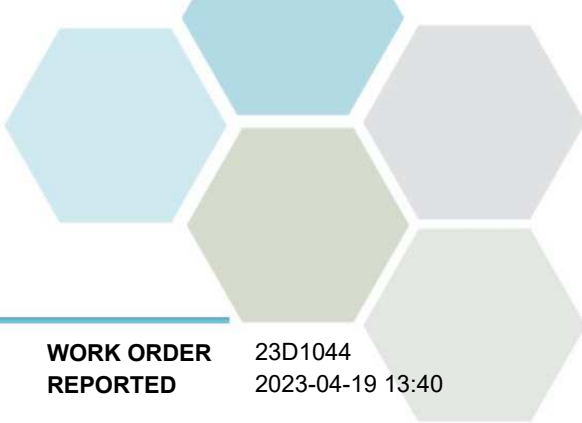
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23D1044  
2023-04-19 13:40

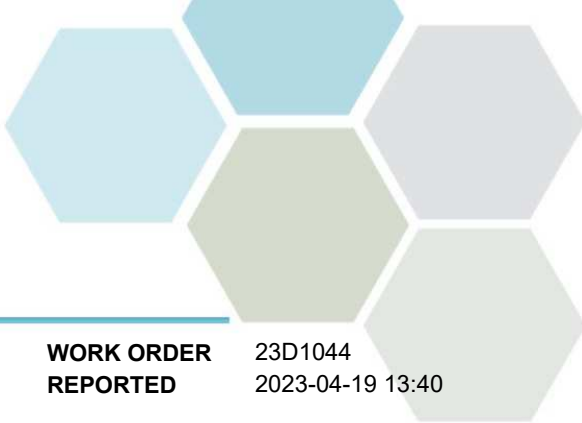
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23D1044-01)   Matrix: Water   Sampled: 2023-04-11 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.2	AO ≤ 15		°C	2023-04-11	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-04-13	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	HT3
<i>Total Metals</i>						
Manganese, total	0.0207	MAC = 0.12	0.00020	mg/L	2023-04-18	

**WT# 94F1 - S-Dixon St. (23D1044-02) | Matrix: Water | Sampled: 2023-04-11 11:00**

<i>Field Parameters</i>						
Temperature, field	8.4	AO ≤ 15		°C	2023-04-11	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-04-13	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
<i>Total Metals</i>						
Manganese, total	0.00432	MAC = 0.12	0.00020	mg/L	2023-04-18	

**WT# 94F2 - S-Hospital (23D1044-03) | Matrix: Water | Sampled: 2023-04-11 10:15**

<i>Field Parameters</i>						
Temperature, field	7.6	AO ≤ 15		°C	2023-04-11	
<i>General Parameters</i>						
Turbidity	0.15	OG < 1	0.10	NTU	2023-04-13	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
<i>Total Metals</i>						
Manganese, total	0.0256	MAC = 0.12	0.00020	mg/L	2023-04-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23D1044  
2023-04-19 13:40

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23D1044-04) | Matrix: Water | Sampled: 2023-04-11 13:40**

**Field Parameters**

Temperature, field	8.9	AO ≤ 15		°C	2023-04-11	
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**General Parameters**

Turbidity	0.15	OG < 1	0.10	NTU	2023-04-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	

**Total Metals**

Manganese, total	0.119	MAC = 0.12	0.00020	mg/L	2023-04-18	
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**WT# 94F4 - S-N Star Dragon Hill (23D1044-05) | Matrix: Water | Sampled: 2023-04-11 13:30**

**Field Parameters**

Temperature, field	8.7	AO ≤ 15		°C	2023-04-11	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-04-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	

**Total Metals**

Manganese, total	0.141	MAC = 0.12	0.00020	mg/L	2023-04-18	
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**WT# 94F6 - S-N Star South Hill (23D1044-06) | Matrix: Water | Sampled: 2023-04-11 13:20**

**Field Parameters**

Temperature, field	8.6	AO ≤ 15		°C	2023-04-11	
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**General Parameters**

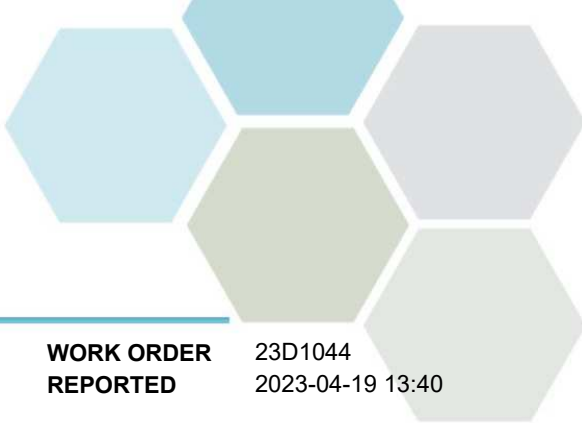
Turbidity	0.20	OG < 1	0.10	NTU	2023-04-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	

**Total Metals**

Manganese, total	0.0335	MAC = 0.12	0.00020	mg/L	2023-04-18	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23D1044  
2023-04-19 13:40

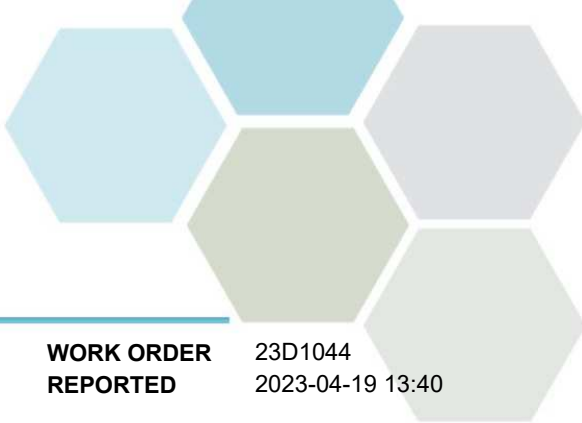
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23D1044-07)   Matrix: Water   Sampled: 2023-04-11 14:20</b>						
<i>Field Parameters</i>						
Temperature, field	8.4	AO ≤ 15		°C	2023-04-11	
<i>General Parameters</i>						
Turbidity	0.15	OG < 1	0.10	NTU	2023-04-13	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
<i>Total Metals</i>						
Manganese, total	0.149	MAC = 0.12	0.00020	mg/L	2023-04-18	

**WT# 21D9B - Bulk Water Site 1 (23D1044-08) | Matrix: Water | Sampled: 2023-04-11 12:20**

<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-04-11	
<i>General Parameters</i>						
Turbidity	0.62	OG < 1	0.10	NTU	2023-04-13	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-04-12	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-12	
<i>Total Metals</i>						
Manganese, total	0.127	MAC = 0.12	0.00020	mg/L	2023-04-18	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23D1044  
2023-04-19 13:40

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
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 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: [bwhitehead@caro.ca](mailto: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.*

## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23E1317
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-05-10 16:10 / 4.6°C 2023-05-17 14:39
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

### 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*



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

#### Authorized By:

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23E1317  
2023-05-17 14:39

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E6 - S-Carradice Rd. (23E1317-01) | Matrix: Water | Sampled: 2023-05-09 09:30**

<i>Field Parameters</i>						
Temperature, field	9.6	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	HT3
<i>Total Metals</i>						
Manganese, total	0.129	MAC = 0.12	0.00020	mg/L	2023-05-16	

**WT# 94F1 - S-Dixon St. (23E1317-02) | Matrix: Water | Sampled: 2023-05-09 10:30**

<i>Field Parameters</i>						
Temperature, field	6.9	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.00219	MAC = 0.12	0.00020	mg/L	2023-05-16	

**WT# 94F2 - S-Hospital (23E1317-03) | Matrix: Water | Sampled: 2023-05-09 11:10**

<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.0604	MAC = 0.12	0.00020	mg/L	2023-05-16	

# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23E1317  
2023-05-17 14:39

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F3 - S-Nason St. (23E1317-04)   Matrix: Water   Sampled: 2023-05-09 11:00</b>						
<i>Field Parameters</i>						
Temperature, field	9.0	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.0952	MAC = 0.12	0.00020	mg/L	2023-05-16	

**WT# 94F4 - S-N Star Dragon Hill (23E1317-05) | Matrix: Water | Sampled: 2023-05-09 13:55**

<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.137	MAC = 0.12	0.00020	mg/L	2023-05-16	

**WT# 94F6 - S-N Star South Hill (23E1317-06) | Matrix: Water | Sampled: 2023-05-09 14:00**

<i>Field Parameters</i>						
Temperature, field	9.0	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.0424	MAC = 0.12	0.00020	mg/L	2023-05-16	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23E1317  
2023-05-17 14:39

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23E1317-07)   Matrix: Water   Sampled: 2023-05-09 14:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.5	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.143	MAC = 0.12	0.00020	mg/L	2023-05-16	

**WT# 21D9B - Bulk Water Site 1 (23E1317-08) | Matrix: Water | Sampled: 2023-05-09 13:20**

<i>Field Parameters</i>						
Temperature, field	9.2	AO ≤ 15		°C	2023-05-09	
<i>General Parameters</i>						
Turbidity	0.20	OG < 1	0.10	NTU	2023-05-11	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-05-10	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-10	
<i>Total Metals</i>						
Manganese, total	0.0457	MAC = 0.12	0.00020	mg/L	2023-05-16	

**Sample Qualifiers:**

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

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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23E1317  
2023-05-17 14:39

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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*

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RL	Reporting Limit (default)
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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23F0898
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-06-07 14:38 / 16.9°C 2023-06-14 14:53
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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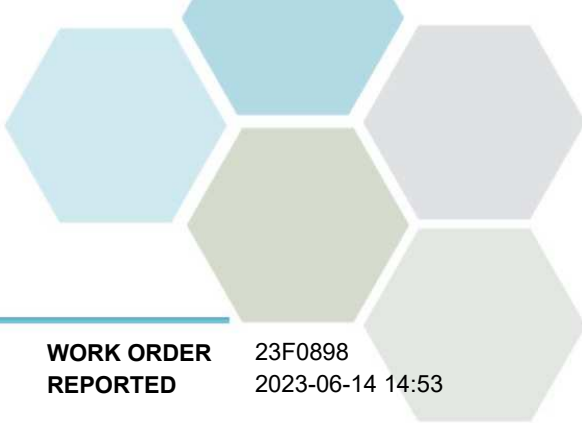
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

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Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23F0898  
2023-06-14 14:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E6 - S-Carradice Rd. (23F0898-01) | Matrix: Water | Sampled: 2023-06-06 09:45**

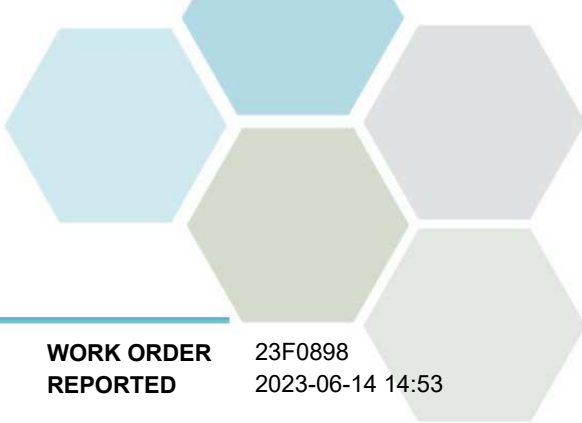
<i>Field Parameters</i>						
Temperature, field	11.9	AO ≤ 15		°C	2023-06-06	
<i>General Parameters</i>						
Turbidity	0.28	OG < 1	0.10	NTU	2023-06-09	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
<i>Total Metals</i>						
Manganese, total	0.114	MAC = 0.12	0.00020	mg/L	2023-06-11	

**WT# 94F1 - S-Dixon St. (23F0898-02) | Matrix: Water | Sampled: 2023-06-06 11:10**

<i>Field Parameters</i>						
Temperature, field	12.3	AO ≤ 15		°C	2023-06-06	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-09	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
<i>Total Metals</i>						
Manganese, total	0.00105	MAC = 0.12	0.00020	mg/L	2023-06-11	

**WT# 94F2 - S-Hospital (23F0898-03) | Matrix: Water | Sampled: 2023-06-06 10:30**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-06-06	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-06-09	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
<i>Total Metals</i>						
Manganese, total	0.0253	MAC = 0.12	0.00020	mg/L	2023-06-11	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23F0898  
2023-06-14 14:53

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23F0898-04) | Matrix: Water | Sampled: 2023-06-06 12:05**

**Field Parameters**

Temperature, field	11.9	AO ≤ 15		°C	2023-06-06	
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**General Parameters**

Turbidity	0.10	OG < 1	0.10	NTU	2023-06-09	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	

**Total Metals**

Manganese, total	0.131	MAC = 0.12	0.00020	mg/L	2023-06-11	
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**WT# 94F4 - S-N Star Dragon Hill (23F0898-05) | Matrix: Water | Sampled: 2023-06-06 13:30**

**Field Parameters**

Temperature, field	10.4	AO ≤ 15		°C	2023-06-06	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-09	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	

**Total Metals**

Manganese, total	0.150	MAC = 0.12	0.00020	mg/L	2023-06-11	
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**WT# 94F6 - S-N Star South Hill (23F0898-06) | Matrix: Water | Sampled: 2023-06-06 13:20**

**Field Parameters**

Temperature, field	11.1	AO ≤ 15		°C	2023-06-06	
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**General Parameters**

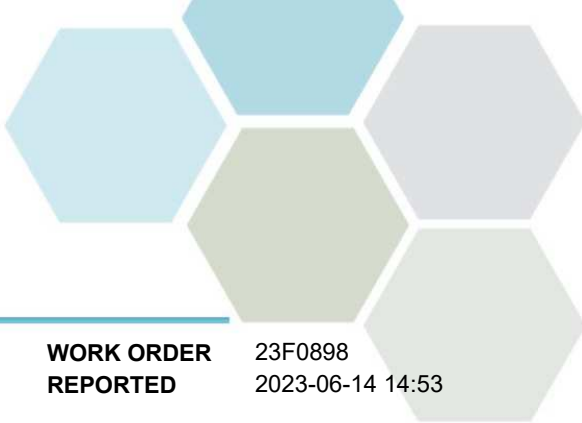
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-09	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	

**Total Metals**

Manganese, total	0.131	MAC = 0.12	0.00020	mg/L	2023-06-11	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23F0898  
2023-06-14 14:53

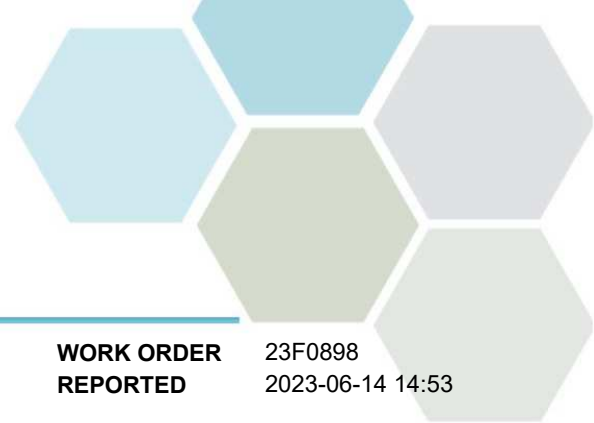
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23F0898-07)   Matrix: Water   Sampled: 2023-06-06 14:00</b>						
<i>Field Parameters</i>						
Temperature, field	11.0	AO ≤ 15		°C	2023-06-06	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-09	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
<i>Total Metals</i>						
Manganese, total	0.157	MAC = 0.12	0.00020	mg/L	2023-06-11	

**WT# 21D9B - Bulk Water Site 1 (23F0898-08) | Matrix: Water | Sampled: 2023-06-06 14:30**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-06-06	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-09	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
<i>Total Metals</i>						
Manganese, total	0.0977	MAC = 0.12	0.00020	mg/L	2023-06-11	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23F0898  
2023-06-14 14:53

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### General Comments:

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Bi-Weekly - First Week  
**PROJECT INFO**

**WORK ORDER** 23F2901

**RECEIVED / TEMP** 2023-06-21 14:00 / 13.6°C  
**REPORTED** 2023-06-28 11:54  
**COC NUMBER** eCOC#00004538

### 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.

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#### *Ahead of the Curve*



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

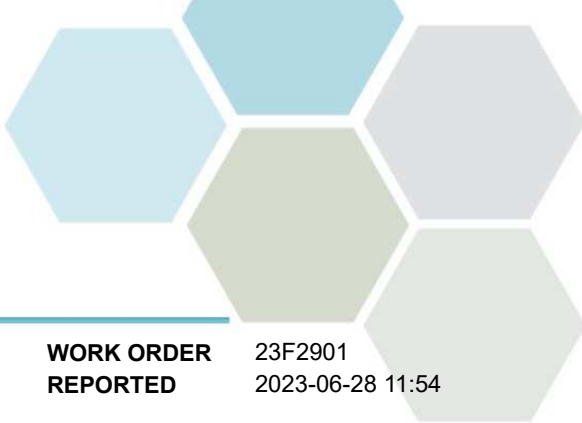
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23F2901  
2023-06-28 11:54

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E4 S Airport (23F2901-01)   Matrix: Ground Water   Sampled: 2023-06-20 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	10.5	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	0.42	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	HT3
Heterotrophic Plate Count	37	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	HT3
<i>Total Metals</i>						
Manganese, total	0.150	MAC = 0.12	0.00020	mg/L	2023-06-24	

**94E5 S Mills Rd. (23F2901-02) | Matrix: Ground Water | Sampled: 2023-06-20 10:30**

<i>Field Parameters</i>						
Temperature, field	11.9	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	5	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.00267	MAC = 0.12	0.00020	mg/L	2023-06-24	

**94E7 S Marsh Dr. (23F2901-03) | Matrix: Ground Water | Sampled: 2023-06-20 10:55**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	6	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.00568	MAC = 0.12	0.00020	mg/L	2023-06-24	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23F2901  
2023-06-28 11:54

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E8 Graham Ave. (23F2901-04)   Matrix: Ground Water   Sampled: 2023-06-20 13:30</b>						
<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.0447	MAC = 0.12	0.00020	mg/L	2023-06-24	

**94E9S West Fraser Rd. (23F2901-05) | Matrix: Ground Water | Sampled: 2023-06-20 11:35**

<i>Field Parameters</i>						
Temperature, field	12.2	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	6	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.0140	MAC = 0.12	0.00020	mg/L	2023-06-24	

**94F0 S Pedersen Rd. (23F2901-06) | Matrix: Ground Water | Sampled: 2023-06-20 14:50**

<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	12	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.0769	MAC = 0.12	0.00020	mg/L	2023-06-24	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23F2901  
2023-06-28 11:54

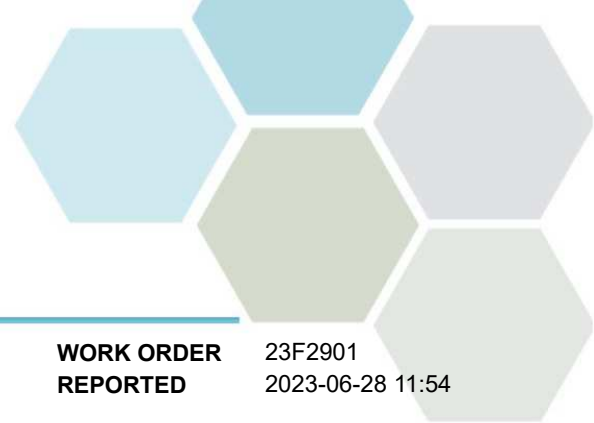
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>35D91k New Carson Pit (23F2901-07)   Matrix: Ground Water   Sampled: 2023-06-20 12:45</b>						
<i>Field Parameters</i>						
Temperature, field	13.4	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	0.19	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.0731	MAC = 0.12	0.00020	mg/L	2023-06-24	

**179CA S Dennis Rd. (23F2901-08) | Matrix: Ground Water | Sampled: 2023-06-20 14:00**

<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-06-20	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-06-22	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-06-21	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Manganese, total	0.150	MAC = 0.12	0.00020	mg/L	2023-06-24	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23F2901  
2023-06-28 11:54

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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*

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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H0405
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-02 14:58 / 17.4°C 2023-08-10 17:18
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H0405  
2023-08-10 17:18

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E6 - S-Carradice Rd. (23H0405-01) | Matrix: Water | Sampled: 2023-08-01 08:45**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-08-01	
<i>General Parameters</i>						
Turbidity	0.10	OG < 1	0.10	NTU	2023-08-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	HT3
<i>Total Metals</i>						
Manganese, total	0.0269	MAC = 0.12	0.00020	mg/L	2023-08-08	

**WT# 94F1 - S-Dixon St. (23H0405-02) | Matrix: Water | Sampled: 2023-08-01 09:45**

<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-08-01	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-08-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	HT3
<i>Total Metals</i>						
Manganese, total	0.00061	MAC = 0.12	0.00020	mg/L	2023-08-08	

**WT# 94F2 - S-Hospital (23H0405-03) | Matrix: Water | Sampled: 2023-08-01 09:25**

<i>Field Parameters</i>						
Temperature, field	13.0	AO ≤ 15		°C	2023-08-01	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-08-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-08-02	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	HT3
<i>Total Metals</i>						
Manganese, total	0.0973	MAC = 0.12	0.00020	mg/L	2023-08-08	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H0405  
2023-08-10 17:18

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23H0405-04) | Matrix: Water | Sampled: 2023-08-01 10:10**

**Field Parameters**

Temperature, field	13.1	AO ≤ 15		°C	2023-08-01	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-08-04	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	

**Total Metals**

Manganese, total	0.109	MAC = 0.12	0.00020	mg/L	2023-08-08	
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**WT# 94F4 - S-N Star Dragon Hill (23H0405-05) | Matrix: Water | Sampled: 2023-08-01 14:00**

**Field Parameters**

Temperature, field	12.6	AO ≤ 15		°C	2023-08-01	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-08-04	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	

**Total Metals**

Manganese, total	0.142	MAC = 0.12	0.00020	mg/L	2023-08-08	
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**WT# 94F6 - S-N Star South Hill (23H0405-06) | Matrix: Water | Sampled: 2023-08-01 14:10**

**Field Parameters**

Temperature, field	12.2	AO ≤ 15		°C	2023-08-01	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-08-04	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	

**Total Metals**

Manganese, total	0.103	MAC = 0.12	0.00020	mg/L	2023-08-08	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H0405  
2023-08-10 17:18

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23H0405-07)   Matrix: Water   Sampled: 2023-08-01 13:00</b>						
<i>Field Parameters</i>						
Temperature, field	13.1	AO ≤ 15		°C	2023-08-01	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-08-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
<i>Total Metals</i>						
Manganese, total	0.151	MAC = 0.12	0.00020	mg/L	2023-08-08	

**WT# 21D9B - Bulk Water Site 1 (23H0405-08) | Matrix: Water | Sampled: 2023-08-01 11:30**

<i>Field Parameters</i>						
Temperature, field	12.9	AO ≤ 15		°C	2023-08-01	
<i>General Parameters</i>						
Turbidity	0.34	OG < 1	0.10	NTU	2023-08-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
Background Colonies	>200	N/A	200	CFU/100 mL	2023-08-02	
Heterotrophic Plate Count	3800	N/A	5	CFU/mL	2023-08-02	HT1, MIC15
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-02	
<i>Total Metals</i>						
Manganese, total	0.133	MAC = 0.12	0.00020	mg/L	2023-08-08	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.
- MIC15 The final result is estimated due to a high bacterial count.



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H0405  
2023-08-10 17:18

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
>2	Greater than the specified Result
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H3882
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-30 14:00 / 12.1°C 2023-09-07 14:27
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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#### *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>

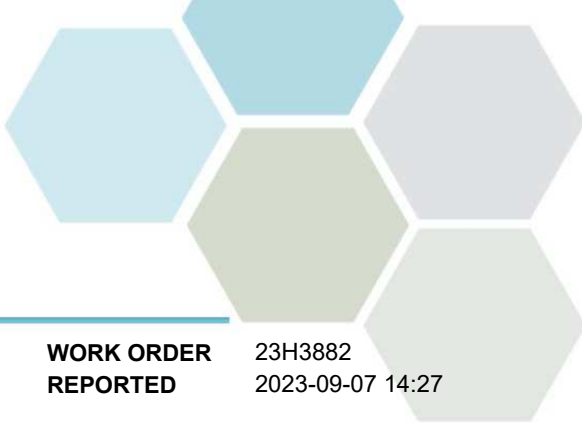
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

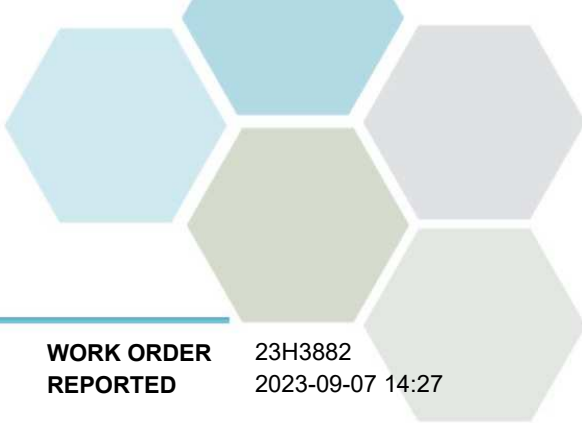
**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H3882  
2023-09-07 14:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23H3882-01)   Matrix: Water   Sampled: 2023-08-29 09:55</b>						
<i>Field Parameters</i>						
Temperature, field	10.0	AO ≤ 15		°C	2023-08-29	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-09-01	
<i>Microbiological Parameters</i>						
Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-08-30	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	HT3
<i>Total Metals</i>						
Manganese, total	0.170	MAC = 0.12	0.00020	mg/L	2023-09-05	

<b>WT# 94F1 - S-Dixon St. (23H3882-02)   Matrix: Water   Sampled: 2023-08-29 11:40</b>						
<i>Field Parameters</i>						
Temperature, field	13.8	AO ≤ 15		°C	2023-08-29	
<i>General Parameters</i>						
Turbidity	0.17	OG < 1	0.10	NTU	2023-09-01	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
<i>Total Metals</i>						
Manganese, total	0.00692	MAC = 0.12	0.00020	mg/L	2023-09-05	

<b>WT# 94F2 - S-Hospital (23H3882-03)   Matrix: Water   Sampled: 2023-08-29 10:20</b>						
<i>Field Parameters</i>						
Temperature, field	12.3	AO ≤ 15		°C	2023-08-29	
<i>General Parameters</i>						
Turbidity	0.17	OG < 1	0.10	NTU	2023-09-01	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	HT3
Heterotrophic Plate Count	22	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	HT3
<i>Total Metals</i>						
Manganese, total	0.168	MAC = 0.12	0.00020	mg/L	2023-09-05	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H3882  
2023-09-07 14:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23H3882-04) | Matrix: Water | Sampled: 2023-08-29 13:30**

**Field Parameters**

Temperature, field	13.0	AO ≤ 15		°C	2023-08-29	
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**General Parameters**

Turbidity	0.54	OG < 1	0.10	NTU	2023-09-01	RE2
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	

**Total Metals**

Manganese, total	0.365	MAC = 0.12	0.00020	mg/L	2023-09-05	
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**WT# 94F4 - S-N Star Dragon Hill (23H3882-05) | Matrix: Water | Sampled: 2023-08-29 13:10**

**Field Parameters**

Temperature, field	14.3	AO ≤ 15		°C	2023-08-29	
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**General Parameters**

Turbidity	0.12	OG < 1	0.10	NTU	2023-09-01	
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**Microbiological Parameters**

Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	140	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	

**Total Metals**

Manganese, total	0.0467	MAC = 0.12	0.00020	mg/L	2023-09-05	
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**WT# 94F6 - S-N Star South Hill (23H3882-06) | Matrix: Water | Sampled: 2023-08-29 12:55**

**Field Parameters**

Temperature, field	11.2	AO ≤ 15		°C	2023-08-29	
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**General Parameters**

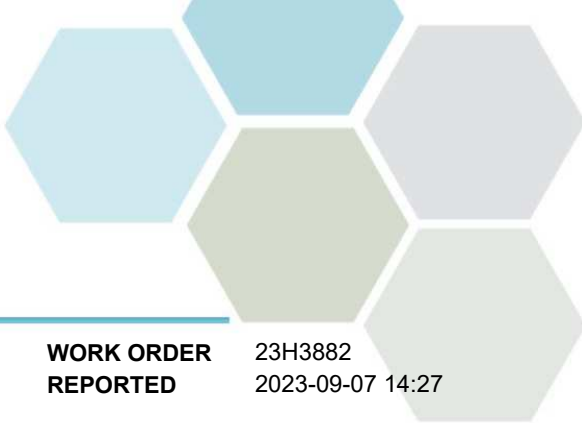
Turbidity	0.10	OG < 1	0.10	NTU	2023-09-01	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	

**Total Metals**

Manganese, total	0.136	MAC = 0.12	0.00020	mg/L	2023-09-05	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H3882  
2023-09-07 14:27

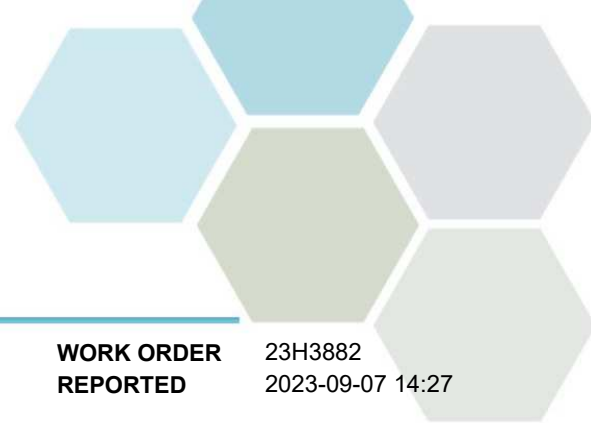
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23H3882-07)   Matrix: Water   Sampled: 2023-08-29 10:50</b>						
<i>Field Parameters</i>						
Temperature, field	12.0	AO ≤ 15		°C	2023-08-29	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-09-01	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
<i>Total Metals</i>						
Manganese, total	0.0712	MAC = 0.12	0.00020	mg/L	2023-09-05	

**WT# 21D9B - Bulk Water Site 1 (23H3882-08) | Matrix: Water | Sampled: 2023-08-29 14:00**

<i>Field Parameters</i>						
Temperature, field	14.6	AO ≤ 15		°C	2023-08-29	
<i>General Parameters</i>						
Turbidity	0.13	OG < 1	0.10	NTU	2023-08-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	160	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
<i>Total Metals</i>						
Manganese, total	0.0518	MAC = 0.12	0.00020	mg/L	2023-09-05	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.
- RE2 Result was confirmed by re-analysis prior to reporting.



