

CASTLEGAR

Annual Water Quality Report 2025

Facility Name: City of Castlegar Water System

Facility Number: 0210617

Table of Contents

1.0	INTRODUCTION	3
2.0	CASTLEGAR WATER SYSTEM OVERVIEW	3
2.1	SOURCE	3
2.2	WATER TREATMENT CENTRE	3
2.3	RESERVOIRS	3
2.4	DISTRIBUTION SYSTEM	4
2.5	PUMP STATIONS	4
2.5.1	<i>Meadowlark Pump House</i>	<i>4</i>
2.5.2	<i>Park Pump House</i>	<i>4</i>
2.5.3	<i>Grandview Booster Station</i>	<i>4</i>
2.5.4	<i>Highland Drive Booster Station</i>	<i>4</i>
2.6	PRESSURE ZONES	4
2.7	EMERGENCY WELL WATER SYSTEM (NORTH WELL)	5
3.0	CASTLEGAR WATER SUPPLY AND DISINFECTION REQUIREMENTS	5
4.0	CASTLEGAR WATER SUPPLY AND DISINFECTION	6
5.0	TESTING AND MONITORING PROGRAM	6
5.1	CHLORINE RESIDUAL TESTING	6
5.2	TURBIDITY MONITORING	7
5.3	UV LIGHT DOSE & TRANSMITTANCE MONITORING	8
5.4	pH MONITORING	8
5.5	BACTERIOLOGICAL TESTING	9
5.6	RAW WATER FULL CHEMICAL ANALYSIS TESTING	9
5.7	ADDITIONAL DISTRIBUTION SYSTEM TESTING	10
5.8	ALGAE BLOOMS AND NUTRIENTS	10
5.9	NORTH WELL ANALYSIS TESTING	11
5.10	SYSTEM CONTROL: SCADA	11
6.0	SYSTEM MAINTENANCE	11
6.1	FIRE HYDRANTS	11
6.2	EMERGENCY WELL WATER SYSTEM (NORTH WELL)	12
6.3	PUMP STATIONS	12
6.4	CASTLEGAR WATER TREATMENT CENTRE	12
6.5	RESERVOIRS	12
6.6	PRESSURE REDUCING STATIONS	12
6.7	SECURITY	12
6.8	UNIDIRECTIONAL FLUSHING (UDF) PROGRAM	12
7.0	WATER QUALITY	12
7.1	WATER QUALITY ISSUES	12
7.2	SOURCE PROTECTION PLAN	13
8.0	OPERATOR EDUCATION AND TRAINING	13
9.0	EMERGENCY RESPONSE PLAN	14
9.1	WATER SOURCE REDUNDANCY	14
10.0	CROSS-CONNECTION CONTROL PROGRAM	14
11.0	SYSTEM IMPROVEMENTS AND CAPITAL WORKS PROJECTS	14
	<i>2023 Improvements and Capital Projects</i>	<i>15</i>
	<i>2024 Improvements and Capital Projects</i>	<i>15</i>
	<i>2025 Improvements and Capital Projects</i>	<i>16</i>

<i>Planned Improvements and Capital Projects for Near Future</i>	<i>16</i>
12.0 CONCLUSION	16

TABLES

Table 1: Pipe Summary and Material Class	4
Table 2: BC Filtration Exemption Conditions & City's Level of Compliance	9
Table 3: Operators & EOCP Current Certifications	13

FIGURES

Figure 1: Chlorine Residual Monitoring – Annual Averages in 2025 at Each Sampling Point	7
Figure 2: Monthly Average Raw Water Turbidity Levels Measured.....	7
Figure 3: Monthly Average UV Dose and Transmittance in 2025	8
Figure 4: Daily pH Monitoring Data in 2025.....	8
Figure 5: Quarterly THM and HAA Testing Results with Maximum Acceptable Concentration (MAC) of 0.1 mg/L and 0.08 mg/L for THM and HAA, respectively.....	10
Figure 6: Chlorophyll A Sampling Results (2012–2025)	11

APPENDICES

APPENDIX A Interior Health Operating Permit [1 page]
APPENDIX B Castlegar Water System [1 page]
APPENDIX C Chemical Analysis Lab Test Results [48 pages]
APPENDIX D Chlorophyll A Certificate of Analysis [4 pages]
APPENDIX E North Well Chemical Analysis [39 pages]

City of Castlegar

Annual Water Quality Report 2025

Facility Name: City of Castlegar Water System

Facility Number: 0210617

1.0 Introduction

The City of Castlegar (City) is required under its Operating Permit, issued by the Interior Health Authority (IHA) provided in **Appendix A**, and mandated by the Drinking Water Protection Act to provide an Annual Water Quality Report. The Annual Water Quality Report also serves to provide water system users with a deeper understanding of their drinking water system.

The City is committed to providing clean, safe drinking water through the responsible management and maintenance of local water infrastructure. This report will provide an overview of the water system including a summary of the existing water distribution system, water treatment and monitoring procedures, system maintenance work, and an overview of recent system improvements.

This report will be submitted to the IHA and posted on the City of Castlegar website.

2.0 Castlegar Water System Overview

A map summarizing the City's water system assets and distribution system is provided in **Appendix B** (courtesy of 2018 Water System Optimization Study).

2.1 Source

The City's primary water source is drawn from Lower Arrow Lake, a 230 km long reservoir that is part of the Columbia River watershed. The intake is situated on the west shore of the reservoir, immediately upstream of the Hugh Keenleyside Dam. The water system intake and pumphouse are owned and operated by the Mercer-Celgar pulp mill. The City is provided water through a long-term supply agreement. The watershed upstream of this point encompasses an area of 36,500 km².

2.2 Water Treatment Centre

The Mercer-Celgar pumphouse located at the intake delivers water to the Water Treatment Centre, where it undergoes treatment, testing, and quality monitoring before being conveyed to the City's distribution system. The disinfection process uses ultraviolet radiation (UV) as a primary disinfectant to inactivate protozoa, as well as chlorine gas as a secondary disinfectant to inactivate viruses. This provides a multi-barrier approach to disinfection by using two different forms of treatment, which is a water quality objective set out by the Drinking Water Treatment Objectives (microbiological) for Surface Water Supplies in British Columbia.

2.3 Reservoirs

The treated water is then directed to and stored within one of eight reservoirs or storage tanks located throughout the City, as below (From North to South):

- Meadowlark
- Merry Creek

- School 1 & 2
- Park 1 & 2
- Meadowbrook
- Blueberry

The total available reservoir storage capacity is 12.6 megaliters.

2.4 Distribution System

The City's distribution system consists of approximately 106 km of water distribution piping which is comprised of varied materials, diameters, and ages. The breakdown of existing water distribution infrastructure by material type is approximately as follows:

Table 1: Pipe Summary and Material Class

Pipe Material	Sum of Pipe Length (km)	% of System
Cement	61.0	57.8%
Copper	0.4	0.4%
Ferrous	18.4	16.4%
Plastic	26.9	25.4%
Grand Total	105.6	100.0%

2.5 Pump Stations

2.5.1 Meadowlark Pump House

The Meadowlark Pump House consists of eight high-capacity pumps which are split into two stages. Three (Stage I) pumps were used to assist in filling the Meadowlark Reservoir but are no longer in use. Five (Stage II) pumps fill the Park Reservoirs.

2.5.2 Park Pump House

The Park Pump House consists of four high-capacity pumps. The four pumps are referred to as the Stage III pumps. The Stage III pumps fill the Upper Bench reservoirs: Meadowbrook reservoir, Merry Creek reservoir, and Blueberry reservoir.

2.5.3 Grandview Booster Station

The Grandview Booster Pump Station is equipped with two small and two large (fire flow) booster pumps. The pumps provide additional water supply pressure for the Grandview neighbourhood.

2.5.4 Highland Drive Booster Station

The Highland Drive Booster Pump Station is equipped with one pump to increase the water supply pressure to the residents of Highland Drive. This booster pump is needed to increase system pressure during periods of peak water demand.

2.6 Pressure zones

There are ten pressure zones in the City of Castlegar's Distribution System, as outlined below (from North to South):

- North Zone
- Woodland Drive Zone
- School Zone

- Merry Creek Zone
- Park Zone
- Dumont Zone
- Upper Bench Zone
- Twin Rivers Zone
- Trowalex Road Zone
- Blueberry Zone

The system pressure within these zones ranges from 275 kPa to 1034 kPa (40 PSI – 150 PSI).

2.7 Emergency Well Water System (North Well)

The City of Castlegar maintains a groundwater well, referred to as the North Well (well tag #109719), which can be activated in the event of a disruption to the primary water supply. The well and pump are rated to deliver approximately 6 million litres per day (1,100 imperial gallons per minute), offering a significant backup water source for the community.

Although the North Well is not currently approved by Interior Health Authority (IHA) for use as a potable water source, the City has been actively working toward securing this approval. Between 2018 and 2019, significant upgrades were made to the well system in support of this goal. These included the installation of a soft starter, a transfer switch, and a generator plug to ensure reliable operation during power outages; particularly in the event of a failure at the Mercer-Celgar pulp mill or a disruption in the main supply system.

The City's engineering team continues to pursue IHA registration of the North Well as a certified drinking water source. In the interim, staff conduct monthly bacterial testing and an annual comprehensive water quality analysis to monitor the well's condition. Routine maintenance of the pump is carried out on a monthly basis to ensure its readiness for emergency use.

3.0 Castlegar Water Supply and Disinfection Requirements

The City supplies water in accordance with the B.C. Drinking Water Protection Act (DWPA) and Drinking Water Protection Regulation (DWPR), which ultimately outline the disinfection requirements the City must provide. The Province of B.C. has published a series of guideline documents to provide guidance on implementing the DWPA and DWPR, including the Drinking Water Treatment Objectives (Microbiological) for Surface Water Supplies in British Columbia (Surface Water Treatment Objectives). These objectives are consistent with the Guidelines for Canadian Drinking Water Quality (GCDWQ).

The general Water Treatment Objectives are comprised of the following:

- **4:** 4 log (99.99%) inactivation of viruses
- **3:** 3 log (99.9%) removal or inactivation of protozoa (Giardia Lamblia and Cryptosporidium Parvum)
- **2:** Minimum of two treatment barriers for microbiological protection
- **1:** Less than 1 NTU Turbidity
- **0:** Zero Fecal Coliforms or E. coli Bacteria

Most disinfection processes require sufficiently clear water to treat effectively. To achieve this, the GCDWQ recommends a treatment process consisting of filtration and one form of disinfection. The

City of Castlegar is fortunate to have an excellent quality of raw water supply. It is however classified as a surface water source, and to meet the Objective for a minimum of two treatment barriers for microbiological protection the City would either: a) implement filtration followed by disinfection, or b) apply for filtration exemption and implement two forms of disinfection. A water supply system is permitted to operate with no filtration if the filtration exemption requirements outlined in section 4.3 of the Water Treatment Objectives guideline document are met. The City of Castlegar has been meeting the annual filtration exemption criteria since submitting an application to IHA in 2014.

The City's UV system (commissioned on August 12, 2013) allows the City to meet the requirement for two treatment barriers and produces safe drinking water that is in compliance with the DWPA and DWPR.

4.0 Castlegar Water Supply and Disinfection

The City of Castlegar uses UV light as a primary disinfectant and chlorine gas as a secondary disinfectant. The UV system is designed to maintain a minimum dose of 12.2 mJ/cm² to provide the required 3 log (99.9%) protozoan inactivation. The chlorination system operates as the secondary disinfectant, providing the required 4 log (99.99%) inactivation of viruses.

The free chlorine residual is commonly referred to as a Distribution Management Tool, as it leaves a residual disinfectant in the water supply. This residual provides a quantifiable indicator that the water's chlorine concentration is adequate for disinfection and is an important parameter in ensuring that safe potable water is delivered to the residents of the City of Castlegar. The rate of chlorine injection can vary throughout the year depending largely on source water temperature and organic concentrations. The provincial health standard is to maintain a minimum free chlorine residual of 0.20 mg/L at all points of the water distribution system. The chlorine injection rate at the Water Treatment Centre varies from 0.75 mg/L -1.00 mg/L to achieve a free chlorine residual of 0.20 mg/L.

The free chlorine residual is continuously sampled and analyzed by online instrumentation installed throughout the water distribution system. The measured values are transferred to the City of Castlegar's Supervisory Control and Data Acquisition (SCADA) system, which will initiate an alarm to City personnel if the chlorine concentration is measured to be outside the allowable range.

5.0 Testing and Monitoring Program

5.1 Chlorine Residual Testing

In addition to the online chlorine residual analyzing, City of Castlegar staff perform manual chlorine residual testing daily at the Water Treatment Centre and weekly throughout the distribution system at the Airport, Blueberry, Celgar, Fortis, Meadowlark Pump House, 4th Street, Kinnaird and Civic Works Yard sampling locations. Testing is performed weekly at the sampling locations shown in **Figure 1**, this is done to verify the accuracy of the online instrumentation.

Figure 1 provides a summary of the free and total chlorine testing results as annual averages at each sampling point.

The data indicates two sampling dates where the chlorine residual measured was under the target 0.2 mg/L. The residual chlorine concentration at the Fortis sampling point was 0.19 mg/L free and 0.28 total on May 3rd and 0.19 mg/L free and 0.26 total on May 4th. This was

following a weekend, over which water usage at that location is minimal. Operators responded by opening the flush valve at that site and increasing chlorine dosing at the WTC, bringing the chlorine levels back above 0.2 mg/l minimum by May 5th.