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H3882  
2023-09-07 14:27

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	2313347
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-09-27 14:37 / 12.6°C 2023-10-05 16:44
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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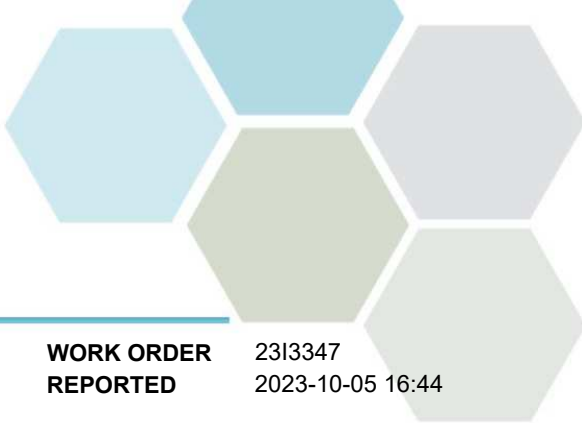
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Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 2313347  
2023-10-05 16:44

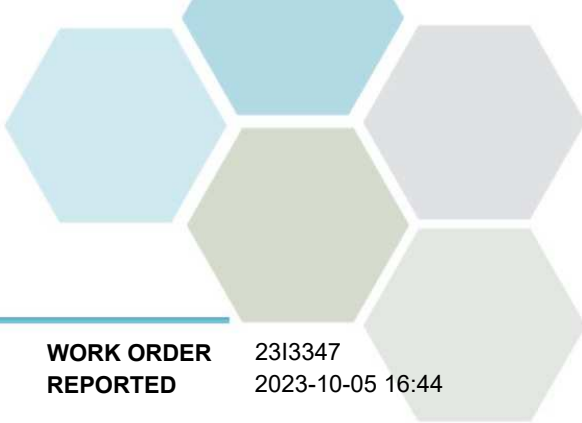
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (2313347-01)   Matrix: Water   Sampled: 2023-09-26 09:20</b>						
<i>Field Parameters</i>						
Temperature, field	11.3	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	0.18	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	HT3
<i>Total Metals</i>						
Manganese, total	0.0290	MAC = 0.12	0.00020	mg/L	2023-10-04	

**WT# 94F1 - S-Dixon St. (2313347-02) | Matrix: Water | Sampled: 2023-09-26 10:40**

<i>Field Parameters</i>						
Temperature, field	11.2	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	0.17	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
<i>Total Metals</i>						
Manganese, total	0.00101	MAC = 0.12	0.00020	mg/L	2023-10-04	

**WT# 94F2 - S-Hospital (2313347-03) | Matrix: Water | Sampled: 2023-09-26 10:00**

<i>Field Parameters</i>						
Temperature, field	10.6	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	HT3
<i>Total Metals</i>						
Manganese, total	0.0969	MAC = 0.12	0.00020	mg/L	2023-10-04	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 2313347  
2023-10-05 16:44

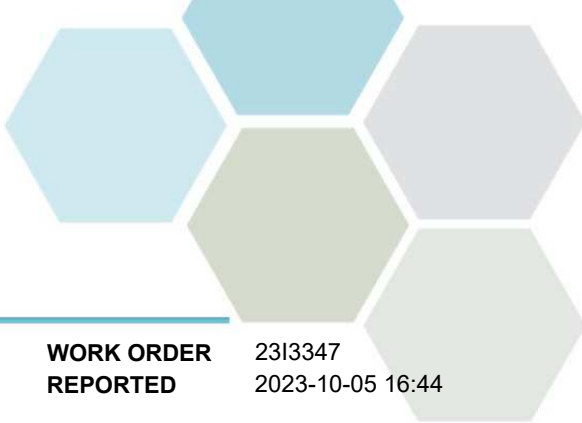
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F3 - S-Nason St. (2313347-04)   Matrix: Water   Sampled: 2023-09-26 11:30</b>						
<i>Field Parameters</i>						
Temperature, field	11.2	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
<i>Total Metals</i>						
Manganese, total	0.127	MAC = 0.12	0.00020	mg/L	2023-10-04	

**WT# 94F4 - S-N Star Dragon Hill (2313347-05) | Matrix: Water | Sampled: 2023-09-26 13:10**

<i>Field Parameters</i>						
Temperature, field	12.2	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	0.17	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
<i>Total Metals</i>						
Manganese, total	0.128	MAC = 0.12	0.00020	mg/L	2023-10-04	

**WT# 94F7 - S-Chew Rd. (2313347-06) | Matrix: Water | Sampled: 2023-09-26 13:20**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	0.26	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
<i>Total Metals</i>						
Manganese, total	0.153	MAC = 0.12	0.00020	mg/L	2023-10-04	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 2313347  
2023-10-05 16:44

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 21D9B - Bulk Water Site 1 (2313347-07)   Matrix: Water   Sampled: 2023-09-26 13:45</b>						
<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	0.30	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	49	N/A	5	CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
<i>Total Metals</i>						
Manganese, total	0.0206	MAC = 0.12	0.00020	mg/L	2023-10-04	

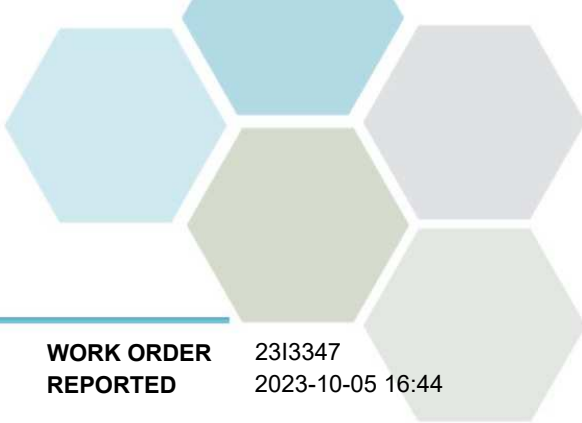
**WT# 94F6 - S-N Star South Hill (2313347-08) | Matrix: Water | Sampled: 2023-09-26**

<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-09-26	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-09-28	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-27	
<i>Total Metals</i>						
Manganese, total	0.149	MAC = 0.12	0.00020	mg/L	2023-10-04	

**Sample Qualifiers:**

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

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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 2313347  
2023-10-05 16:44

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23K1741
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-11-15 14:13 / 10.7°C 2023-11-20 14:07
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

### 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.

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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>

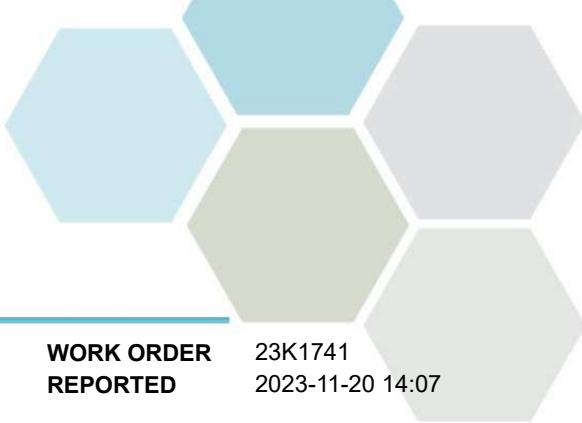
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23K1741  
2023-11-20 14:07

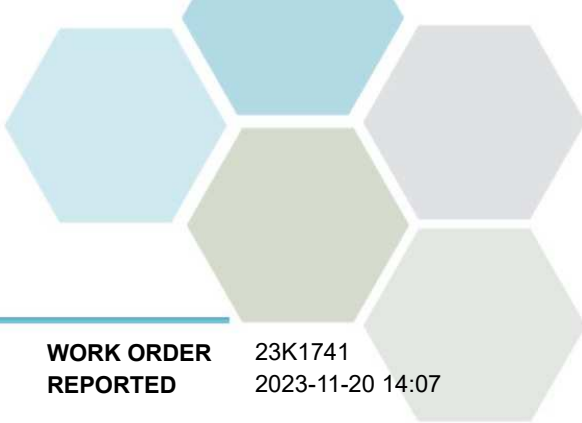
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23K1741-01)   Matrix: Water   Sampled: 2023-11-14 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.7	AO ≤ 15		°C	2023-11-14	
<i>General Parameters</i>						
Turbidity	0.10	OG < 1	0.10	NTU	2023-11-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	HT3
<i>Total Metals</i>						
Manganese, total	0.125	MAC = 0.12	0.00020	mg/L	2023-11-18	

**WT# 94F1 - S-Dixon St. (23K1741-02) | Matrix: Water | Sampled: 2023-11-14 10:40**

<i>Field Parameters</i>						
Temperature, field	9.6	AO ≤ 15		°C	2023-11-14	
<i>General Parameters</i>						
Turbidity	0.13	OG < 1	0.10	NTU	2023-11-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
<i>Total Metals</i>						
Manganese, total	0.00051	MAC = 0.12	0.00020	mg/L	2023-11-18	

**WT# 94F2 - S-Hospital (23K1741-03) | Matrix: Water | Sampled: 2023-11-14 10:10**

<i>Field Parameters</i>						
Temperature, field	9.1	AO ≤ 15		°C	2023-11-14	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-11-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
<i>Total Metals</i>						
Manganese, total	0.0377	MAC = 0.12	0.00020	mg/L	2023-11-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23K1741  
2023-11-20 14:07

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23K1741-04) | Matrix: Water | Sampled: 2023-11-14 11:30**

**Field Parameters**

Temperature, field	9.4	AO ≤ 15		°C	2023-11-14	
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**General Parameters**

Turbidity	0.16	OG < 1	0.10	NTU	2023-11-16	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	

**Total Metals**

Manganese, total	0.0570	MAC = 0.12	0.00020	mg/L	2023-11-18	
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**WT# 94F4 - S-N Star Dragon Hill (23K1741-05) | Matrix: Water | Sampled: 2023-11-14 13:30**

**Field Parameters**

Temperature, field	8.7	AO ≤ 15		°C	2023-11-14	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-11-16	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	

**Total Metals**

Manganese, total	0.148	MAC = 0.12	0.00020	mg/L	2023-11-18	
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**WT# 94F6 - S-N Star South Hill (23K1741-06) | Matrix: Water | Sampled: 2023-11-14 13:40**

**Field Parameters**

Temperature, field	9.1	AO ≤ 15		°C	2023-11-14	
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**General Parameters**

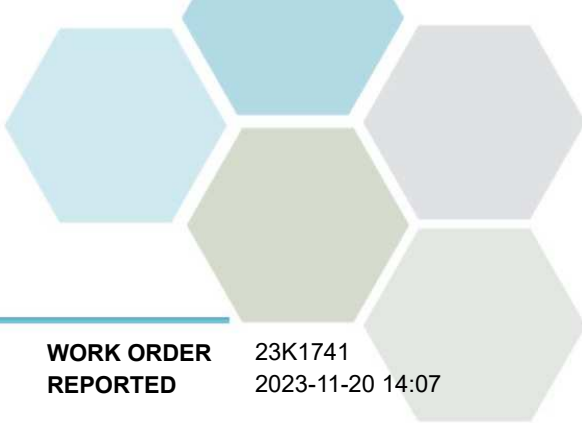
Turbidity	0.18	OG < 1	0.10	NTU	2023-11-16	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	

**Total Metals**

Manganese, total	0.0454	MAC = 0.12	0.00020	mg/L	2023-11-18	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23K1741  
2023-11-20 14:07

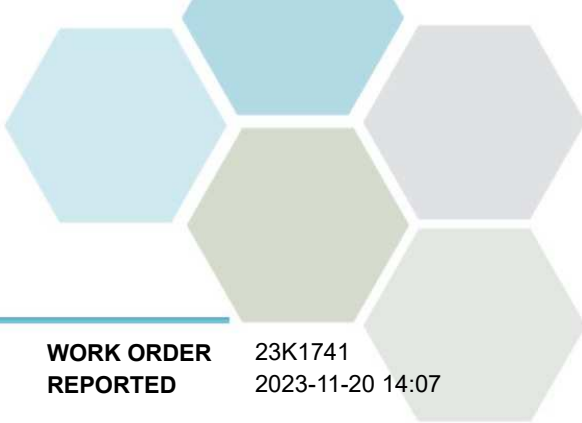
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23K1741-07)   Matrix: Water   Sampled: 2023-11-14 14:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.4	AO ≤ 15		°C	2023-11-14	
<i>General Parameters</i>						
Turbidity	0.11	OG < 1	0.10	NTU	2023-11-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
<i>Total Metals</i>						
Manganese, total	0.158	MAC = 0.12	0.00020	mg/L	2023-11-18	

**WT# 21D9B - Bulk Water Site 1 (23K1741-08) | Matrix: Water | Sampled: 2023-11-14 13:00**

<i>Field Parameters</i>						
Temperature, field	9.8	AO ≤ 15		°C	2023-11-14	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-11-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-11-15	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-15	
<i>Total Metals</i>						
Manganese, total	0.0677	MAC = 0.12	0.00020	mg/L	2023-11-18	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23K1741  
2023-11-20 14:07

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (2020)	Nephelometry	✓	Kelowna

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

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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
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23L1636
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-12-13 14:07 / 11.9°C 2023-12-20 15:12
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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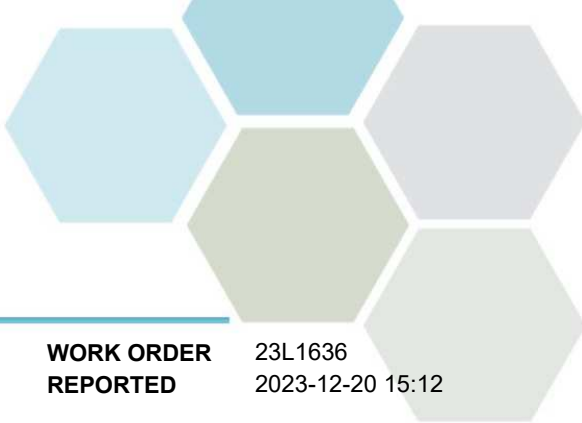
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23L1636  
2023-12-20 15:12

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E6 - S-Carradice Rd. (23L1636-01) | Matrix: Water | Sampled: 2023-12-12 09:20**

**Field Parameters**

Temperature, field	9.1	AO ≤ 15		°C	2023-12-12	
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**General Parameters**

Turbidity	0.16	OG < 1	0.10	NTU	2023-12-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	HT3

**Total Metals**

Manganese, total	0.104	MAC = 0.12	0.00020	mg/L	2023-12-19	
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**WT# 94F1 - S-Dixon St. (23L1636-02) | Matrix: Water | Sampled: 2023-12-12 11:00**

**Field Parameters**

Temperature, field	9.4	AO ≤ 15		°C	2023-12-12	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-12-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	

**Total Metals**

Manganese, total	0.00109	MAC = 0.12	0.00020	mg/L	2023-12-19	
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**WT# 94F2 - S-Hospital (23L1636-03) | Matrix: Water | Sampled: 2023-12-12 09:50**

**Field Parameters**

Temperature, field	8.9	AO ≤ 15		°C	2023-12-12	
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**General Parameters**

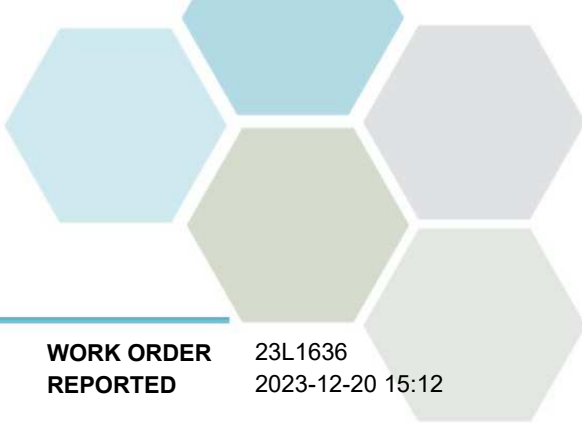
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-12-14	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	HT3

**Total Metals**

Manganese, total	0.0638	MAC = 0.12	0.00020	mg/L	2023-12-19	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23L1636  
2023-12-20 15:12

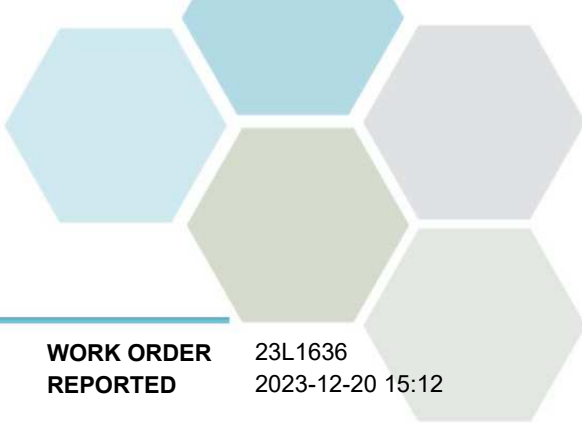
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F3 - S-Nason St. (23L1636-04)   Matrix: Water   Sampled: 2023-12-12 11:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.1	AO ≤ 15		°C	2023-12-12	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-12-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
<i>Total Metals</i>						
Manganese, total	0.0977	MAC = 0.12	0.00020	mg/L	2023-12-19	

**WT# 94F4 - S-N Star Dragon Hill (23L1636-05) | Matrix: Water | Sampled: 2023-12-12 12:45**

<i>Field Parameters</i>						
Temperature, field	9.4	AO ≤ 15		°C	2023-12-12	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-12-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
<i>Total Metals</i>						
Manganese, total	0.148	MAC = 0.12	0.00020	mg/L	2023-12-19	

**WT# 94F6 - S-N Star South Hill (23L1636-06) | Matrix: Water | Sampled: 2023-12-12 12:55**

<i>Field Parameters</i>						
Temperature, field	9.5	AO ≤ 15		°C	2023-12-12	
<i>General Parameters</i>						
Turbidity	0.12	OG < 1	0.10	NTU	2023-12-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
<i>Total Metals</i>						
Manganese, total	0.125	MAC = 0.12	0.00020	mg/L	2023-12-19	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23L1636  
2023-12-20 15:12

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23L1636-07)   Matrix: Water   Sampled: 2023-12-12 13:35</b>						
<i>Field Parameters</i>						
Temperature, field	9.7	AO ≤ 15		°C	2023-12-12	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-12-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
<i>Total Metals</i>						
Manganese, total	0.157	MAC = 0.12	0.00020	mg/L	2023-12-19	

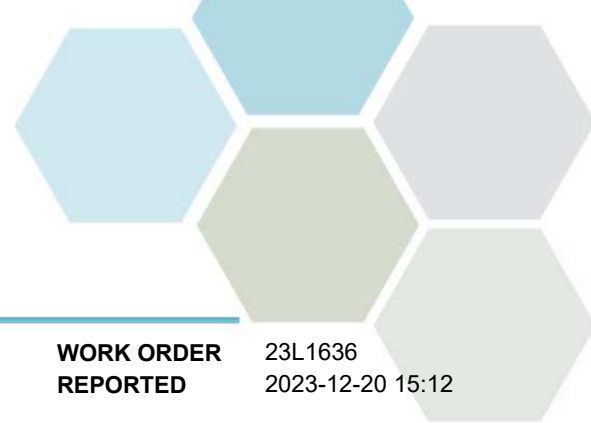
**WT# 21D9B - Bulk Water Site 1 (23L1636-08) | Matrix: Water | Sampled: 2023-12-12 14:10**

<i>Field Parameters</i>						
Temperature, field	9.4	AO ≤ 15		°C	2023-12-12	
<i>General Parameters</i>						
Turbidity	0.72	OG < 1	0.10	NTU	2023-12-14	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
Heterotrophic Plate Count	12	N/A	5	CFU/mL	2023-12-13	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-13	
<i>Total Metals</i>						
Manganese, total	0.119	MAC = 0.12	0.00020	mg/L	2023-12-19	

**Sample Qualifiers:**

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

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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23L1636  
2023-12-20 15:12

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23J3059
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-10-25 14:32 / 8.3°C 2023-10-31 16:01
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

### 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.

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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.

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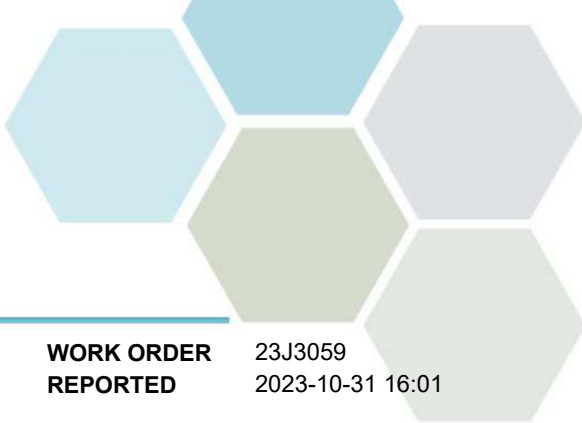
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### Authorized By:

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23J3059  
2023-10-31 16:01

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E6 - S-Carradice Rd. (23J3059-01) | Matrix: Water | Sampled: 2023-10-24 09:15**

**Field Parameters**

Temperature, field	9.3	AO ≤ 15		°C	2023-10-24	
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**General Parameters**

Turbidity	0.21	OG < 1	0.10	NTU	2023-10-26	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	HT3

**Total Metals**

Manganese, total	0.0972	MAC = 0.12	0.00020	mg/L	2023-10-30	
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**WT# 94F1 - S-Dixon St. (23J3059-02) | Matrix: Water | Sampled: 2023-10-24 09:45**

**Field Parameters**

Temperature, field	12.2	AO ≤ 15		°C	2023-10-24	
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**General Parameters**

Turbidity	0.22	OG < 1	0.10	NTU	2023-10-26	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	

**Total Metals**

Manganese, total	0.0233	MAC = 0.12	0.00020	mg/L	2023-10-30	
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**WT# 94F2 - S-Hospital (23J3059-03) | Matrix: Water | Sampled: 2023-10-24 13:30**

**Field Parameters**

Temperature, field	11.1	AO ≤ 15		°C	2023-10-24	
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**General Parameters**

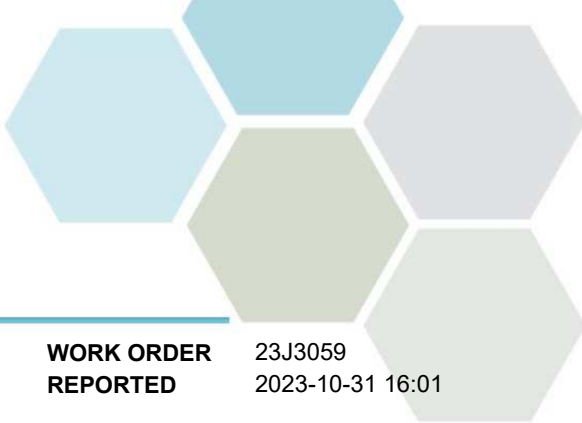
Turbidity	0.11	OG < 1	0.10	NTU	2023-10-26	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	

**Total Metals**

Manganese, total	0.0335	MAC = 0.12	0.00020	mg/L	2023-10-30	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23J3059  
2023-10-31 16:01

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94F3 - S-Nason St. (23J3059-04) | Matrix: Water | Sampled: 2023-10-24 10:45**

**Field Parameters**

Temperature, field	12.8	AO ≤ 15		°C	2023-10-24	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-10-26	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	

**Total Metals**

Manganese, total	0.138	MAC = 0.12	0.00020	mg/L	2023-10-30	
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**WT# 94F4 - S-N Star Dragon Hill (23J3059-05) | Matrix: Water | Sampled: 2023-10-24 11:30**

**Field Parameters**

Temperature, field	9.9	AO ≤ 15		°C	2023-10-24	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10	NTU	2023-10-26	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	

**Total Metals**

Manganese, total	0.146	MAC = 0.12	0.00020	mg/L	2023-10-30	
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**WT# 94F6 - S-N Star South Hill (23J3059-06) | Matrix: Water | Sampled: 2023-10-24 11:15**

**Field Parameters**

Temperature, field	9.6	AO ≤ 15		°C	2023-10-24	
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**General Parameters**

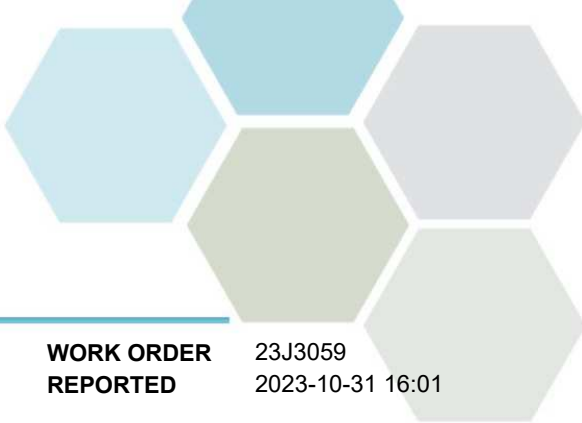
Turbidity	0.12	OG < 1	0.10	NTU	2023-10-26	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	

**Total Metals**

Manganese, total	0.147	MAC = 0.12	0.00020	mg/L	2023-10-30	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23J3059  
2023-10-31 16:01

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23J3059-07)   Matrix: Water   Sampled: 2023-10-24 13:00</b>						
<i>Field Parameters</i>						
Temperature, field	12.0	AO ≤ 15		°C	2023-10-24	
<i>General Parameters</i>						
Turbidity	0.15	OG < 1	0.10	NTU	2023-10-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
<i>Total Metals</i>						
Manganese, total	0.154	MAC = 0.12	0.00020	mg/L	2023-10-30	

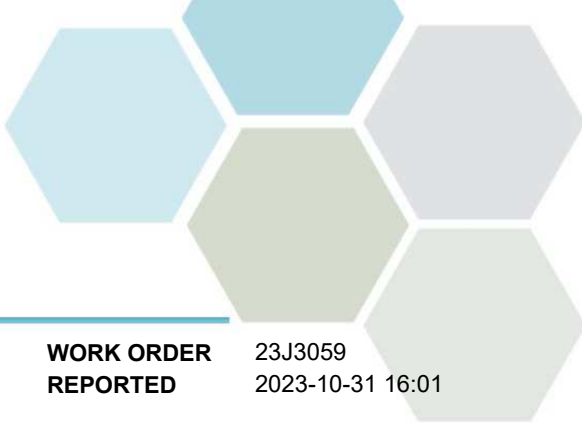
**WT# 21D9B - Bulk Water Site 1 (23J3059-08) | Matrix: Water | Sampled: 2023-10-24 14:00**

<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-10-24	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-10-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-10-25	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-25	
<i>Total Metals</i>						
Manganese, total	0.104	MAC = 0.12	0.00020	mg/L	2023-10-30	

**Sample Qualifiers:**

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

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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23J3059  
2023-10-31 16:01

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
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 (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:

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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Reservoirs  
**PROJECT INFO**

**WORK ORDER** 23A2480

**RECEIVED / TEMP** 2023-01-25 14:20 / 6.1°C  
**REPORTED** 2023-02-01 08:48  
**COC NUMBER** No Number

### Introduction:

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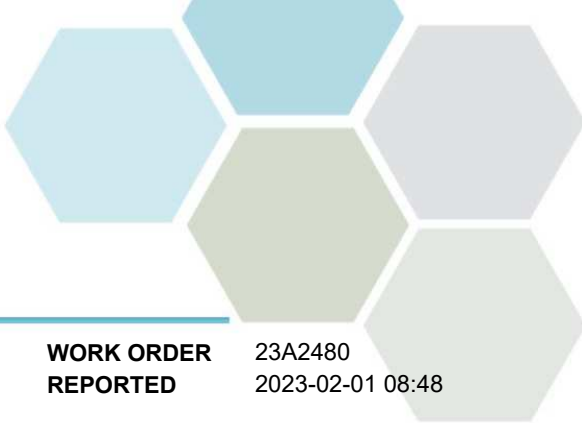
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23A2480  
2023-02-01 08:48

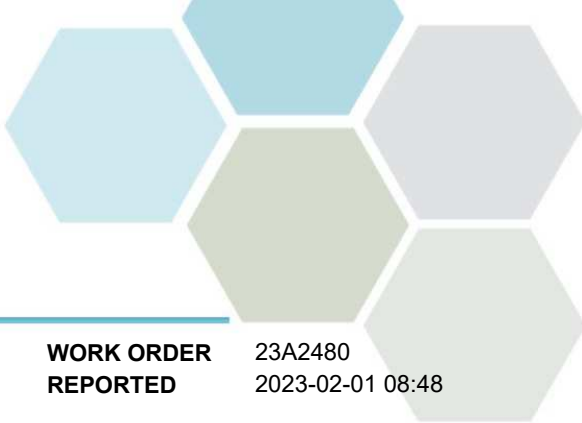
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23A2480-01)   Matrix: Water   Sampled: 2023-01-24 11:00</b>						
<i>Field Parameters</i>						
Temperature, field	6.7	AO ≤ 15		°C	2023-01-24	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-25	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-25	
<i>Total Metals</i>						
Manganese, total	0.103	MAC = 0.12	0.00020	mg/L	2023-01-30	

**WT# 94F9 - R-2 Pinecrest (23A2480-02) | Matrix: Water | Sampled: 2023-01-24 11:20**

<i>Field Parameters</i>						
Temperature, field	9.0	AO ≤ 15		°C	2023-01-24	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-25	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-25	
<i>Total Metals</i>						
Manganese, total	0.479	MAC = 0.12	0.00020	mg/L	2023-01-30	

**WT# 94FF - R-6 New Tachell Reserv (23A2480-03) | Matrix: Water | Sampled: 2023-01-24 09:30**

<i>Field Parameters</i>						
Temperature, field	6.3	AO ≤ 15		°C	2023-01-24	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-25	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-25	
<i>Total Metals</i>						
Manganese, total	0.0314	MAC = 0.12	0.00020	mg/L	2023-01-30	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23A2480  
2023-02-01 08:48

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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:

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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23A2627
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-01-26 14:30 / 3.8°C 2023-02-02 09:09
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Reservoirs		
<b>PROJECT INFO</b>			

### Introduction:

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Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23A2627  
2023-02-02 09:09

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94FA R-3 Sugar Loaf (23A2627-01) | Matrix: Water | Sampled: 2023-01-25 10:00**

**Field Parameters**

Temperature, field	5.5	AO ≤ 15		°C	2023-01-25	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	

**Total Metals**

Manganese, total	0.0249	MAC = 0.12	0.00020	mg/L	2023-02-01	
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**WT# 94EB R-4 Abbott Dr 1 (23A2627-02) | Matrix: Water | Sampled: 2023-01-25 09:00**

**Field Parameters**

Temperature, field	5.3	AO ≤ 15		°C	2023-01-25	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	HT3

**Total Metals**

Manganese, total	0.0120	MAC = 0.12	0.00020	mg/L	2023-01-31	
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**WT# 94EC R-4 Abbott Dr 2 (23A2627-03) | Matrix: Water | Sampled: 2023-01-25 09:20**

**Field Parameters**

Temperature, field	5.2	AO ≤ 15		°C	2023-01-25	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	

**Total Metals**

Manganese, total	0.0116	MAC = 0.12	0.00020	mg/L	2023-01-31	
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**WT# 94FC R-5 Dragon Hill (23A2627-04) | Matrix: Water | Sampled: 2023-01-25 11:20**

**Field Parameters**

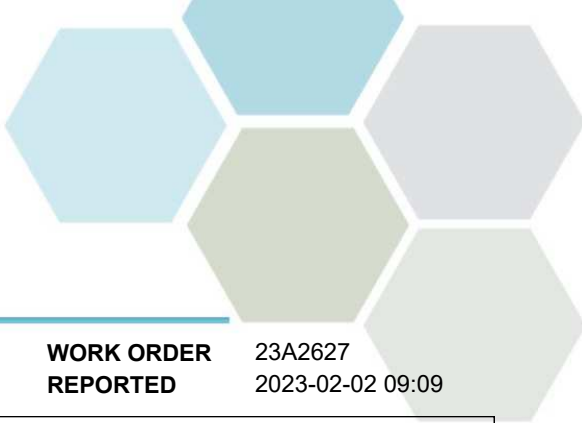
Temperature, field	4.7	AO ≤ 15		°C	2023-01-25	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-26	

**Total Metals**

Manganese, total	0.0381	MAC = 0.12	0.00020	mg/L	2023-01-31	
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## TEST RESULTS

**REPORTED TO** Quesnel, City of  
**PROJECT** Monthly Reservoirs

**WORK ORDER** 23A2627  
**REPORTED** 2023-02-02 09:09

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23A2627  
2023-02-02 09:09

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Reservoirs  
**PROJECT INFO**

**WORK ORDER** 23C0907

**RECEIVED / TEMP** 2023-03-08 14:37 / 4.5°C  
**REPORTED** 2023-03-13 12:24  
**COC NUMBER** No Number

### Introduction:

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#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23C0907  
2023-03-13 12:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23C0907-01)   Matrix: Water   Sampled: 2023-03-07 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	6.2	AO ≤ 15		°C	2023-03-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
<i>Total Metals</i>						
Manganese, total	0.175	MAC = 0.12	0.00020	mg/L	2023-03-12	

**WT# 94F9 - R-2 Pinecrest (23C0907-02) | Matrix: Water | Sampled: 2023-03-07 09:55**

<i>Field Parameters</i>						
Temperature, field	8.4	AO ≤ 15		°C	2023-03-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
<i>Total Metals</i>						
Manganese, total	0.348	MAC = 0.12	0.00020	mg/L	2023-03-12	

**WT# 94FA R-3 Sugar Loaf (23C0907-03) | Matrix: Water | Sampled: 2023-03-07 11:30**

<i>Field Parameters</i>						
Temperature, field	7.4	AO ≤ 15		°C	2023-03-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
<i>Total Metals</i>						
Manganese, total	0.0129	MAC = 0.12	0.00020	mg/L	2023-03-12	

**WT# 94EB R-4 Abbott Dr 1 (23C0907-04) | Matrix: Water | Sampled: 2023-03-07 10:30**

<i>Field Parameters</i>						
Temperature, field	5.7	AO ≤ 15		°C	2023-03-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
<i>Total Metals</i>						
Manganese, total	0.0260	MAC = 0.12	0.00020	mg/L	2023-03-12	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23C0907  
2023-03-13 12:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94EC R-4 Abbott Dr 2 (23C0907-05) | Matrix: Water | Sampled: 2023-03-07 10:40**

**Field Parameters**

Temperature, field	4.3	AO ≤ 15		°C	2023-03-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	

**Total Metals**

Manganese, total	0.0274	MAC = 0.12	0.00020	mg/L	2023-03-12	
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**WT# 94FC R-5 Dragon Hill (23C0907-06) | Matrix: Water | Sampled: 2023-03-07 13:20**

**Field Parameters**

Temperature, field	4.2	AO ≤ 15		°C	2023-03-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	

**Total Metals**

Manganese, total	0.0372	MAC = 0.12	0.00020	mg/L	2023-03-12	
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**WT# 94FF R-6 New Tatchell Reservoir (23C0907-07) | Matrix: Water | Sampled: 2023-03-07 14:00**

**Field Parameters**

Temperature, field	6.0	AO ≤ 15		°C	2023-03-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-08	

**Total Metals**

Manganese, total	0.0189	MAC = 0.12	0.00020	mg/L	2023-03-12	
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## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23C0907  
2023-03-13 12:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23E0428
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-05-03 14:35 / 12.8°C 2023-05-08 10:35
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Reservoirs		
<b>PROJECT INFO</b>			

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23E0428  
2023-05-08 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23E0428-01)   Matrix: Water   Sampled: 2023-05-02 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	11.0	AO ≤ 15		°C	2023-05-02	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
<i>Total Metals</i>						
Manganese, total	0.0865	MAC = 0.12	0.00020	mg/L	2023-05-06	

**WT# 94F9 - R-2 Pinecrest (23E0428-02) | Matrix: Water | Sampled: 2023-05-02 10:00**

<i>Field Parameters</i>						
Temperature, field	10.0	AO ≤ 15		°C	2023-05-02	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
<i>Total Metals</i>						
Manganese, total	0.354	MAC = 0.12	0.00020	mg/L	2023-05-06	

**WT# 94FA R-3 Sugar Loaf (23E0428-03) | Matrix: Water | Sampled: 2023-05-02 11:40**

<i>Field Parameters</i>						
Temperature, field	10.7	AO ≤ 15		°C	2023-05-02	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
<i>Total Metals</i>						
Manganese, total	0.0254	MAC = 0.12	0.00020	mg/L	2023-05-07	

**WT# 94EB R-4 Abbott Dr 1 (23E0428-04) | Matrix: Water | Sampled: 2023-05-02 10:40**

<i>Field Parameters</i>						
Temperature, field	10.5	AO ≤ 15		°C	2023-05-02	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
<i>Total Metals</i>						
Manganese, total	0.00535	MAC = 0.12	0.00020	mg/L	2023-05-07	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23E0428  
2023-05-08 10:35

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94EC R-4 Abbott Dr 2 (23E0428-05) | Matrix: Water | Sampled: 2023-05-02 11:00**

**Field Parameters**

Temperature, field	10.4	AO ≤ 15		°C	2023-05-02	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	

**Total Metals**

Manganese, total	0.00525	MAC = 0.12	0.00020	mg/L	2023-05-07	
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**WT# 94FC R-5 Dragon Hill (23E0428-06) | Matrix: Water | Sampled: 2023-05-02 13:00**

**Field Parameters**

Temperature, field	10.3	AO ≤ 15		°C	2023-05-02	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	

**Total Metals**

Manganese, total	0.0443	MAC = 0.12	0.00020	mg/L	2023-05-07	
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**WT# 94FF - R-6 New Tachell Reserv (23E0428-07) | Matrix: Water | Sampled: 2023-05-02 14:10**

**Field Parameters**

Temperature, field	10.0	AO ≤ 15		°C	2023-05-02	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-03	

**Total Metals**

Manganese, total	0.00597	MAC = 0.12	0.00020	mg/L	2023-05-07	
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## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23E0428  
2023-05-08 10:35

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
<	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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Reservoirs

**PROJECT INFO**

**WORK ORDER** 23D0465

**RECEIVED / TEMP** 2023-04-05 14:45 / 5.1°C  
**REPORTED** 2023-04-13 15:57

**COC NUMBER** No Number

### Introduction:

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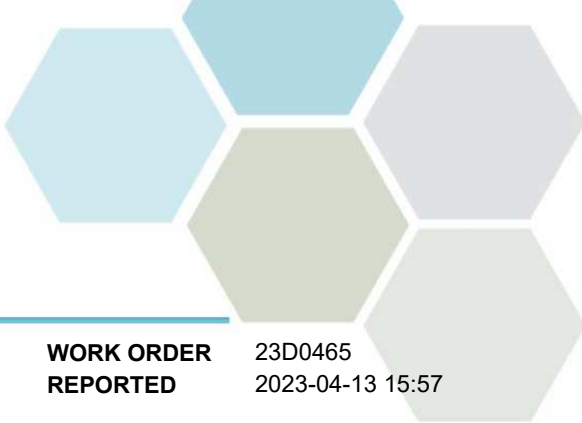
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23D0465  
2023-04-13 15:57

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23D0465-01)   Matrix: Water   Sampled: 2023-04-04 09:10</b>						
<i>Field Parameters</i>						
Temperature, field	8.6	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	HT3
<i>Total Metals</i>						
Manganese, total	0.112	MAC = 0.12	0.00020	mg/L	2023-04-13	

**WT# 94F9 - R-2 Pinecrest (23D0465-02) | Matrix: Water | Sampled: 2023-04-04 09:45**

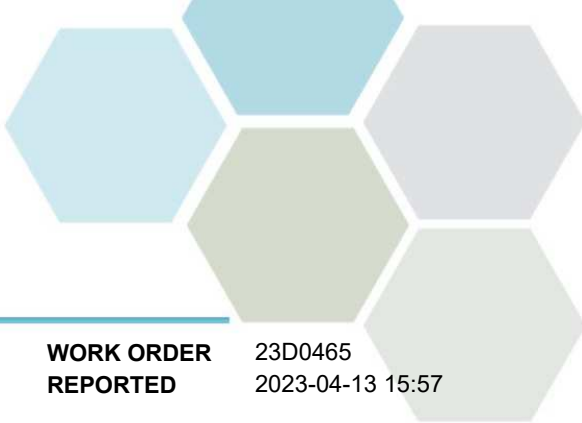
<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
<i>Total Metals</i>						
Manganese, total	0.348	MAC = 0.12	0.00020	mg/L	2023-04-13	

**WT# 94FA R-3 Sugar Loaf (23D0465-03) | Matrix: Water | Sampled: 2023-04-04 11:30**

<i>Field Parameters</i>						
Temperature, field	8.6	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
<i>Total Metals</i>						
Manganese, total	0.0362	MAC = 0.12	0.00020	mg/L	2023-04-13	

**WT# 94EB R-4 Abbott Dr 1 (23D0465-04) | Matrix: Water | Sampled: 2023-04-04 10:30**

<i>Field Parameters</i>						
Temperature, field	6.5	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
<i>Total Metals</i>						
Manganese, total	0.0197	MAC = 0.12	0.00020	mg/L	2023-04-13	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23D0465  
2023-04-13 15:57

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EC R-4 Abbott Dr 2 (23D0465-05)   Matrix: Water   Sampled: 2023-04-04 10:40</b>						
<i>Field Parameters</i>						
Temperature, field	6.6	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
<i>Total Metals</i>						
Manganese, total	0.0191	MAC = 0.12	0.00020	mg/L	2023-04-13	

**WT# 94FC R-5 Dragon Hill (23D0465-06) | Matrix: Water | Sampled: 2023-04-04 13:20**

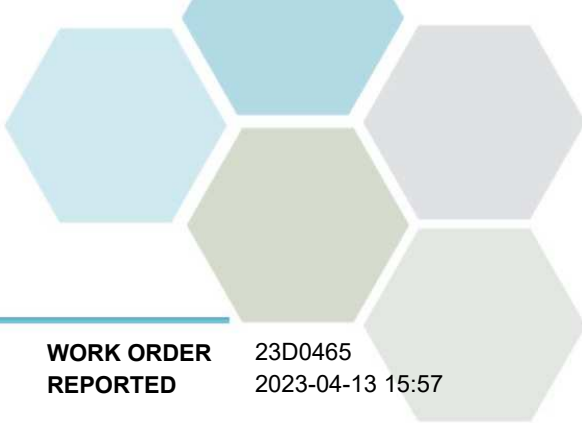
<i>Field Parameters</i>						
Temperature, field	7.8	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
<i>Total Metals</i>						
Manganese, total	0.0427	MAC = 0.12	0.00020	mg/L	2023-04-13	

**WT# 94FF R-6 New Tatchell Reservoir (23D0465-07) | Matrix: Water | Sampled: 2023-04-04 14:30**

<i>Field Parameters</i>						
Temperature, field	8.6	AO ≤ 15		°C	2023-04-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-05	
<i>Total Metals</i>						
Manganese, total	0.0107	MAC = 0.12	0.00020	mg/L	2023-04-13	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23D0465  
2023-04-13 15:57

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23E3951
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-05-31 14:30 / 19.8°C 2023-06-06 12:51
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Reservoirs		
<b>PROJECT INFO</b>			

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23E3951  
2023-06-06 12:51

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23E3951-01)   Matrix: Water   Sampled: 2023-05-30 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	12.0	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	HT3
<i>Total Metals</i>						
Manganese, total	0.0839	MAC = 0.12	0.00020	mg/L	2023-06-05	

**WT# 94F9 - R-2 Pinecrest (23E3951-02) | Matrix: Water | Sampled: 2023-05-30 10:15**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	1	MAC = 0	1	CFU/100 mL	2023-05-31	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
<i>Total Metals</i>						
Manganese, total	0.390	MAC = 0.12	0.00020	mg/L	2023-06-05	

**WT# 94FA R-3 Sugar Loaf (23E3951-03) | Matrix: Water | Sampled: 2023-05-30 13:20**

<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
<i>Total Metals</i>						
Manganese, total	0.00550	MAC = 0.12	0.00020	mg/L	2023-06-05	

**WT# 94EB R-4 Abbott Dr 1 (23E3951-04) | Matrix: Water | Sampled: 2023-05-30 11:00**

<i>Field Parameters</i>						
Temperature, field	11.9	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
<i>Total Metals</i>						
Manganese, total	0.00233	MAC = 0.12	0.00020	mg/L	2023-06-05	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23E3951  
2023-06-06 12:51

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EC R-4 Abbott Dr 2 (23E3951-05)   Matrix: Water   Sampled: 2023-05-30 11:20</b>						
<i>Field Parameters</i>						
Temperature, field	11.7	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
<i>Total Metals</i>						
Manganese, total	0.00324	MAC = 0.12	0.00020	mg/L	2023-06-05	

**WT# 94FC R-5 Dragon Hill (23E3951-06) | Matrix: Water | Sampled: 2023-05-30 14:50**

<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
<i>Total Metals</i>						
Manganese, total	0.0148	MAC = 0.12	0.00020	mg/L	2023-06-05	

**WT# 94FF - R-6 New Tachell Reserv (23E3951-07) | Matrix: Water | Sampled: 2023-05-30 14:00**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-05-30	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-31	
<i>Total Metals</i>						
Manganese, total	0.00761	MAC = 0.12	0.00020	mg/L	2023-06-05	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23E3951  
2023-06-06 12:51

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23G0622
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-07-06 15:00 / 19.4°C 2023-07-13 12:06
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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Brent Whitehead  
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23G0622  
2023-07-13 12:06

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (23G0622-01)   Matrix: Water   Sampled: 2023-07-05 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	13.7	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.113	MAC = 0.12	0.00020	mg/L	2023-07-09	

**WT# 94F1 - S-Dixon St. (23G0622-02) | Matrix: Water | Sampled: 2023-07-05 10:40**

<i>Field Parameters</i>						
Temperature, field	15.6	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.00098	MAC = 0.12	0.00020	mg/L	2023-07-09	

**WT# 94F2 - S-Hospital (23G0622-03) | Matrix: Water | Sampled: 2023-07-05 10:00**

<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	0.34	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.255	MAC = 0.12	0.00020	mg/L	2023-07-09	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23G0622  
2023-07-13 12:06

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F3 - S-Nason St. (23G0622-04)   Matrix: Water   Sampled: 2023-07-05 11:30</b>						
<i>Field Parameters</i>						
Temperature, field	13.4	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	0.14	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.134	MAC = 0.12	0.00020	mg/L	2023-07-09	

**WT# 94F4 - S-N Star Dragon Hill (23G0622-05) | Matrix: Water | Sampled: 2023-07-05 13:40**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	0.30	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.148	MAC = 0.12	0.00020	mg/L	2023-07-09	

**WT# 94F6 - S-N Star South Hill (23G0622-06) | Matrix: Water | Sampled: 2023-07-05 13:45**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	0.16	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.141	MAC = 0.12	0.00020	mg/L	2023-07-09	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23G0622  
2023-07-13 12:06

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F7 - S-Chew Rd. (23G0622-07)   Matrix: Water   Sampled: 2023-07-05 14:40</b>						
<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.152	MAC = 0.12	0.00020	mg/L	2023-07-09	

**WT# 21D9B - Bulk Water Site 1 (23G0622-08) | Matrix: Water | Sampled: 2023-07-05 13:10**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-07-05	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-07-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-07-06	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-06	
<i>Total Metals</i>						
Manganese, total	0.0945	MAC = 0.12	0.00020	mg/L	2023-07-09	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23G0622  
2023-07-13 12:06

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23G3533
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-07-27 14:18 / 11.5°C 2023-08-03 14:38
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Reservoirs		
<b>PROJECT INFO</b>			

### Introduction:

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

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23G3533  
2023-08-03 14:38

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23G3533-01)   Matrix: Water   Sampled: 2023-07-26 10:00</b>						
<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-07-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
<i>Total Metals</i>						
Manganese, total	0.168	MAC = 0.12	0.00020	mg/L	2023-08-01	

**WT# 94F9 - R-2 Pinecrest (23G3533-02) | Matrix: Water | Sampled: 2023-07-26 10:20**

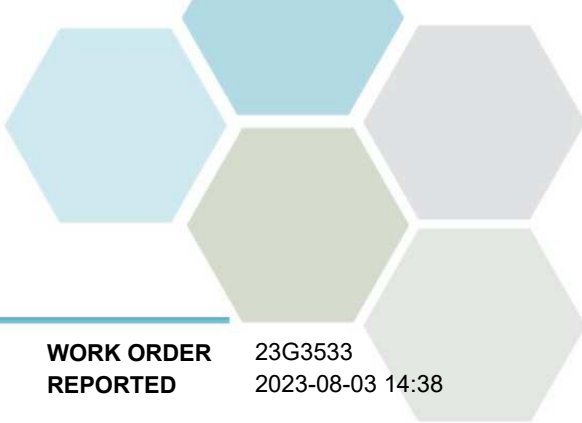
<i>Field Parameters</i>						
Temperature, field	11.7	AO ≤ 15		°C	2023-07-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
<i>Total Metals</i>						
Manganese, total	0.403	MAC = 0.12	0.00020	mg/L	2023-08-01	

**WT# 94FA R-3 Sugar Loaf (23G3533-03) | Matrix: Water | Sampled: 2023-07-26 10:50**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-07-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
<i>Total Metals</i>						
Manganese, total	0.00372	MAC = 0.12	0.00020	mg/L	2023-08-01	

**WT# 94EB R-4 Abbott Dr 1 (23G3533-04) | Matrix: Water | Sampled: 2023-07-26 11:20**

<i>Field Parameters</i>						
Temperature, field	12.5	AO ≤ 15		°C	2023-07-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
<i>Total Metals</i>						
Manganese, total	0.00070	MAC = 0.12	0.00020	mg/L	2023-07-31	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23G3533  
2023-08-03 14:38

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EC R-4 Abbott Dr 2 (23G3533-05)   Matrix: Water   Sampled: 2023-07-26 11:40</b>						
<i>Field Parameters</i>						
Temperature, field	12.6	AO ≤ 15		°C	2023-07-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
<i>Total Metals</i>						
Manganese, total	0.00064	MAC = 0.12	0.00020	mg/L	2023-07-31	

**WT# 94FF - R-6 New Tatchell Reserv (23G3533-06) | Matrix: Water | Sampled: 2023-07-26 13:30**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-07-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-27	
<i>Total Metals</i>						
Manganese, total	0.00468	MAC = 0.12	0.00020	mg/L	2023-07-31	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23G3533  
2023-08-03 14:38

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	2312615
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-09-21 14:55 / 11.2°C 2023-09-28 16:26
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Reservoirs		
<b>PROJECT INFO</b>			

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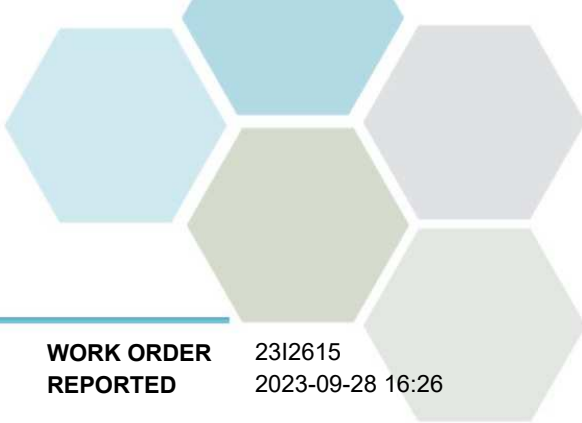
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Brent Whitehead  
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23I2615  
2023-09-28 16:26

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94EA R-1 Shadow Heights (23I2615-01) | Matrix: Water | Sampled: 2023-09-20 09:20**

**Field Parameters**

Temperature, field	12.1	AO ≤ 15		°C	2023-09-20	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	HT3

**Total Metals**

Manganese, total	0.142	MAC = 0.12	0.00020	mg/L	2023-09-25	
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**WT# 94F9 - R-2 Pinecrest (23I2615-02) | Matrix: Water | Sampled: 2023-09-20 10:10**

**Field Parameters**

Temperature, field	12.7	AO ≤ 15		°C	2023-09-20	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	

**Total Metals**

Manganese, total	0.508	MAC = 0.12	0.00020	mg/L	2023-09-25	
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**WT# 94FA R-3 Sugar Loaf (23I2615-03) | Matrix: Water | Sampled: 2023-09-20 11:25**

**Field Parameters**

Temperature, field	12.6	AO ≤ 15		°C	2023-09-20	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	

**Total Metals**

Manganese, total	0.00604	MAC = 0.12	0.00020	mg/L	2023-09-25	
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**WT# 94EB R-4 Abbott Dr 1 (23I2615-04) | Matrix: Water | Sampled: 2023-09-20 10:40**

**Field Parameters**

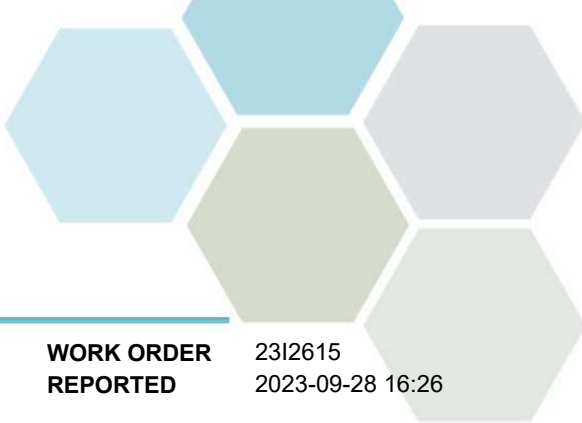
Temperature, field	13.4	AO ≤ 15		°C	2023-09-20	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	

**Total Metals**

Manganese, total	0.00084	MAC = 0.12	0.00020	mg/L	2023-09-25	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 2312615  
2023-09-28 16:26

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EC R-4 Abbott Dr 2 (2312615-05)   Matrix: Water   Sampled: 2023-09-20 10:50</b>						
<i>Field Parameters</i>						
Temperature, field	13.2	AO ≤ 15		°C	2023-09-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
<i>Total Metals</i>						
Manganese, total	0.00066	MAC = 0.12	0.00020	mg/L	2023-09-25	

**WT# 94FC R-5 Dragon Hill (2312615-06) | Matrix: Water | Sampled: 2023-09-20 13:20**

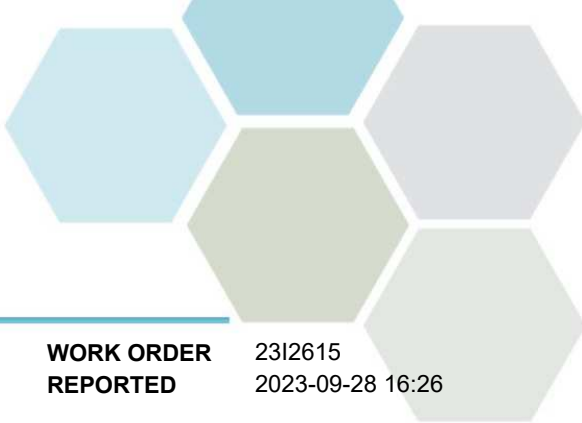
<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-09-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
<i>Total Metals</i>						
Manganese, total	0.0250	MAC = 0.12	0.00020	mg/L	2023-09-25	

**WT# 94FF - R-6 New Tatchell Reserv (2312615-07) | Matrix: Water | Sampled: 2023-09-20 14:00**

<i>Field Parameters</i>						
Temperature, field	13.1	AO ≤ 15		°C	2023-09-20	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-21	
<i>Total Metals</i>						
Manganese, total	0.0791	MAC = 0.12	0.00020	mg/L	2023-09-25	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 2312615  
2023-09-28 16:26

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
<	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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Reservoirs  
**PROJECT INFO**

**WORK ORDER** 23J2366

**RECEIVED / TEMP** 2023-10-19 14:08 / 13.9°C  
**REPORTED** 2023-10-25 22:31  
**COC NUMBER** No Number

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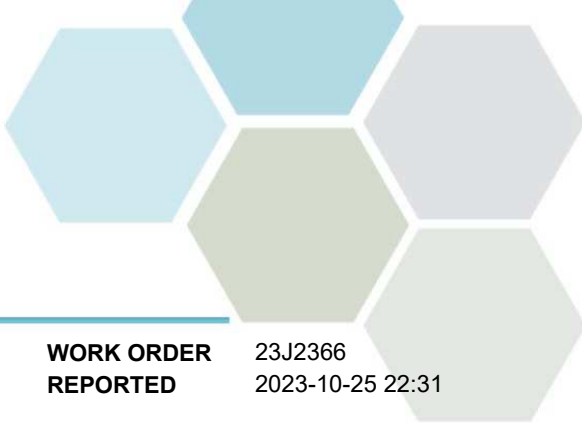
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#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23J2366  
2023-10-25 22:31

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23J2366-01)   Matrix: Water   Sampled: 2023-10-18 09:20</b>						
<i>Field Parameters</i>						
Temperature, field	8.0	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.137	MAC = 0.12	0.00020	mg/L	2023-10-24	

**WT# 94F9 - R-2 Pinecrest (23J2366-02) | Matrix: Water | Sampled: 2023-10-18 09:50**

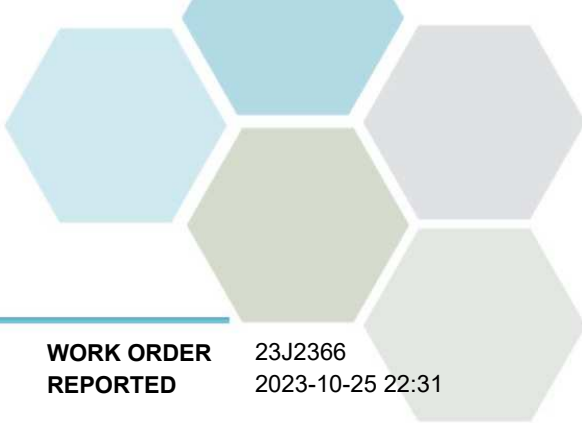
<i>Field Parameters</i>						
Temperature, field	9.0	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.318	MAC = 0.12	0.00020	mg/L	2023-10-24	

**WT# 94FA R-3 Sugar Loaf (23J2366-03) | Matrix: Water | Sampled: 2023-10-18 13:30**

<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.0192	MAC = 0.12	0.00020	mg/L	2023-10-24	

**WT# 94EB R-4 Abbott Dr 1 (23J2366-04) | Matrix: Water | Sampled: 2023-10-18 10:30**

<i>Field Parameters</i>						
Temperature, field	11.5	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.00233	MAC = 0.12	0.00020	mg/L	2023-10-24	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23J2366  
2023-10-25 22:31

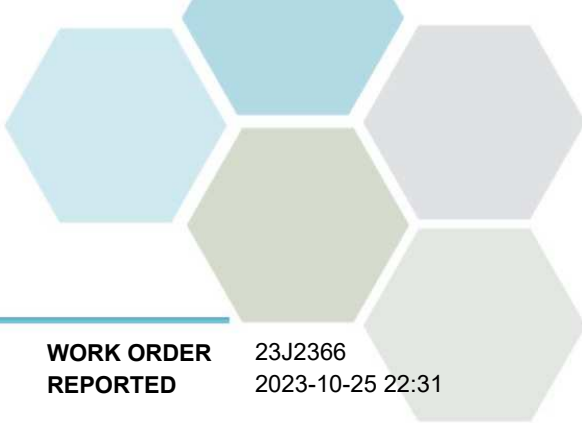
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EC R-4 Abbott Dr 2 (23J2366-05)   Matrix: Water   Sampled: 2023-10-18 10:35</b>						
<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.00214	MAC = 0.12	0.00020	mg/L	2023-10-24	

**WT# 94FC R-5 Dragon Hill (23J2366-06) | Matrix: Water | Sampled: 2023-10-18 14:00**

<i>Field Parameters</i>						
Temperature, field	11.6	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.0234	MAC = 0.12	0.00020	mg/L	2023-10-24	

**WT# 94FF - R-6 New Tatchell Reserv (23J2366-07) | Matrix: Water | Sampled: 2023-10-18 11:40**

<i>Field Parameters</i>						
Temperature, field	8.8	AO ≤ 15		°C	2023-10-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-19	
<i>Total Metals</i>						
Manganese, total	0.0239	MAC = 0.12	0.00020	mg/L	2023-10-24	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23J2366  
2023-10-25 22:31

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**

**PROJECT** Monthly Reservoirs

**PROJECT INFO**

**WORK ORDER** 23K1012

**RECEIVED / TEMP** 2023-11-08 14:10 / 6.1°C

**REPORTED** 2023-11-15 11:50

**COC NUMBER** No Number

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#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23K1012  
2023-11-15 11:50

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EA R-1 Shadow Heights (23K1012-01)   Matrix: Water   Sampled: 2023-11-07 09:10</b>						
<i>Field Parameters</i>						
Temperature, field	9.6	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.0734	MAC = 0.12	0.00020	mg/L	2023-11-11	

**WT# 94F9 - R-2 Pinecrest (23K1012-02) | Matrix: Water | Sampled: 2023-11-07 09:50**

<i>Field Parameters</i>						
Temperature, field	9.0	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.396	MAC = 0.12	0.00020	mg/L	2023-11-11	

**WT# 94FA R-3 Sugar Loaf (23K1012-03) | Matrix: Water | Sampled: 2023-11-07 11:30**

<i>Field Parameters</i>						
Temperature, field	9.2	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.00862	MAC = 0.12	0.00020	mg/L	2023-11-11	

**WT# 94EB R-4 Abbott Dr 1 (23K1012-04) | Matrix: Water | Sampled: 2023-11-07 10:30**

<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.00198	MAC = 0.12	0.00020	mg/L	2023-11-11	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23K1012  
2023-11-15 11:50

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94EC R-4 Abbott Dr 2 (23K1012-05)   Matrix: Water   Sampled: 2023-11-07 10:40</b>						
<i>Field Parameters</i>						
Temperature, field	9.1	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.00160	MAC = 0.12	0.00020	mg/L	2023-11-11	

**WT# 94FC R-5 Dragon Hill (23K1012-06) | Matrix: Water | Sampled: 2023-11-07 13:00**

<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.0464	MAC = 0.12	0.00020	mg/L	2023-11-11	

**WT# 94FF - R-6 New Tatchell Reserv (23K1012-07) | Matrix: Water | Sampled: 2023-11-07 14:00**

<i>Field Parameters</i>						
Temperature, field	9.1	AO ≤ 15		°C	2023-11-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-08	
<i>Total Metals</i>						
Manganese, total	0.0126	MAC = 0.12	0.00020	mg/L	2023-11-11	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23K1012  
2023-11-15 11:50

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Reservoirs  
**PROJECT INFO**

**WORK ORDER** 23L1125

**RECEIVED / TEMP** 2023-12-08 08:50 / 4.9°C  
**REPORTED** 2023-12-15 14:23  
**COC NUMBER** No Number

### Introduction:

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#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23L1125  
2023-12-15 14:23

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94EA R-1 Shadow Heights (23L1125-01) | Matrix: Water | Sampled: 2023-12-07 09:30**

**Field Parameters**

Temperature, field	10.6	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.0788	MAC = 0.12	0.00020	mg/L	2023-12-15	
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**WT# 94F9 - R-2 Pinecrest (23L1125-02) | Matrix: Water | Sampled: 2023-12-07 10:10**

**Field Parameters**

Temperature, field	9.1	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.312	MAC = 0.12	0.00020	mg/L	2023-12-15	
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**WT# 94FA R-3 Sugar Loaf (23L1125-03) | Matrix: Water | Sampled: 2023-12-07 11:30**

**Field Parameters**

Temperature, field	8.9	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.00651	MAC = 0.12	0.00020	mg/L	2023-12-15	
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**WT# 94EB R-4 Abbott Dr 1 (23L1125-04) | Matrix: Water | Sampled: 2023-12-07 10:30**

**Field Parameters**

Temperature, field	9.2	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.00167	MAC = 0.12	0.00020	mg/L	2023-12-15	
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**WT# 94EC R-4 Abbott Dr 2 (23L1125-05) | Matrix: Water | Sampled: 2023-12-07 10:40**

**Field Parameters**

Temperature, field	9.3	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.00093	MAC = 0.12	0.00020	mg/L	2023-12-15	
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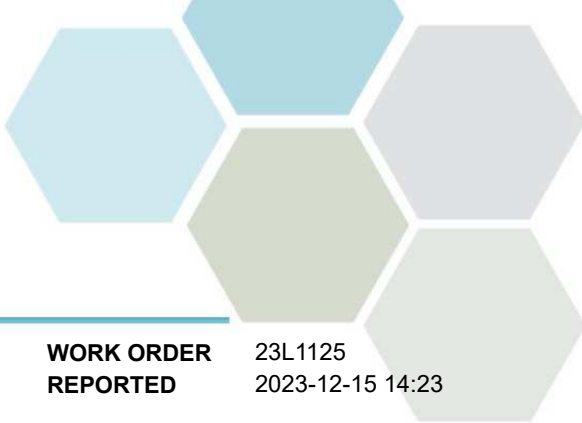
**WT# 94FC R-5 Dragon Hill (23L1125-06) | Matrix: Water | Sampled: 2023-12-07 12:10**

**Field Parameters**

Temperature, field	9.8	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.0564	MAC = 0.12	0.00020	mg/L	2023-12-15	
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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23L1125  
2023-12-15 14:23

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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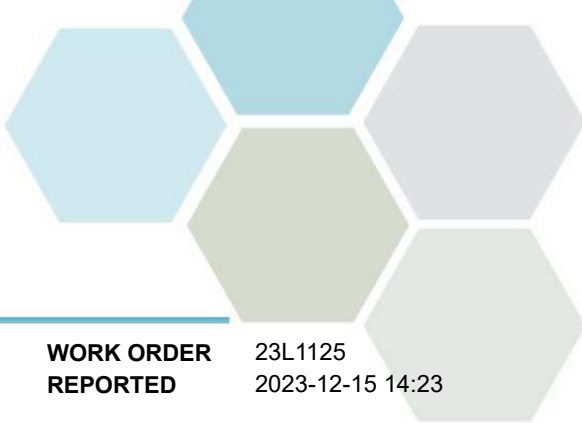
**WT# 94FF - R-6 New Tatchell Reserv (23L1125-07) | Matrix: Water | Sampled: 2023-12-07 13:15**

**Field Parameters**

Temperature, field	9.7	AO ≤ 15		°C	2023-12-07	
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**Total Metals**

Manganese, total	0.00434	MAC = 0.12	0.00020	mg/L	2023-12-15	
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## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23L1125  
2023-12-15 14:23

Analysis Description	Method Ref.	Technique	Accredited	Location
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

### Glossary of Terms:

RL	Reporting Limit (default)
°C	Degrees Celcius
AO	Aesthetic Objective
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23A0969
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-01-11 15:25 / 4.9°C 2023-01-17 11:19
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Wells		
<b>PROJECT INFO</b>			

### Introduction:

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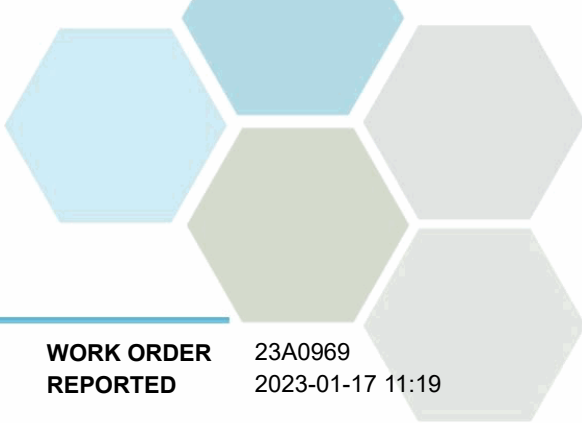
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#### Authorized By:

Brent Whitehead  
Account Manager

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

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23A0969  
2023-01-17 11:19

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23A0969-01)   Matrix: Water   Sampled: 2023-01-10 11:45</b>						
<i>Field Parameters</i>						
Temperature, field	11.6	AO ≤ 15		°C	2023-01-10	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
<i>Total Metals</i>						
Manganese, total	0.768	MAC = 0.12	0.00020	mg/L	2023-01-16	

**WT# 94DC - Well 6 Rolph at Robertson (23A0969-02) | Matrix: Water | Sampled: 2023-01-10 10:45**

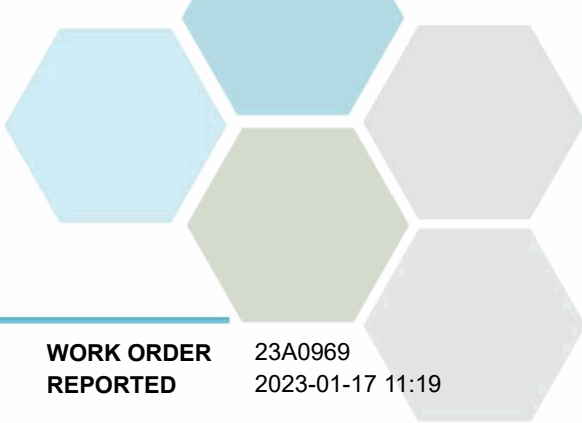
<i>Field Parameters</i>						
Temperature, field	9.9	AO ≤ 15		°C	2023-01-10	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
<i>Total Metals</i>						
Manganese, total	0.227	MAC = 0.12	0.00020	mg/L	2023-01-16	

**WT# 94E0 - Well 7 N. Fraser Drive (23A0969-03) | Matrix: Water | Sampled: 2023-01-10 13:00**

<i>Field Parameters</i>						
Temperature, field	8.5	AO ≤ 15		°C	2023-01-10	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
<i>Total Metals</i>						
Manganese, total	0.0144	MAC = 0.12	0.00020	mg/L	2023-01-16	

**WT# 94E1 - Well 8 Hilborn Road (23A0969-04) | Matrix: Water | Sampled: 2023-01-10 14:00**

<i>Field Parameters</i>						
Temperature, field	8.6	AO ≤ 15		°C	2023-01-10	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
<i>Total Metals</i>						
Manganese, total	0.207	MAC = 0.12	0.00020	mg/L	2023-01-16	



## TEST RESULTS

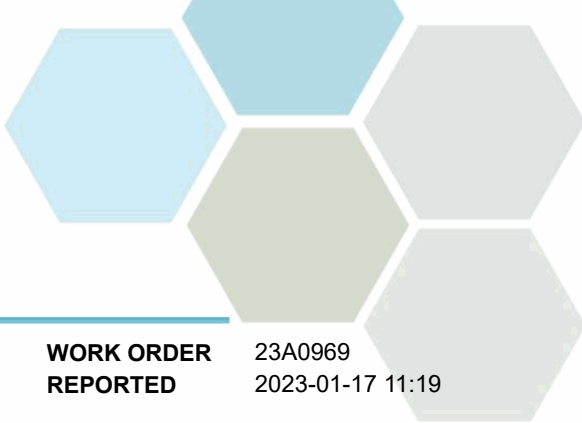
**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23A0969  
2023-01-17 11:19