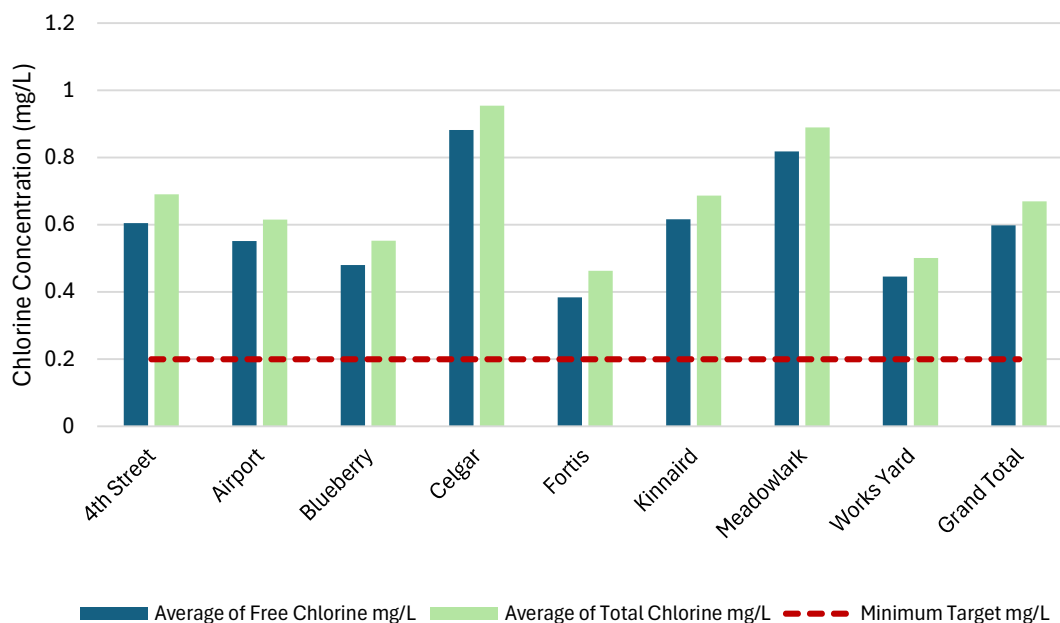


Figure 1: Chlorine Residual Monitoring – Annual Averages in 2025 at Each Sampling Point

5.2 Turbidity Monitoring

The City monitors raw water turbidity levels at the Water Treatment Centre daily. Turbidity is a key parameter in ensuring that the City's water supply follows the filtration exemption conditions outlined in section 4.3 of the Surface Water Treatment Objectives guideline document. The filtration exemption conditions require that average daily raw water turbidity levels be around 1 NTU, but do not exceed 5 NTU for more than two days in a 12-month period.

The filtration exemption conditions for turbidity were met throughout 2025, with no daily averages in excess of 1 NTU. **Figure 2** summarizes the monthly average turbidity readings in 2025.

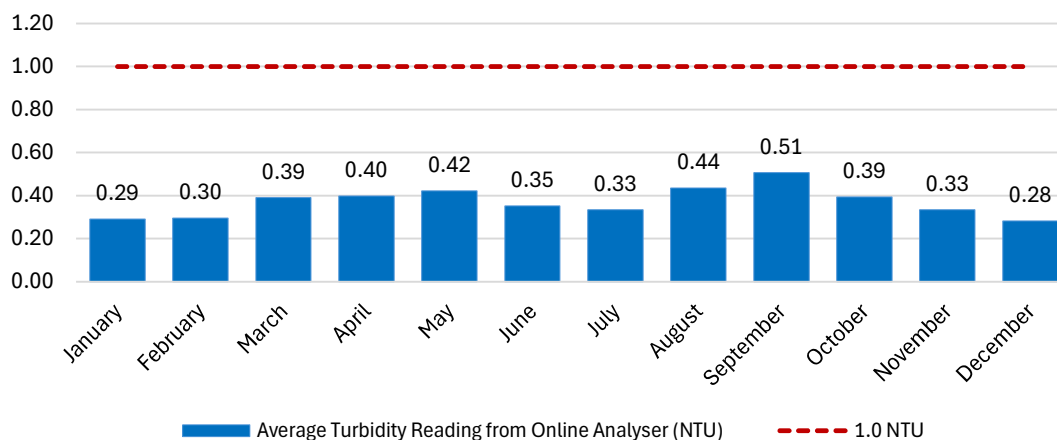


Figure 2: Monthly Average Raw Water Turbidity Levels Measured at Water Treatment Centre in 2025

5.3 UV Light Dose & Transmittance Monitoring

UV dose and UV transmittance (UVT) values are recorded daily at the Water Treatment Centre. UVT is important as it impacts the effectiveness of UV treatment. When UVT is too low, UV light is not able to penetrate the water and overall effectiveness of protozoa inactivation is reduced. The system's low and low-low UVT set-points are 90% and 88%, respectively. There were no recorded UVT measurements below the low set-point of 90% in 2025.

The UV system was designed to maintain a minimum dose of 12.2 mJ/cm² to provide the required 3 log (99.9%) protozoan inactivation. In 2025, there were no recorded UV dose measurements recorded below the minimum UV dose of 12.2 mJ/cm². **Figure 3** below provides a summary of the UV doses and UVT throughout 2025.

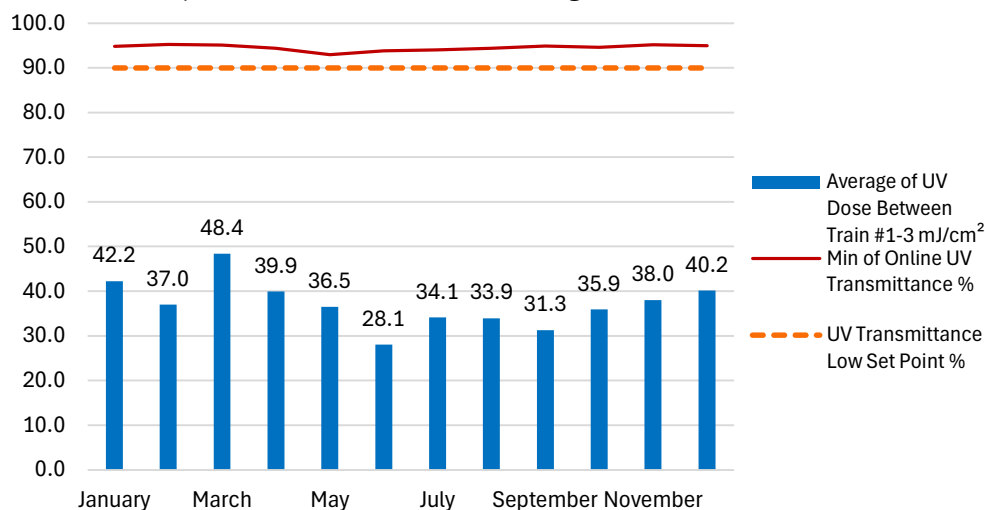


Figure 3: Monthly Average UV Dose and Transmittance in 2024

5.4 pH Monitoring

pH is monitored by operators at the Water Treatment Centre and measurements are recorded each day. The target pH is between 7 and 9, which is within the range recommended by the *Guidelines for Canadian Drinking Water Quality* (pH 7 to 10.5). **Figure 4** provides a summary of pH measurements recorded throughout 2025. All measurements were between the target pH range of 7 to 9. Higher pH measurements were recorded from August until November due to a faulty probe, this was rectified by the installation of a new pH probe.



Figure 4: Daily pH Monitoring Data in 2025

5.5 Bacteriological Testing

As required under the City's Operating Permit, City operators perform weekly bacteriological testing for E. coli and Total Coliform Bacteria throughout the distribution system. Sampling locations are as follows:

- Water Treatment Centre (raw water)
- Airport/Fortis (Airport sample point moved to Fortis in May)
- Meadowlark Pump House
- 4th Street (new sample point online in May)
- Kinnaird (new sample point online in May)
- Blueberry
- Civic Works Yard
- North Well

Table 2 summarizes the treatment targets required to meet the BC filtration exemption conditions for E. coli and Total Coliform, as well as the City's level of compliance in 2025.

Table 2: BC Filtration Exemption Conditions & City's Level of Compliance

Parameter	Filtration Exception Condition	Level of Compliance
E. coli	"the number of E. coli in raw water does not exceed 20/100 mL (or if E. coli data are not available less than 100/100 mL of total coliform) in at least 90% of the weekly samples from the previous six months."	Throughout 2025, all E. coli test results (raw water) were below the required 20/100 mL. Only one sample in 2025 tested above 100/100mL for total coliforms, September 2 nd had a result of 147/100 mL.
Both E. coli & Total Coliform	"Treatment target for all water systems is to contain no detectable E. coli or fecal coliform per 100 mL." "Total coliform objectives are also zero based on one sample in a 30-day period. For more than one sample in a 30-day period, at least 90% of the samples should have no detectable total coliform bacteria per 100 mL and no sample should have more than 10 total coliform bacteria per 100 mL."	There were no detectable E. coli results reported from the distribution system in 2025. One result on August 11 th showed 1 total coliforms per 100 mL. The site was resampled on the 13 th and showed no detectable total coliforms per 100 mL. There were no detectable E. coli or total coliform results reported from the North Well in 2025.

5.6 Raw Water Full Chemical Analysis Testing

City Staff collect quarterly raw water samples from the raw water tap at the Water Treatment Centre and submit it for a full chemical analysis. Parameters such as alkalinity, hardness, conductivity, pH, fluoride, arsenic, lead, mercury, and turbidity are measured and reported.

Continuous turbidity monitoring, chlorine residual monitoring, and UV dose monitoring is carried out at the Water Treatment Centre. Operators inspect monitoring equipment

performance and confirm alarm set points on a regular basis. See **Appendix C** for full chemical analysis test results.

5.7 Additional Distribution System Testing

On a quarterly basis, City staff collect water samples from the endpoints of the distribution system (Airport and Blueberry sample locations) for total trihalomethane (THM) testing. City operators also collect samples from the mid-point of the distribution system (Park Pumphouse) for haloacetic acid (HAA) testing. **Figure 5** summarizes the THM and HAA test results from 2025, including the maximum acceptable concentrations (MAC) for each parameter for reference.

See **Appendix C** for THM & HAA laboratory test results.

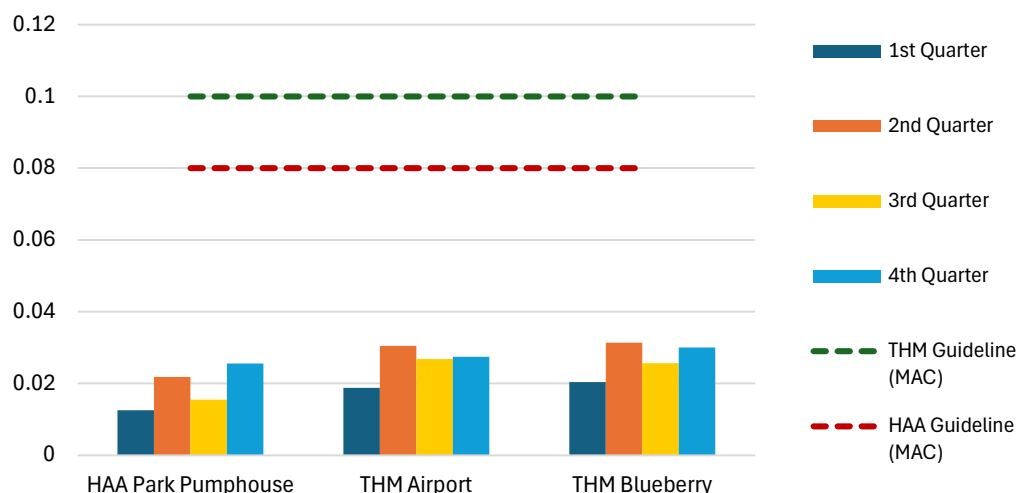


Figure 5: Quarterly THM and HAA Testing Results with Maximum Acceptable Concentration (MAC) of 0.1 mg/L and 0.08 mg/L for THM and HAA, respectively.

5.8 Algae Blooms and Nutrients

Castlegar's water system has seen the impacts from elevated levels of algae in the raw water supply over the past few years. This algae growth is a result of excess nutrient levels in the Arrow Lakes Reservoir and is thought to be a result of fertilizer runoff from agricultural properties and/or the Province's nutrient enrichment program implemented to support recreational fishing.

In recent years, Chlorophyll A levels have remained below the highest levels seen in 2015 and the trend appears to be relatively stable with some peaks. A summary of Chlorophyll A sampling results from 2012 to 2025 is shown in Figure 6. Note, no Chlorophyll A sampling was completed in 2022. Sampling frequency was reduced over the last 5 years with recorded levels remaining relatively stable. Test results from 2020 through 2024 were < 1.0 µg/L Chlorophyll A, while the 2025 results were > 1.0 µg/L Chlorophyll A for the first time in 6 years; see **Appendix D** for the certificate of analysis.

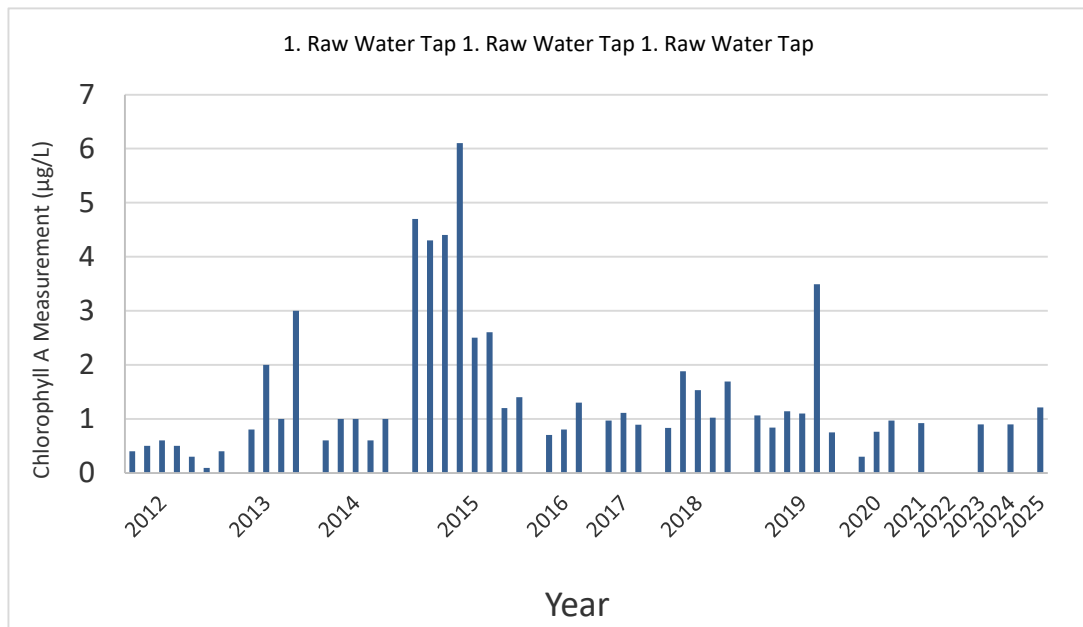


Figure 6: Chlorophyll A Sampling Results (2012–2025)

The City has addressed the algae issue within its distribution system through its annual flushing program, which helps to remove algae that tends to settle near the beginning of the distribution system.

5.9 North Well Analysis Testing

A full chemical analysis of raw water from the well was conducted in January 2025. Refer to **Appendix E** for the North Well water quality results. Additionally, bacteriological testing is completed monthly on the North Well.

5.10 System Control: SCADA

The City's SCADA (Supervisory Control and Data Acquisition) system continuously monitors the Water Treatment Centre and Water Distribution System for the following parameters:

- Turbidity
- UV transmittance
- UV dose
- Chlorine residual
- Flowrate (cumulative daily and instantaneous maximum)
- Temperature
- pH

If a significant change in operating parameters or a component failure is registered by the system, an alarm is issued to the phones of appropriate City personnel and after hours to the City of Castlegar's emergency phone. This provides the City several levels of confidence in addressing alarm conditions.

6.0 System Maintenance

6.1 Fire Hydrants

All fire hydrants are inspected annually. In addition, the City has established three hydrant maintenance zones to carry out a complete tear down and inspection of internal components

on a rotational basis. One zone is inspected each year; therefore, all fire hydrants are inspected and flushed every three years.

6.2 Emergency Well Water System (North Well)

The City maintains a groundwater well (North Well) for emergency purposes. The well system is rated at approximately 6 million L/day (1,100 USGPM) and is maintained monthly to ensure it is ready for use in an emergency. See Section 2.7 for further information.

6.3 Pump Stations

Meadowlark Pump House and Park Pump House are inspected weekly and monitored remotely via SCADA daily. Grandview booster station and the Highland Drive booster station are inspected weekly. All pumps and motors are serviced as per the manufacturer's specifications.

6.4 Castlegar Water Treatment Centre

The Water Treatment Centre is inspected daily to ensure that the UV and chlorination disinfection systems are operating correctly. Once a month, the electromagnetic flow meter and UV reference sensors are validated for accuracy. Once a year, the UV reference probes are validated by a third party.

6.5 Reservoirs

Reservoirs are inspected weekly to make sure that operation is normal and that the site is secure. All reservoir levels are monitored in real-time on the City's SCADA system. Automatic alarms are issued to operations personnel if reservoir levels register a high level, low level, or drastic level fluctuation.

6.6 Pressure Reducing Stations

The City of Castlegar operates and maintains 11 pressure reducing valves (PRV) stations. The PRV stations are inspected monthly to verify normal operation and to check for any leaks.

6.7 Security

Castlegar's water distribution system is protected by several security measures. The Water Treatment Centre is equipped with a security system and surveillance cameras. All reservoirs are fenced with locked ladder access. Both the Meadowlark and Park Pump houses are equipped with a security system and surveillance cameras. All PRV sites are securely locked.

6.8 Unidirectional Flushing (UDF) Program

In 2013, the City developed a Unidirectional Flush (UDF) program. This is comprised of approximately 250 UDF routes, which are separated into established "flushing zones". To ensure that all areas are flushed regularly, the City carries out system flushing within the zones on an alternating cycle. Operators completed UDF in the Grandview and Blueberry areas, routes 211-252, in June 2025.

7.0 Water Quality

7.1 Water Quality Issues

There were no city-wide Boil Water Notices (BWNs) or Water Quality Advisories (WQAs) issued in 2025.

Localized BWNs were issued for distribution system improvements and repairs. The largest being the Arrow Lakes Drive area in April that affected approximately 100 properties but also included various smaller areas that affected 5 to 20 properties. These included the 600 block of 10th Ave issued in February, the 800 block of 7th Ave issued in March, and the 2700 block of Columbia Ave issued in July.

Higher turbidity levels were measured following a Mercer Celgar pumphouse shut down extending from March 14th to 15th. In response, operators flushed the main line to the Water Treatment Centre until turbidity levels dropped below 1 NTU. Once flow resumed through the plant, operators increased UV and chlorine dosing until turbidity stabilized to the level recorded before the shutdown.

7.2 Source Protection Plan

The *Arrow Reservoir Source Assessment Report* (Urban Systems, 2014) identified key recommendations and priorities for protecting the City's drinking water supply. The City continues to work towards implementing the Assessment Report recommendations; however, due to the size of the Arrow Lakes Reservoir and Columbia River watershed, implementing all the recommendations requires significant coordination between various organizations.

To date, the City has carried out the following recommendations from the report:

1. Collaborate with Mercer-Celgar to construct a security fence around the intake and treatment works at Arrow Lake; and,
2. Ongoing source water monitoring - Develop a water quality sampling schedule, including sampling frequencies, to understand and trend any changes in water quality conditions and to identify possible threats to the source water quality.

8.0 Operator Education and Training

The City of Castlegar has established a training program that follows the 'Environmental Operators Certification Program' (EOCP) guidelines for required training. **Table 3** summarizes the levels of EOCP certification held by City of Castlegar staff for 2025.

Table 3: Operators & EOCP Certifications

Employee	Active Levels
Aaron Geck – Assistant Manager – Utilities	WWT 4, WWC 1
Ian Dudley – Head Treatment Plant Operator (resigned in October)	WT 3, WD 1
Kurt Thomson – Treatment Plant Operator	WD 2, WWC 2, WT 2, WWT 1
Philip Jago – Treatment Plant Operator	WT 2, WWT 1, WD 1
Miroslav Bazgier – Treatment Plant Operator	WT 1
Daniel Wallenius – Treatment Plant Operator	WWT 4, WT 3, WD 1, SWS
Todd Chahley – Water Sewer Maintenance Foreman	WWT 1, WWC 2, WD 2, WT 1
Graham Lindsey – Water Sewer Maintenance Crew	WD 2, WWC 1
Dana Boone – Water Sewer Maintenance Crew	WD 2, WWC2
Charles Hesketh – Water Sewer Maintenance Crew	WD 1

9.0 Emergency Response Plan

Emergency response planning is an essential part of the governance of a drinking water system. As required under the Operating Permit, the City of Castlegar has prepared an Emergency Response Plan (ERP) for the City's water system. Originally implemented in 2014, it was reviewed and revised in 2025. The goal of the ERP is to identify potential emergency conditions that could occur and have documented response procedures in place.

9.1 Water Source Redundancy

As part of the City's ongoing emergency preparedness planning, the North Well remains a key consideration as an emergency water supply source. While the well is registered with the Province, it did not have a groundwater use licence for 2025. The City submitted an application for the licence in 2018, and an acknowledgment letter was received from the Province in 2021. As of the date of this report, the application has been approved by the Province and will be included in the 2026 annual report.

The North Well also requires approval from the Interior Health Authority to be used as a potable water source. To support this process, a comprehensive water quality assessment was initiated in 2024, anticipated to be submitted to IHA for review in 2025.

Integrating the North Well into the City's emergency response capabilities would enhance system resilience in the event of supply disruptions and aligns with the requirements of the City's Emergency Response Plan.

10.0 Cross-Connection Control Program

The City developed and enforces compliance with a Cross Connection Control Program. This program was established to identify and mitigate high risk service connections that could contaminate the City's water supply and is regulated by Bylaw 1014 (City of Castlegar Elimination and Prevention of Cross-connections Bylaw). In 2023, this bylaw was updated to Bylaw 1404 (City of Castlegar Cross-Connection Control Bylaw, 2023). The Bylaw requires all multi-family, commercial, institutional, and industrial properties to have measures in place to control or eliminate cross-connections. These measures typically include the installation of a back flow prevention assembly, which prevents water from flowing back into the City's distribution system, as well as completing backflow assembly and prevention device testing as required by the City. Starting in 2023, and continuing in 2025, the City began a cross-connection survey program to re-assess the cross-connection potential in all commercial, institutional, and industrial properties in the City.

11.0 System Improvements and Capital Works Projects

The City of Castlegar's Water Management Plan (Urban Systems, 2009) provides a comprehensive assessment of the City's water source, treatment, and distribution systems. This report outlined improvements necessary for maintaining a continuously reliable water supply, as well as timelines for such upgrades. The City of Castlegar has accomplished many of the capital works projects identified in the 2009 Water Management Plan, including:

- SCADA system upgrades and optimization.
- Prepare an Emergency Response Plan.
- Replace sections of undersized water mains (pipe replacement program).
- Complete a comprehensive network pipe material condition and anticipated remaining life investigation to support pipe replacement program.
- Install security measures at major facilities.

- Upgrade of various PRV Stations.
- Construct additional storage at the Park Reservoir Site.
- Update the existing cross connection control program to ensure it meets current requirements.

Since the development of the Water Management Plan, the City has worked to complete an Integrated Infrastructure Capital Plan (IICP). The IICP uses a risk-based approach to integrate the potential impacts of climate change with the fundamentals of asset management in order to identify and rank priority upgrades throughout the City.

In addition to the IICP, a Water System Optimization (WSO) report was prepared for the City in early 2019. The WSO used hydraulic modelling to identify upgrades recommended throughout the City to optimize the water system. The City plans to draw on the IICP and WSO reports for guidance regarding ongoing asset renewal decisions to ensure service delivery within a continuously changing environment.

The following includes the recommended optimization projects by area:

- South System Improvements:
 - Upsize Blueberry supply pipe
 - Upgrade south area hydraulics – new PRVs
 - Storage improvement in Upper Bench Zone
 - Blueberry zone pipe renewal and fire flow improvement
- Park Zone Improvements:
 - Decommission school zone tanks
 - Fire flow looping and upsizing (Hwy-Commercial)
 - Twin Park storage steel tank and decommission concrete tank
- Water Treatment Centre to North End Improvements:
 - Install interconnection from Park zone to North zone for emergency fire flow
 - Fire flow looping and upsizing (downtown area of North zone)
 - Supply control update at Water Treatment Centre
- Various PRV upgrades

The most recent upgrade and maintenance projects, as well as planned projects for 2025 (and near future) are listed below.

2023 Improvements and Capital Projects

- 37th St. PRV upgrade and confined space elimination
- Adoption of Bylaw 1404 – Cross Connection Control – reinitiation of cross connection control program, including new surveys and software for tracking device testing.

2024 Improvements and Capital Projects

- Selkirk College feeder main
- Toba Road – Water main extension.
- Detailed design of Orchard Avenue Phase 3 including water main installation for road extension and site servicing.
- Completed a full hydraulic water model update including calibration/verification.
- Park Pumphouse – Motor Control Center (MCC) Upgrade
- Orchard Ave Phase 2 – Water main extension

2025 Improvements and Capital Projects

- SCADA Upgrades – improvements and renewals at multiple sites
- Water Treatment Centre Chlorine Analyzer – purchasing backup unit
- North Well Condition Study and Pump Test

Planned Improvements and Capital Projects for Near Future

- Works & Services Bylaw – Includes engineering design guidelines providing standard specs for servicing, PRV design, metering, modelling, and backflow configuration (Initiate in 2026 for 2027 completion)
- Water Meter Strategic Plan – assessment of program and strategic plan for future (2027)
- Water Treatment Centre Valve Upgrades – installation of isolation valves (2027)
- Kinnaird Bridge Utility Pipe Inspections – 3-year cycle for structural reassessment (2027)
- Columbia Ave – Phase 3 – Detailed Design Incl. watermain replacement (2028)

12.0 Conclusion

The City of Castlegar has worked with the local Health Officials to develop a water quality monitoring program that exceeds the Drinking Water Protection Act. The City will continue the monitoring program as part of its commitment to deliver safe potable water to residents in an environmentally and financially sustainable manner.

APPENDIX A

Interior Health Operating Permit



Interior Health

Health Protection

Permit To Operate

Drinking Water System 301 - 10,000 Connection - Annual

Facility Number: 0210617
Name of Facility: City of Castlegar Water System
Address: 460 Columbia Avenue
Castlegar, BC V1N 1G7
Owner: City of Castlegar
Conditions:

April 1, 2004

Effective Date

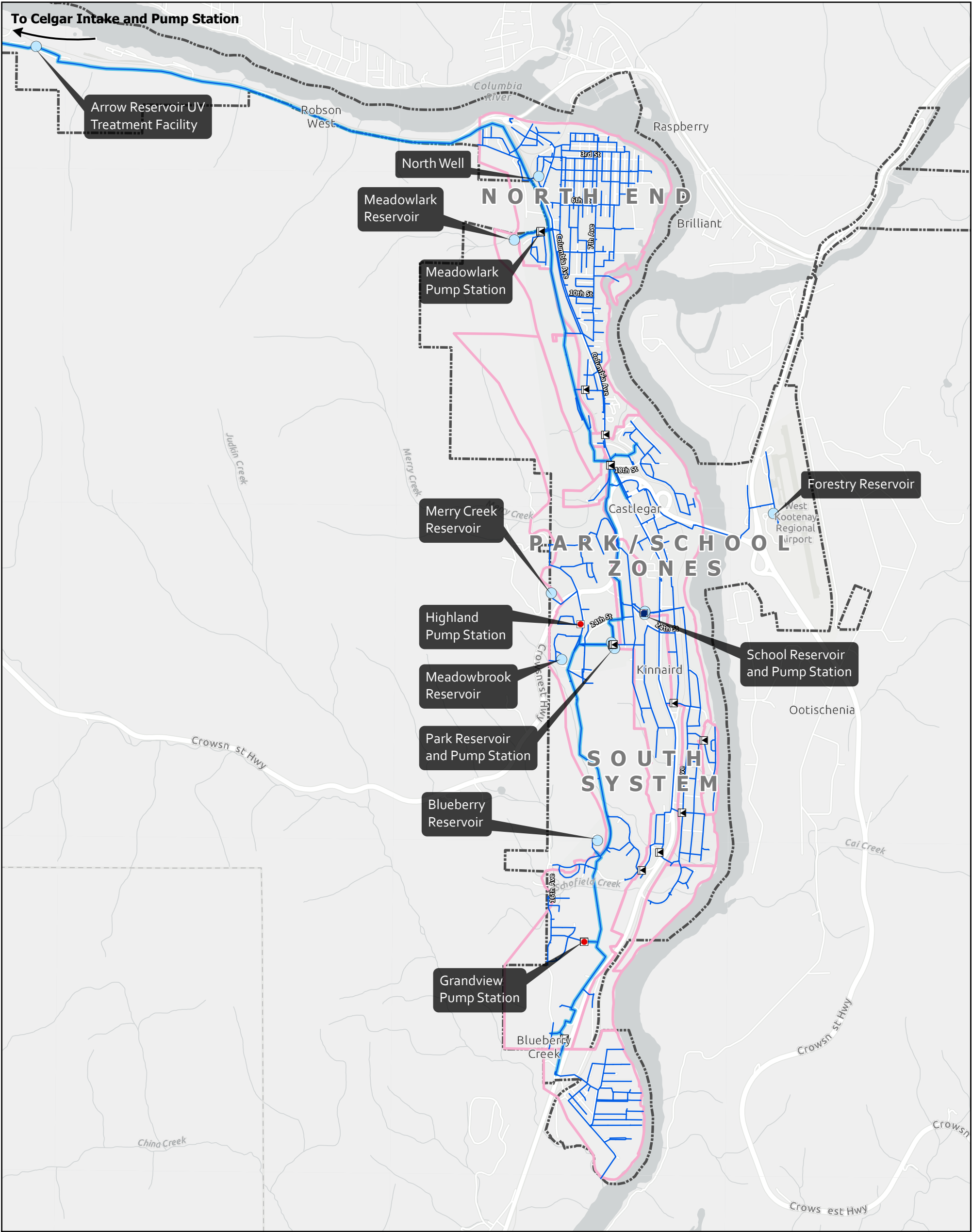
Public Health Inspector

*This permit is nontransferable and must be displayed in a
conspicuous place*



APPENDIX B

Castlegar Water System





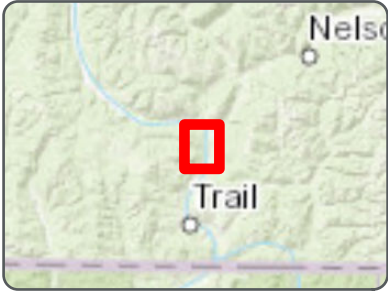
City of Castlegar

Water System Optimization Study
2018 Water System

System Assets and Community Layout

Legend

- Altitude Valve
- Pressure Reducing Valve
- Pump
- Network Structure
- Water Main
- Supply / Trunk Mains
- Pressure Zone Boundary



The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.