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23A0969-05)   Matrix: Water   Sampled: 2023-01-10 09:50</b>						
<i>Field Parameters</i>						
Temperature, field	8.7	AO ≤ 15		°C	2023-01-10	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
<i>Total Metals</i>						
Manganese, total	0.138	MAC = 0.12	0.00020	mg/L	2023-01-16	

**WT# 28000 - Well 10 Hilborn Road (23A0969-06) | Matrix: Water | Sampled: 2023-01-10 13:30**

<i>Field Parameters</i>						
Temperature, field	9.4	AO ≤ 15		°C	2023-01-10	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-01-11	
<i>Total Metals</i>						
Manganese, total	0.535	MAC = 0.12	0.00020	mg/L	2023-01-16	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23A0969  
2023-01-17 11:19

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 23B0879

**RECEIVED / TEMP** 2023-02-08 14:15 / 2.4°C  
**REPORTED** 2023-02-13 18:41  
**COC NUMBER** No Number

### Introduction:

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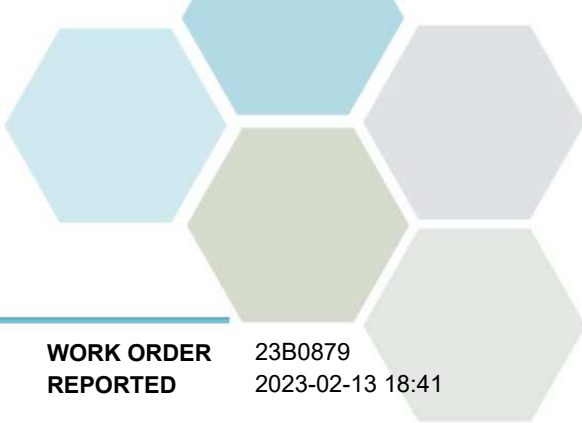
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23B0879  
2023-02-13 18:41

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94E0 - Well 7 N. Fraser Drive (23B0879-01) | Matrix: Water | Sampled: 2023-02-07 14:30**

**Field Parameters**

Temperature, field	9.0	AO ≤ 15		°C	2023-02-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	

**Total Metals**

Manganese, total	0.0184	MAC = 0.12	0.00020	mg/L	2023-02-13	
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**WT# 94E1 - Well 8 Hilborn Road (23B0879-02) | Matrix: Water | Sampled: 2023-02-07 11:30**

**Field Parameters**

Temperature, field	9.0	AO ≤ 15		°C	2023-02-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	

**Total Metals**

Manganese, total	0.215	MAC = 0.12	0.00020	mg/L	2023-02-13	
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**WT# 94D1 - Well 3 Rolph at Roddis (23B0879-03) | Matrix: Water | Sampled: 2023-02-07 13:30**

**Field Parameters**

Temperature, field	116	AO ≤ 15		°C	2023-02-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	

**Total Metals**

Manganese, total	0.754	MAC = 0.12	0.00020	mg/L	2023-02-13	
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**WT# 94DC - Well 6 Rolph at Robertson (23B0879-04) | Matrix: Water | Sampled: 2023-02-07 10:50**

**Field Parameters**

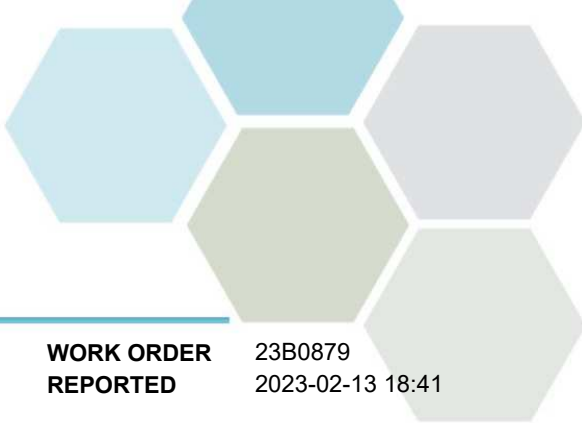
Temperature, field	10.6	AO ≤ 15		°C	2023-02-07	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-08	

**Total Metals**

Manganese, total	0.262	MAC = 0.12	0.00020	mg/L	2023-02-13	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23B0879  
2023-02-13 18:41

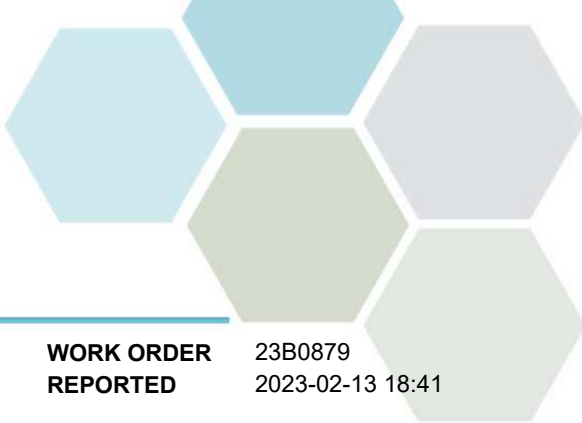
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23B0879-05)   Matrix: Water   Sampled: 2023-02-07 11:50</b>						
<i>Field Parameters</i>						
Temperature, field	9.0	AO ≤ 15		°C	2023-02-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-02-08	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-02-08	
<i>Total Metals</i>						
Manganese, total	0.143	MAC = 0.12		0.00020 mg/L	2023-02-13	

**WT# 28000 - Well 10 Hilborn Road (23B0879-06) | Matrix: Water | Sampled: 2023-02-07 09:40**

<i>Field Parameters</i>						
Temperature, field	9.6	AO ≤ 15		°C	2023-02-07	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-02-08	HT3
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-02-08	HT3
<i>Total Metals</i>						
Manganese, total	0.538	MAC = 0.12		0.00020 mg/L	2023-02-13	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23B0879  
2023-02-13 18:41

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 23B2291

**RECEIVED / TEMP** 2023-02-22 15:45 / 1.4°C  
**REPORTED** 2023-03-02 11:09  
**COC NUMBER** No Number

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23B2291  
2023-03-02 11:09

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23B2291-01)   Matrix: Water   Sampled: 2023-02-21 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	10.6	AO ≤ 15		°C	2023-02-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	HT3
<i>Total Metals</i>						
Manganese, total	0.723	MAC = 0.12	0.00020	mg/L	2023-03-01	

**WT# 94DC - Well 6 Rolph at Robertson (23B2291-02) | Matrix: Water | Sampled: 2023-02-21 10:00**

<i>Field Parameters</i>						
Temperature, field	10.5	AO ≤ 15		°C	2023-02-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
<i>Total Metals</i>						
Manganese, total	0.243	MAC = 0.12	0.00020	mg/L	2023-03-01	

**WT# 94E0 - Well 7 N. Fraser Drive (23B2291-03) | Matrix: Water | Sampled: 2023-02-21 10:45**

<i>Field Parameters</i>						
Temperature, field	9.7	AO ≤ 15		°C	2023-02-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
<i>Total Metals</i>						
Manganese, total	0.0176	MAC = 0.12	0.00020	mg/L	2023-03-01	

**WT# 94E1 - Well 8 Hilborn Road (23B2291-04) | Matrix: Water | Sampled: 2023-02-21 13:40**

<i>Field Parameters</i>						
Temperature, field	9.9	AO ≤ 15		°C	2023-02-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
<i>Total Metals</i>						
Manganese, total	0.218	MAC = 0.12	0.00020	mg/L	2023-03-01	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23B2291  
2023-03-02 11:09

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23B2291-05)   Matrix: Water   Sampled: 2023-02-21 11:50</b>						
<i>Field Parameters</i>						
Temperature, field	10.4	AO ≤ 15		°C	2023-02-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
<i>Total Metals</i>						
Manganese, total	0.140	MAC = 0.12	0.00020	mg/L	2023-03-01	

**WT# 28000 - Well 10 Hilborn Road (23B2291-06) | Matrix: Water | Sampled: 2023-02-21 13:00**

<i>Field Parameters</i>						
Temperature, field	10.2	AO ≤ 15		°C	2023-02-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-02-22	
<i>Total Metals</i>						
Manganese, total	0.511	MAC = 0.12	0.00020	mg/L	2023-03-01	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23B2291  
2023-03-02 11:09

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 23D1938

**RECEIVED / TEMP** 2023-04-19 15:30 / 8.7°C  
**REPORTED** 2023-04-25 16:14  
**COC NUMBER** No Number

### Introduction:

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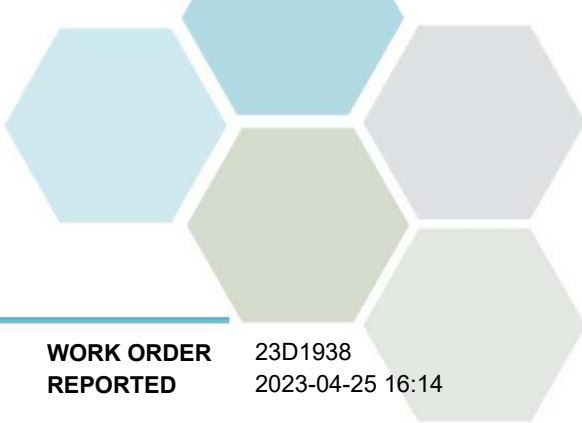
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23D1938  
2023-04-25 16:14

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23D1938-01)   Matrix: Water   Sampled: 2023-04-18 10:30</b>						
<i>Field Parameters</i>						
Temperature, field	10.2	AO ≤ 15		°C	2023-04-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
<i>Total Metals</i>						
Manganese, total	0.736	MAC = 0.12	0.00020	mg/L	2023-04-24	

**WT# 94DC - Well 6 Rolph at Robertson (23D1938-02) | Matrix: Water | Sampled: 2023-04-18 11:30**

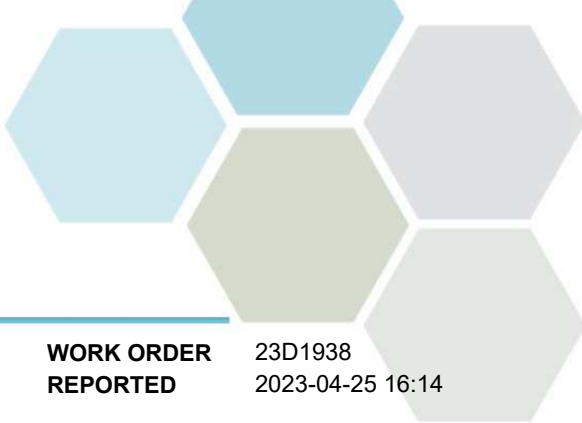
<i>Field Parameters</i>						
Temperature, field	10.3	AO ≤ 15		°C	2023-04-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
<i>Total Metals</i>						
Manganese, total	0.212	MAC = 0.12	0.00020	mg/L	2023-04-24	

**WT# 94E0 - Well 7 N. Fraser Drive (23D1938-03) | Matrix: Water | Sampled: 2023-04-18 13:30**

<i>Field Parameters</i>						
Temperature, field	9.8	AO ≤ 15		°C	2023-04-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
<i>Total Metals</i>						
Manganese, total	0.0128	MAC = 0.12	0.00020	mg/L	2023-04-24	

**WT# 94E1 - Well 8 Hilborn Road (23D1938-04) | Matrix: Water | Sampled: 2023-04-18 14:00**

<i>Field Parameters</i>						
Temperature, field	10.6	AO ≤ 15		°C	2023-04-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
<i>Total Metals</i>						
Manganese, total	0.226	MAC = 0.12	0.00020	mg/L	2023-04-24	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23D1938  
2023-04-25 16:14

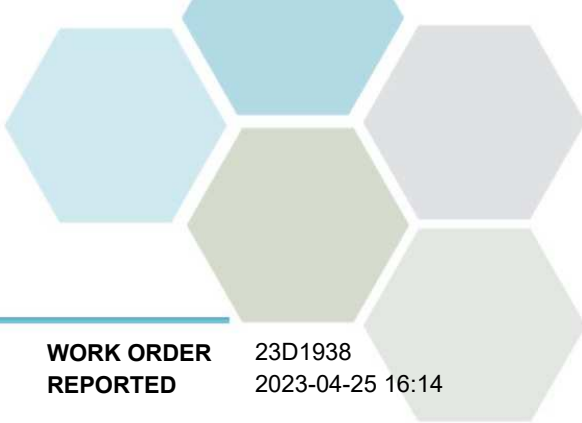
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23D1938-05)   Matrix: Water   Sampled: 2023-04-18 09:10</b>						
<i>Field Parameters</i>						
Temperature, field	11.1	AO ≤ 15		°C	2023-04-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	HT3
<i>Total Metals</i>						
Manganese, total	0.136	MAC = 0.12	0.00020	mg/L	2023-04-24	

**WT# 28000 - Well 10 Hilborn Road (23D1938-06) | Matrix: Water | Sampled: 2023-04-18 14:30**

<i>Field Parameters</i>						
Temperature, field	10.7	AO ≤ 15		°C	2023-04-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-04-19	
<i>Total Metals</i>						
Manganese, total	0.556	MAC = 0.12	0.00020	mg/L	2023-04-25	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23D1938  
2023-04-25 16:14

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 23E2245

**RECEIVED / TEMP** 2023-05-17 15:10 / 15.4°C  
**REPORTED** 2023-05-25 16:22

**COC NUMBER** No Number

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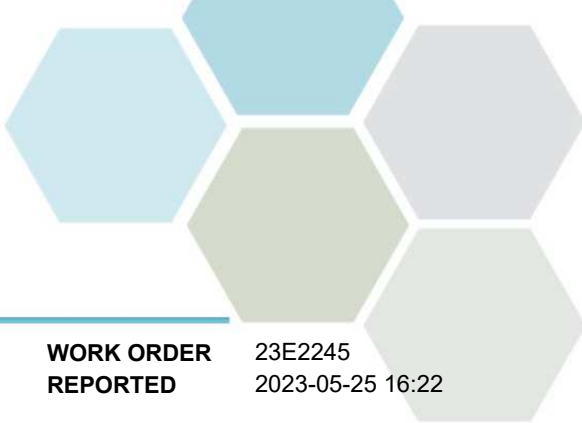
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#### **Authorized By:**

Brent Whitehead  
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23E2245  
2023-05-25 16:22

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23E2245-01)   Matrix: Water   Sampled: 2023-05-16 09:20</b>						
<i>Field Parameters</i>						
Temperature, field	11.6	AO ≤ 15		°C	2023-05-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	HT3
<i>Total Metals</i>						
Manganese, total	0.504	MAC = 0.12	0.00020	mg/L	2023-05-21	

**WT# 94DC - Well 6 Rolph at Robertson (23E2245-02) | Matrix: Water | Sampled: 2023-05-16 10:00**

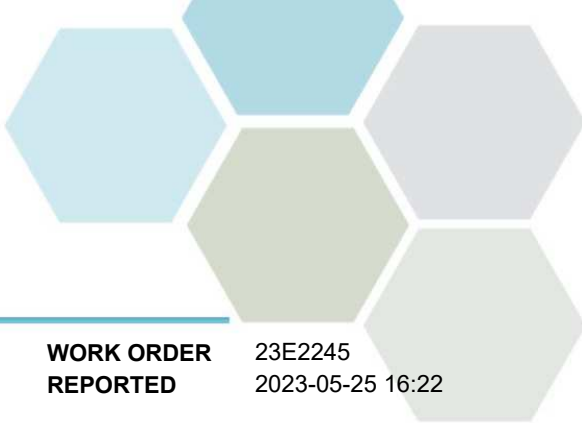
<i>Field Parameters</i>						
Temperature, field	11.5	AO ≤ 15		°C	2023-05-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	HT3
<i>Total Metals</i>						
Manganese, total	0.233	MAC = 0.12	0.00020	mg/L	2023-05-21	

**WT# 94E0 - Well 7 N. Fraser Drive (23E2245-03) | Matrix: Water | Sampled: 2023-05-16 11:00**

<i>Field Parameters</i>						
Temperature, field	11.2	AO ≤ 15		°C	2023-05-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	
<i>Total Metals</i>						
Manganese, total	0.0134	MAC = 0.12	0.00020	mg/L	2023-05-21	

**WT# 94E1 - Well 8 Hilborn Road (23E2245-04) | Matrix: Water | Sampled: 2023-05-16 12:45**

<i>Field Parameters</i>						
Temperature, field	10.9	AO ≤ 15		°C	2023-05-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-05-17	
<i>Total Metals</i>						
Manganese, total	0.249	MAC = 0.12	0.00020	mg/L	2023-05-21	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23E2245  
2023-05-25 16:22

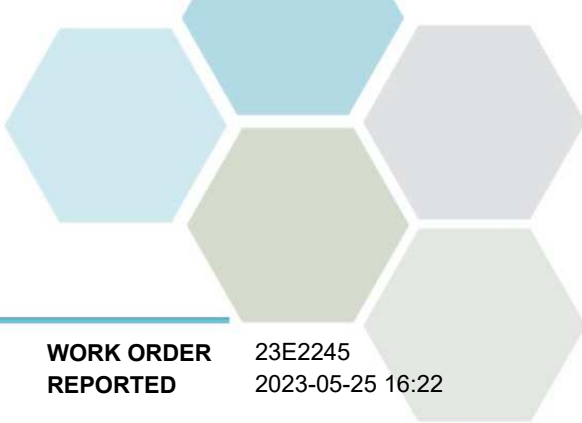
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23E2245-05)   Matrix: Water   Sampled: 2023-05-16 14:15</b>						
<i>Field Parameters</i>						
Temperature, field	10.9	AO ≤ 15		°C	2023-05-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-05-17	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-05-17	
<i>Total Metals</i>						
Manganese, total	0.150	MAC = 0.12		0.00020 mg/L	2023-05-21	

**WT# 28000 - Well 10 Hilborn Road (23E2245-06) | Matrix: Water | Sampled: 2023-05-16 13:30**

<i>Field Parameters</i>						
Temperature, field	11.4	AO ≤ 15		°C	2023-05-16	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-05-17	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-05-17	
<i>Total Metals</i>						
Manganese, total	0.584	MAC = 0.12		0.00020 mg/L	2023-05-21	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23E2245  
2023-05-25 16:22

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23F1902
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-06-14 14:20 / 12.8°C 2023-06-20 08:37
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Quarterly Wells		
<b>PROJECT INFO</b>			

### Introduction:

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#### *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 [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F1902  
2023-06-20 08:37

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23F1902-01) | Matrix: Water | Sampled: 2023-06-13 10:30**

**Anions**

Chloride	10.0	AO ≤ 250	0.10	mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-16	

**Field Parameters**

Temperature, field	12.6	AO ≤ 15		°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	

**Total Metals**

Manganese, total	< 0.00020	MAC = 0.12	0.00020	mg/L	2023-06-18	
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**WT# 94DC - Well 6 Rolph/Robertson (23F1902-02) | Matrix: Water | Sampled: 2023-06-13 11:10**

**Anions**

Chloride	2.03	AO ≤ 250	0.10	mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-16	

**Field Parameters**

Temperature, field	13.1	AO ≤ 15		°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	Overgrown	MAC = 0	1	CFU/100 mL	2023-06-14	MIC5
E. coli	Overgrown	MAC = 0	1	CFU/100 mL	2023-06-14	MIC19

**Total Metals**

Manganese, total	1.33	MAC = 0.12	0.00020	mg/L	2023-06-18	
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**WT# 94E0 - Well 7 N. Fraser Drive (23F1902-03) | Matrix: Water | Sampled: 2023-06-13 12:50**

**Anions**

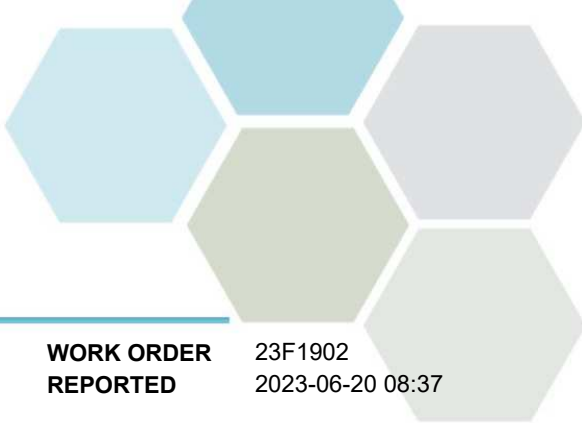
Chloride	9.51	AO ≤ 250	0.10	mg/L	2023-06-16	
Nitrate (as N)	0.195	MAC = 10	0.010	mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-16	

**Field Parameters**

Temperature, field	11.2	AO ≤ 15		°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F1902  
2023-06-20 08:37

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**WT# 94E0 - Well 7 N. Fraser Drive (23F1902-03) | Matrix: Water | Sampled: 2023-06-13 12:50, Continued**

**Total Metals**

Manganese, total	0.0130	MAC = 0.12	0.00020 mg/L	2023-06-18	
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**WT# 94E1 - Well 8 Hilborn Road (23F1902-04) | Matrix: Water | Sampled: 2023-06-13 13:45**

**Anions**

Chloride	4.52	AO ≤ 250	0.10 mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-06-16	

**Field Parameters**

Temperature, field	12.9	AO ≤ 15	°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	

**Total Metals**

Manganese, total	0.243	MAC = 0.12	0.00020 mg/L	2023-06-18	
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**WT# 94DF - Well 9 Carson Sub (23F1902-05) | Matrix: Water | Sampled: 2023-06-13 14:30**

**Anions**

Chloride	1.94	AO ≤ 250	0.10 mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-06-16	

**Field Parameters**

Temperature, field	12.4	AO ≤ 15	°C	2023-06-13	
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**Microbiological Parameters**

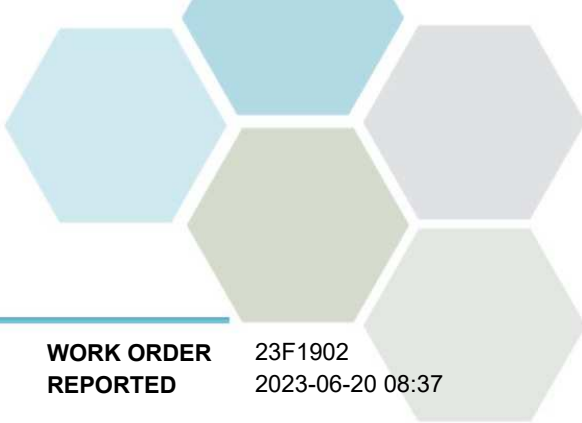
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	

**Total Metals**

Manganese, total	0.0730	MAC = 0.12	0.00020 mg/L	2023-06-18	
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**Sample Qualifiers:**

- MIC19 Overgrown without visible E.coli. The presence or absence of E.coli cannot be determined. Resampling is recommended. Recollected samples due to overgrown result(s) should be communicated to the lab so they can be processed appropriately.
- MIC5 Overgrown without visible Total Coliforms. The presence or absence of Total Coliforms cannot be determined. Resampling is recommended. Recollected samples due to overgrown result(s) should be communicated to the lab so they can be processed appropriately.



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F1902  
2023-06-20 08:37

Analysis Description	Method Ref.	Technique	Accredited	Location
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
<	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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
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 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: [bwhitehead@caro.ca](mailto: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.*

## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Annual  
**PROJECT INFO**

**WORK ORDER** 23G1614

**RECEIVED / TEMP** 2023-07-13 14:37 / 13.3°C  
**REPORTED** 2023-07-20 16:27

### Introduction:

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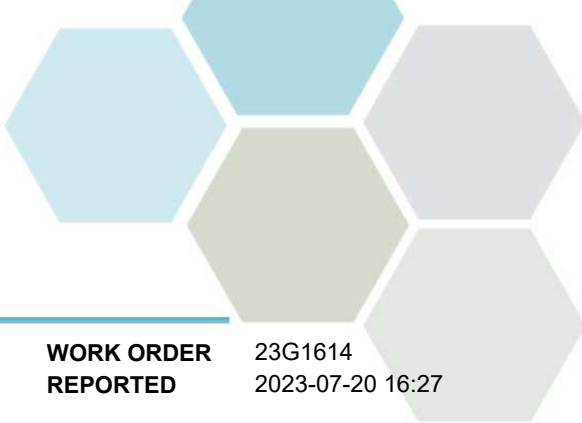
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01) | Matrix: Water | Sampled: 2023-07-12 10:30**

F1, F2

**Anions**

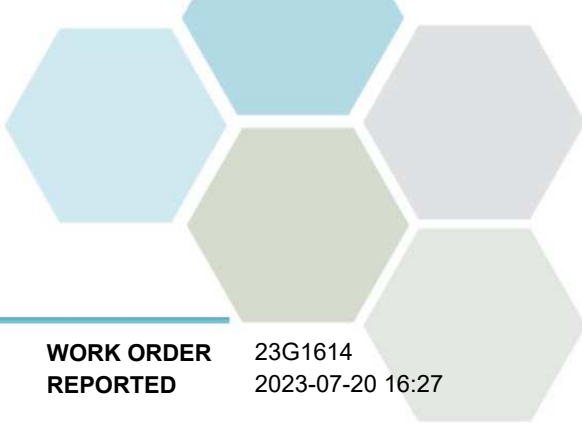
Chloride	9.15	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	0.16	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	18.0	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.6	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	228	N/A	0.500	mg/L	N/A	
Langelier Index	0.6	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Arsenic, dissolved	0.00131	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.0604	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	0.000011	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	60.3	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	0.00147	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	0.024	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00105	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	18.9	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.491	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00221	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	0.00082	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	2.76	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	10.5	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	8.33	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	0.270	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	5.5	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01)   Matrix: Water   Sampled: 2023-07-12 10:30, Continued</b>					F1, F2

**Dissolved Metals, Continued**

Titanium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, dissolved	<b>0.000523</b>	N/A	0.000020 mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, dissolved	< 0.0080	N/A	0.0040 mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	

**General Parameters**

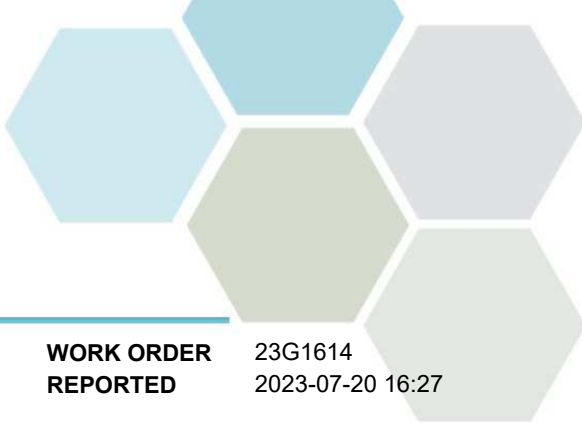
Alkalinity, Total (as CaCO3)	<b>222</b>	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	<b>222</b>	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2023-07-14	
Conductivity (EC)	<b>445</b>	N/A	2.0 µS/cm	2023-07-16	
pH	<b>8.03</b>	7.0-10.5	0.10 pH units	2023-07-16	HT2
Solids, Total Dissolved	<b>244</b>	AO ≤ 500	15 mg/L	2023-07-17	
Temperature, at pH	<b>22.3</b>	N/A	°C	2023-07-16	HT2
Turbidity	<b>0.37</b>	OG < 1	0.10 NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	HT3
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	HT3

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-07-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-07-17	
Arsenic, total	<b>0.00142</b>	MAC = 0.01	0.00050 mg/L	2023-07-17	
Barium, total	<b>0.0632</b>	MAC = 2	0.0050 mg/L	2023-07-17	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-07-17	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-07-17	
Calcium, total	<b>62.7</b>	None Required	0.20 mg/L	2023-07-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-17	
Cobalt, total	<b>0.00012</b>	N/A	0.00010 mg/L	2023-07-17	
Copper, total	<b>0.00160</b>	MAC = 2	0.00040 mg/L	2023-07-17	
Iron, total	<b>0.052</b>	AO ≤ 0.3	0.010 mg/L	2023-07-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-07-17	
Lithium, total	<b>0.00111</b>	N/A	0.00010 mg/L	2023-07-17	
Magnesium, total	<b>19.8</b>	None Required	0.010 mg/L	2023-07-17	
Manganese, total	<b>0.560</b>	MAC = 0.12	0.00020 mg/L	2023-07-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2023-07-19	
Molybdenum, total	<b>0.00247</b>	N/A	0.00010 mg/L	2023-07-17	



# TEST RESULTS

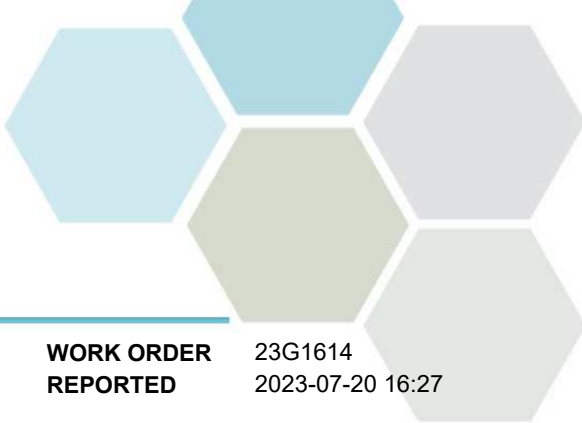
**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01)   Matrix: Water   Sampled: 2023-07-12 10:30, Continued</b>					F1, F2
<i>Total Metals, Continued</i>					
Nickel, total	0.00085	N/A	0.00040 mg/L	2023-07-17	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2023-07-17	
Potassium, total	2.92	N/A	0.10 mg/L	2023-07-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-17	
Silicon, total	11.2	N/A	1.0 mg/L	2023-07-17	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2023-07-17	
Sodium, total	8.67	AO ≤ 200	0.10 mg/L	2023-07-17	
Strontium, total	0.283	MAC = 7	0.0010 mg/L	2023-07-17	
Sulfur, total	6.1	N/A	3.0 mg/L	2023-07-17	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, total	0.000540	MAC = 0.02	0.000020 mg/L	2023-07-17	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2023-07-17	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5 µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5 µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0 µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0 µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3 µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5 µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0 µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0 µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0 µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0 µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0 µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01)   Matrix: Water   Sampled: 2023-07-12 10:30, Continued</b>					F1, F2
<i>Volatile Organic Compounds (VOC), Continued</i>					
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0 µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5 µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0 µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0 µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0 µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0 µg/L	2023-07-20	
Surrogate: Toluene-d8	99		70-130 %	2023-07-20	
Surrogate: 4-Bromofluorobenzene	96		70-130 %	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	100		70-130 %	2023-07-20	

**WT# 94DC - Well 6 Rolph/Robertson (23G1614-02) | Matrix: Water | Sampled: 2023-07-12 10:10** F1, F2

**Anions**

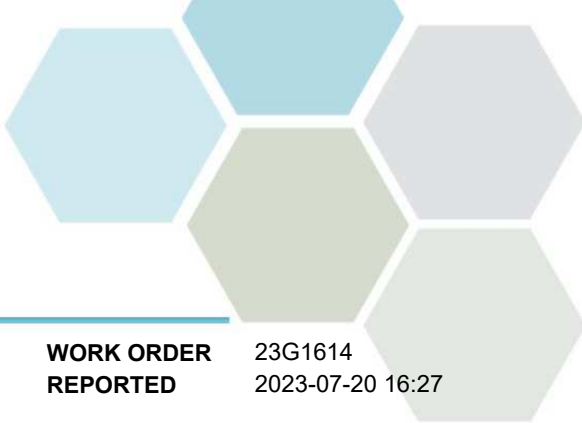
Chloride	<b>19.3</b>	AO ≤ 250	0.10 mg/L	2023-07-14	
Fluoride	<b>0.12</b>	MAC = 1.5	0.10 mg/L	2023-07-14	
Nitrate (as N)	<b>0.072</b>	MAC = 10	0.010 mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-07-14	
Sulfate	<b>28.0</b>	AO ≤ 500	1.0 mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	<b>12.7</b>	N/A	-	2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	<b>283</b>	N/A	0.500 mg/L	N/A	
Langelier Index	<b>0.7</b>	N/A	-5.0	2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	<b>0.0055</b>	N/A	0.0050 mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Arsenic, dissolved	<b>0.00059</b>	N/A	0.00050 mg/L	2023-07-17	
Barium, dissolved	<b>0.0801</b>	N/A	0.0050 mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500 mg/L	2023-07-17	
Cadmium, dissolved	<b>0.000030</b>	N/A	0.000010 mg/L	2023-07-17	
Calcium, dissolved	<b>74.8</b>	N/A	0.20 mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Copper, dissolved	<b>0.00144</b>	N/A	0.00040 mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010 mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23G1614-02)   Matrix: Water   Sampled: 2023-07-12 10:10, Continued</b>						F1, F2

**Dissolved Metals, Continued**

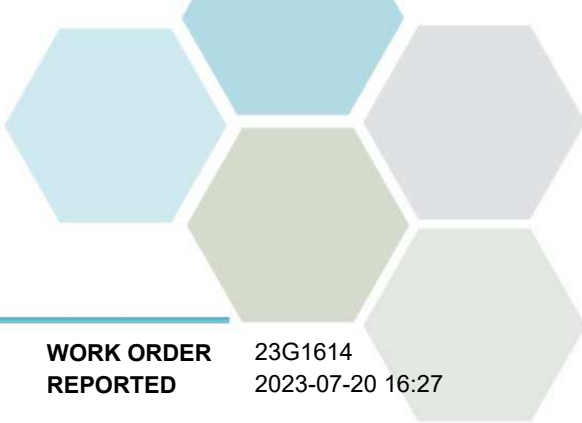
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	<b>0.00164</b>	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	<b>23.3</b>	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	<b>0.179</b>	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	<b>0.00142</b>	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	<b>0.00189</b>	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	<b>3.74</b>	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	<b>0.00124</b>	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	<b>9.6</b>	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	<b>9.61</b>	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	<b>0.341</b>	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	<b>8.4</b>	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2023-07-17	
Uranium, dissolved	<b>0.00104</b>	N/A	0.000020	mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Zinc, dissolved	< 0.0170	N/A	0.0040	mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	