0 250 500 1,000 1,500

Metres



Coordinate System:

Scale: 1:35,000

Data Sources:

Data provided by -
City of Castlegar
Urban Systems

Project #: 0841.0104.01

Author: BP

Checked: AC

Status: **FINAL**

Revision: A

Date: 2019 / 1 / 9



FIGURE 1

U:\Projects_KEL\0841\0104\01\0-Design\GIS\Projects\Pro_Projects\Optimization Report Figures.aprx Last updated by bpauls on January 9, 2019 at 10:15 AM

APPENDIX C

Chemical Analysis Lab Test Results

CERTIFICATE OF ANALYSIS

REPORTED TO Castlegar, City of
460 Columbia Avenue
CASTLEGAR, BC V1N 1G7

ATTENTION Aaron Geck

PO NUMBER 502

PROJECT General Potability

PROJECT INFO

WORK ORDER 25A0357

RECEIVED / TEMP 2025-01-07 09:13 / 5.5°C

REPORTED 2025-01-15 11:32

COC NUMBER No number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Hanane El Hannaoui
Junior Account Manager



1-888-311-8846 | 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 Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

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

481E - WTC - Raw Water (25A0357-01) | Matrix: Water | Sampled: 2025-01-06 09:50

Anions

Chloride	0.29	AO ≤ 250	0.10	mg/L	2025-01-09	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-01-09	
Nitrate (as N)	0.126	MAC = 10	0.010	mg/L	2025-01-09	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-01-09	
Sulfate	11.9	AO ≤ 500	1.0	mg/L	2025-01-09	

Calculated Parameters

Hardness, Total (as CaCO3)	64.7	None Required	0.500	mg/L	N/A	
Langelier Index	-1.3	N/A	-5.0		2025-01-14	CT6
Solids, Total Dissolved	69.4	AO ≤ 500	1.00	mg/L	N/A	

General Parameters

Alkalinity, Total (as CaCO3)	52.8	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Bicarbonate (as CaCO3)	52.8	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-01-08	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-01-07	
Conductivity (EC)	135	N/A	2.0	µS/cm	2025-01-08	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-01-08	
pH	7.23	7.0-10.5	0.10	pH units	2025-01-08	HT2
Temperature, at pH	22.8	N/A		°C	2025-01-08	HT2
Turbidity	0.28	OG < 1	0.10	NTU	2025-01-08	

Total Metals

Aluminum, total	0.0144	OG < 0.1	0.0050	mg/L	2025-01-08	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-01-08	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2025-01-08	
Barium, total	0.0172	MAC = 2	0.0050	mg/L	2025-01-08	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-01-08	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2025-01-08	
Calcium, total	18.5	None Required	0.20	mg/L	2025-01-08	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-01-08	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-01-08	
Copper, total	0.00040	MAC = 2	0.00040	mg/L	2025-01-08	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2025-01-08	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-01-08	
Magnesium, total	4.46	None Required	0.010	mg/L	2025-01-08	
Manganese, total	0.00089	MAC = 0.12	0.00020	mg/L	2025-01-08	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-01-09	
Molybdenum, total	0.00047	N/A	0.00010	mg/L	2025-01-08	
Nickel, total	0.00045	N/A	0.00040	mg/L	2025-01-08	
Potassium, total	0.65	N/A	0.10	mg/L	2025-01-08	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-01-08	

TEST RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

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

481E - WTC - Raw Water (25A0357-01) | Matrix: Water | Sampled: 2025-01-06 09:50, Continued

Total Metals, Continued

Sodium, total	0.77	AO ≤ 200	0.10	mg/L	2025-01-08	
Strontium, total	0.123	MAC = 7	0.0010	mg/L	2025-01-08	
Uranium, total	0.000392	MAC = 0.02	0.000020	mg/L	2025-01-08	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-01-08	

Blueberry (25A0357-02) | Matrix: Water | Sampled: 2025-01-06 08:10

Calculated Parameters

Total Trihalomethanes	0.0204	MAC = 0.1	0.00400	mg/L	N/A	
-----------------------	--------	-----------	---------	------	-----	--

Volatile Organic Compounds (VOC)

Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-01-09	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-01-09	
Chloroform	0.0204	N/A	0.0010	mg/L	2025-01-09	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-01-09	
Surrogate: Toluene-d8	104		70-130	%	2025-01-09	
Surrogate: 4-Bromofluorobenzene	92		70-130	%	2025-01-09	

Airport (25A0357-03) | Matrix: Water | Sampled: 2025-01-06 11:00

Calculated Parameters

Total Trihalomethanes	0.0188	MAC = 0.1	0.00400	mg/L	N/A	
-----------------------	--------	-----------	---------	------	-----	--

Volatile Organic Compounds (VOC)

Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-01-09	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-01-09	
Chloroform	0.0188	N/A	0.0010	mg/L	2025-01-09	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-01-09	
Surrogate: Toluene-d8	116		70-130	%	2025-01-09	
Surrogate: 4-Bromofluorobenzene	101		70-130	%	2025-01-09	

Park Pumphouse (25A0357-04) | Matrix: Water | Sampled: 2025-01-06 11:25

Haloacetic Acids

Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-01-09	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-01-09	
Dichloroacetic Acid	0.0052	N/A	0.0020	mg/L	2025-01-09	
Trichloroacetic Acid	0.0073	N/A	0.0020	mg/L	2025-01-09	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-01-09	
Total Haloacetic Acids (HAA5)	0.0125	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	89		70-130	%	2025-01-09	

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

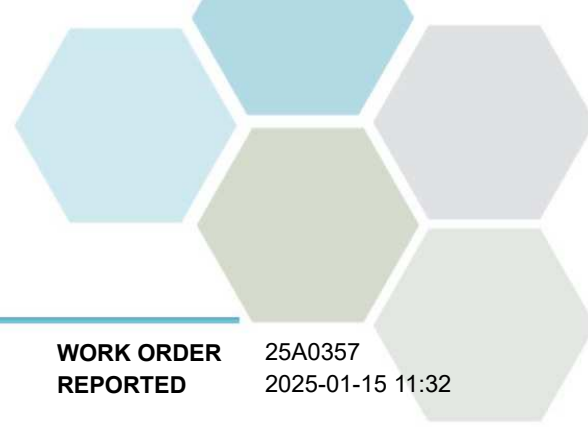
WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H ₂ SO ₄	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond
Turbidity in Water	SM 2130 B (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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

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.

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: hhannaoui@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.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

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

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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Anions, Batch B5A1787

Blank (B5A1787-BLK1)			Prepared: 2025-01-09, Analyzed: 2025-01-09						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B5A1787-BS1)			Prepared: 2025-01-09, Analyzed: 2025-01-09						
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Fluoride	4.31	0.10 mg/L	4.00		108	88-108			
Nitrate (as N)	4.07	0.010 mg/L	4.00		102	90-110			
Nitrite (as N)	2.05	0.010 mg/L	2.00		103	85-115			
Sulfate	16.1	1.0 mg/L	16.0		101	90-110			

General Parameters, Batch B5A1660

Blank (B5A1660-BLK1)			Prepared: 2025-01-07, Analyzed: 2025-01-07						
Colour, True	< 5.0	5.0 CU							
LCS (B5A1660-BS1)			Prepared: 2025-01-07, Analyzed: 2025-01-07						
Colour, True	18	5.0 CU	20.0		92	85-115			

General Parameters, Batch B5A1696

Blank (B5A1696-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B5A1696-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Cyanide, Total	0.0196	0.0020 mg/L	0.0200		98	82-120			
LCS Dup (B5A1696-BSD1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Cyanide, Total	0.0211	0.0020 mg/L	0.0200		106	82-120	8	10	

General Parameters, Batch B5A1697

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5A1697, Continued									
Blank (B5A1697-BLK1)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.9	°C							
Blank (B5A1697-BLK2)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.8	°C							
Blank (B5A1697-BLK3)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.8	°C							
LCS (B5A1697-BS1)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	93.6	1.0 mg/L	100		94	80-120			
Alkalinity, Phenolphthalein (as CaCO ₃)	44.6	1.0 mg/L	50.0		89	0-200			
LCS (B5A1697-BS2)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
LCS (B5A1697-BS3)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	93.9	1.0 mg/L	100		94	80-120			
Alkalinity, Phenolphthalein (as CaCO ₃)	42.9	1.0 mg/L	50.0		86	0-200			
LCS (B5A1697-BS4)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
LCS (B5A1697-BS5)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	94.1	1.0 mg/L	100		94	80-120			
Alkalinity, Phenolphthalein (as CaCO ₃)	40.9	1.0 mg/L	50.0		82	0-200			
LCS (B5A1697-BS6)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
Duplicate (B5A1697-DUP2)				Source: 25A0357-01 Prepared: 2025-01-08, Analyzed: 2025-01-08					
Alkalinity, Total (as CaCO ₃)	53.7	1.0 mg/L		52.8			2	10	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO ₃)	53.7	1.0 mg/L		52.8			2	10	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	134	2.0 µS/cm		135			< 1	5	
pH	7.36	0.10 pH units		7.23			2	4	HT2
Reference (B5A1697-SRM1)				Prepared: 2025-01-08, Analyzed: 2025-01-08					
pH	7.04	0.10 pH units	7.01		100	98-102			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

General Parameters, Batch B5A1697, Continued

Reference (B5A1697-SRM2)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
pH	7.03	0.10 pH units	7.01		100	98-102			
Reference (B5A1697-SRM3)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
pH	7.04	0.10 pH units	7.01		100	98-102			

General Parameters, Batch B5A1720

Blank (B5A1720-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Turbidity	< 0.10	0.10 NTU							
LCS (B5A1720-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Turbidity	15.7	0.10 NTU	14.6		108	90-110			
Duplicate (B5A1720-DUP1)			Source: 25A0357-05		Prepared: 2025-01-08, Analyzed: 2025-01-08				
Turbidity	3.55	0.10 NTU		3.49			2	15	

Haloacetic Acids, Batch B5A1715

Blank (B5A1715-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Monochloroacetic Acid	< 0.0020	0.0020 mg/L							
Monobromoacetic Acid	< 0.0020	0.0020 mg/L							
Dichloroacetic Acid	< 0.0020	0.0020 mg/L							
Trichloroacetic Acid	< 0.0020	0.0020 mg/L							
Dibromoacetic Acid	< 0.0020	0.0020 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0131	mg/L	0.0116		112	70-130			
LCS (B5A1715-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Monochloroacetic Acid	0.0558	0.0020 mg/L	0.0558		100	75-117			
Monobromoacetic Acid	0.0373	0.0020 mg/L	0.0375		99	83-113			
Dichloroacetic Acid	0.0561	0.0020 mg/L	0.0559		100	78-112			
Trichloroacetic Acid	0.0187	0.0020 mg/L	0.0186		100	81-110			
Dibromoacetic Acid	0.0177	0.0020 mg/L	0.0186		95	89-112			
Surrogate: 2-Bromopropionic Acid	0.0121	mg/L	0.0116		104	70-130			
LCS Dup (B5A1715-BSD1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Monochloroacetic Acid	0.0568	0.0020 mg/L	0.0558		102	75-117	2	30	
Monobromoacetic Acid	0.0379	0.0020 mg/L	0.0375		101	83-113	2	30	
Dichloroacetic Acid	0.0561	0.0020 mg/L	0.0559		100	78-112	< 1	30	
Trichloroacetic Acid	0.0187	0.0020 mg/L	0.0186		101	81-110	< 1	30	
Dibromoacetic Acid	0.0199	0.0020 mg/L	0.0186		107	89-112	12	30	
Surrogate: 2-Bromopropionic Acid	0.0111	mg/L	0.0116		96	70-130			

Total Metals, Batch B5A1771

Blank (B5A1771-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Total Metals, Batch B5A1771, Continued

Blank (B5A1771-BLK1), Continued

Prepared: 2025-01-08, Analyzed: 2025-01-08

Iron, total	< 0.010	0.010 mg/L
Lead, total	< 0.00020	0.00020 mg/L
Magnesium, total	< 0.010	0.010 mg/L
Manganese, total	< 0.00020	0.00020 mg/L
Molybdenum, total	< 0.00010	0.00010 mg/L
Nickel, total	< 0.00040	0.00040 mg/L
Potassium, total	< 0.10	0.10 mg/L
Selenium, total	< 0.00050	0.00050 mg/L
Sodium, total	< 0.10	0.10 mg/L
Strontium, total	< 0.0010	0.0010 mg/L
Uranium, total	< 0.000020	0.000020 mg/L
Zinc, total	< 0.0040	0.0040 mg/L