**General Parameters**

Alkalinity, Total (as CaCO3)	<b>273</b>	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	<b>273</b>	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	<b>581</b>	N/A	2.0	µS/cm	2023-07-16	
pH	<b>7.97</b>	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	<b>298</b>	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	<b>22.3</b>	N/A		°C	2023-07-16	HT2
Turbidity	<b>0.22</b>	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

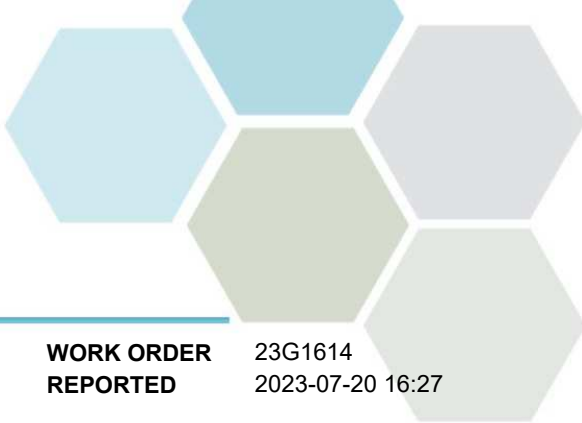
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23G1614-02)   Matrix: Water   Sampled: 2023-07-12 10:10, Continued</b>						F1, F2

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	<b>0.00068</b>	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	<b>0.0835</b>	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	<b>0.000035</b>	MAC = 0.007	0.000010	mg/L	2023-07-18	
Calcium, total	<b>81.4</b>	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	<b>0.00010</b>	N/A	0.00010	mg/L	2023-07-18	
Copper, total	<b>0.00154</b>	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	<b>0.024</b>	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	<b>0.00192</b>	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	<b>26.0</b>	None Required	0.010	mg/L	2023-07-18	
Manganese, total	<b>0.196</b>	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	<b>0.00149</b>	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	<b>0.00199</b>	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	<b>3.84</b>	N/A	0.10	mg/L	2023-07-18	
Selenium, total	<b>0.00123</b>	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	<b>11.1</b>	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	<b>10.6</b>	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	<b>0.381</b>	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	<b>10.1</b>	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	<b>0.00109</b>	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	<b>0.0051</b>	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23G1614-02)   Matrix: Water   Sampled: 2023-07-12 10:10, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

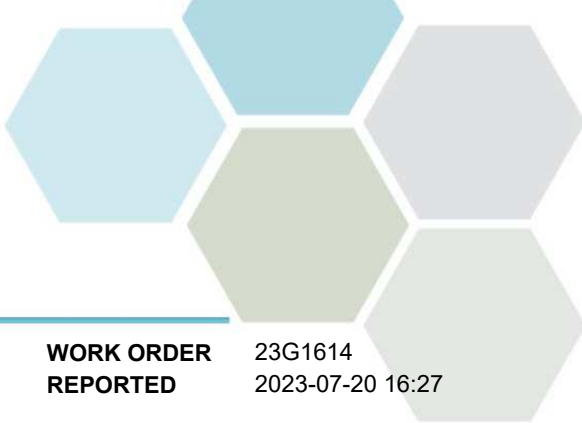
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,1,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	105		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	96		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	101		70-130	%	2023-07-20	

**WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03) | Matrix: Water | Sampled: 2023-07-12 11:50**

F1, F2

**Anions**

Chloride	8.46	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	0.12	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	0.142	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	21.1	AO ≤ 500	1.0	mg/L	2023-07-14	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

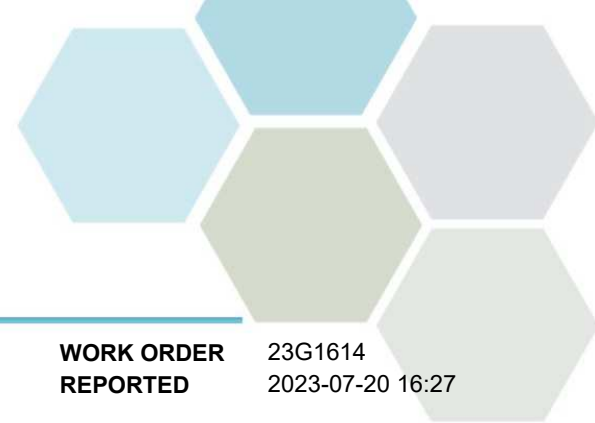
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>					F1, F2

**Calculated Parameters**

Aggressiveness Index	12.4	N/A	-	2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	208	N/A	0.500 mg/L	N/A	
Langelier Index	0.5	N/A	-5.0	2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	0.0064	N/A	0.0050 mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Arsenic, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Barium, dissolved	0.0319	N/A	0.0050 mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500 mg/L	2023-07-17	
Cadmium, dissolved	< 0.000010	N/A	0.000010 mg/L	2023-07-17	
Calcium, dissolved	57.0	N/A	0.20 mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Copper, dissolved	0.00258	N/A	0.00040 mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010 mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Lithium, dissolved	0.00132	N/A	0.00010 mg/L	2023-07-17	
Magnesium, dissolved	15.8	N/A	0.010 mg/L	2023-07-17	
Manganese, dissolved	0.0115	N/A	0.00020 mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040 mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00121	N/A	0.00010 mg/L	2023-07-17	
Nickel, dissolved	0.00059	N/A	0.00040 mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2023-07-17	
Potassium, dissolved	2.01	N/A	0.10 mg/L	2023-07-17	
Selenium, dissolved	0.00291	N/A	0.00050 mg/L	2023-07-17	
Silicon, dissolved	6.0	N/A	1.0 mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050 mg/L	2023-07-17	
Sodium, dissolved	6.55	N/A	0.10 mg/L	2023-07-17	
Strontium, dissolved	0.224	N/A	0.0010 mg/L	2023-07-17	
Sulfur, dissolved	6.4	N/A	3.0 mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, dissolved	0.000912	N/A	0.000020 mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, dissolved	< 0.0090	N/A	0.0040 mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>						F1, F2

**General Parameters**

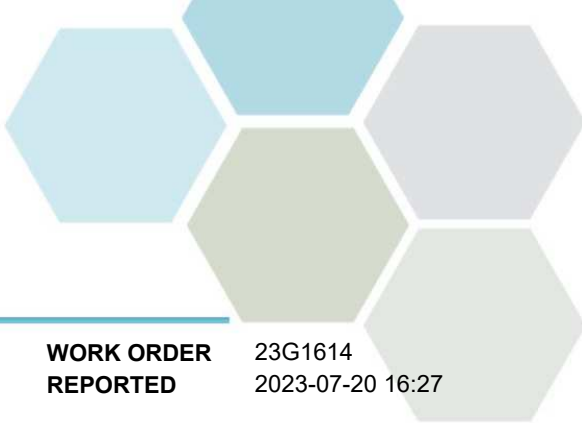
Alkalinity, Total (as CaCO3)	205	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	205	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	407	N/A	2.0	µS/cm	2023-07-16	
pH	7.97	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	207	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	22.8	N/A		°C	2023-07-16	HT2
Turbidity	0.22	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	0.00052	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	0.0323	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-07-18	
Calcium, total	55.1	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Copper, total	0.00276	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	0.00135	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	16.2	None Required	0.010	mg/L	2023-07-18	
Manganese, total	0.0119	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	0.00118	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	0.00071	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	1.92	N/A	0.10	mg/L	2023-07-18	
Selenium, total	0.00289	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	6.5	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	6.65	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	0.229	MAC = 7	0.0010	mg/L	2023-07-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
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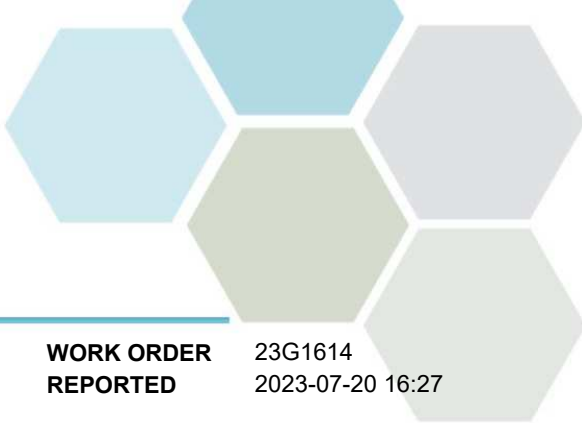
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>					F1, F2

**Total Metals, Continued**

Sulfur, total	7.1	N/A	3.0 mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-07-18	
Uranium, total	<b>0.000942</b>	MAC = 0.02	0.000020 mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-18	
Zinc, total	<b>0.0044</b>	AO ≤ 5	0.0040 mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5 µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5 µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0 µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0 µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3 µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5 µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0 µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0 µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0 µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0 µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0 µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0 µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5 µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0 µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0 µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	110		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	107		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	112		70-130	%	2023-07-20	

**WT# 94E1 - Well 8 Hillborn Road (23G1614-04) | Matrix: Water | Sampled: 2023-07-12 13:30**

F1, F2

**Anions**

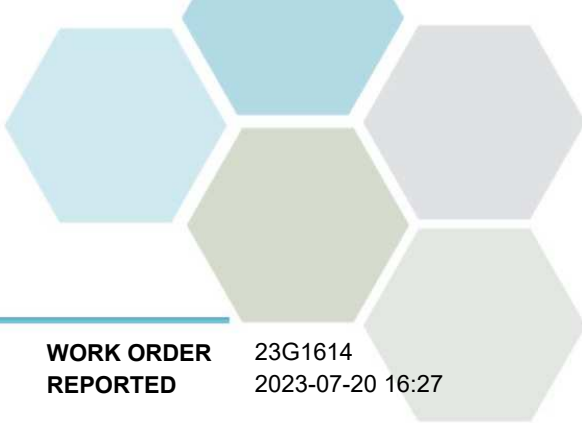
Chloride	4.11	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	38.4	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.5	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	190	N/A	0.500	mg/L	N/A	
Langelier Index	0.5	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Arsenic, dissolved	0.00123	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.107	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	< 0.000010	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	57.6	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	< 0.00040	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00059	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	11.1	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.217	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00153	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	0.00246	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hillborn Road (23G1614-04)   Matrix: Water   Sampled: 2023-07-12 13:30, Continued</b>						F1, F2

**Dissolved Metals, Continued**

Potassium, dissolved	1.33	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	6.1	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	5.28	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	0.339	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	12.1	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2023-07-17	
Uranium, dissolved	0.00125	N/A	0.000020	mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Zinc, dissolved	< 0.0070	N/A	0.0040	mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	

**General Parameters**

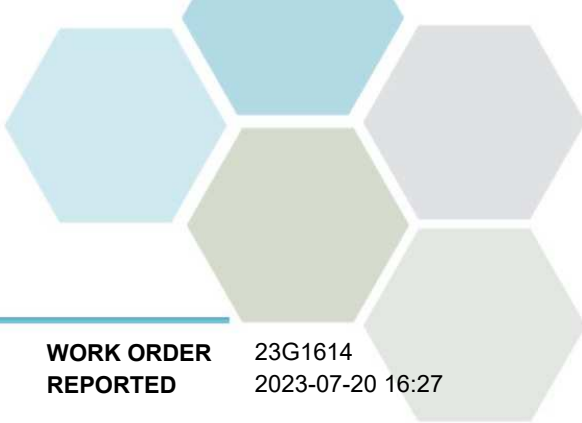
Alkalinity, Total (as CaCO3)	165	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	165	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	362	N/A	2.0	µS/cm	2023-07-16	
pH	8.12	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	199	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	22.8	N/A		°C	2023-07-16	HT2
Turbidity	0.15	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	0.00119	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	0.108	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-07-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

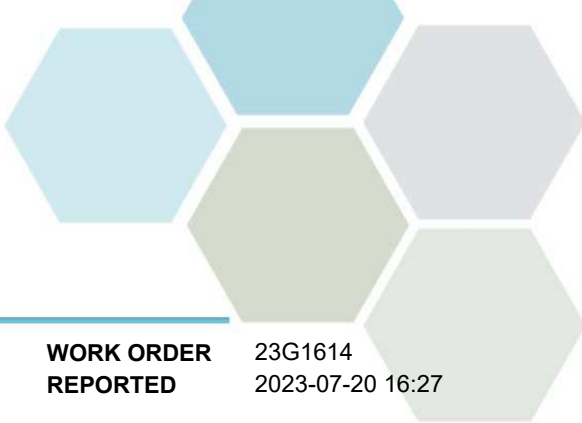
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hillborn Road (23G1614-04)   Matrix: Water   Sampled: 2023-07-12 13:30, Continued</b>						F1, F2

**Total Metals, Continued**

Calcium, total	56.8	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	0.00058	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	11.2	None Required	0.010	mg/L	2023-07-18	
Manganese, total	0.222	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	0.00154	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	0.00250	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	1.26	N/A	0.10	mg/L	2023-07-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	6.5	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	5.29	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	0.352	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	12.8	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	0.00126	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hillborn Road (23G1614-04)   Matrix: Water   Sampled: 2023-07-12 13:30, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	113		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	107		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	108		70-130	%	2023-07-20	

**WT# 94DF - Well 9 Carson Sub (23G1614-05) | Matrix: Water | Sampled: 2023-07-12 09:40**

F1, F2

**Anions**

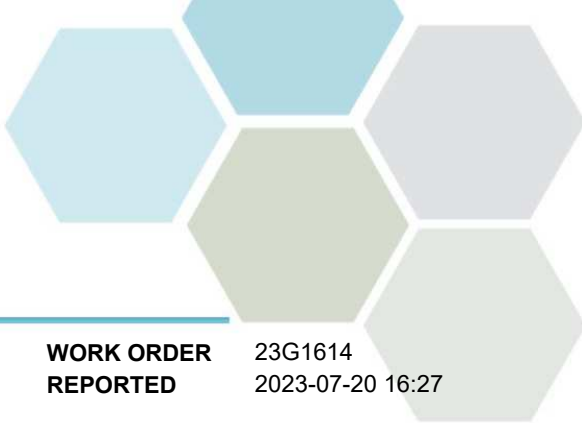
Chloride	<b>2.06</b>	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	<b>0.16</b>	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	<b>18.6</b>	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	<b>12.0</b>	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	<b>118</b>	N/A	0.500	mg/L	N/A	
Langelier Index	<b>0.06</b>	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

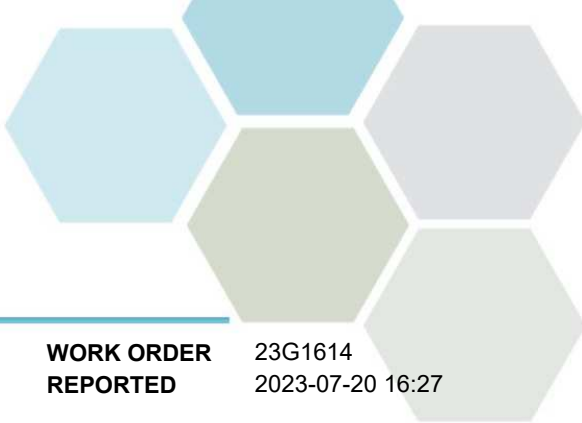
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**Dissolved Metals, Continued**

Arsenic, dissolved	0.00100	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.0695	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	< 0.000010	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	34.8	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	0.00062	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	0.00033	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00131	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	7.61	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.143	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00165	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	< 0.00040	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	0.91	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	6.1	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	4.05	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	0.189	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	6.0	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2023-07-17	
Uranium, dissolved	0.000321	N/A	0.000020	mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Zinc, dissolved	< 0.0050	N/A	0.0040	mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	

**General Parameters**

Alkalinity, Total (as CaCO3)	117	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	117	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**General Parameters, Continued**

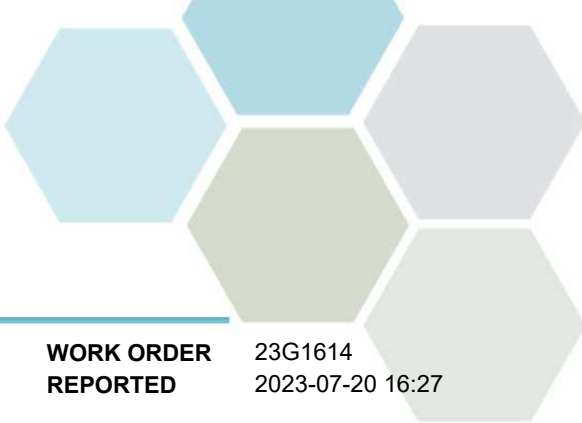
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	<b>230</b>	N/A	2.0	µS/cm	2023-07-16	
pH	<b>8.00</b>	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	<b>107</b>	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	<b>22.5</b>	N/A		°C	2023-07-16	HT2
Turbidity	<b>0.16</b>	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	<b>0.00096</b>	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	<b>0.0700</b>	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-07-18	
Calcium, total	<b>34.5</b>	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Copper, total	<b>0.00073</b>	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	<b>0.00045</b>	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	<b>0.00130</b>	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	<b>7.68</b>	None Required	0.010	mg/L	2023-07-18	
Manganese, total	<b>0.143</b>	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	<b>0.00164</b>	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	<b>0.84</b>	N/A	0.10	mg/L	2023-07-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	<b>6.3</b>	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	<b>4.13</b>	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	<b>0.190</b>	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	<b>6.1</b>	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

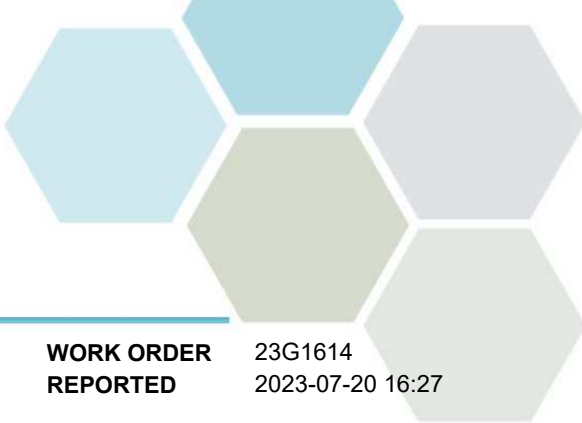
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**Total Metals, Continued**

Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	<b>0.000322</b>	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	107		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	105		70-130	%	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

Surrogate: 1,4-Dichlorobenzene-d4	113		70-130	%	2023-07-20	
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**WT# 28000 - Well 10 Hillborn Road (23G1614-06) | Matrix: Water | Sampled: 2023-07-12 14:10**

**Anions**

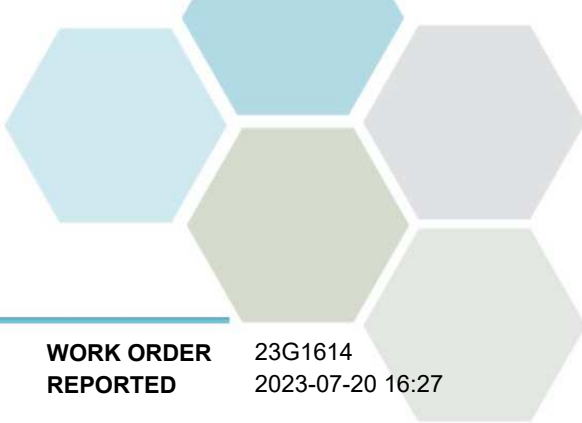
Chloride	14.5	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	79.6	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.9	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	335	N/A	0.500	mg/L	N/A	
Langelier Index	0.9	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Arsenic, dissolved	0.00125	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.210	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	0.000028	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	94.2	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	0.00211	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00100	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	24.1	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.542	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00118	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	0.00549	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	2.17	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	7.4	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	16.7	N/A	0.10	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 28000 - Well 10 Hillborn Road (23G1614-06)   Matrix: Water   Sampled: 2023-07-12 14:10, Continued</b>					
<i>Dissolved Metals, Continued</i>					
Strontium, dissolved	0.590	N/A	0.0010 mg/L	2023-07-17	
Sulfur, dissolved	28.1	N/A	3.0 mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, dissolved	0.00267	N/A	0.000020 mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, dissolved	< 0.0100	N/A	0.0040 mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	

**General Parameters**

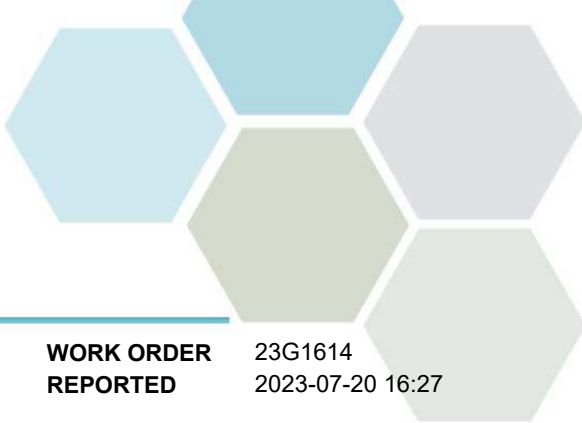
Alkalinity, Total (as CaCO3)	288	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	288	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2023-07-14	
Conductivity (EC)	666	N/A	2.0 µS/cm	2023-07-16	
pH	8.08	7.0-10.5	0.10 pH units	2023-07-16	HT2
Solids, Total Dissolved	397	AO ≤ 500	15 mg/L	2023-07-17	
Temperature, at pH	22.7	N/A	°C	2023-07-16	HT2
Turbidity	0.15	OG < 1	0.10 NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-07-18	
Arsenic, total	0.00130	MAC = 0.01	0.00050 mg/L	2023-07-18	
Barium, total	0.212	MAC = 2	0.0050 mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-07-18	
Cadmium, total	0.000028	MAC = 0.007	0.000010 mg/L	2023-07-18	
Calcium, total	94.9	None Required	0.20 mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Copper, total	0.00464	MAC = 2	0.00040 mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-07-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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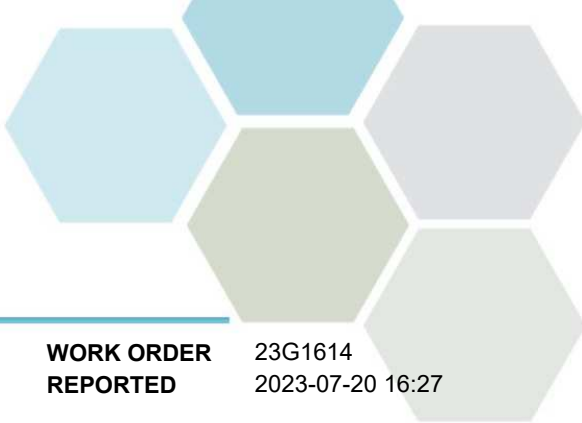
**WT# 28000 - Well 10 Hillborn Road (23G1614-06) | Matrix: Water | Sampled: 2023-07-12 14:10, Continued**

**Total Metals, Continued**

Lead, total	0.00030	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	0.00099	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	24.7	None Required	0.010	mg/L	2023-07-18	
Manganese, total	0.549	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	0.00118	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	0.00549	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	2.07	N/A	0.10	mg/L	2023-07-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	8.0	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	17.1	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	0.612	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	29.4	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	0.00275	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	0.0083	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	



# TEST RESULTS

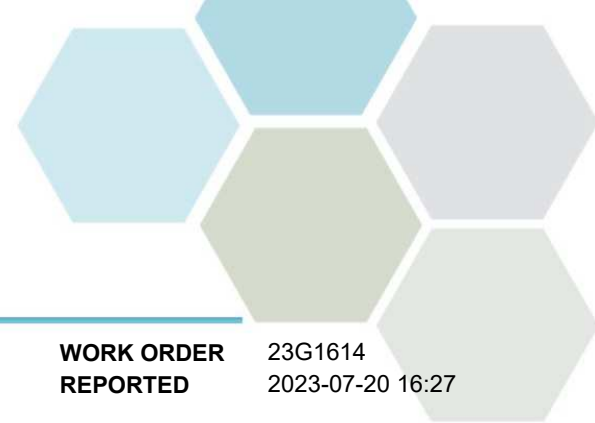
**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 28000 - Well 10 Hillborn Road (23G1614-06)   Matrix: Water   Sampled: 2023-07-12 14:10, Continued</b>					
<i>Volatile Organic Compounds (VOC), Continued</i>					
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0 µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0 µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0 µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0 µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5 µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0 µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0 µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0 µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0 µg/L	2023-07-20	
Surrogate: Toluene-d8	100		70-130 %	2023-07-20	
Surrogate: 4-Bromofluorobenzene	104		70-130 %	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	108		70-130 %	2023-07-20	

**Sample Qualifiers:**

- CT6 Results were based on lab temperature & lab pH.
- F1 The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals.
- F2 The sample was not field-preserved with HNO3 and was therefore preserved in the laboratory and held for at least 16 hours prior to analysis for total metals.
- HG1 Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.
- 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.
- RA3 The Reporting Limit has been raised due to comparable level detected in the blank(s).



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of Annual

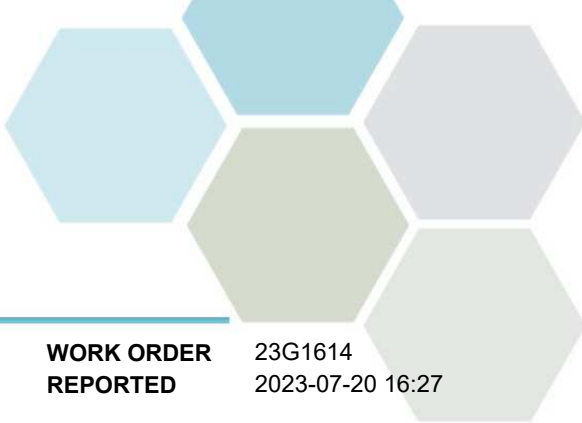
**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	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
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	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
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	Solids in Water, Filtered / SM 2540 C* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
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 (2020)	Nephelometry	✓	Kelowna
Volatile Organic Compounds 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
°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
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

**General Comments:**

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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](mailto: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.*

## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 23H1283

**RECEIVED / TEMP** 2023-08-09 14:08 / 13.4°C  
**REPORTED** 2023-08-16 11:43

### 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>

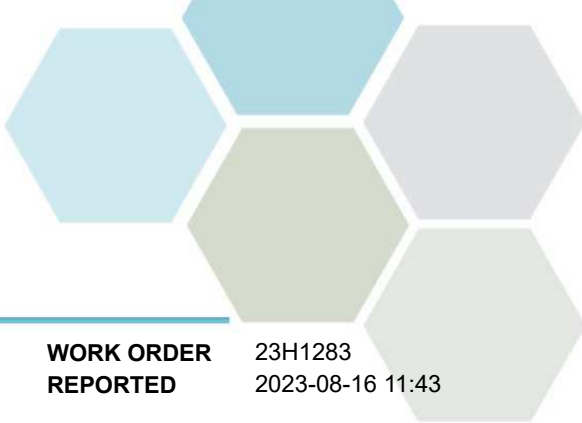
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23H1283  
2023-08-16 11:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23H1283-01)   Matrix: Water   Sampled: 2023-08-08 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	11.9	AO ≤ 15		°C	2023-08-08	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	HT3
<i>Total Metals</i>						
Manganese, total	0.622	MAC = 0.12	0.00020	mg/L	2023-08-15	

**WT# 94DC - Well 6 Rolph at Robertson (23H1283-02) | Matrix: Water | Sampled: 2023-08-08 10:30**

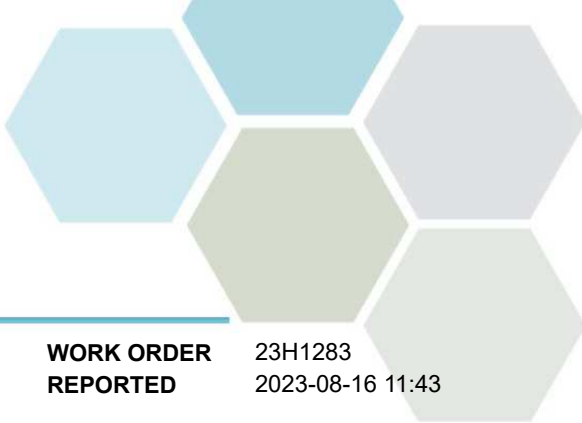
<i>Field Parameters</i>						
Temperature, field	12.1	AO ≤ 15		°C	2023-08-08	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	HT3
<i>Total Metals</i>						
Manganese, total	0.199	MAC = 0.12	0.00020	mg/L	2023-08-15	

**WT# 94E0 - Well 7 N. Fraser Drive (23H1283-03) | Matrix: Water | Sampled: 2023-08-08 11:30**

<i>Field Parameters</i>						
Temperature, field	12.3	AO ≤ 15		°C	2023-08-08	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
<i>Total Metals</i>						
Manganese, total	0.0123	MAC = 0.12	0.00020	mg/L	2023-08-15	

**WT# 94E1 - Well 8 Hilborn Road (23H1283-04) | Matrix: Water | Sampled: 2023-08-08 13:40**

<i>Field Parameters</i>						
Temperature, field	12.6	AO ≤ 15		°C	2023-08-08	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
<i>Total Metals</i>						
Manganese, total	0.221	MAC = 0.12	0.00020	mg/L	2023-08-15	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23H1283  
2023-08-16 11:43

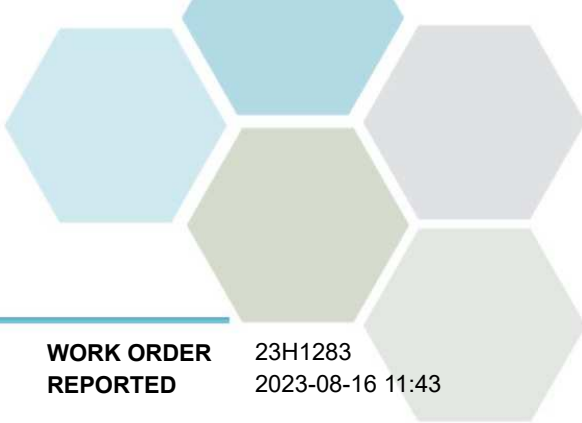
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23H1283-05)   Matrix: Water   Sampled: 2023-08-08 14:10</b>						
<i>Field Parameters</i>						
Temperature, field	12.6	AO ≤ 15		°C	2023-08-08	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
<i>Total Metals</i>						
Manganese, total	0.147	MAC = 0.12	0.00020	mg/L	2023-08-15	

**WT# 28000 - Well 10 Hilborn Road (23H1283-06) | Matrix: Water | Sampled: 2023-08-08 12:40**

<i>Field Parameters</i>						
Temperature, field	12.4	AO ≤ 15		°C	2023-08-08	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-09	
<i>Total Metals</i>						
Manganese, total	0.593	MAC = 0.12	0.00020	mg/L	2023-08-15	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23H1283  
2023-08-16 11:43

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 2310651

**RECEIVED / TEMP** 2023-09-07 13:18 / 13.4°C  
**REPORTED** 2023-09-13 11:12  
**COC NUMBER** No Number

### Introduction:

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

#### **Authorized By:**

Brent Whitehead  
Account Manager

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

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 2310651  
2023-09-13 11:12

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (2310651-01) | Matrix: Water | Sampled: 2023-09-06 11:45**

**Anions**

Chloride	9.52	AO ≤ 250	0.10 mg/L	2023-09-07	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-09-07	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-09-07	

**Calculated Parameters**

Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100 mg/L	N/A	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-09-07	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-09-07	

**WT# 94DC - Well 6 Rolph at Robertson (2310651-02) | Matrix: Water | Sampled: 2023-09-06 11:15**

**Anions**

Chloride	19.7	AO ≤ 250	0.10 mg/L	2023-09-07	
Nitrate (as N)	0.060	MAC = 10	0.010 mg/L	2023-09-07	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-09-07	

**Calculated Parameters**

Nitrate+Nitrite (as N)	0.0598	N/A	0.0100 mg/L	N/A	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-09-07	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-09-07	

**WT# 94E0 - Well 7 N. Fraser Drive (2310651-03) | Matrix: Water | Sampled: 2023-09-06 10:45**

**Anions**

Chloride	8.45	AO ≤ 250	0.10 mg/L	2023-09-07	
Nitrate (as N)	0.079	MAC = 10	0.010 mg/L	2023-09-07	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-09-07	

**Calculated Parameters**

Nitrate+Nitrite (as N)	0.0793	N/A	0.0100 mg/L	N/A	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-09-07	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-09-07	

**WT# 94E1 - Well 8 Hilborn Road (2310651-04) | Matrix: Water | Sampled: 2023-09-06 14:45**

**Anions**

Chloride	4.45	AO ≤ 250	0.10 mg/L	2023-09-07	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-09-07	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 2310651  
2023-09-13 11:12

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hilborn Road (2310651-04)   Matrix: Water   Sampled: 2023-09-06 14:45, Continued</b>						
<i>Anions, Continued</i>						
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-09-07	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	

**WT# 94DF - Well 9 Carson Sub (2310651-05) | Matrix: Water | Sampled: 2023-09-06 09:15**

<i>Anions</i>						
Chloride	<b>1.88</b>	AO ≤ 250	0.10	mg/L	2023-09-07	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-09-07	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-09-07	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	HT3

**WT# 28000 - Well 10 Hilborn Road (2310651-06) | Matrix: Water | Sampled: 2023-09-06 14:00**

<i>Anions</i>						
Chloride	<b>15.4</b>	AO ≤ 250	0.10	mg/L	2023-09-07	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-09-07	HT1
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-09-07	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 2310651  
2023-09-13 11:12

Analysis Description	Method Ref.	Technique	Accredited	Location
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna

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

### Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### 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: [bwhitehead@caro.ca](mailto: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.*

## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells

**PROJECT INFO**

**WORK ORDER** 23J1208

**RECEIVED / TEMP** 2023-10-11 16:30 / 8.8°C  
**REPORTED** 2023-10-16 13:24

**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*



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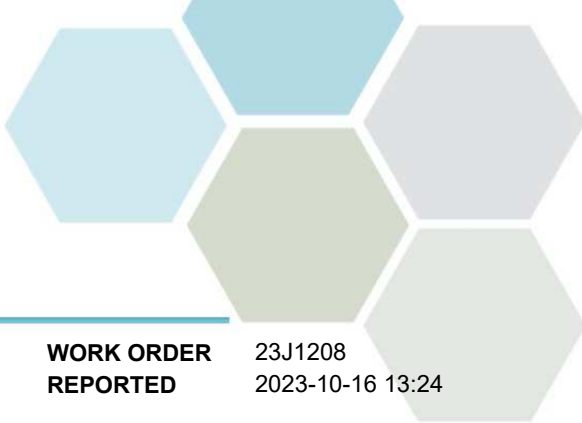
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23J1208  
2023-10-16 13:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23J1208-01) | Matrix: Water | Sampled: 2023-10-10 10:30**

**Anions**

Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-10-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-10-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-12	

**Calculated Parameters**

Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	

**WT# 94DC - Well 6 Rolph at Robertson (23J1208-02) | Matrix: Water | Sampled: 2023-10-10 09:45**

**Anions**

Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-10-12	
Nitrate (as N)	<b>0.014</b>	MAC = 10	0.010	mg/L	2023-10-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-12	

**Calculated Parameters**

Nitrate+Nitrite (as N)	<b>0.0141</b>	N/A	0.0100	mg/L	N/A	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	HT3

**WT# 94E0 - Well 7 N. Fraser Drive (23J1208-03) | Matrix: Water | Sampled: 2023-10-10 11:45**

**Anions**

Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-10-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-10-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-12	

**Calculated Parameters**

Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
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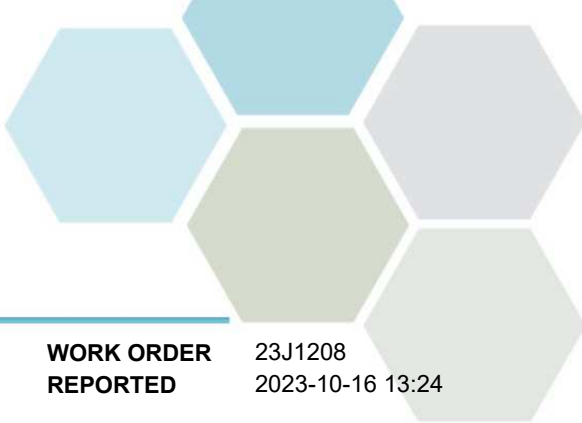
**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	

**WT# 94E1 - Well 8 Hilborn Road (23J1208-04) | Matrix: Water | Sampled: 2023-10-10 14:00**

**Anions**

Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-10-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-10-12	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23J1208  
2023-10-16 13:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hilborn Road (23J1208-04)   Matrix: Water   Sampled: 2023-10-10 14:00, Continued</b>						
<i>Anions, Continued</i>						
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-12	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	

**WT# 94DF - Well 9 Carson Sub (23J1208-05) | Matrix: Water | Sampled: 2023-10-10 11:00**

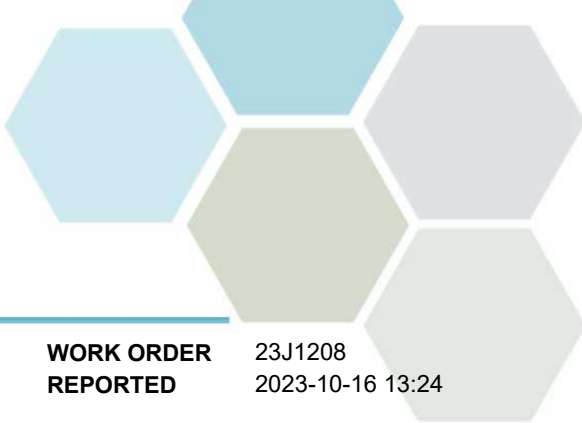
<i>Anions</i>						
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-10-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-10-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-12	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	

**WT# 28000 - Well 10 Hilborn Road (23J1208-06) | Matrix: Water | Sampled: 2023-10-10 13:30**

<i>Anions</i>						
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-10-12	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-10-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-10-12	
<i>Calculated Parameters</i>						
Nitrate+Nitrite (as N)	< 0.0100	N/A	0.0100	mg/L	N/A	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-10-11	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23J1208  
2023-10-16 13:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	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
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells

**PROJECT INFO**

**WORK ORDER** 23K0175

**RECEIVED / TEMP** 2023-11-01 13:35 / 5.7°C  
**REPORTED** 2023-11-06 14:27

**COC NUMBER** No Number

### Introduction:

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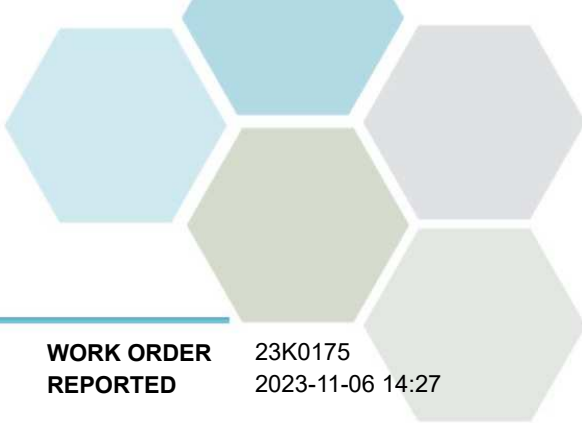
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23K0175  
2023-11-06 14:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23K0175-01) | Matrix: Water | Sampled: 2023-10-31 13:15**

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	

**Total Metals**

Manganese, total	<b>0.180</b>	MAC = 0.12	0.00020	mg/L	2023-11-06	
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**WT# 94DC - Well 6 Rolph at Robertson (23K0175-02) | Matrix: Water | Sampled: 2023-10-31 13:45**

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	

**Total Metals**

Manganese, total	<b>0.217</b>	MAC = 0.12	0.00020	mg/L	2023-11-06	
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**WT# 94E1 - Well 8 Hilborn Road (23K0175-03) | Matrix: Water | Sampled: 2023-10-31 09:30**

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	

**Total Metals**

Manganese, total	<b>0.233</b>	MAC = 0.12	0.00020	mg/L	2023-11-06	
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**WT# 94DF - Well 9 Carson Sub (23K0175-04) | Matrix: Water | Sampled: 2023-10-31 09:30**

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	

**Total Metals**

Manganese, total	<b>0.150</b>	MAC = 0.12	0.00020	mg/L	2023-11-06	
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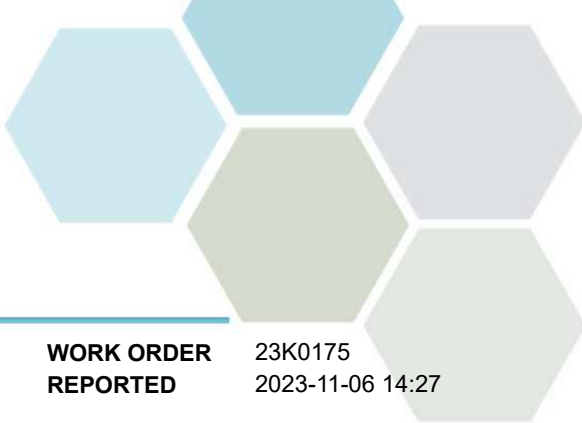
**WT# 28000 - Well 10 Hilborn Road (23K0175-05) | Matrix: Water | Sampled: 2023-10-31 10:45**

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-01	

**Total Metals**

Manganese, total	<b>0.530</b>	MAC = 0.12	0.00020	mg/L	2023-11-06	
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## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23K0175  
2023-11-06 14:27

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### General Comments:

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23K2627
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-11-22 14:33 / 11.6°C 2023-11-27 15:08
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Monthly Wells		
<b>PROJECT INFO</b>			

### Introduction:

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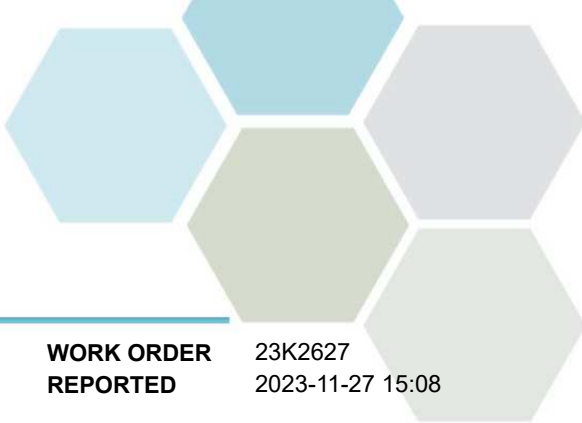
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#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23K2627  
2023-11-27 15:08

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23K2627-01) | Matrix: Water | Sampled: 2023-11-21 13:15**

**Field Parameters**

Temperature, field	11.6	AO ≤ 15		°C	2023-11-21	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	

**Total Metals**

Manganese, total	0.236	MAC = 0.12	0.00020	mg/L	2023-11-26	
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**WT# 94DC - Well 6 Rolph at Robertson (23K2627-02) | Matrix: Water | Sampled: 2023-11-21 11:50**

**Field Parameters**

Temperature, field	10.0	AO ≤ 15		°C	2023-11-21	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	

**Total Metals**

Manganese, total	0.235	MAC = 0.12	0.00020	mg/L	2023-11-26	
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**WT# 94E0 - Well 7 N. Fraser Drive (23K2627-03) | Matrix: Water | Sampled: 2023-11-21 11:15**

**Field Parameters**

Temperature, field	8.8	AO ≤ 15		°C	2023-11-21	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	

**Total Metals**

Manganese, total	0.0121	MAC = 0.12	0.00020	mg/L	2023-11-26	
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**WT# 94E1 - Well 8 Hilborn Road (23K2627-04) | Matrix: Water | Sampled: 2023-11-21 09:35**

**Field Parameters**

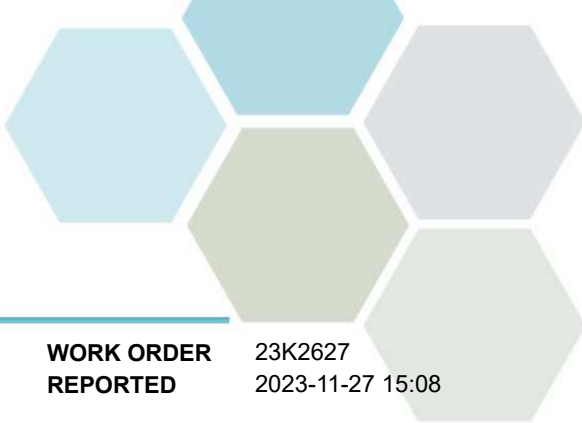
Temperature, field	8.3	AO ≤ 15		°C	2023-11-21	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	HT3

**Total Metals**

Manganese, total	0.258	MAC = 0.12	0.00020	mg/L	2023-11-26	
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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23K2627  
2023-11-27 15:08

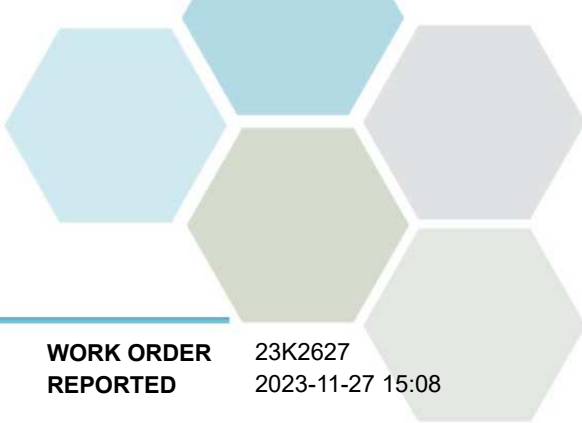
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23K2627-05)   Matrix: Water   Sampled: 2023-11-21 10:30</b>						
<i>Field Parameters</i>						
Temperature, field	8.6	AO ≤ 15		°C	2023-11-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
<i>Total Metals</i>						
Manganese, total	0.140	MAC = 0.12	0.00020	mg/L	2023-11-26	

**WT# 28000 - Well 10 Hilborn Road (23K2627-06) | Matrix: Water | Sampled: 2023-11-21 14:00**

<i>Field Parameters</i>						
Temperature, field	9.2	AO ≤ 15		°C	2023-11-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-11-22	
<i>Total Metals</i>						
Manganese, total	0.550	MAC = 0.12	0.00020	mg/L	2023-11-26	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23K2627  
2023-11-27 15:08

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Wells  
**PROJECT INFO**

**WORK ORDER** 23L2293

**RECEIVED / TEMP** 2023-12-19 13:49 / 4.4°C  
**REPORTED** 2023-12-28 15:13  
**COC NUMBER** No Number

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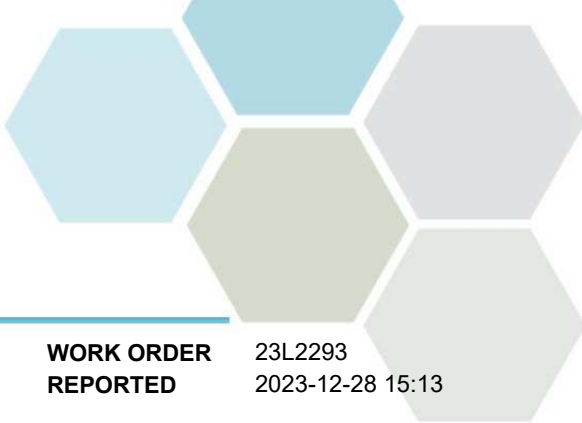
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#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23L2293  
2023-12-28 15:13

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23L2293-01)   Matrix: Water   Sampled: 2023-12-18 09:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.4	AO ≤ 15		°C	2023-12-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	HT3
<i>Total Metals</i>						
Manganese, total	0.361	MAC = 0.12	0.00020	mg/L	2023-12-26	

**WT# 94DC - Well 6 Rolph at Robertson (23L2293-02) | Matrix: Water | Sampled: 2023-12-18 10:00**

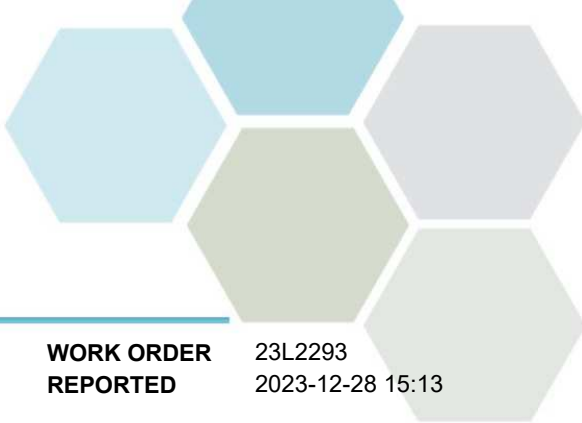
<i>Field Parameters</i>						
Temperature, field	9.5	AO ≤ 15		°C	2023-12-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	HT3
<i>Total Metals</i>						
Manganese, total	0.257	MAC = 0.12	0.00020	mg/L	2023-12-26	

**WT# 94E0 - Well 7 N. Fraser Drive (23L2293-03) | Matrix: Water | Sampled: 2023-12-18 11:20**

<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-12-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
<i>Total Metals</i>						
Manganese, total	0.0123	MAC = 0.12	0.00020	mg/L	2023-12-26	

**WT# 94E1 - Well 8 Hilborn Road (23L2293-04) | Matrix: Water | Sampled: 2023-12-18 13:30**

<i>Field Parameters</i>						
Temperature, field	9.9	AO ≤ 15		°C	2023-12-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
<i>Total Metals</i>						
Manganese, total	0.244	MAC = 0.12	0.00020	mg/L	2023-12-26	



## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23L2293  
2023-12-28 15:13

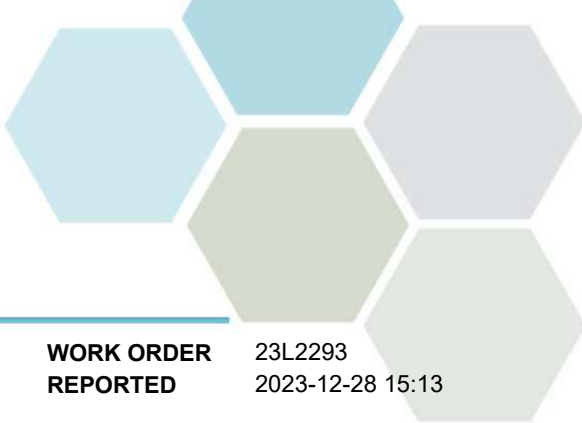
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23L2293-05)   Matrix: Water   Sampled: 2023-12-18 11:50</b>						
<i>Field Parameters</i>						
Temperature, field	9.7	AO ≤ 15		°C	2023-12-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
<i>Total Metals</i>						
Manganese, total	0.149	MAC = 0.12	0.00020	mg/L	2023-12-26	

**WT# 28000 - Well 10 Hilborn Road (23L2293-06) | Matrix: Water | Sampled: 2023-12-18 14:30**

<i>Field Parameters</i>						
Temperature, field	9.4	AO ≤ 15		°C	2023-12-18	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-12-19	
<i>Total Metals</i>						
Manganese, total	0.529	MAC = 0.12	0.00020	mg/L	2023-12-26	

**Sample Qualifiers:**

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** Quesnel, City of  
Monthly Wells

**WORK ORDER REPORTED** 23L2293  
2023-12-28 15:13

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23C0286
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-03-02 15:13 / 6.6°C 2023-03-07 13:30
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT PROJECT INFO</b>	Semi Annually Distribution System		

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**Authorized By:**

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E4 - S Airport (23C0286-01)   Matrix: Water   Sampled: 2023-03-01 00:00 To 2023-03-01 09:45</b>						
<i>Field Parameters</i>						
Temperature, field	3.1	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	0.22	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	HT3

**WT# 94E5 - S Mills Rd (23C0286-02) | Matrix: Water | Sampled: 2023-03-01 10:45**

<i>Calculated Parameters</i>						
Hardness, Total (as CaCO3)	129	None Required	0.500	mg/L	N/A	
<i>Field Parameters</i>						
Temperature, field	6.2	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	0.29	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
<i>Total Metals</i>						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-03-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-03-06	
Arsenic, total	0.00095	MAC = 0.01	0.00050	mg/L	2023-03-06	
Barium, total	0.0426	MAC = 2	0.0050	mg/L	2023-03-06	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-03-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-03-06	
Calcium, total	37.2	None Required	0.20	mg/L	2023-03-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-03-06	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Copper, total	0.00785	MAC = 2	0.00040	mg/L	2023-03-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-03-06	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-03-06	
Lithium, total	0.00133	N/A	0.00010	mg/L	2023-03-06	
Magnesium, total	8.71	None Required	0.010	mg/L	2023-03-06	
Manganese, total	0.00270	MAC = 0.12	0.00020	mg/L	2023-03-06	
Molybdenum, total	0.00177	N/A	0.00010	mg/L	2023-03-06	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E5 - S Mills Rd (23C0286-02)   Matrix: Water   Sampled: 2023-03-01 10:45, Continued</b>						
<i>Total Metals, Continued</i>						
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-03-06	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-03-06	
Potassium, total	<b>1.12</b>	N/A	0.10	mg/L	2023-03-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-03-06	
Silicon, total	<b>6.2</b>	N/A	1.0	mg/L	2023-03-06	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-03-06	
Sodium, total	<b>6.49</b>	AO ≤ 200	0.10	mg/L	2023-03-06	
Strontium, total	<b>0.193</b>	MAC = 7	0.0010	mg/L	2023-03-06	
Sulfur, total	<b>7.1</b>	N/A	3.0	mg/L	2023-03-06	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-03-06	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-03-06	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-03-06	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-03-06	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-03-06	
Uranium, total	<b>0.000467</b>	MAC = 0.02	0.000020	mg/L	2023-03-06	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-03-06	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2023-03-06	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-03-06	

**WT# 94E8 - S Graham Dr (23C0286-03) | Matrix: Water | Sampled: 2023-03-01 10:50**

<i>Field Parameters</i>						
Temperature, field	<b>6.1</b>	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	<b>0.33</b>	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	

**WT# 94E9 - S West Fraser (23C0286-04) | Matrix: Water | Sampled: 2023-03-01 11:20**

<i>Field Parameters</i>						
Temperature, field	<b>6.4</b>	AO ≤ 15		°C	2023-03-01	
<i>General Parameters</i>						
Turbidity	< 0.10	OG < 1	0.10	NTU	2023-03-04	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-03-02	HT1



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**WT# 94E9 - S West Fraser (23C0286-04) | Matrix: Water | Sampled: 2023-03-01 11:20, Continued**

*Microbiological Parameters, Continued*

E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
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**WT# 94F0 - S Pederson (23C0286-05) | Matrix: Water | Sampled: 2023-03-01 13:40**

*Calculated Parameters*

Hardness, Total (as CaCO3)	111	None Required	0.500 mg/L	N/A	
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*Field Parameters*

Temperature, field	8.0	AO ≤ 15	°C	2023-03-01	
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*General Parameters*

Turbidity	0.17	OG < 1	0.10 NTU	2023-03-04	
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*Microbiological Parameters*

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5 CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	

*Total Metals*

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-03-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-03-06	
Arsenic, total	0.00102	MAC = 0.01	0.00050 mg/L	2023-03-06	
Barium, total	0.0653	MAC = 2	0.0050 mg/L	2023-03-06	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-03-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-03-06	
Calcium, total	32.2	None Required	0.20 mg/L	2023-03-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Copper, total	0.00136	MAC = 2	0.00040 mg/L	2023-03-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-03-06	
Lead, total	0.00029	MAC = 0.005	0.00020 mg/L	2023-03-06	
Lithium, total	0.00141	N/A	0.00010 mg/L	2023-03-06	
Magnesium, total	7.31	None Required	0.010 mg/L	2023-03-06	
Manganese, total	0.0250	MAC = 0.12	0.00020 mg/L	2023-03-06	
Molybdenum, total	0.00170	N/A	0.00010 mg/L	2023-03-06	
Nickel, total	< 0.00040	N/A	0.00040 mg/L	2023-03-06	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2023-03-06	
Potassium, total	0.92	N/A	0.10 mg/L	2023-03-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Silicon, total	6.2	N/A	1.0 mg/L	2023-03-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2023-03-06	
Sodium, total	4.08	AO ≤ 200	0.10 mg/L	2023-03-06	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94F0 - S Pederson (23C0286-05)   Matrix: Water   Sampled: 2023-03-01 13:40, Continued</b>					
<i>Total Metals, Continued</i>					
Strontium, total	0.187	MAC = 7	0.0010 mg/L	2023-03-06	
Sulfur, total	5.9	N/A	3.0 mg/L	2023-03-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2023-03-06	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2023-03-06	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2023-03-06	
Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-03-06	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-03-06	
Uranium, total	0.000297	MAC = 0.02	0.000020 mg/L	2023-03-06	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-03-06	
Zinc, total	0.111	AO ≤ 5	0.0040 mg/L	2023-03-06	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	

**WT# 35D91k - NEW CARSON PIT (23C0286-06) | Matrix: Water | Sampled: 2023-03-01 13:00**

<i>Calculated Parameters</i>					
Hardness, Total (as CaCO3)	111	None Required	0.500 mg/L	N/A	
<i>Field Parameters</i>					
Temperature, field	4.5	AO ≤ 15	°C	2023-03-01	
<i>General Parameters</i>					
Turbidity	0.28	OG < 1	0.10 NTU	2023-03-04	
<i>Microbiological Parameters</i>					
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5 CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	

<i>Total Metals</i>					
Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-03-06	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-03-06	
Arsenic, total	0.00105	MAC = 0.01	0.00050 mg/L	2023-03-06	
Barium, total	0.0649	MAC = 2	0.0050 mg/L	2023-03-06	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-03-06	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-03-06	
Calcium, total	32.4	None Required	0.20 mg/L	2023-03-06	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Copper, total	0.00447	MAC = 2	0.00040 mg/L	2023-03-06	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-03-06	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-03-06	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 35D91k - NEW CARSON PIT (23C0286-06)   Matrix: Water   Sampled: 2023-03-01 13:00, Continued</b>					
<i>Total Metals, Continued</i>					
Lithium, total	0.00133	N/A	0.00010 mg/L	2023-03-06	
Magnesium, total	7.40	None Required	0.010 mg/L	2023-03-06	
Manganese, total	0.00888	MAC = 0.12	0.00020 mg/L	2023-03-06	
Molybdenum, total	0.00178	N/A	0.00010 mg/L	2023-03-06	
Nickel, total	< 0.00040	N/A	0.00040 mg/L	2023-03-06	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2023-03-06	
Potassium, total	0.95	N/A	0.10 mg/L	2023-03-06	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-03-06	
Silicon, total	6.1	N/A	1.0 mg/L	2023-03-06	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2023-03-06	
Sodium, total	4.30	AO ≤ 200	0.10 mg/L	2023-03-06	
Strontium, total	0.189	MAC = 7	0.0010 mg/L	2023-03-06	
Sulfur, total	6.2	N/A	3.0 mg/L	2023-03-06	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2023-03-06	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2023-03-06	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2023-03-06	
Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-03-06	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-03-06	
Uranium, total	0.000317	MAC = 0.02	0.000020 mg/L	2023-03-06	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-03-06	
Zinc, total	0.0754	AO ≤ 5	0.0040 mg/L	2023-03-06	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-03-06	

**WT# 179CA - S Dennis Rd (23C0286-07) | Matrix: Water | Sampled: 2023-03-01 14:15**

**Field Parameters**

Temperature, field	7.9	AO ≤ 15	°C	2023-03-01	
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**General Parameters**

Turbidity	< 0.10	OG < 1	0.10 NTU	2023-03-04	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	
Heterotrophic Plate Count	< 5	N/A	5 CFU/mL	2023-03-02	HT1
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-03-02	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Semi Annually Distribution System

**WORK ORDER REPORTED** 23C0286  
2023-03-07 13:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	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
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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)
<	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
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
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 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: [bwhitehead@caro.ca](mailto: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.*

## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Annual  
**PROJECT INFO**

**WORK ORDER** 23G1614

**RECEIVED / TEMP** 2023-07-13 14:37 / 13.3°C  
**REPORTED** 2023-07-20 16:27

### 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*



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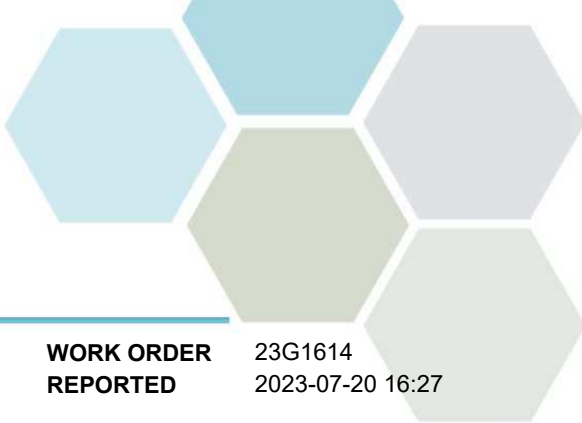
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01) | Matrix: Water | Sampled: 2023-07-12 10:30**

F1, F2

**Anions**

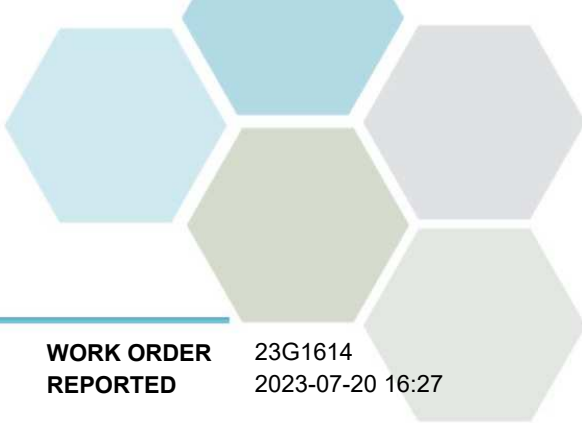
Chloride	9.15	AO ≤ 250	0.10 mg/L	2023-07-14	
Fluoride	0.16	MAC = 1.5	0.10 mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-07-14	
Sulfate	18.0	AO ≤ 500	1.0 mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.6	N/A	-	2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	228	N/A	0.500 mg/L	N/A	
Langelier Index	0.6	N/A	-5.0	2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Arsenic, dissolved	0.00131	N/A	0.00050 mg/L	2023-07-17	
Barium, dissolved	0.0604	N/A	0.0050 mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500 mg/L	2023-07-17	
Cadmium, dissolved	0.000011	N/A	0.000010 mg/L	2023-07-17	
Calcium, dissolved	60.3	N/A	0.20 mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Cobalt, dissolved	0.00010	N/A	0.00010 mg/L	2023-07-17	
Copper, dissolved	0.00147	N/A	0.00040 mg/L	2023-07-17	
Iron, dissolved	0.024	N/A	0.010 mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Lithium, dissolved	0.00105	N/A	0.00010 mg/L	2023-07-17	
Magnesium, dissolved	18.9	N/A	0.010 mg/L	2023-07-17	
Manganese, dissolved	0.491	N/A	0.00020 mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040 mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00221	N/A	0.00010 mg/L	2023-07-17	
Nickel, dissolved	0.00082	N/A	0.00040 mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2023-07-17	
Potassium, dissolved	2.76	N/A	0.10 mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Silicon, dissolved	10.5	N/A	1.0 mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050 mg/L	2023-07-17	
Sodium, dissolved	8.33	N/A	0.10 mg/L	2023-07-17	
Strontium, dissolved	0.270	N/A	0.0010 mg/L	2023-07-17	
Sulfur, dissolved	5.5	N/A	3.0 mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01)   Matrix: Water   Sampled: 2023-07-12 10:30, Continued</b>					F1, F2

**Dissolved Metals, Continued**

Titanium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, dissolved	<b>0.000523</b>	N/A	0.000020 mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, dissolved	< 0.0080	N/A	0.0040 mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	

**General Parameters**

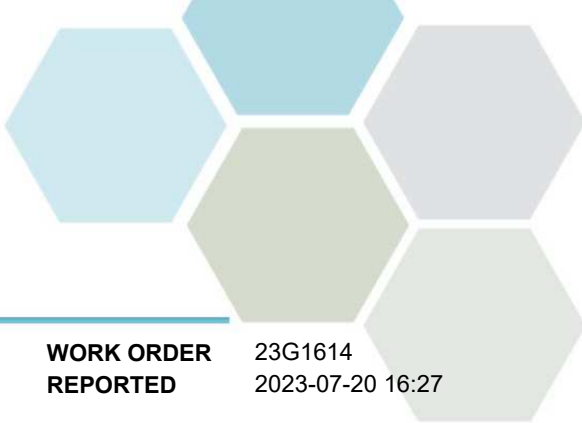
Alkalinity, Total (as CaCO3)	<b>222</b>	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	<b>222</b>	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2023-07-14	
Conductivity (EC)	<b>445</b>	N/A	2.0 µS/cm	2023-07-16	
pH	<b>8.03</b>	7.0-10.5	0.10 pH units	2023-07-16	HT2
Solids, Total Dissolved	<b>244</b>	AO ≤ 500	15 mg/L	2023-07-17	
Temperature, at pH	<b>22.3</b>	N/A	°C	2023-07-16	HT2
Turbidity	<b>0.37</b>	OG < 1	0.10 NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	HT3
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	HT3

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-07-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-07-17	
Arsenic, total	<b>0.00142</b>	MAC = 0.01	0.00050 mg/L	2023-07-17	
Barium, total	<b>0.0632</b>	MAC = 2	0.0050 mg/L	2023-07-17	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-07-17	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-07-17	
Calcium, total	<b>62.7</b>	None Required	0.20 mg/L	2023-07-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-17	
Cobalt, total	<b>0.00012</b>	N/A	0.00010 mg/L	2023-07-17	
Copper, total	<b>0.00160</b>	MAC = 2	0.00040 mg/L	2023-07-17	
Iron, total	<b>0.052</b>	AO ≤ 0.3	0.010 mg/L	2023-07-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-07-17	
Lithium, total	<b>0.00111</b>	N/A	0.00010 mg/L	2023-07-17	
Magnesium, total	<b>19.8</b>	None Required	0.010 mg/L	2023-07-17	
Manganese, total	<b>0.560</b>	MAC = 0.12	0.00020 mg/L	2023-07-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2023-07-19	
Molybdenum, total	<b>0.00247</b>	N/A	0.00010 mg/L	2023-07-17	



# TEST RESULTS

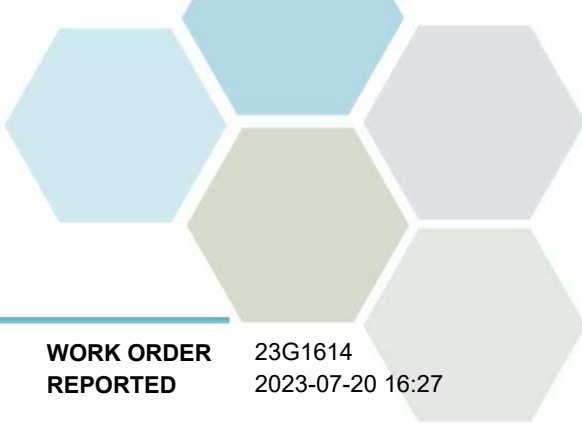
**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01)   Matrix: Water   Sampled: 2023-07-12 10:30, Continued</b>					F1, F2
<i>Total Metals, Continued</i>					
Nickel, total	0.00085	N/A	0.00040 mg/L	2023-07-17	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2023-07-17	
Potassium, total	2.92	N/A	0.10 mg/L	2023-07-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-17	
Silicon, total	11.2	N/A	1.0 mg/L	2023-07-17	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2023-07-17	
Sodium, total	8.67	AO ≤ 200	0.10 mg/L	2023-07-17	
Strontium, total	0.283	MAC = 7	0.0010 mg/L	2023-07-17	
Sulfur, total	6.1	N/A	3.0 mg/L	2023-07-17	
Tellurium, total	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, total	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, total	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, total	0.000540	MAC = 0.02	0.000020 mg/L	2023-07-17	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2023-07-17	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-17	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5 µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5 µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0 µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0 µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3 µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5 µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0 µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0 µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0 µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0 µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0 µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94D1 - Well 3 Rolph at Roddis (23G1614-01)   Matrix: Water   Sampled: 2023-07-12 10:30, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	99		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	96		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	100		70-130	%	2023-07-20	