LCS (B5A1771-BS1)

Prepared: 2025-01-08, Analyzed: 2025-01-08

Aluminum, total	3.83	0.0050 mg/L	4.00	96	80-120
Antimony, total	0.0395	0.00020 mg/L	0.0400	99	80-120
Arsenic, total	0.387	0.00050 mg/L	0.400	97	80-120
Barium, total	0.0411	0.0050 mg/L	0.0400	103	80-120
Boron, total	0.418	0.0500 mg/L	0.400	105	80-120
Cadmium, total	0.0389	0.000010 mg/L	0.0400	97	80-120
Calcium, total	3.97	0.20 mg/L	4.00	99	80-120
Chromium, total	0.0399	0.00050 mg/L	0.0400	100	80-120
Cobalt, total	0.0393	0.00010 mg/L	0.0400	98	80-120
Copper, total	0.0391	0.00040 mg/L	0.0400	98	80-120
Iron, total	4.01	0.010 mg/L	4.00	100	80-120
Lead, total	0.0397	0.00020 mg/L	0.0400	99	80-120
Magnesium, total	3.93	0.010 mg/L	4.00	98	80-120
Manganese, total	0.0393	0.00020 mg/L	0.0400	98	80-120
Molybdenum, total	0.0401	0.00010 mg/L	0.0400	100	80-120
Nickel, total	0.0399	0.00040 mg/L	0.0400	100	80-120
Potassium, total	3.88	0.10 mg/L	4.00	97	80-120
Selenium, total	0.395	0.00050 mg/L	0.400	99	80-120
Sodium, total	3.88	0.10 mg/L	4.00	97	80-120
Strontium, total	0.0387	0.0010 mg/L	0.0400	97	80-120
Uranium, total	0.0403	0.000020 mg/L	0.0400	101	80-120
Zinc, total	0.384	0.0040 mg/L	0.400	96	80-120

Total Metals, Batch B5A1852

Blank (B5A1852-BLK1)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	< 0.000010	0.000010 mg/L
----------------	------------	---------------

Blank (B5A1852-BLK2)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	< 0.000010	0.000010 mg/L
----------------	------------	---------------

LCS (B5A1852-BS1)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	0.00254	0.000010 mg/L	0.00250	102	80-120
----------------	---------	---------------	---------	-----	--------

LCS (B5A1852-BS2)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	0.00262	0.000010 mg/L	0.00250	105	80-120
----------------	---------	---------------	---------	-----	--------

Volatile Organic Compounds (VOC), Batch B5A1915

Blank (B5A1915-BLK1)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Bromodichloromethane	< 0.0010	0.0010 mg/L
Bromoform	< 0.0010	0.0010 mg/L



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT	Castlegar, City of General Potability	WORK ORDER REPORTED	25A0357 2025-01-15 11:32
---------------------	--	---------------------	-----------------------------

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B5A1915, Continued									
Blank (B5A1915-BLK1), Continued					Prepared: 2025-01-09, Analyzed: 2025-01-09				
Chloroform	< 0.0010	0.0010 mg/L							
Dibromochloromethane	< 0.0010	0.0010 mg/L							
Surrogate: Toluene-d8	0.0307	mg/L	0.0250		123	70-130			
Surrogate: 4-Bromofluorobenzene	0.0275	mg/L	0.0249		110	70-130			
LCS (B5A1915-BS1)					Prepared: 2025-01-09, Analyzed: 2025-01-09				
Bromodichloromethane	0.0191	0.0010 mg/L	0.0198		97	70-130			
Bromoform	0.0184	0.0010 mg/L	0.0200		92	70-130			
Chloroform	0.0186	0.0010 mg/L	0.0198		94	70-130			
Dibromochloromethane	0.0189	0.0010 mg/L	0.0200		94	70-130			
Surrogate: Toluene-d8	0.0292	mg/L	0.0250		117	70-130			
Surrogate: 4-Bromofluorobenzene	0.0289	mg/L	0.0249		116	70-130			

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

CERTIFICATE OF ANALYSIS

REPORTED TO Castlegar, City of
460 Columbia Avenue
CASTLEGAR, BC V1N 1G7

ATTENTION Aaron Geck

PO NUMBER 502

PROJECT General Potability

PROJECT INFO

WORK ORDER 25D2028

RECEIVED / TEMP 2025-04-15 09:17 / 11.4°C

REPORTED 2025-04-23 14:15

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Hanane El Hannaoui
Junior Account Manager



1-888-311-8846 | 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 Castlegar, City of
General Potability

WORK ORDER REPORTED 25D2028
2025-04-23 14:15

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
481E - WTC - Raw Water (25D2028-01) Matrix: Water Sampled: 2025-04-14 09:10					
Anions					
Chloride	0.37	AO ≤ 250	0.10 mg/L	2025-04-16	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2025-04-16	
Nitrate (as N)	0.113	MAC = 10	0.010 mg/L	2025-04-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2025-04-16	
Sulfate	13.6	AO ≤ 500	1.0 mg/L	2025-04-16	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	64.8	None Required	0.500 mg/L	N/A	
Langelier Index	-1.0	N/A	-5.0	2025-04-23	CT6
Solids, Total Dissolved	71.9	AO ≤ 500	1.00 mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO ₃)	54.3	N/A	1.0 mg/L	2025-04-17	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-04-17	
Alkalinity, Bicarbonate (as CaCO ₃)	54.3	N/A	1.0 mg/L	2025-04-17	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-04-17	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-04-17	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2025-04-16	
Conductivity (EC)	139	N/A	2.0 µS/cm	2025-04-17	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2025-04-21	
pH	7.51	7.0-10.5	0.10 pH units	2025-04-17	HT2
Temperature, at pH	22.1	N/A	°C	2025-04-17	HT2
Turbidity	0.38	OG < 1	0.10 NTU	2025-04-17	
Microbiological Parameters					
Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2025-04-15	
Background Colonies	>200	N/A	200 CFU/100 mL	2025-04-15	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2025-04-15	
Total Metals					
Aluminum, total	0.0132	OG < 0.1	0.0050 mg/L	2025-04-16	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2025-04-16	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2025-04-16	
Barium, total	0.0165	MAC = 2	0.0050 mg/L	2025-04-16	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2025-04-16	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2025-04-16	
Calcium, total	18.5	None Required	0.20 mg/L	2025-04-16	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2025-04-16	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2025-04-16	
Copper, total	< 0.00040	MAC = 2	0.00040 mg/L	2025-04-16	
Iron, total	0.011	AO ≤ 0.1	0.010 mg/L	2025-04-16	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2025-04-16	
Magnesium, total	4.54	None Required	0.010 mg/L	2025-04-16	
Manganese, total	0.00162	MAC = 0.12	0.00020 mg/L	2025-04-16	

TEST RESULTS

REPORTED TO PROJECT
Castlegar, City of
General Potability

WORK ORDER REPORTED
25D2028
2025-04-23 14:15

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
481E - WTC - Raw Water (25D2028-01) Matrix: Water Sampled: 2025-04-14 09:10, Continued						
Total Metals, Continued						
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-04-16	
Molybdenum, total	0.00050	N/A	0.00010	mg/L	2025-04-16	
Nickel, total	0.00048	N/A	0.00040	mg/L	2025-04-16	
Potassium, total	0.62	N/A	0.10	mg/L	2025-04-16	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-04-16	
Sodium, total	0.81	AO ≤ 200	0.10	mg/L	2025-04-16	
Strontium, total	0.124	MAC = 7	0.0010	mg/L	2025-04-16	
Uranium, total	0.000395	MAC = 0.02	0.000020	mg/L	2025-04-16	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-04-16	

Sample Qualifiers:

CT6 Results were based on lab temperature & lab pH.

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

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

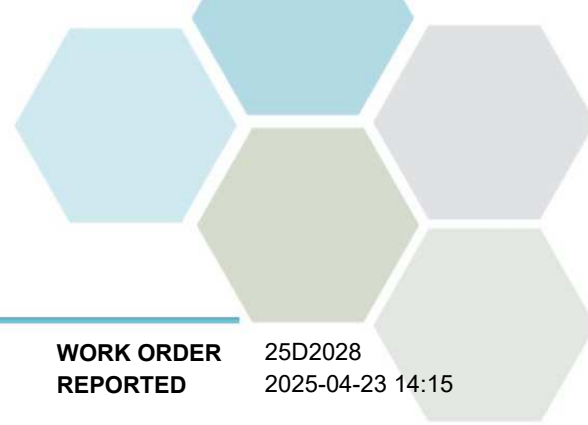
WORK ORDER REPORTED 25D2028
2025-04-23 14:15

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H ₂ SO ₄	✓	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
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO ₃ +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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25D2028
2025-04-23 14:15

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.

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: hhannaoui@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.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25D2028
2025-04-23 14:15

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

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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Anions, Batch B5D3209

LCS (B5D3209-BS2)			Prepared: 2025-04-17, Analyzed: 2025-04-17						
Chloride	15.9	0.10 mg/L	16.0		100	90-110			
Fluoride	4.05	0.10 mg/L	4.00		101	88-108			
Nitrate (as N)	4.03	0.010 mg/L	4.00		101	90-110			
Nitrite (as N)	2.00	0.010 mg/L	2.00		100	85-115			
Sulfate	16.2	1.0 mg/L	16.0		101	90-110			

General Parameters, Batch B5D3199

Blank (B5D3199-BLK1)			Prepared: 2025-04-16, Analyzed: 2025-04-16						
Colour, True	< 5.0	5.0 CU							
LCS (B5D3199-BS1)			Prepared: 2025-04-16, Analyzed: 2025-04-16						
Colour, True	18	5.0 CU	20.0		92	85-115			

General Parameters, Batch B5D3298

Blank (B5D3298-BLK1)			Prepared: 2025-04-17, Analyzed: 2025-04-17						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.0	°C							
Blank (B5D3298-BLK2)			Prepared: 2025-04-17, Analyzed: 2025-04-17						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 4.2	4.2 µS/cm							
Temperature, at pH	22.2	°C							
LCS (B5D3298-BS1)			Prepared: 2025-04-17, Analyzed: 2025-04-17						
Alkalinity, Total (as CaCO ₃)	91.1	1.0 mg/L	100		91	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25D2028
2025-04-23 14:15

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5D3298, Continued									
LCS (B5D3298-BS1), Continued				Prepared: 2025-04-17, Analyzed: 2025-04-17					
LCS (B5D3298-BS2)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Conductivity (EC)	1390	2.0 µS/cm	1410		99	95-105			
LCS (B5D3298-BS3)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Alkalinity, Total (as CaCO ₃)	91.2	1.0 mg/L	100		91	80-120			
LCS (B5D3298-BS4)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
Reference (B5D3298-SRM1)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
pH	7.01	0.10 pH units	7.01		100	98-102			
Reference (B5D3298-SRM2)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
pH	7.01	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B5D3309									
Blank (B5D3309-BLK1)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Turbidity	< 0.10	0.10 NTU							
Blank (B5D3309-BLK2)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Turbidity	< 0.10	0.10 NTU							
LCS (B5D3309-BS1)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Turbidity	15.8	0.10 NTU	15.8		100	90-110			
LCS (B5D3309-BS2)				Prepared: 2025-04-17, Analyzed: 2025-04-17					
Turbidity	151	0.10 NTU	151		100	90-110			
General Parameters, Batch B5D3449									
Blank (B5D3449-BLK1)				Prepared: 2025-04-21, Analyzed: 2025-04-21					
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B5D3449-BS1)				Prepared: 2025-04-21, Analyzed: 2025-04-21					
Cyanide, Total	0.0222	0.0020 mg/L	0.0200		111	82-120			
LCS Dup (B5D3449-BSD1)				Prepared: 2025-04-21, Analyzed: 2025-04-21					
Cyanide, Total	0.0215	0.0020 mg/L	0.0200		108	82-120	3	10	
Microbiological Parameters, Batch B5D3019									
Blank (B5D3019-BLK1)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK2)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK3)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25D2028
2025-04-23 14:15

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B5D3019, Continued									
Blank (B5D3019-BLK4)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK5)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK6)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK7)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK8)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLK9)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLKA)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLKB)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLKC)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5D3019-BLKD)				Prepared: 2025-04-15, Analyzed: 2025-04-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							

Total Metals, Batch B5D3202

Blank (B5D3202-BLK1)				Prepared: 2025-04-16, Analyzed: 2025-04-16					
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25D2028
2025-04-23 14:15

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5D3202, Continued									
Blank (B5D3202-BLK1), Continued					Prepared: 2025-04-16, Analyzed: 2025-04-16				
Nickel, total	< 0.00040	0.00040 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
LCS (B5D3202-BS1)					Prepared: 2025-04-16, Analyzed: 2025-04-16				
Aluminum, total	3.88	0.0050 mg/L	4.00		97	80-120			
Antimony, total	0.0391	0.00020 mg/L	0.0400		98	80-120			
Arsenic, total	0.386	0.00050 mg/L	0.400		96	80-120			
Barium, total	0.0395	0.0050 mg/L	0.0400		99	80-120			
Boron, total	0.391	0.0500 mg/L	0.400		98	80-120			
Cadmium, total	0.0385	0.000010 mg/L	0.0400		96	80-120			
Calcium, total	3.80	0.20 mg/L	4.00		95	80-120			
Chromium, total	0.0392	0.00050 mg/L	0.0400		98	80-120			
Cobalt, total	0.0389	0.00010 mg/L	0.0400		97	80-120			
Copper, total	0.0393	0.00040 mg/L	0.0400		98	80-120			
Iron, total	3.85	0.010 mg/L	4.00		96	80-120			
Lead, total	0.0386	0.00020 mg/L	0.0400		97	80-120			
Magnesium, total	3.99	0.010 mg/L	4.00		100	80-120			
Manganese, total	0.0395	0.00020 mg/L	0.0400		99	80-120			
Molybdenum, total	0.0392	0.00010 mg/L	0.0400		98	80-120			
Nickel, total	0.0391	0.00040 mg/L	0.0400		98	80-120			
Potassium, total	3.85	0.10 mg/L	4.00		96	80-120			
Selenium, total	0.380	0.00050 mg/L	0.400		95	80-120			
Sodium, total	3.91	0.10 mg/L	4.00		98	80-120			
Strontium, total	0.0390	0.0010 mg/L	0.0400		98	80-120			
Uranium, total	0.0388	0.000020 mg/L	0.0400		97	80-120			
Zinc, total	0.383	0.0040 mg/L	0.400		96	80-120			
Total Metals, Batch B5D3241									
Blank (B5D3241-BLK1)					Prepared: 2025-04-16, Analyzed: 2025-04-16				
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B5D3241-BLK2)					Prepared: 2025-04-16, Analyzed: 2025-04-16				
Mercury, total	< 0.000010	0.000010 mg/L							
LCS (B5D3241-BS1)					Prepared: 2025-04-16, Analyzed: 2025-04-16				
Mercury, total	0.00257	0.000010 mg/L	0.00250		103	80-120			
LCS (B5D3241-BS2)					Prepared: 2025-04-16, Analyzed: 2025-04-16				
Mercury, total	0.00255	0.000010 mg/L	0.00250		102	80-120			