**WT# 94DC - Well 6 Rolph/Robertson (23G1614-02) | Matrix: Water | Sampled: 2023-07-12 10:10**

F1, F2

**Anions**

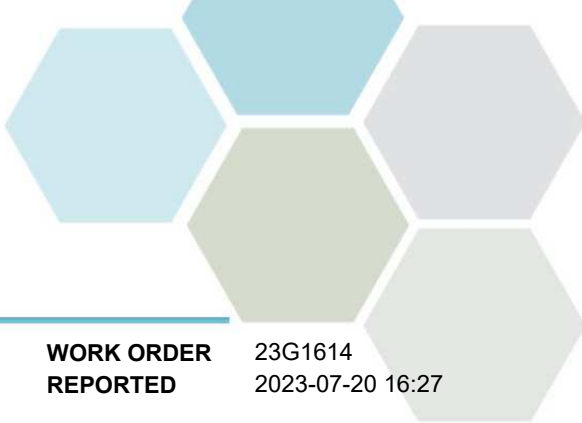
Chloride	19.3	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	0.12	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	0.072	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	28.0	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.7	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	283	N/A	0.500	mg/L	N/A	
Langelier Index	0.7	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	0.0055	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Arsenic, dissolved	0.00059	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.0801	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	0.000030	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	74.8	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	0.00144	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23G1614-02)   Matrix: Water   Sampled: 2023-07-12 10:10, Continued</b>						F1, F2

**Dissolved Metals, Continued**

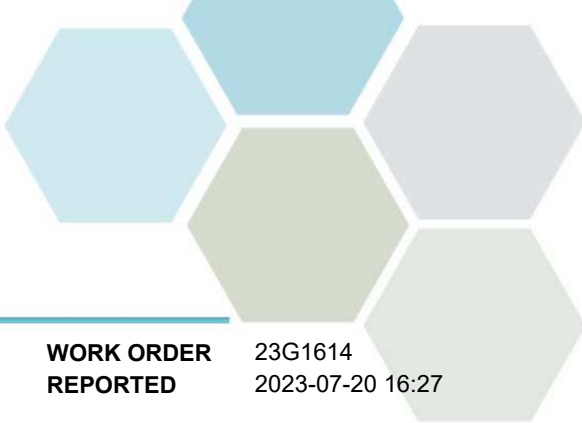
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	<b>0.00164</b>	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	<b>23.3</b>	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	<b>0.179</b>	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	<b>0.00142</b>	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	<b>0.00189</b>	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	<b>3.74</b>	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	<b>0.00124</b>	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	<b>9.6</b>	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	<b>9.61</b>	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	<b>0.341</b>	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	<b>8.4</b>	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2023-07-17	
Uranium, dissolved	<b>0.00104</b>	N/A	0.000020	mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Zinc, dissolved	< 0.0170	N/A	0.0040	mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	

**General Parameters**

Alkalinity, Total (as CaCO3)	<b>273</b>	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	<b>273</b>	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	<b>581</b>	N/A	2.0	µS/cm	2023-07-16	
pH	<b>7.97</b>	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	<b>298</b>	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	<b>22.3</b>	N/A		°C	2023-07-16	HT2
Turbidity	<b>0.22</b>	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

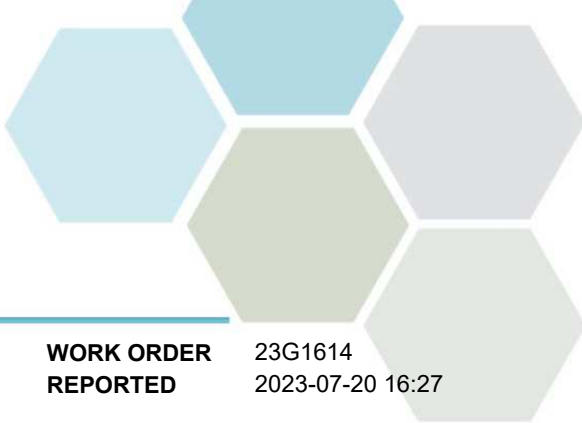
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23G1614-02)   Matrix: Water   Sampled: 2023-07-12 10:10, Continued</b>						F1, F2

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	<b>0.00068</b>	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	<b>0.0835</b>	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	<b>0.000035</b>	MAC = 0.007	0.000010	mg/L	2023-07-18	
Calcium, total	<b>81.4</b>	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	<b>0.00010</b>	N/A	0.00010	mg/L	2023-07-18	
Copper, total	<b>0.00154</b>	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	<b>0.024</b>	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	<b>0.00192</b>	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	<b>26.0</b>	None Required	0.010	mg/L	2023-07-18	
Manganese, total	<b>0.196</b>	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	<b>0.00149</b>	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	<b>0.00199</b>	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	<b>3.84</b>	N/A	0.10	mg/L	2023-07-18	
Selenium, total	<b>0.00123</b>	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	<b>11.1</b>	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	<b>10.6</b>	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	<b>0.381</b>	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	<b>10.1</b>	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	<b>0.00109</b>	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	<b>0.0051</b>	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23G1614-02)   Matrix: Water   Sampled: 2023-07-12 10:10, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

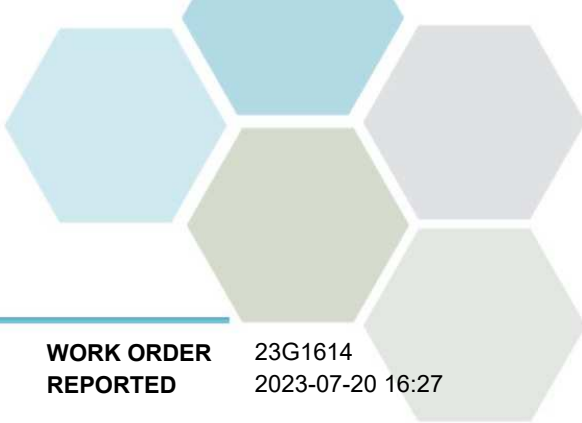
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,1,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	105		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	96		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	101		70-130	%	2023-07-20	

**WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03) | Matrix: Water | Sampled: 2023-07-12 11:50**

F1, F2

**Anions**

Chloride	8.46	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	0.12	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	0.142	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	21.1	AO ≤ 500	1.0	mg/L	2023-07-14	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

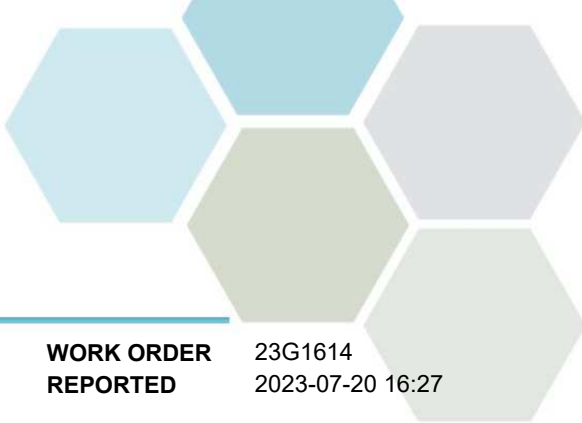
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>					F1, F2

**Calculated Parameters**

Aggressiveness Index	12.4	N/A	-	2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	208	N/A	0.500 mg/L	N/A	
Langelier Index	0.5	N/A	-5.0	2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	0.0064	N/A	0.0050 mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Arsenic, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Barium, dissolved	0.0319	N/A	0.0050 mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500 mg/L	2023-07-17	
Cadmium, dissolved	< 0.000010	N/A	0.000010 mg/L	2023-07-17	
Calcium, dissolved	57.0	N/A	0.20 mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Copper, dissolved	0.00258	N/A	0.00040 mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010 mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Lithium, dissolved	0.00132	N/A	0.00010 mg/L	2023-07-17	
Magnesium, dissolved	15.8	N/A	0.010 mg/L	2023-07-17	
Manganese, dissolved	0.0115	N/A	0.00020 mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040 mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00121	N/A	0.00010 mg/L	2023-07-17	
Nickel, dissolved	0.00059	N/A	0.00040 mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050 mg/L	2023-07-17	
Potassium, dissolved	2.01	N/A	0.10 mg/L	2023-07-17	
Selenium, dissolved	0.00291	N/A	0.00050 mg/L	2023-07-17	
Silicon, dissolved	6.0	N/A	1.0 mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050 mg/L	2023-07-17	
Sodium, dissolved	6.55	N/A	0.10 mg/L	2023-07-17	
Strontium, dissolved	0.224	N/A	0.0010 mg/L	2023-07-17	
Sulfur, dissolved	6.4	N/A	3.0 mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, dissolved	0.000912	N/A	0.000020 mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, dissolved	< 0.0090	N/A	0.0040 mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>					F1, F2

**General Parameters**

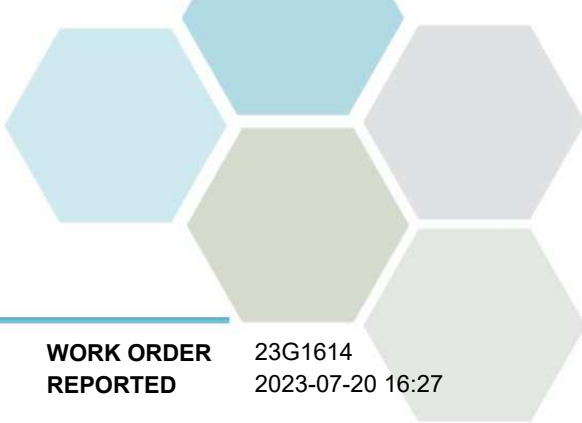
Alkalinity, Total (as CaCO3)	205	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	205	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2023-07-14	
Conductivity (EC)	407	N/A	2.0 µS/cm	2023-07-16	
pH	7.97	7.0-10.5	0.10 pH units	2023-07-16	HT2
Solids, Total Dissolved	207	AO ≤ 500	15 mg/L	2023-07-17	
Temperature, at pH	22.8	N/A	°C	2023-07-16	HT2
Turbidity	0.22	OG < 1	0.10 NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-07-18	
Arsenic, total	0.00052	MAC = 0.01	0.00050 mg/L	2023-07-18	
Barium, total	0.0323	MAC = 2	0.0050 mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-07-18	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2023-07-18	
Calcium, total	55.1	None Required	0.20 mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Copper, total	0.00276	MAC = 2	0.00040 mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-07-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2023-07-18	
Lithium, total	0.00135	N/A	0.00010 mg/L	2023-07-18	
Magnesium, total	16.2	None Required	0.010 mg/L	2023-07-18	
Manganese, total	0.0119	MAC = 0.12	0.00020 mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2023-07-19	
Molybdenum, total	0.00118	N/A	0.00010 mg/L	2023-07-18	
Nickel, total	0.00071	N/A	0.00040 mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050 mg/L	2023-07-18	
Potassium, total	1.92	N/A	0.10 mg/L	2023-07-18	
Selenium, total	0.00289	MAC = 0.05	0.00050 mg/L	2023-07-18	
Silicon, total	6.5	N/A	1.0 mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050 mg/L	2023-07-18	
Sodium, total	6.65	AO ≤ 200	0.10 mg/L	2023-07-18	
Strontium, total	0.229	MAC = 7	0.0010 mg/L	2023-07-18	



# TEST RESULTS

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2023-07-20 16:27

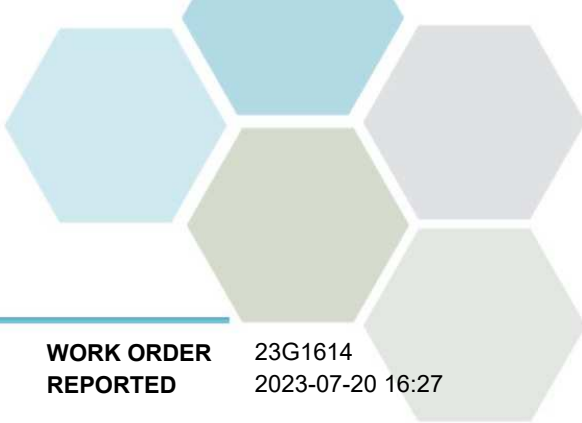
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>						F1, F2

**Total Metals, Continued**

Sulfur, total	7.1	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	0.000942	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	0.0044	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E0 - Well 7 N. Fraser Drive (23G1614-03)   Matrix: Water   Sampled: 2023-07-12 11:50, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	110		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	107		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	112		70-130	%	2023-07-20	

**WT# 94E1 - Well 8 Hillborn Road (23G1614-04) | Matrix: Water | Sampled: 2023-07-12 13:30**

F1, F2

**Anions**

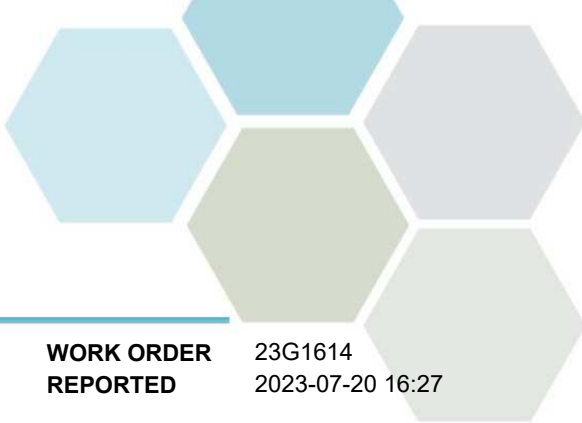
Chloride	4.11	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	38.4	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.5	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	190	N/A	0.500	mg/L	N/A	
Langelier Index	0.5	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Arsenic, dissolved	0.00123	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.107	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	< 0.000010	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	57.6	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	< 0.00040	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00059	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	11.1	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.217	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00153	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	0.00246	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hillborn Road (23G1614-04)   Matrix: Water   Sampled: 2023-07-12 13:30, Continued</b>						F1, F2

**Dissolved Metals, Continued**

Potassium, dissolved	1.33	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	6.1	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	5.28	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	0.339	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	12.1	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2023-07-17	
Uranium, dissolved	0.00125	N/A	0.000020	mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Zinc, dissolved	< 0.0070	N/A	0.0040	mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	

**General Parameters**

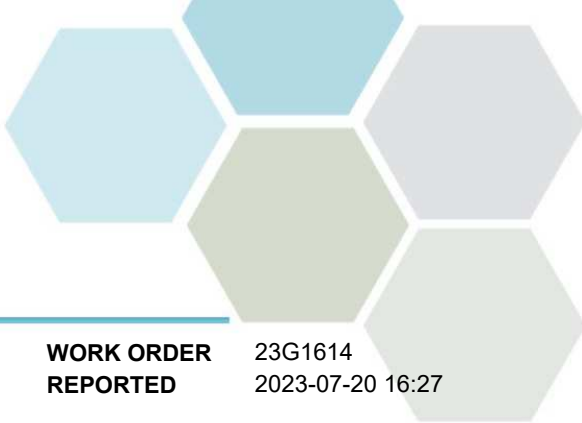
Alkalinity, Total (as CaCO3)	165	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	165	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	362	N/A	2.0	µS/cm	2023-07-16	
pH	8.12	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	199	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	22.8	N/A		°C	2023-07-16	HT2
Turbidity	0.15	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	0.00119	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	0.108	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-07-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

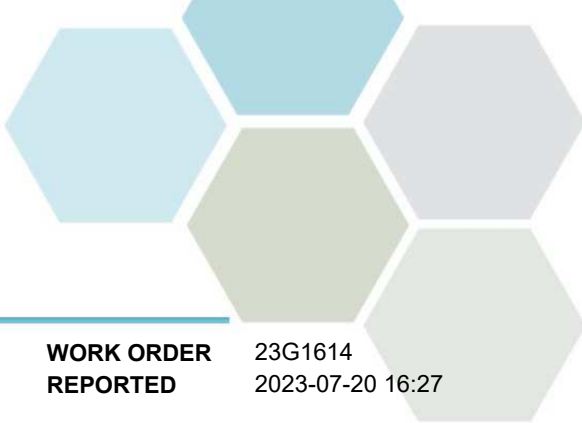
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hillborn Road (23G1614-04)   Matrix: Water   Sampled: 2023-07-12 13:30, Continued</b>						F1, F2

**Total Metals, Continued**

Calcium, total	56.8	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	0.00058	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	11.2	None Required	0.010	mg/L	2023-07-18	
Manganese, total	0.222	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	0.00154	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	0.00250	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	1.26	N/A	0.10	mg/L	2023-07-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	6.5	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	5.29	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	0.352	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	12.8	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	0.00126	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E1 - Well 8 Hillborn Road (23G1614-04)   Matrix: Water   Sampled: 2023-07-12 13:30, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	113		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	107		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	108		70-130	%	2023-07-20	

**WT# 94DF - Well 9 Carson Sub (23G1614-05) | Matrix: Water | Sampled: 2023-07-12 09:40**

F1, F2

**Anions**

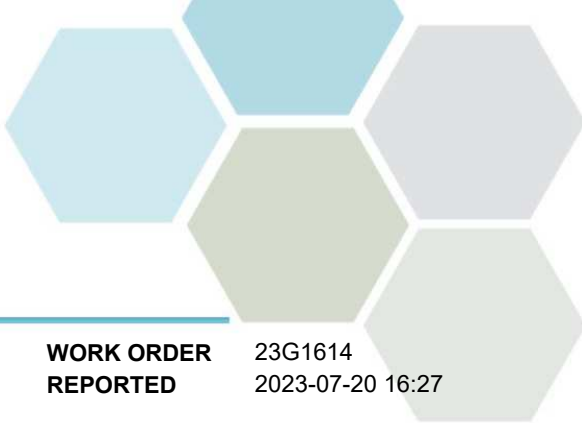
Chloride	<b>2.06</b>	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	<b>0.16</b>	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	<b>18.6</b>	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	<b>12.0</b>	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	<b>118</b>	N/A	0.500	mg/L	N/A	
Langelier Index	<b>0.06</b>	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

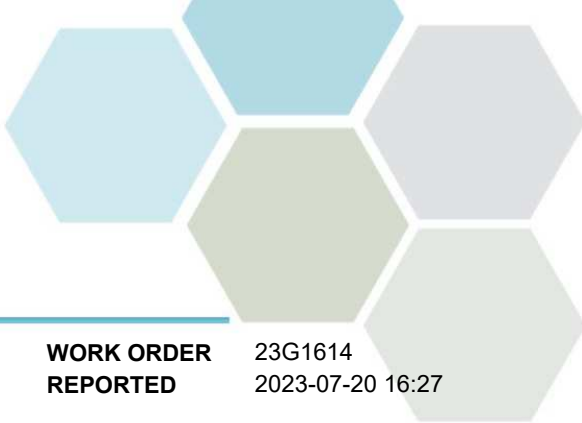
Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**Dissolved Metals, Continued**

Arsenic, dissolved	0.00100	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.0695	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	< 0.000010	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	34.8	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	0.00062	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	0.00033	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00131	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	7.61	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.143	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00165	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	< 0.00040	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	0.91	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	6.1	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	4.05	N/A	0.10	mg/L	2023-07-17	
Strontium, dissolved	0.189	N/A	0.0010	mg/L	2023-07-17	
Sulfur, dissolved	6.0	N/A	3.0	mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010	mg/L	2023-07-17	
Uranium, dissolved	0.000321	N/A	0.000020	mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Zinc, dissolved	< 0.0050	N/A	0.0040	mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	

**General Parameters**

Alkalinity, Total (as CaCO3)	117	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	117	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2023-07-16	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**General Parameters, Continued**

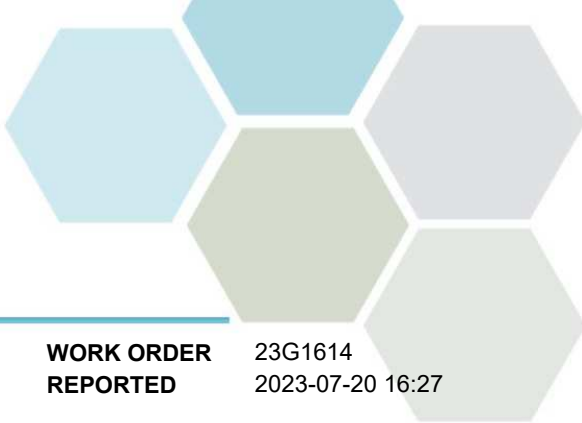
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2023-07-14	
Conductivity (EC)	<b>230</b>	N/A	2.0	µS/cm	2023-07-16	
pH	<b>8.00</b>	7.0-10.5	0.10	pH units	2023-07-16	HT2
Solids, Total Dissolved	<b>107</b>	AO ≤ 500	15	mg/L	2023-07-17	
Temperature, at pH	<b>22.5</b>	N/A		°C	2023-07-16	HT2
Turbidity	<b>0.16</b>	OG < 1	0.10	NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-07-13	HT3

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2023-07-18	
Arsenic, total	<b>0.00096</b>	MAC = 0.01	0.00050	mg/L	2023-07-18	
Barium, total	<b>0.0700</b>	MAC = 2	0.0050	mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2023-07-18	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2023-07-18	
Calcium, total	<b>34.5</b>	None Required	0.20	mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Copper, total	<b>0.00073</b>	MAC = 2	0.00040	mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2023-07-18	
Lead, total	<b>0.00045</b>	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	<b>0.00130</b>	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	<b>7.68</b>	None Required	0.010	mg/L	2023-07-18	
Manganese, total	<b>0.143</b>	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	<b>0.00164</b>	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	<b>0.84</b>	N/A	0.10	mg/L	2023-07-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	<b>6.3</b>	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	<b>4.13</b>	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	<b>0.190</b>	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	<b>6.1</b>	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	



# TEST RESULTS

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**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

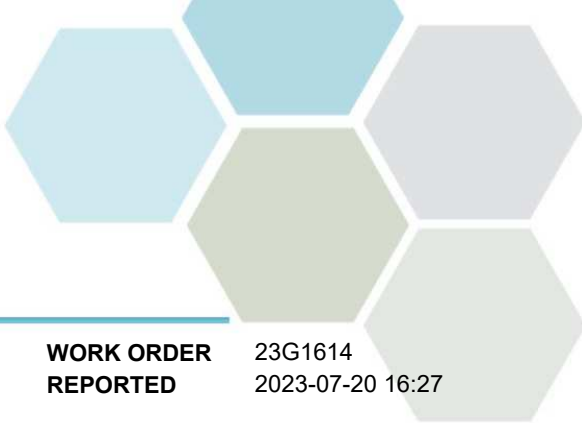
Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>					F1, F2

**Total Metals, Continued**

Titanium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010 mg/L	2023-07-18	
Uranium, total	<b>0.000322</b>	MAC = 0.02	0.000020 mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050 mg/L	2023-07-18	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5 µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5 µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0 µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0 µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3 µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5 µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0 µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0 µg/L	2023-07-20	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0 µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0 µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0 µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0 µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0 µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5 µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0 µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0 µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0 µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0 µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0 µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0 µg/L	2023-07-20	
Surrogate: Toluene-d8	107		70-130 %	2023-07-20	
Surrogate: 4-Bromofluorobenzene	105		70-130 %	2023-07-20	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DF - Well 9 Carson Sub (23G1614-05)   Matrix: Water   Sampled: 2023-07-12 09:40, Continued</b>						F1, F2

**Volatile Organic Compounds (VOC), Continued**

Surrogate: 1,4-Dichlorobenzene-d4	113		70-130	%	2023-07-20	
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**WT# 28000 - Well 10 Hillborn Road (23G1614-06) | Matrix: Water | Sampled: 2023-07-12 14:10**

**Anions**

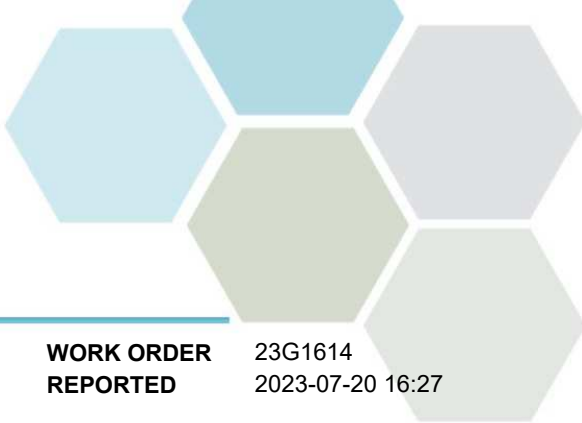
Chloride	14.5	AO ≤ 250	0.10	mg/L	2023-07-14	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2023-07-14	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-07-14	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-07-14	
Sulfate	79.6	AO ≤ 500	1.0	mg/L	2023-07-14	

**Calculated Parameters**

Aggressiveness Index	12.9	N/A	-		2023-07-18	CT6
Hardness, Dissolved (as CaCO3)	335	N/A	0.500	mg/L	N/A	
Langelier Index	0.9	N/A	-5.0		2023-07-18	CT6

**Dissolved Metals**

Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2023-07-17	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Arsenic, dissolved	0.00125	N/A	0.00050	mg/L	2023-07-17	
Barium, dissolved	0.210	N/A	0.0050	mg/L	2023-07-17	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2023-07-17	
Cadmium, dissolved	0.000028	N/A	0.000010	mg/L	2023-07-17	
Calcium, dissolved	94.2	N/A	0.20	mg/L	2023-07-17	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2023-07-17	
Copper, dissolved	0.00211	N/A	0.00040	mg/L	2023-07-17	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2023-07-17	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	2023-07-17	
Lithium, dissolved	0.00100	N/A	0.00010	mg/L	2023-07-17	
Magnesium, dissolved	24.1	N/A	0.010	mg/L	2023-07-17	
Manganese, dissolved	0.542	N/A	0.00020	mg/L	2023-07-17	
Mercury, dissolved	< 0.000040	N/A	0.000040	mg/L	2023-07-17	HG1
Molybdenum, dissolved	0.00118	N/A	0.00010	mg/L	2023-07-17	
Nickel, dissolved	0.00549	N/A	0.00040	mg/L	2023-07-17	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	2023-07-17	
Potassium, dissolved	2.17	N/A	0.10	mg/L	2023-07-17	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	2023-07-17	
Silicon, dissolved	7.4	N/A	1.0	mg/L	2023-07-17	
Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	2023-07-17	
Sodium, dissolved	16.7	N/A	0.10	mg/L	2023-07-17	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
<b>WT# 28000 - Well 10 Hillborn Road (23G1614-06)   Matrix: Water   Sampled: 2023-07-12 14:10, Continued</b>					
<i>Dissolved Metals, Continued</i>					
Strontium, dissolved	0.590	N/A	0.0010 mg/L	2023-07-17	
Sulfur, dissolved	28.1	N/A	3.0 mg/L	2023-07-17	
Tellurium, dissolved	< 0.00050	N/A	0.00050 mg/L	2023-07-17	
Thallium, dissolved	< 0.000020	N/A	0.000020 mg/L	2023-07-17	
Thorium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	
Tin, dissolved	< 0.00020	N/A	0.00020 mg/L	2023-07-17	
Titanium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Tungsten, dissolved	< 0.0010	N/A	0.0010 mg/L	2023-07-17	
Uranium, dissolved	0.00267	N/A	0.000020 mg/L	2023-07-17	
Vanadium, dissolved	< 0.0050	N/A	0.0050 mg/L	2023-07-17	
Zinc, dissolved	< 0.0100	N/A	0.0040 mg/L	2023-07-17	RA3
Zirconium, dissolved	< 0.00010	N/A	0.00010 mg/L	2023-07-17	

**General Parameters**

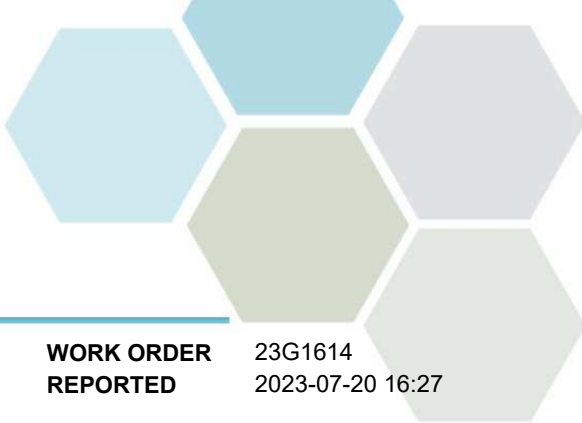
Alkalinity, Total (as CaCO3)	288	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Bicarbonate (as CaCO3)	288	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2023-07-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2023-07-14	
Conductivity (EC)	666	N/A	2.0 µS/cm	2023-07-16	
pH	8.08	7.0-10.5	0.10 pH units	2023-07-16	HT2
Solids, Total Dissolved	397	AO ≤ 500	15 mg/L	2023-07-17	
Temperature, at pH	22.7	N/A	°C	2023-07-16	HT2
Turbidity	0.15	OG < 1	0.10 NTU	2023-07-14	

**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-07-13	

**Total Metals**

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2023-07-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2023-07-18	
Arsenic, total	0.00130	MAC = 0.01	0.00050 mg/L	2023-07-18	
Barium, total	0.212	MAC = 2	0.0050 mg/L	2023-07-18	
Beryllium, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Bismuth, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2023-07-18	
Cadmium, total	0.000028	MAC = 0.007	0.000010 mg/L	2023-07-18	
Calcium, total	94.9	None Required	0.20 mg/L	2023-07-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2023-07-18	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2023-07-18	
Copper, total	0.00464	MAC = 2	0.00040 mg/L	2023-07-18	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2023-07-18	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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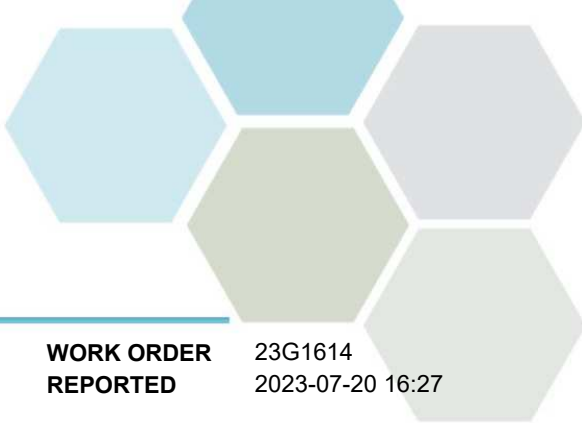
**WT# 28000 - Well 10 Hillborn Road (23G1614-06) | Matrix: Water | Sampled: 2023-07-12 14:10, Continued**

**Total Metals, Continued**

Lead, total	0.00030	MAC = 0.005	0.00020	mg/L	2023-07-18	
Lithium, total	0.00099	N/A	0.00010	mg/L	2023-07-18	
Magnesium, total	24.7	None Required	0.010	mg/L	2023-07-18	
Manganese, total	0.549	MAC = 0.12	0.00020	mg/L	2023-07-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2023-07-19	
Molybdenum, total	0.00118	N/A	0.00010	mg/L	2023-07-18	
Nickel, total	0.00549	N/A	0.00040	mg/L	2023-07-18	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2023-07-18	
Potassium, total	2.07	N/A	0.10	mg/L	2023-07-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2023-07-18	
Silicon, total	8.0	N/A	1.0	mg/L	2023-07-18	
Silver, total	< 0.000050	None Required	0.000050	mg/L	2023-07-18	
Sodium, total	17.1	AO ≤ 200	0.10	mg/L	2023-07-18	
Strontium, total	0.612	MAC = 7	0.0010	mg/L	2023-07-18	
Sulfur, total	29.4	N/A	3.0	mg/L	2023-07-18	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2023-07-18	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2023-07-18	
Thorium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2023-07-18	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Tungsten, total	< 0.0010	N/A	0.0010	mg/L	2023-07-18	
Uranium, total	0.00275	MAC = 0.02	0.000020	mg/L	2023-07-18	
Vanadium, total	< 0.0050	N/A	0.0050	mg/L	2023-07-18	
Zinc, total	0.0083	AO ≤ 5	0.0040	mg/L	2023-07-18	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2023-07-18	

**Volatile Organic Compounds (VOC)**

Benzene	< 0.5	MAC = 5	0.5	µg/L	2023-07-20	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Bromoform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2023-07-20	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2023-07-20	
Chloroethane	< 2.0	N/A	2.0	µg/L	2023-07-20	
Chloroform	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2023-07-20	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2023-07-20	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2023-07-20	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2023-07-20	



# TEST RESULTS

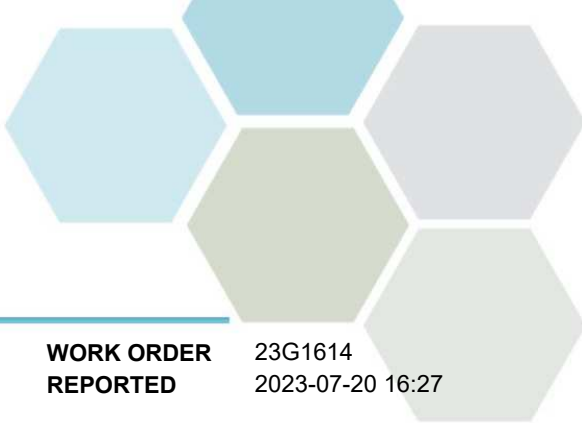
**REPORTED TO PROJECT** Quesnel, City of Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 28000 - Well 10 Hillborn Road (23G1614-06)   Matrix: Water   Sampled: 2023-07-12 14:10, Continued</b>						
<i>Volatile Organic Compounds (VOC), Continued</i>						
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2023-07-20	
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2023-07-20	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2023-07-20	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2023-07-20	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2023-07-20	
Styrene	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2023-07-20	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2023-07-20	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2023-07-20	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2023-07-20	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2023-07-20	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2023-07-20	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2023-07-20	
Surrogate: Toluene-d8	100		70-130	%	2023-07-20	
Surrogate: 4-Bromofluorobenzene	104		70-130	%	2023-07-20	
Surrogate: 1,4-Dichlorobenzene-d4	108		70-130	%	2023-07-20	

**Sample Qualifiers:**

- CT6 Results were based on lab temperature & lab pH.
- F1 The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals.
- F2 The sample was not field-preserved with HNO3 and was therefore preserved in the laboratory and held for at least 16 hours prior to analysis for total metals.
- HG1 Sample bottle and preservation submitted is not suitable for Mercury analysis and analyte stability may be affected.
- 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.
- RA3 The Reporting Limit has been raised due to comparable level detected in the blank(s).