CERTIFICATE OF ANALYSIS

REPORTED TO Castlegar, City of
460 Columbia Avenue
CASTLEGAR, BC V1N 1G7

ATTENTION Aaron Geck

PO NUMBER 502

PROJECT THM & HAA

PROJECT INFO

WORK ORDER 25D2030

RECEIVED / TEMP REPORTED 2025-04-15 09:17 / 11.4°C
2025-04-23 14:57

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Hanane El Hannaoui
Junior Account Manager

1-888-311-8846 | 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 Castlegar, City of
THM & HAA

WORK ORDER REPORTED 25D2030
2025-04-23 14:57

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

Blueberry (25D2030-01) | Matrix: Water | Sampled: 2025-04-14 08:00

Calculated Parameters

Total Trihalomethanes	0.0313	MAC = 0.1	0.00400	mg/L	N/A	
-----------------------	--------	-----------	---------	------	-----	--

Volatile Organic Compounds (VOC)

Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-04-18	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-04-18	
Chloroform	0.0313	N/A	0.0010	mg/L	2025-04-18	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-04-18	
Surrogate: Toluene-d8	97		70-130	%	2025-04-18	
Surrogate: 4-Bromofluorobenzene	99		70-130	%	2025-04-18	

Airport (25D2030-02) | Matrix: Water | Sampled: 2025-04-14 11:20

Calculated Parameters

Total Trihalomethanes	0.0304	MAC = 0.1	0.00400	mg/L	N/A	
-----------------------	--------	-----------	---------	------	-----	--

Volatile Organic Compounds (VOC)

Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-04-18	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-04-18	
Chloroform	0.0304	N/A	0.0010	mg/L	2025-04-18	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-04-18	
Surrogate: Toluene-d8	96		70-130	%	2025-04-18	
Surrogate: 4-Bromofluorobenzene	82		70-130	%	2025-04-18	

Park Pumpouse (25D2030-03) | Matrix: Water | Sampled: 2025-04-14 08:20

Haloacetic Acids

Monochloroacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-04-18	
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-04-18	
Dichloroacetic Acid	0.0109	N/A	0.0020	mg/L	2025-04-18	
Trichloroacetic Acid	0.0109	N/A	0.0020	mg/L	2025-04-18	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-04-18	
Total Haloacetic Acids (HAA5)	0.0218	MAC = 0.08	0.00200	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	104		70-130	%	2025-04-18	

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
THM & HAA

WORK ORDER REPORTED 25D2030
2025-04-23 14:57

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

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

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
EPA	United States Environmental Protection Agency Test Methods

Guidelines Referenced in this Report:

[Guidelines for Canadian Drinking Water Quality \(Health Canada, September 2022\)](#)

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:

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: hhannaoui@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 Castlegar, City of
460 Columbia Avenue
CASTLEGAR, BC V1N 1G7

ATTENTION Aaron Geck

PO NUMBER 502

PROJECT General Potability

PROJECT INFO

WORK ORDER 25G1286

RECEIVED / TEMP 2025-07-09 09:27 / 17.0°C

REPORTED 2025-07-18 11:00

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Hanane El Hannaoui
Junior Account Manager



1-888-311-8846 | 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 Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
481E - WTC - Raw Water (25G1286-01) Matrix: Drinking Water Sampled: 2025-07-08 09:30					
Anions					
Chloride	0.31	AO ≤ 250	0.10 mg/L	2025-07-10	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2025-07-10	
Nitrate (as N)	0.103	MAC = 10	0.010 mg/L	2025-07-10	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2025-07-10	
Sulfate	11.8	AO ≤ 500	1.0 mg/L	2025-07-10	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	66.5	None Required	0.500 mg/L	N/A	
Langelier Index	-1.4	N/A	-5.0	2025-07-15	CT6
Solids, Total Dissolved	69.7	AO ≤ 500	1.00 mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO ₃)	52.3	N/A	1.0 mg/L	2025-07-12	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-07-12	
Alkalinity, Bicarbonate (as CaCO ₃)	52.3	N/A	1.0 mg/L	2025-07-12	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-07-12	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-07-12	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2025-07-11	
Conductivity (EC)	136	N/A	2.0 µS/cm	2025-07-12	
Cyanide, Total	0.0042	MAC = 0.2	0.0020 mg/L	2025-07-10	
pH	7.13	7.0-10.5	0.10 pH units	2025-07-12	HT2
Temperature, at pH	21.9	N/A	°C	2025-07-12	HT2
Turbidity	0.29	OG < 1	0.10 NTU	2025-07-09	
Microbiological Parameters					
Coliforms, Total (Q-Tray)	23	MAC = 0	1 MPN/100 mL	2025-07-09	
E. coli (Q-Tray)	< 1	MAC = 0	1 MPN/100 mL	2025-07-09	
Total Metals					
Aluminum, total	0.0109	OG < 0.1	0.0050 mg/L	2025-07-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2025-07-11	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2025-07-11	
Barium, total	0.0175	MAC = 2	0.0050 mg/L	2025-07-11	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2025-07-11	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2025-07-11	
Calcium, total	19.2	None Required	0.20 mg/L	2025-07-11	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2025-07-11	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2025-07-11	
Copper, total	< 0.00040	MAC = 2	0.00040 mg/L	2025-07-11	
Iron, total	< 0.010	AO ≤ 0.1	0.010 mg/L	2025-07-12	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2025-07-11	
Magnesium, total	4.47	None Required	0.010 mg/L	2025-07-11	
Manganese, total	0.00080	MAC = 0.12	0.00020 mg/L	2025-07-11	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2025-07-15	

TEST RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
481E - WTC - Raw Water (25G1286-01) Matrix: Drinking Water Sampled: 2025-07-08 09:30, Continued						
<i>Total Metals, Continued</i>						
Molybdenum, total	0.00049	N/A	0.00010	mg/L	2025-07-11	
Nickel, total	0.00044	N/A	0.00040	mg/L	2025-07-11	
Potassium, total	0.66	N/A	0.10	mg/L	2025-07-11	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-07-11	
Sodium, total	0.88	AO ≤ 200	0.10	mg/L	2025-07-11	
Strontium, total	0.129	MAC = 7	0.0010	mg/L	2025-07-11	
Uranium, total	0.000428	MAC = 0.02	0.000020	mg/L	2025-07-11	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-07-11	

Blueberry (25G1286-02) | Matrix: Water | Sampled: 2025-07-08 08:25

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0256	MAC = 0.1	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-07-11	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-07-11	
Chloroform	0.0256	N/A	0.0010	mg/L	2025-07-11	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-07-11	
Surrogate: Toluene-d8	97		70-130	%	2025-07-11	
Surrogate: 4-Bromofluorobenzene	74		70-130	%	2025-07-11	

Aiport (25G1286-03) | Matrix: Water | Sampled: 2025-07-08 09:05

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0268	MAC = 0.1	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-07-11	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-07-11	
Chloroform	0.0268	N/A	0.0010	mg/L	2025-07-11	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-07-11	
Surrogate: Toluene-d8	103		70-130	%	2025-07-11	
Surrogate: 4-Bromofluorobenzene	86		70-130	%	2025-07-11	

Park Pumphouse (25G1286-04) | Matrix: Water | Sampled: 2025-07-08 08:45

<i>Haloacetic Acids</i>						
Monochloroacetic Acid	< 0.0040	N/A	0.0020	mg/L	2025-07-16	RA3
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-07-16	
Dichloroacetic Acid	0.0083	N/A	0.0020	mg/L	2025-07-16	
Trichloroacetic Acid	0.0072	N/A	0.0020	mg/L	2025-07-16	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-07-16	

TEST RESULTS

REPORTED TO PROJECT	Castlegar, City of General Potability	WORK ORDER REPORTED	25G1286 2025-07-18 11:00
---------------------	--	---------------------	-----------------------------

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Park Pumphouse (25G1286-04) Matrix: Water Sampled: 2025-07-08 08:45, Continued						
Haloacetic Acids, Continued						
Total Haloacetic Acids (HAA5)	0.0155	MAC = 0.08	0.00400	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	102		70-130	%	2025-07-16	

Sample Qualifiers:	
CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RA3	The Reporting Limit has been raised due to comparable level detected in the blank(s).

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

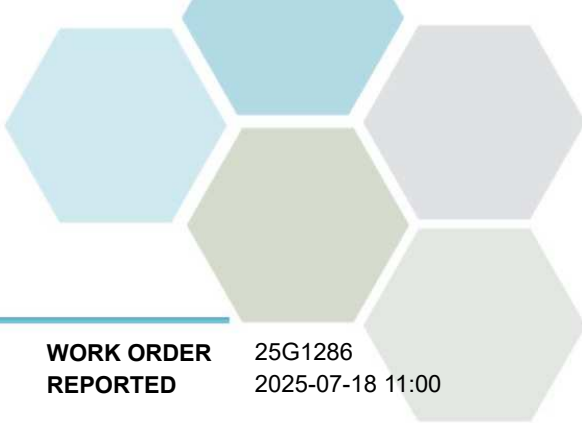
WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H ₂ SO ₄	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9223 (2016)	Quanti-Tray / Enzyme Substrate Endo Agar	✓	Kelowna
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
MPN/100 mL	Most Probable Number per 100 millilitres
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Castlegar, City of	WORK ORDER	25G1286
PROJECT	General Potability	REPORTED	2025-07-18 11:00

General Comments:

The results in this report apply to samples received by CARO and analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety and must not be modified. CARO is not responsible for losses or damages resulting directly or indirectly from errors or omissions in the conduct of the testing. Any liability is limited to the cost of analysis. CARO will dispose of all samples within 30 days of sample receipt, unless otherwise agreed .

Results in **Bold** indicate values that are above CARO's method reporting limits. Results in **red** indicate values above the regulatory limits where these have been included. 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: hhannaoui@caro.ca

Regulatory limits are added to test reports on request and are as a convenience only. While CARO makes every effort to ensure accuracy of regulatory limits, CARO assumes no liability for the use of this information. It remains the client's responsibility to ensure that regulatory limits are correct for their circumstances.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

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

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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B5G2768									
Blank (B5G2768-BLK1)					Prepared: 2025-07-10, Analyzed: 2025-07-10				
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
Blank (B5G2768-BLK2)					Prepared: 2025-07-10, Analyzed: 2025-07-10				
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
Blank (B5G2768-BLK3)					Prepared: 2025-07-11, Analyzed: 2025-07-11				
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B5G2768-BS1)					Prepared: 2025-07-10, Analyzed: 2025-07-10				
Chloride	15.5	0.10 mg/L	16.0		97	90-110			
Fluoride	4.10	0.10 mg/L	4.00		103	88-108			
Nitrate (as N)	3.96	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	1.94	0.010 mg/L	2.00		97	85-115			
Sulfate	15.7	1.0 mg/L	16.0		98	90-110			
LCS (B5G2768-BS2)					Prepared: 2025-07-10, Analyzed: 2025-07-10				
Chloride	15.9	0.10 mg/L	16.0		100	90-110			
Fluoride	4.04	0.10 mg/L	4.00		101	88-108			
Nitrate (as N)	3.95	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	1.95	0.010 mg/L	2.00		98	85-115			
Sulfate	15.8	1.0 mg/L	16.0		99	90-110			
LCS (B5G2768-BS3)					Prepared: 2025-07-11, Analyzed: 2025-07-11				
Chloride	15.6	0.10 mg/L	16.0		98	90-110			
Fluoride	4.04	0.10 mg/L	4.00		101	88-108			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B5G2768, Continued									
LCS (B5G2768-BS3), Continued				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Nitrate (as N)	3.98	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	1.96	0.010 mg/L	2.00		98	85-115			
Sulfate	16.0	1.0 mg/L	16.0		100	90-110			
Duplicate (B5G2768-DUP1)				Source: 25G1286-01		Prepared: 2025-07-10, Analyzed: 2025-07-10			
Chloride	0.31	0.10 mg/L		0.31				10	
Fluoride	< 0.10	0.10 mg/L		< 0.10				10	
Nitrate (as N)	0.101	0.010 mg/L		0.103			2	10	
Nitrite (as N)	< 0.010	0.010 mg/L		< 0.010				15	
Sulfate	11.4	1.0 mg/L		11.8			3	10	
Matrix Spike (B5G2768-MS1)				Source: 25G1286-01		Prepared: 2025-07-10, Analyzed: 2025-07-10			
Chloride	15.7	0.10 mg/L	16.0	0.31	96	75-125			
Fluoride	4.17	0.10 mg/L	4.00	< 0.10	103	75-125			
Nitrate (as N)	4.03	0.010 mg/L	4.00	0.103	98	75-125			
Nitrite (as N)	1.93	0.010 mg/L	2.00	< 0.010	96	75-115			
Sulfate	27.1	1.0 mg/L	16.0	11.8	96	75-125			
General Parameters, Batch B5G2625									
Blank (B5G2625-BLK1)				Prepared: 2025-07-09, Analyzed: 2025-07-09					
Turbidity	< 0.10	0.10 NTU							
Blank (B5G2625-BLK2)				Prepared: 2025-07-09, Analyzed: 2025-07-09					
Turbidity	< 0.10	0.10 NTU							
LCS (B5G2625-BS1)				Prepared: 2025-07-09, Analyzed: 2025-07-09					
Turbidity	152	0.10 NTU	151		101	90-110			
LCS (B5G2625-BS2)				Prepared: 2025-07-09, Analyzed: 2025-07-09					
Turbidity	17.0	0.10 NTU	15.8		108	90-110			
General Parameters, Batch B5G2727									
Blank (B5G2727-BLK1)				Prepared: 2025-07-10, Analyzed: 2025-07-10					
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B5G2727-BS1)				Prepared: 2025-07-10, Analyzed: 2025-07-10					
Cyanide, Total	0.0188	0.0020 mg/L	0.0200		94	82-120			
LCS Dup (B5G2727-BSD1)				Prepared: 2025-07-10, Analyzed: 2025-07-10					
Cyanide, Total	0.0193	0.0020 mg/L	0.0200		96	82-120	2	10	
General Parameters, Batch B5G2825									
Blank (B5G2825-BLK1)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Colour, True	< 5.0	5.0 CU							
Blank (B5G2825-BLK2)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Colour, True	< 5.0	5.0 CU							
LCS (B5G2825-BS1)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Colour, True	20	5.0 CU	20.0		98	85-115			
LCS (B5G2825-BS2)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Colour, True	18	5.0 CU	20.0		91	85-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5G2924									
Blank (B5G2924-BLK1)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	1.4	1.0 µS/cm							
Temperature, at pH	22.6	°C							
Blank (B5G2924-BLK2)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	1.7	1.0 µS/cm							
Temperature, at pH	22.1	°C							
Blank (B5G2924-BLK3)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	1.5	1.0 µS/cm							
Temperature, at pH	22.8	°C							
LCS (B5G2924-BS1)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Alkalinity, Total (as CaCO ₃)	87.3	1.0 mg/L	100		87	80-120			
LCS (B5G2924-BS2)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Conductivity (EC)	1420	1.0 µS/cm	1410		101	95-105			
LCS (B5G2924-BS3)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Alkalinity, Total (as CaCO ₃)	88.5	1.0 mg/L	100		88	80-120			
LCS (B5G2924-BS4)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Conductivity (EC)	1420	1.0 µS/cm	1410		101	95-105			
LCS (B5G2924-BS5)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Alkalinity, Total (as CaCO ₃)	87.4	1.0 mg/L	100		87	80-120			
LCS (B5G2924-BS6)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
Conductivity (EC)	1420	1.0 µS/cm	1410		101	95-105			
Reference (B5G2924-SRM1)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
pH	7.00	0.10 pH units	7.01		100	98-102			
Reference (B5G2924-SRM2)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
pH	7.01	0.10 pH units	7.01		100	98-102			
Reference (B5G2924-SRM3)				Prepared: 2025-07-12, Analyzed: 2025-07-12					
pH	7.01	0.10 pH units	7.01		100	98-102			