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of Annual

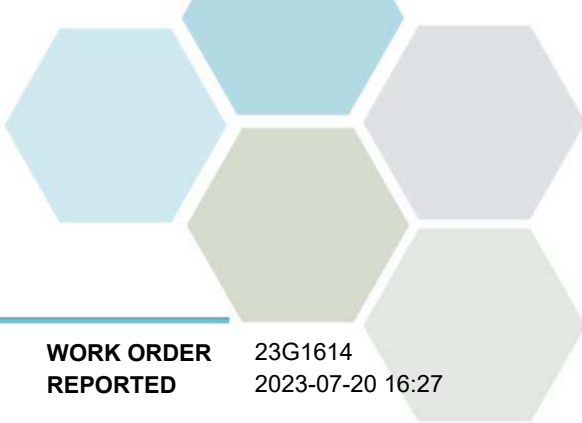
**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	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
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B (2021)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	✓	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
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	Solids in Water, Filtered / SM 2540 C* (2020)	Solids in Water, Filtered / Gravimetry (Dried at 103-105C)	✓	Kelowna
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 (2020)	Nephelometry	✓	Kelowna
Volatile Organic Compounds 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
°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
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Annual

**WORK ORDER REPORTED** 23G1614  
2023-07-20 16:27

**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: [bwhitehead@caro.ca](mailto: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.*

## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23F1902
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-06-14 14:20 / 12.8°C 2023-06-20 08:37
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Quarterly Wells		
<b>PROJECT INFO</b>			

### 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.

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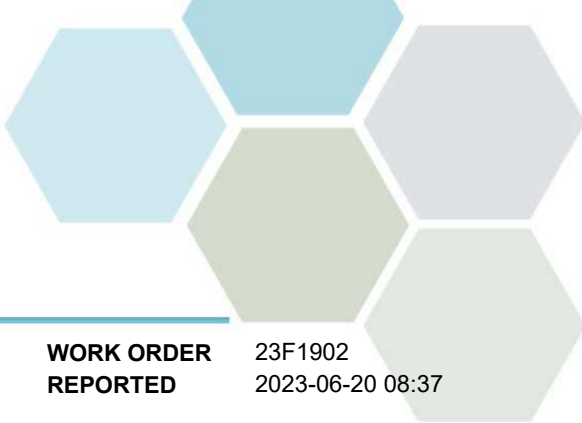
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### Authorized By:

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Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Quarterly Wells

**WORK ORDER REPORTED** 23F1902  
2023-06-20 08:37

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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**WT# 94D1 - Well 3 Rolph at Roddis (23F1902-01) | Matrix: Water | Sampled: 2023-06-13 10:30**

**Anions**

Chloride	10.0	AO ≤ 250	0.10	mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-16	

**Field Parameters**

Temperature, field	12.6	AO ≤ 15		°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	

**Total Metals**

Manganese, total	< 0.00020	MAC = 0.12	0.00020	mg/L	2023-06-18	
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**WT# 94DC - Well 6 Rolph/Robertson (23F1902-02) | Matrix: Water | Sampled: 2023-06-13 11:10**

**Anions**

Chloride	2.03	AO ≤ 250	0.10	mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-16	

**Field Parameters**

Temperature, field	13.1	AO ≤ 15		°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	Overgrown	MAC = 0	1	CFU/100 mL	2023-06-14	MIC5
E. coli	Overgrown	MAC = 0	1	CFU/100 mL	2023-06-14	MIC19

**Total Metals**

Manganese, total	1.33	MAC = 0.12	0.00020	mg/L	2023-06-18	
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**WT# 94E0 - Well 7 N. Fraser Drive (23F1902-03) | Matrix: Water | Sampled: 2023-06-13 12:50**

**Anions**

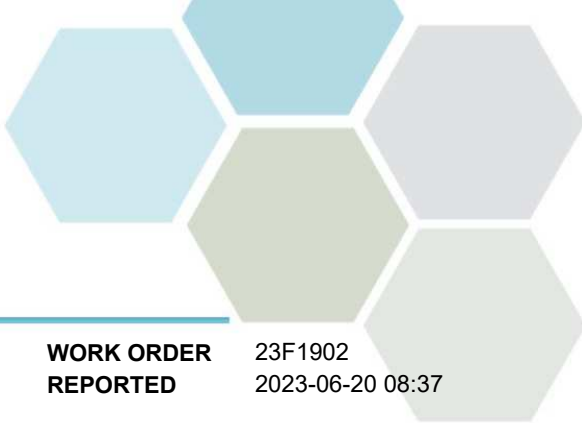
Chloride	9.51	AO ≤ 250	0.10	mg/L	2023-06-16	
Nitrate (as N)	0.195	MAC = 10	0.010	mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2023-06-16	

**Field Parameters**

Temperature, field	11.2	AO ≤ 15		°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-14	



# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of Quarterly Wells

**WORK ORDER REPORTED** 23F1902  
2023-06-20 08:37

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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**WT# 94E0 - Well 7 N. Fraser Drive (23F1902-03) | Matrix: Water | Sampled: 2023-06-13 12:50, Continued**

**Total Metals**

Manganese, total	0.0130	MAC = 0.12	0.00020 mg/L	2023-06-18	
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**WT# 94E1 - Well 8 Hilborn Road (23F1902-04) | Matrix: Water | Sampled: 2023-06-13 13:45**

**Anions**

Chloride	4.52	AO ≤ 250	0.10 mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-06-16	

**Field Parameters**

Temperature, field	12.9	AO ≤ 15	°C	2023-06-13	
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**Microbiological Parameters**

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	

**Total Metals**

Manganese, total	0.243	MAC = 0.12	0.00020 mg/L	2023-06-18	
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**WT# 94DF - Well 9 Carson Sub (23F1902-05) | Matrix: Water | Sampled: 2023-06-13 14:30**

**Anions**

Chloride	1.94	AO ≤ 250	0.10 mg/L	2023-06-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2023-06-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2023-06-16	

**Field Parameters**

Temperature, field	12.4	AO ≤ 15	°C	2023-06-13	
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**Microbiological Parameters**

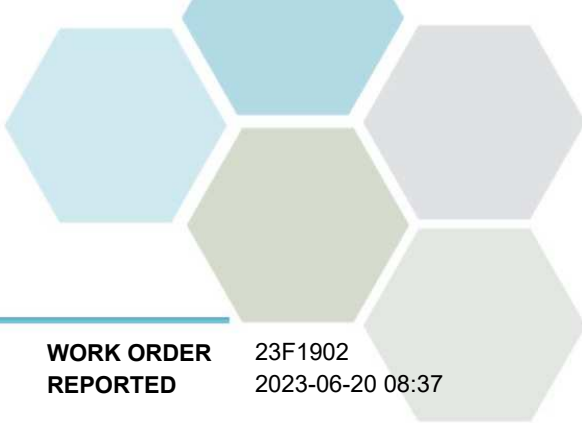
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2023-06-14	

**Total Metals**

Manganese, total	0.0730	MAC = 0.12	0.00020 mg/L	2023-06-18	
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**Sample Qualifiers:**

- MIC19 Overgrown without visible E.coli. The presence or absence of E.coli cannot be determined. Resampling is recommended. Recollected samples due to overgrown result(s) should be communicated to the lab so they can be processed appropriately.
- MIC5 Overgrown without visible Total Coliforms. The presence or absence of Total Coliforms cannot be determined. Resampling is recommended. Recollected samples due to overgrown result(s) should be communicated to the lab so they can be processed appropriately.



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F1902  
2023-06-20 08:37

Analysis Description	Method Ref.	Technique	Accredited	Location
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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)
<	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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

### General Comments:

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Quarterly Wells  
**PROJECT INFO**

**WORK ORDER** 23F2906

**RECEIVED / TEMP** 2023-06-21 14:00 / 7.4°C  
**REPORTED** 2023-06-26 16:03  
**COC NUMBER** eCOC#00004564

### Introduction:

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#### *Big Picture Sidekicks*



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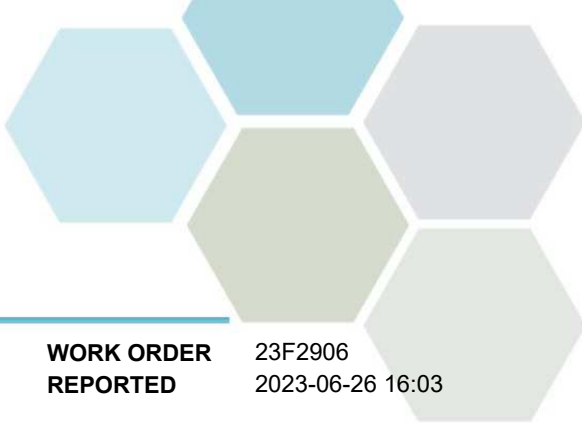
If you have any questions or concerns, please contact me at [bwhitehead@caro.ca](mailto:bwhitehead@caro.ca)

#### **Authorized By:**

Brent Whitehead  
Account Manager

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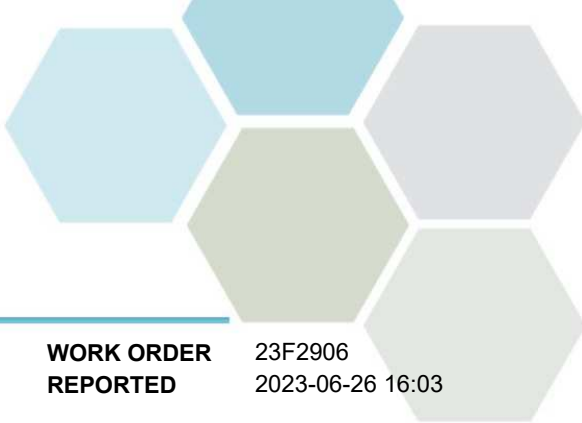


## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F2906  
2023-06-26 16:03

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>Well 10 (23F2906-01)   Matrix: Drinking Water   Sampled: 2023-06-21 11:03</b>						
<i>Field Parameters</i>						
Temperature, field	10.3	AO ≤ 15		°C	2023-06-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-06-21	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Sodium, total	17.7	AO ≤ 200		0.10 mg/L	2023-06-24	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F2906  
2023-06-26 16:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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<	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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Quarterly Wells  
**PROJECT INFO**

**WORK ORDER** 23F3068

**RECEIVED / TEMP** 2023-06-22 14:30 / 7.4°C  
**REPORTED** 2023-06-29 08:59  
**COC NUMBER** No Number

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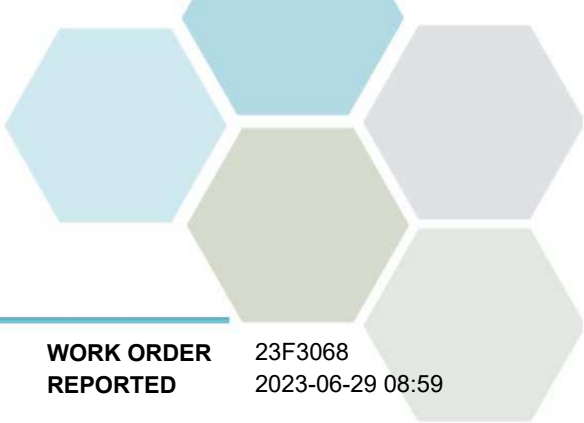
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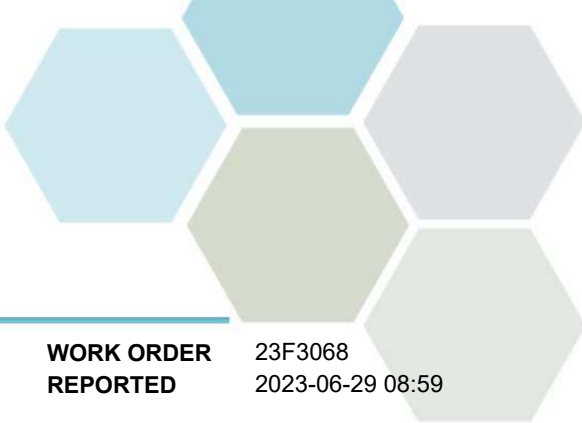


## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F3068  
2023-06-29 08:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23F3068-01)   Matrix: Water   Sampled: 2023-06-21 11:00</b>						
<i>Field Parameters</i>						
Temperature, field	11.8	AO ≤ 15		°C	2023-06-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-06-22	
Background Colonies	>200	N/A		200 CFU/100 mL	2023-06-22	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-06-22	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F3068  
2023-06-29 08:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	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
>2	Greater than the specified Result
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Bi-Weekly - Third Week  
**PROJECT INFO**

**WORK ORDER** 2310668

**RECEIVED / TEMP** 2023-09-07 13:18 / 16.8°C  
**REPORTED** 2023-09-13 11:00  
**COC NUMBER** No Number

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#### **Authorized By:**

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Account Manager

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 2310668  
2023-09-13 11:00

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94E6 - S-Carradice Rd. (2310668-01)   Matrix: Water   Sampled: 2023-09-06 13:30</b>						
<i>Field Parameters</i>						
Temperature, field	9.8	AO ≤ 15		°C	2023-09-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	

**WT# 94F4 - S-N Star Dragon Hill (2310668-02) | Matrix: Water | Sampled: 2023-09-06 09:45**

<i>Field Parameters</i>						
Temperature, field	9.7	AO ≤ 15		°C	2023-09-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	HT3
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	HT3

**WT# 94F6 - S-N Star South Hill (2310668-03) | Matrix: Water | Sampled: 2023-09-06 10:05**

<i>Field Parameters</i>						
Temperature, field	9.1	AO ≤ 15		°C	2023-09-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-09-07	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-09-07	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 2310668  
2023-09-13 11:00

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna

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

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AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H0896
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-04 14:10 / 15.4°C 2023-08-14 15:36
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0896  
2023-08-14 15:36

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>35D91k New Carson Pit (23H0896-01)   Matrix: Ground Water   Sampled: 2023-08-03 14:30</b>						
<i>Field Parameters</i>						
Temperature, field	11.7	AO ≤ 15		°C	2023-08-03	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-08-04	
Heterotrophic Plate Count	5	N/A		5 CFU/mL	2023-08-04	HT1
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-08-04	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0896  
2023-08-14 15:36

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	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
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H1475
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-10 14:14 / 11.2°C 2023-08-17 09:07
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - Third Week		
<b>PROJECT INFO</b>			

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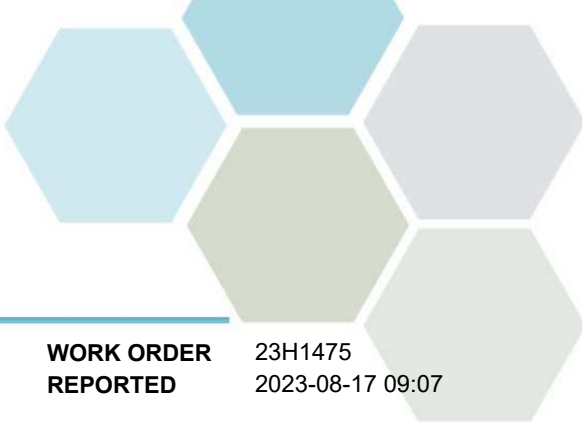
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## TEST RESULTS

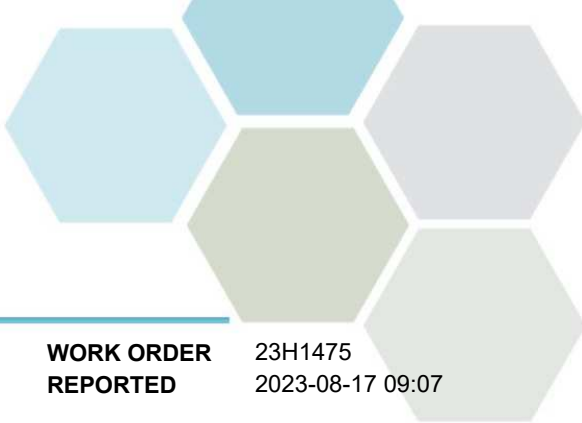
**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H1475  
2023-08-17 09:07

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F2 - S-Hospital (23H1475-01)   Matrix: Water   Sampled: 2023-08-09 13:30</b>						
<i>Field Parameters</i>						
Temperature, field	8.9	AO ≤ 15		°C	2023-08-09	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-08-10	
Heterotrophic Plate Count	< 5	N/A		5 CFU/mL	2023-08-10	HT1
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-08-10	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - Third Week

**WORK ORDER REPORTED** 23H1475  
2023-08-17 09:07

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna

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

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H3884
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-30 14:00 / 16.9°C 2023-09-07 14:25
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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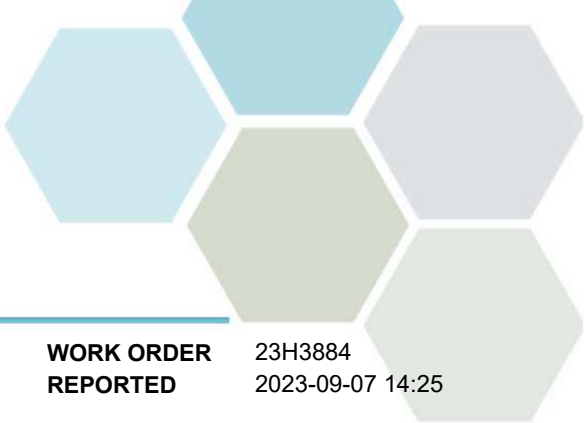
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## TEST RESULTS

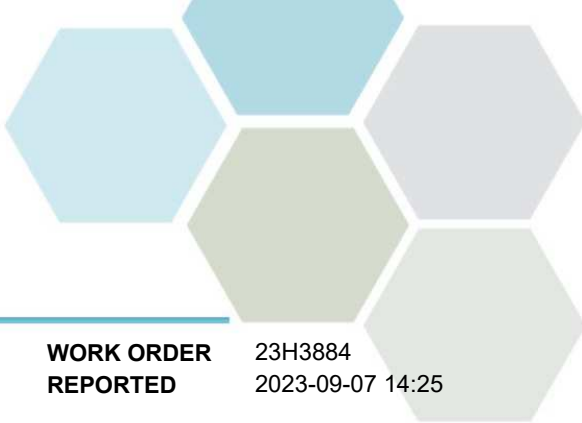
**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H3884  
2023-09-07 14:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94F0 S Pedersen Rd. (23H3884-01)   Matrix: Ground Water   Sampled: 2023-08-29 15:00</b>						
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-30	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-30	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H3884  
2023-09-07 14:25

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna

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

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**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Quarterly Wells  
**PROJECT INFO**

**WORK ORDER** 23F3068

**RECEIVED / TEMP** 2023-06-22 14:30 / 7.4°C  
**REPORTED** 2023-06-29 08:59  
**COC NUMBER** No Number

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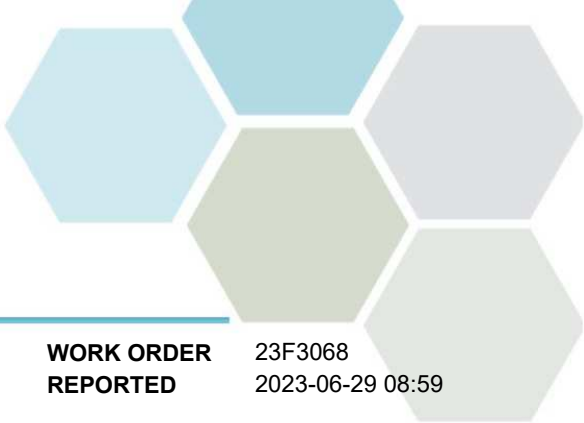
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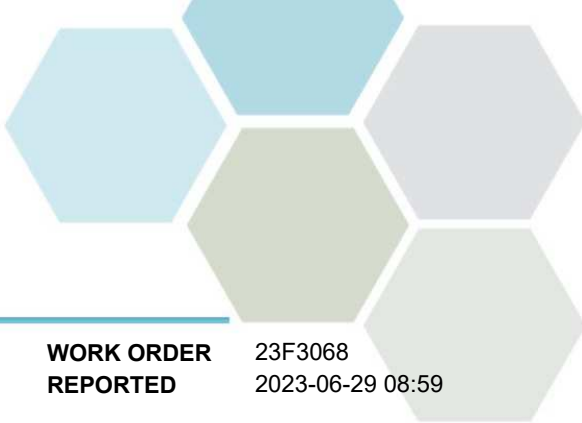


## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F3068  
2023-06-29 08:59

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94DC - Well 6 Rolph/Robertson (23F3068-01)   Matrix: Water   Sampled: 2023-06-21 11:00</b>						
<i>Field Parameters</i>						
Temperature, field	11.8	AO ≤ 15		°C	2023-06-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-06-22	
Background Colonies	>200	N/A		200 CFU/100 mL	2023-06-22	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-06-22	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F3068  
2023-06-29 08:59

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna

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

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>2	Greater than the specified Result
°C	Degrees Celcius
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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Bi-Weekly - First Week  
**PROJECT INFO**

**WORK ORDER** 23A1812

**RECEIVED / TEMP** 2023-01-18 13:50 / 5.1°C  
**REPORTED** 2023-01-25 13:39  
**COC NUMBER** No Number

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23A1812  
2023-01-25 13:39

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 179CA - S-Dennis Rd (23A1812-01)   Matrix: Water   Sampled: 2023-01-17 14:00</b>						
<i>Total Metals</i>						
Manganese, total	<b>0.143</b>	MAC = 0.12	0.00020	mg/L	2023-01-25	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23A1812  
2023-01-25 13:39

Analysis Description	Method Ref.	Technique	Accredited	Location
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond

### 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 \(Health Canada, September 2022\)](#)

*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:

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Bi-Weekly - First Week  
**PROJECT INFO**

**WORK ORDER** 23J3433

**RECEIVED / TEMP** 2023-10-27 14:30 / 6.7°C  
**REPORTED** 2023-11-03 12:24  
**COC NUMBER** No Number

### Introduction:

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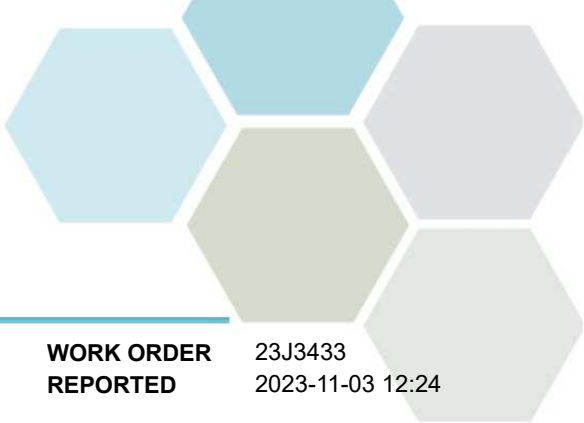
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#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

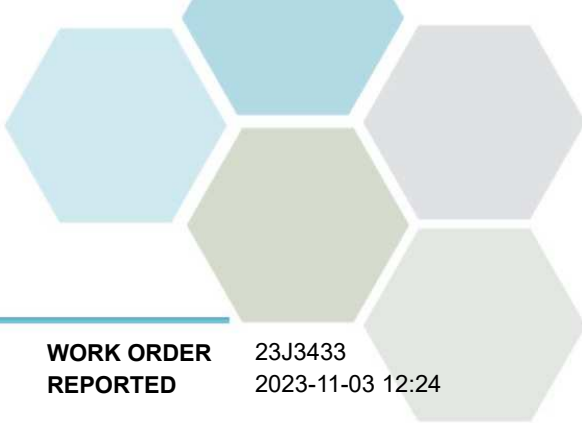
**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23J3433  
2023-11-03 12:24

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E4 S Airport (23J3433-01)   Matrix: Ground Water   Sampled: 2023-10-26 15:00</b>						
<i>Field Parameters</i>						
Temperature, field	9.6	AO ≤ 15		°C	2023-10-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-10-27	
Heterotrophic Plate Count	< 5	N/A		5 CFU/mL	2023-10-27	HT1
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-10-27	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23J3433  
2023-11-03 12:24

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	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
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H0144
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-01 14:30 / 21.0°C 2023-08-04 15:56
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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# TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0144  
2023-08-04 15:56

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E9 S West Fraser Rd. (23H0144-01)   Matrix: Ground Water   Sampled: 2023-07-31 13:30</b>						
<i>Field Parameters</i>						
Temperature, field	14.6	AO ≤ 15		°C	2023-07-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-01	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	

**94F0 S Pedersen Rd. (23H0144-02) | Matrix: Ground Water | Sampled: 2023-07-31 14:15**

<i>Field Parameters</i>						
Temperature, field	12.5	AO ≤ 15		°C	2023-07-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	
Heterotrophic Plate Count	< 5	N/A	5	CFU/mL	2023-08-01	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	

**35D91 New Carson Pit (23H0144-03) | Matrix: Ground Water | Sampled: 2023-07-31 15:00**

<i>Field Parameters</i>						
Temperature, field	15.5	AO ≤ 15		°C	2023-07-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	≥ 1	MAC = 0	1	CFU/100 mL	2023-08-01	
Background Colonies	>200	N/A	200	CFU/100 mL	2023-08-01	
Heterotrophic Plate Count	1200	N/A	5	CFU/mL	2023-08-01	MIC15
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- MIC15 The final result is estimated due to a high bacterial count.



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0144  
2023-08-04 15:56

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna

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

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>2	Greater than the specified Result
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CFU/mL	Colony Forming Units per millilitre
MAC	Maximum Acceptable Concentration (health based)
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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23H0144
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-08-01 14:30 / 21.0°C 2023-08-02 17:01
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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In this Draft Report, please see the Analyses In Progress section after the appendices.

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### Authorized By:

DRAFT REPORT  
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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0144  
2023-08-02 17:01

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94E9 S West Fraser Rd. (23H0144-01)   Matrix: Ground Water   Sampled: 2023-07-31 13:30</b>						
<i>Field Parameters</i>						
Temperature, field	14.6	AO ≤ 15		°C	2023-07-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	
<b>94F0 S Pedersen Rd. (23H0144-02)   Matrix: Ground Water   Sampled: 2023-07-31 14:15</b>						
<i>Field Parameters</i>						
Temperature, field	12.5	AO ≤ 15		°C	2023-07-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	
<b>35D91 New Carson Pit (23H0144-03)   Matrix: Ground Water   Sampled: 2023-07-31 15:00</b>						
<i>Field Parameters</i>						
Temperature, field	15.5	AO ≤ 15		°C	2023-07-31	
<i>Microbiological Parameters</i>						
Coliforms, Total	≥ 1	MAC = 0	1	CFU/100 mL	2023-08-01	
Background Colonies	>200	N/A	200	CFU/100 mL	2023-08-01	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-08-01	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0144  
2023-08-02 17:01

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna

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

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>2	Greater than the specified Result
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
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## APPENDIX 3: REVISION HISTORY

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 23H0144  
2023-08-02 17:01

## ANALYSES IN PROGRESS

Sample Number	Sample Name	Pending Analyses
23H0144-01	94E9 S West Fraser Rd.	Heterotrophic Plate Count
23H0144-02	94F0 S Pedersen Rd.	Heterotrophic Plate Count
23H0144-03	35D91 New Carson Pit	Heterotrophic Plate Count

DRAFT



## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	2313348
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-09-27 14:37 / 11.6°C 2023-10-03 09:39
<b>PO NUMBER</b>		<b>COC NUMBER</b>	No Number
<b>PROJECT</b>	Bi-Weekly - First Week		
<b>PROJECT INFO</b>			

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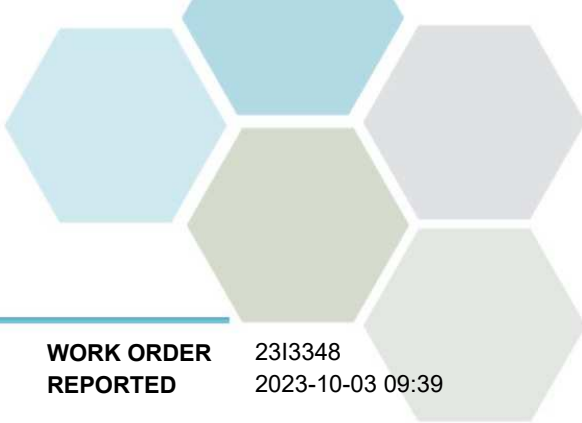
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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 2313348  
2023-10-03 09:39

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>94F0 S Pedersen Rd. (2313348-01)   Matrix: Ground Water   Sampled: 2023-09-26 13:00</b>						
<i>Field Parameters</i>						
Temperature, field	12.7	AO ≤ 15		°C	2023-09-26	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-09-27	
Heterotrophic Plate Count	< 5	N/A		5 CFU/mL	2023-09-27	HT1
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-09-27	

**Sample Qualifiers:**

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



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Bi-Weekly - First Week

**WORK ORDER REPORTED** 2313348  
2023-10-03 09:39

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Heterotrophic Plate Count in Water	SM 9215 D (2022)	Membrane Filtration / Membrane Filtration	✓	Kelowna

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

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## CERTIFICATE OF ANALYSIS

**REPORTED TO** Quesnel, City of  
1350 Sword Ave  
Quesnel, BC V2J 7H2

**ATTENTION** Joe Law

**PO NUMBER**  
**PROJECT** Monthly Reservoirs  
**PROJECT INFO**

**WORK ORDER** 23F0904

**RECEIVED / TEMP** 2023-06-07 14:38 / 17.1°C  
**REPORTED** 2023-06-12 10:19  
**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.

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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.

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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.

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

#### **Authorized By:**

Brent Whitehead  
Account Manager

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## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23F0904  
2023-06-12 10:19

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>WT# 94F9 - R-2 Pinecrest (23F0904-01)   Matrix: Water   Sampled: 2023-06-06 15:00</b>						
<i>Field Parameters</i>						
Temperature, field	12.5	AO ≤ 15		°C	2023-06-06	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2023-06-07	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Monthly Reservoirs

**WORK ORDER REPORTED** 23F0904  
2023-06-12 10:19

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	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
CFU/100 mL	Colony Forming Units per 100 millilitres
MAC	Maximum Acceptable Concentration (health based)
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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## CERTIFICATE OF ANALYSIS

<b>REPORTED TO</b>	Quesnel, City of 1350 Sword Ave Quesnel, BC V2J 7H2	<b>WORK ORDER</b>	23F2906
<b>ATTENTION</b>	Joe Law	<b>RECEIVED / TEMP REPORTED</b>	2023-06-21 14:00 / 7.4°C 2023-06-26 16:03
<b>PO NUMBER</b>		<b>COC NUMBER</b>	eCOC#00004564
<b>PROJECT</b>	Quarterly Wells		
<b>PROJECT INFO</b>			

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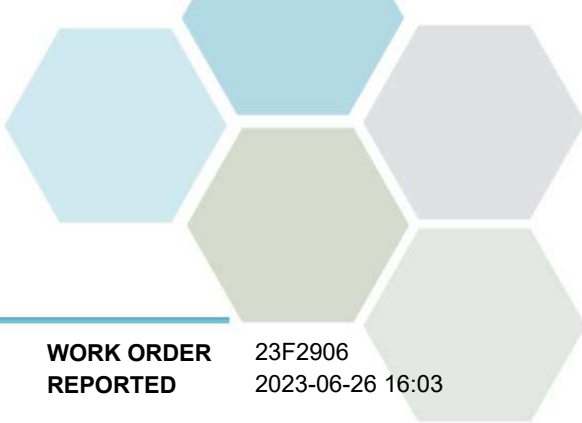
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Brent Whitehead  
Account Manager

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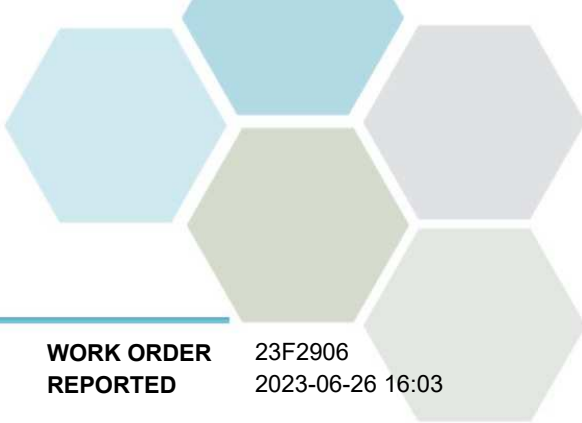


## TEST RESULTS

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F2906  
2023-06-26 16:03

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
<b>Well 10 (23F2906-01)   Matrix: Drinking Water   Sampled: 2023-06-21 11:03</b>						
<i>Field Parameters</i>						
Temperature, field	10.3	AO ≤ 15		°C	2023-06-21	
<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0		1 CFU/100 mL	2023-06-21	
E. coli	< 1	MAC = 0		1 CFU/100 mL	2023-06-21	
<i>Total Metals</i>						
Sodium, total	17.7	AO ≤ 200		0.10 mg/L	2023-06-24	



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Quesnel, City of  
Quarterly Wells

**WORK ORDER REPORTED** 23F2906  
2023-06-26 16:03

Analysis Description	Method Ref.	Technique	Accredited	Location
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO <sub>3</sub> +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*

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<	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
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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