Haloacetic Acids, Batch B5G3307

Blank (B5G3307-BLK1)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Monochloroacetic Acid	0.0046	0.0020 mg/L							BLK

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Haloacetic Acids, Batch B5G3307, Continued

Blank (B5G3307-BLK1), Continued

Prepared: 2025-07-15, Analyzed: 2025-07-15

Monobromoacetic Acid	< 0.0020	0.0020 mg/L							
Dichloroacetic Acid	< 0.0020	0.0020 mg/L							
Trichloroacetic Acid	< 0.0020	0.0020 mg/L							
Dibromoacetic Acid	< 0.0020	0.0020 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0111	mg/L	0.0116		95	70-130			

LCS (B5G3307-BS1)

Prepared: 2025-07-15, Analyzed: 2025-07-15

Monochloroacetic Acid	0.0546	0.0020 mg/L	0.0558		98	75-117			
Monobromoacetic Acid	0.0373	0.0020 mg/L	0.0374		100	83-113			
Dichloroacetic Acid	0.0565	0.0020 mg/L	0.0563		100	78-112			
Trichloroacetic Acid	0.0188	0.0020 mg/L	0.0186		101	81-110			
Dibromoacetic Acid	0.0189	0.0020 mg/L	0.0188		101	89-112			
Surrogate: 2-Bromopropionic Acid	0.0118	mg/L	0.0116		101	70-130			

LCS Dup (B5G3307-BSD1)

Prepared: 2025-07-15, Analyzed: 2025-07-15

Monochloroacetic Acid	0.0579	0.0020 mg/L	0.0558		104	75-117	6	30	
Monobromoacetic Acid	0.0379	0.0020 mg/L	0.0374		101	83-113	2	30	
Dichloroacetic Acid	0.0556	0.0020 mg/L	0.0563		99	78-112	2	30	
Trichloroacetic Acid	0.0186	0.0020 mg/L	0.0186		100	81-110	< 1	30	
Dibromoacetic Acid	0.0187	0.0020 mg/L	0.0188		99	89-112	1	30	
Surrogate: 2-Bromopropionic Acid	0.0115	mg/L	0.0116		99	70-130			

Microbiological Parameters, Batch B5G2666

Blank (B5G2666-BLK1)

Prepared: 2025-07-09, Analyzed: 2025-07-09

Coliforms, Total (Q-Tray)	< 1	1 MPN/100 mL							
E. coli (Q-Tray)	< 1	1 MPN/100 mL							

Blank (B5G2666-BLK3)

Prepared: 2025-07-09, Analyzed: 2025-07-09

Coliforms, Total (Q-Tray)	< 1	1 MPN/100 mL							
E. coli (Q-Tray)	< 1	1 MPN/100 mL							

Blank (B5G2666-BLK4)

Prepared: 2025-07-09, Analyzed: 2025-07-10

Coliforms, Total (Q-Tray)	< 1	1 MPN/100 mL							
E. coli (Q-Tray)	< 1	1 MPN/100 mL							

Duplicate (B5G2666-DUP4)

Source: 25G1286-01

Prepared: 2025-07-09, Analyzed: 2025-07-09

Coliforms, Total (Q-Tray)	24	1 MPN/100 mL	23				5	80	
E. coli (Q-Tray)	< 1	1 MPN/100 mL	< 1					80	

Total Metals, Batch B5G2993

Blank (B5G2993-BLK1)

Prepared: 2025-07-11, Analyzed: 2025-07-11

Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5G2993, Continued									
Blank (B5G2993-BLK1), Continued				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Blank (B5G2993-BLK2)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
LCS (B5G2993-BS1)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Aluminum, total	3.91	0.0050 mg/L	4.00		98	80-120			
Antimony, total	0.0397	0.00020 mg/L	0.0400		99	80-120			
Arsenic, total	0.382	0.00050 mg/L	0.400		95	80-120			
Barium, total	0.0387	0.0050 mg/L	0.0400		97	80-120			
Boron, total	0.403	0.0500 mg/L	0.400		101	80-120			
Cadmium, total	0.0391	0.000010 mg/L	0.0400		98	80-120			
Calcium, total	4.30	0.20 mg/L	4.00		108	80-120			
Chromium, total	0.0383	0.00050 mg/L	0.0400		96	80-120			
Cobalt, total	0.0387	0.00010 mg/L	0.0400		97	80-120			
Copper, total	0.0383	0.00040 mg/L	0.0400		96	80-120			
Iron, total	3.93	0.010 mg/L	4.00		98	80-120			
Lead, total	0.0386	0.00020 mg/L	0.0400		96	80-120			
Magnesium, total	3.95	0.010 mg/L	4.00		99	80-120			
Manganese, total	0.0383	0.00020 mg/L	0.0400		96	80-120			
Molybdenum, total	0.0389	0.00010 mg/L	0.0400		97	80-120			
Nickel, total	0.0388	0.00040 mg/L	0.0400		97	80-120			
Potassium, total	3.95	0.10 mg/L	4.00		99	80-120			
Selenium, total	0.394	0.00050 mg/L	0.400		99	80-120			
Sodium, total	3.90	0.10 mg/L	4.00		98	80-120			
Strontium, total	0.0386	0.0010 mg/L	0.0400		97	80-120			
Uranium, total	0.0395	0.000020 mg/L	0.0400		99	80-120			
Zinc, total	0.379	0.0040 mg/L	0.400		95	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5G2993, Continued									
LCS (B5G2993-BS2)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Aluminum, total	3.88	0.0050 mg/L	4.00		97	80-120			
Antimony, total	0.0389	0.00020 mg/L	0.0400		97	80-120			
Arsenic, total	0.381	0.00050 mg/L	0.400		95	80-120			
Barium, total	0.0383	0.0050 mg/L	0.0400		96	80-120			
Boron, total	0.407	0.0500 mg/L	0.400		102	80-120			
Cadmium, total	0.0386	0.000010 mg/L	0.0400		97	80-120			
Calcium, total	4.21	0.20 mg/L	4.00		105	80-120			
Chromium, total	0.0383	0.00050 mg/L	0.0400		96	80-120			
Cobalt, total	0.0389	0.00010 mg/L	0.0400		97	80-120			
Copper, total	0.0383	0.00040 mg/L	0.0400		96	80-120			
Iron, total	3.92	0.010 mg/L	4.00		98	80-120			
Lead, total	0.0383	0.00020 mg/L	0.0400		96	80-120			
Magnesium, total	3.95	0.010 mg/L	4.00		99	80-120			
Manganese, total	0.0383	0.00020 mg/L	0.0400		96	80-120			
Molybdenum, total	0.0387	0.00010 mg/L	0.0400		97	80-120			
Nickel, total	0.0387	0.00040 mg/L	0.0400		97	80-120			
Potassium, total	3.96	0.10 mg/L	4.00		99	80-120			
Selenium, total	0.391	0.00050 mg/L	0.400		98	80-120			
Sodium, total	3.85	0.10 mg/L	4.00		96	80-120			
Strontium, total	0.0391	0.0010 mg/L	0.0400		98	80-120			
Uranium, total	0.0388	0.000020 mg/L	0.0400		97	80-120			
Zinc, total	0.383	0.0040 mg/L	0.400		96	80-120			

Duplicate (B5G2993-DUP1)		Source: 25G1286-01		Prepared: 2025-07-11, Analyzed: 2025-07-12					
Aluminum, total	0.0109	0.0050 mg/L	0.0109					20	
Antimony, total	< 0.00020	0.00020 mg/L	< 0.00020					20	
Arsenic, total	< 0.00050	0.00050 mg/L	< 0.00050					20	
Barium, total	0.0174	0.0050 mg/L	0.0175					20	
Boron, total	< 0.0500	0.0500 mg/L	< 0.0500					20	
Cadmium, total	< 0.000010	0.000010 mg/L	< 0.000010					20	
Calcium, total	18.9	0.20 mg/L	19.2				2	20	
Chromium, total	< 0.00050	0.00050 mg/L	< 0.00050					20	
Cobalt, total	< 0.00010	0.00010 mg/L	< 0.00010					20	
Copper, total	< 0.00040	0.00040 mg/L	< 0.00040					20	
Iron, total	< 0.010	0.010 mg/L	< 0.010					20	
Lead, total	< 0.00020	0.00020 mg/L	< 0.00020					20	
Magnesium, total	4.46	0.010 mg/L	4.47				< 1	20	
Manganese, total	0.00079	0.00020 mg/L	0.00080					20	
Molybdenum, total	0.00050	0.00010 mg/L	0.00049				2	20	
Nickel, total	0.00047	0.00040 mg/L	0.00044					20	
Potassium, total	0.67	0.10 mg/L	0.66				2	20	
Selenium, total	< 0.00050	0.00050 mg/L	< 0.00050					20	
Sodium, total	0.88	0.10 mg/L	0.88				< 1	20	
Strontium, total	0.129	0.0010 mg/L	0.129				< 1	20	
Uranium, total	0.000431	0.000020 mg/L	0.000428				< 1	20	
Zinc, total	< 0.0040	0.0040 mg/L	< 0.0040					20	

Total Metals, Batch B5G3266

Blank (B5G3266-BLK1)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B5G3266-BLK2)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	< 0.000010	0.000010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25G1286
2025-07-18 11:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5G3266, Continued									
Blank (B5G3266-BLK3)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B5G3266-BLK4)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	< 0.000010	0.000010 mg/L							
LCS (B5G3266-BS1)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	0.00264	0.000010 mg/L	0.00250		106	80-120			
LCS (B5G3266-BS2)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	0.00264	0.000010 mg/L	0.00250		106	80-120			
LCS (B5G3266-BS3)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	0.00262	0.000010 mg/L	0.00250		105	80-120			
LCS (B5G3266-BS4)				Prepared: 2025-07-15, Analyzed: 2025-07-15					
Mercury, total	0.00245	0.000010 mg/L	0.00250		98	80-120			
Volatile Organic Compounds (VOC), Batch B5G2944									
Blank (B5G2944-BLK1)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Bromodichloromethane	< 0.0010	0.0010 mg/L							
Bromoform	< 0.0010	0.0010 mg/L							
Chloroform	< 0.0010	0.0010 mg/L							
Dibromochloromethane	< 0.0010	0.0010 mg/L							
Surrogate: Toluene-d8	0.0241	mg/L	0.0250		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0220	mg/L	0.0249		88	70-130			
LCS (B5G2944-BS1)				Prepared: 2025-07-11, Analyzed: 2025-07-11					
Bromodichloromethane	0.0186	0.0010 mg/L	0.0198		94	70-130			
Bromoform	0.0177	0.0010 mg/L	0.0200		88	70-130			
Chloroform	0.0202	0.0010 mg/L	0.0198		102	70-130			
Dibromochloromethane	0.0179	0.0010 mg/L	0.0200		90	70-130			
Surrogate: Toluene-d8	0.0260	mg/L	0.0250		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.0251	mg/L	0.0249		101	70-130			
Duplicate (B5G2944-DUP1)				Source: 25G1286-02		Prepared: 2025-07-11, Analyzed: 2025-07-11			
Bromodichloromethane	< 0.0010	0.0010 mg/L		< 0.0010					23
Bromoform	< 0.0010	0.0010 mg/L		< 0.0010					23
Chloroform	0.0257	0.0010 mg/L		0.0256			< 1		22
Dibromochloromethane	< 0.0010	0.0010 mg/L		< 0.0010					28
Surrogate: Toluene-d8	0.0265	mg/L	0.0250		106	70-130			
Surrogate: 4-Bromofluorobenzene	0.0237	mg/L	0.0249		95	70-130			
Matrix Spike (B5G2944-MS1)				Source: 25G1286-02		Prepared: 2025-07-11, Analyzed: 2025-07-11			
Bromodichloromethane	0.0208	0.0010 mg/L	0.0198	< 0.0010	102	70-130			
Bromoform	0.0198	0.0010 mg/L	0.0200	< 0.0010	99	70-130			
Chloroform	0.0439	0.0010 mg/L	0.0198	0.0256	92	70-130			
Dibromochloromethane	0.0197	0.0010 mg/L	0.0200	< 0.0010	99	70-130			
Surrogate: Toluene-d8	0.0257	mg/L	0.0250		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0247	mg/L	0.0249		99	70-130			

QC Qualifiers:

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).

CERTIFICATE OF ANALYSIS

REPORTED TO Castlegar, City of
460 Columbia Avenue
CASTLEGAR, BC V1N 1G7

ATTENTION Aaron Geck

PO NUMBER 502

PROJECT General Potability

PROJECT INFO

WORK ORDER 25J2001

RECEIVED / TEMP 2025-10-15 10:26 / 5.5°C

REPORTED 2025-10-24 14:30

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Hanane El Hannaoui
Junior Account Manager

1-888-311-8846 | 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 Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
481E - WTC - Raw Water (25J2001-01) Matrix: Drinking Water Sampled: 2025-10-14 10:30					
Anions					
Chloride	0.24	AO ≤ 250	0.10 mg/L	2025-10-16	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2025-10-16	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2025-10-16	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2025-10-16	
Sulfate	11.7	AO ≤ 500	1.0 mg/L	2025-10-16	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	57.0	None Required	0.500 mg/L	N/A	
Langelier Index	-2.0	N/A	-5.0	2025-10-20	CT6
Solids, Total Dissolved	66.6	AO ≤ 500	1.00 mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO ₃)	54.0	N/A	1.0 mg/L	2025-10-16	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-10-16	
Alkalinity, Bicarbonate (as CaCO ₃)	54.0	N/A	1.0 mg/L	2025-10-16	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-10-16	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0 mg/L	2025-10-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2025-10-15	
Conductivity (EC)	115	N/A	2.0 µS/cm	2025-10-16	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2025-10-18	
pH	6.63	7.0-10.5	0.10 pH units	2025-10-16	HT2
Temperature, at pH	20.9	N/A	°C	2025-10-16	HT2
Turbidity	0.48	OG < 1	0.10 NTU	2025-10-16	
Microbiological Parameters					
Coliforms, Total	98	MAC = 0	1 CFU/100 mL	2025-10-15	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2025-10-15	
Total Metals					
Aluminum, total	0.0155	OG < 0.1	0.0050 mg/L	2025-10-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2025-10-17	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2025-10-17	
Barium, total	0.0150	MAC = 2	0.0050 mg/L	2025-10-17	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2025-10-17	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010 mg/L	2025-10-17	
Calcium, total	16.8	None Required	0.20 mg/L	2025-10-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2025-10-17	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2025-10-17	
Copper, total	< 0.00040	MAC = 2	0.00040 mg/L	2025-10-17	
Iron, total	< 0.010	AO ≤ 0.1	0.010 mg/L	2025-10-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2025-10-17	
Magnesium, total	3.65	None Required	0.010 mg/L	2025-10-17	
Manganese, total	0.00160	MAC = 0.12	0.00020 mg/L	2025-10-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2025-10-21	

TEST RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
481E - WTC - Raw Water (25J2001-01) Matrix: Drinking Water Sampled: 2025-10-14 10:30, Continued						
<i>Total Metals, Continued</i>						
Molybdenum, total	0.00052	N/A	0.00010	mg/L	2025-10-17	
Nickel, total	0.00052	N/A	0.00040	mg/L	2025-10-17	
Potassium, total	0.64	N/A	0.10	mg/L	2025-10-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-10-17	
Sodium, total	0.69	AO ≤ 200	0.10	mg/L	2025-10-17	
Strontium, total	0.108	MAC = 7	0.0010	mg/L	2025-10-17	
Uranium, total	0.000399	MAC = 0.02	0.000020	mg/L	2025-10-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-10-17	

Blueberry (25J2001-02) | Matrix: Water | Sampled: 2025-10-14 08:20

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0300	MAC = 0.1	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-10-21	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-10-21	
Chloroform	0.0300	N/A	0.0010	mg/L	2025-10-21	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-10-21	
Surrogate: Toluene-d8	92		70-130	%	2025-10-21	
Surrogate: 4-Bromofluorobenzene	71		70-130	%	2025-10-21	

Airport (25J2001-03) | Matrix: Water | Sampled: 2025-10-14 09:40

<i>Calculated Parameters</i>						
Total Trihalomethanes	0.0274	MAC = 0.1	0.00400	mg/L	N/A	
<i>Volatile Organic Compounds (VOC)</i>						
Bromodichloromethane	< 0.0010	N/A	0.0010	mg/L	2025-10-21	
Bromoform	< 0.0010	N/A	0.0010	mg/L	2025-10-21	
Chloroform	0.0274	N/A	0.0010	mg/L	2025-10-21	
Dibromochloromethane	< 0.0010	N/A	0.0010	mg/L	2025-10-21	
Surrogate: Toluene-d8	97		70-130	%	2025-10-21	
Surrogate: 4-Bromofluorobenzene	75		70-130	%	2025-10-21	

Park Pumphouse (25J2001-04) | Matrix: Water | Sampled: 2025-10-14 09:05

<i>Haloacetic Acids</i>						
Monochloroacetic Acid	< 0.0040	N/A	0.0020	mg/L	2025-10-23	RA3
Monobromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-10-23	
Dichloroacetic Acid	0.0121	N/A	0.0020	mg/L	2025-10-23	
Trichloroacetic Acid	0.0135	N/A	0.0020	mg/L	2025-10-23	
Dibromoacetic Acid	< 0.0020	N/A	0.0020	mg/L	2025-10-23	



TEST RESULTS

REPORTED TO PROJECT	Castlegar, City of General Potability	WORK ORDER REPORTED	25J2001 2025-10-24 14:30
---------------------	--	---------------------	-----------------------------

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

Park Pumphouse (25J2001-04) | Matrix: Water | Sampled: 2025-10-14 09:05, Continued

Haloacetic Acids, Continued

Total Haloacetic Acids (HAA5)	0.0255	MAC = 0.08	0.00400	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	114		70-130	%	2025-10-23	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RA3	The Reporting Limit has been raised due to comparable level detected in the blank(s).

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H ₂ SO ₄	✓	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
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Castlegar, City of	WORK ORDER	25J2001
PROJECT	General Potability	REPORTED	2025-10-24 14:30

General Comments:

The results in this report apply to samples received by CARO and analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety and must not be modified. CARO is not responsible for losses or damages resulting directly or indirectly from errors or omissions in the conduct of the testing. Any liability is limited to the cost of analysis. CARO will dispose of all samples within 30 days of sample receipt, unless otherwise agreed .

Results in **Bold** indicate values that are above CARO's method reporting limits. Results in **red** indicate values above the regulatory limits where these have been included. 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: hhannaoui@caro.ca

Regulatory limits are added to test reports on request and are as a convenience only. While CARO makes every effort to ensure accuracy of regulatory limits, CARO assumes no liability for the use of this information. It remains the client's responsibility to ensure that regulatory limits are correct for their circumstances.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

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

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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Anions, Batch B5J3554

Blank (B5J3554-BLK1)			Prepared: 2025-10-16, Analyzed: 2025-10-16						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							

LCS (B5J3554-BS1)			Prepared: 2025-10-16, Analyzed: 2025-10-16						
Chloride	16.4	0.10 mg/L	16.0		103	90-110			
Fluoride	3.92	0.10 mg/L	4.00		98	88-108			
Nitrate (as N)	4.12	0.010 mg/L	4.00		103	90-110			
Nitrite (as N)	2.02	0.010 mg/L	2.00		101	85-115			
Sulfate	17.2	1.0 mg/L	16.0		107	90-110			

General Parameters, Batch B5J3574

Blank (B5J3574-BLK1)			Prepared: 2025-10-15, Analyzed: 2025-10-15						
Colour, True	< 5.0	5.0 CU							

LCS (B5J3574-BS1)			Prepared: 2025-10-15, Analyzed: 2025-10-15						
Colour, True	20	5.0 CU	20.0		99	85-115			

General Parameters, Batch B5J3697

Blank (B5J3697-BLK1)			Prepared: 2025-10-16, Analyzed: 2025-10-16						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	22.7	°C							

Blank (B5J3697-BLK2)			Prepared: 2025-10-16, Analyzed: 2025-10-16						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5J3697, Continued									
Blank (B5J3697-BLK2), Continued				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	22.6	°C							
Blank (B5J3697-BLK3)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	23.3	°C							
LCS (B5J3697-BS1)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Alkalinity, Total (as CaCO ₃)	98.6	1.0 mg/L	100		99	80-120			
LCS (B5J3697-BS2)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Conductivity (EC)	1420	2.0 µS/cm	1410		100	95-105			
LCS (B5J3697-BS3)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Alkalinity, Total (as CaCO ₃)	101	1.0 mg/L	100		101	80-120			
LCS (B5J3697-BS4)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Conductivity (EC)	1420	2.0 µS/cm	1410		100	95-105			
LCS (B5J3697-BS5)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Alkalinity, Total (as CaCO ₃)	98.0	1.0 mg/L	100		98	80-120			
LCS (B5J3697-BS6)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Conductivity (EC)	1420	2.0 µS/cm	1410		101	95-105			
Duplicate (B5J3697-DUP1)				Source: 25J2001-01		Prepared: 2025-10-16, Analyzed: 2025-10-16			
Alkalinity, Total (as CaCO ₃)	55.6	1.0 mg/L		54.0			3	10	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO ₃)	55.6	1.0 mg/L		54.0			3	10	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	117	2.0 µS/cm		115			2	5	
pH	6.82	0.10 pH units		6.63			3	4	HT2
Reference (B5J3697-SRM1)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
pH	7.01	0.10 pH units	7.01		100	98-102			
Reference (B5J3697-SRM2)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
pH	7.02	0.10 pH units	7.01		100	98-102			
Reference (B5J3697-SRM3)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
pH	7.02	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B5J3749									
Blank (B5J3749-BLK1)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Turbidity	< 0.10	0.10 NTU							
LCS (B5J3749-BS1)				Prepared: 2025-10-16, Analyzed: 2025-10-16					
Turbidity	149	0.10 NTU	151		99	90-110			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5J3895									
Blank (B5J3895-BLK1)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	< 0.0020	0.0020 mg/L							
Blank (B5J3895-BLK2)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	< 0.0020	0.0020 mg/L							
Blank (B5J3895-BLK3)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B5J3895-BS1)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	0.0196	0.0020 mg/L	0.0200		98	82-120			
LCS (B5J3895-BS2)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	0.0197	0.0020 mg/L	0.0200		98	82-120			
LCS (B5J3895-BS3)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	0.0169	0.0020 mg/L	0.0200		84	82-120			
LCS Dup (B5J3895-BSD1)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	0.0191	0.0020 mg/L	0.0200		96	82-120	3	10	
LCS Dup (B5J3895-BSD2)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	0.0192	0.0020 mg/L	0.0200		96	82-120	3	10	
LCS Dup (B5J3895-BSD3)				Prepared: 2025-10-18, Analyzed: 2025-10-18					
Cyanide, Total	0.0170	0.0020 mg/L	0.0200		85	82-120	< 1	10	

Haloacetic Acids, Batch B5J4317

Blank (B5J4317-BLK1)				Prepared: 2025-10-22, Analyzed: 2025-10-23					
Monochloroacetic Acid	0.0038	0.0020 mg/L							BLK
Monobromoacetic Acid	< 0.0020	0.0020 mg/L							
Dichloroacetic Acid	< 0.0020	0.0020 mg/L							
Trichloroacetic Acid	< 0.0020	0.0020 mg/L							
Dibromoacetic Acid	< 0.0020	0.0020 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0130	mg/L	0.0116		112	70-130			
LCS (B5J4317-BS1)				Prepared: 2025-10-22, Analyzed: 2025-10-23					
Monochloroacetic Acid	0.0538	0.0020 mg/L	0.0558		96	75-117			
Monobromoacetic Acid	0.0359	0.0020 mg/L	0.0374		96	83-113			
Dichloroacetic Acid	0.0545	0.0020 mg/L	0.0563		97	78-112			
Trichloroacetic Acid	0.0182	0.0020 mg/L	0.0186		98	81-110			
Dibromoacetic Acid	0.0186	0.0020 mg/L	0.0188		99	89-112			
Surrogate: 2-Bromopropionic Acid	0.0114	mg/L	0.0116		98	70-130			
LCS Dup (B5J4317-BSD1)				Prepared: 2025-10-22, Analyzed: 2025-10-23					
Monochloroacetic Acid	0.0588	0.0020 mg/L	0.0558		105	75-117	9	30	
Monobromoacetic Acid	0.0392	0.0020 mg/L	0.0374		105	83-113	9	30	
Dichloroacetic Acid	0.0577	0.0020 mg/L	0.0563		102	78-112	6	30	
Trichloroacetic Acid	0.0192	0.0020 mg/L	0.0186		103	81-110	6	30	
Dibromoacetic Acid	0.0190	0.0020 mg/L	0.0188		101	89-112	2	30	
Surrogate: 2-Bromopropionic Acid	0.0119	mg/L	0.0116		102	70-130			

Microbiological Parameters, Batch B5J3473

Blank (B5J3473-BLK1)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B5J3473, Continued									
Blank (B5J3473-BLK1), Continued				Prepared: 2025-10-15, Analyzed: 2025-10-15					
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK2)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK3)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK4)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK5)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK6)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK7)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK8)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLK9)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLKA)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLKB)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLKC)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLKD)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLKE)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5J3473-BLKF)				Prepared: 2025-10-15, Analyzed: 2025-10-15					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----	-------	-------------	---------------	-------	-----------	-------	-----------	-----------

Microbiological Parameters, Batch B5J3473, Continued

Blank (B5J3473-BLKG)

Prepared: 2025-10-15, Analyzed: 2025-10-15

Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							

Total Metals, Batch B5J3871

Blank (B5J3871-BLK1)

Prepared: 2025-10-17, Analyzed: 2025-10-17

Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							

Blank (B5J3871-BLK2)

Prepared: 2025-10-17, Analyzed: 2025-10-17

Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0500	0.0500	mg/L							
Cadmium, total	< 0.000010	0.000010	mg/L							
Calcium, total	< 0.20	0.20	mg/L							
Chromium, total	< 0.00050	0.00050	mg/L							
Cobalt, total	< 0.00010	0.00010	mg/L							
Copper, total	< 0.00040	0.00040	mg/L							
Iron, total	< 0.010	0.010	mg/L							
Lead, total	< 0.00020	0.00020	mg/L							
Magnesium, total	< 0.010	0.010	mg/L							
Manganese, total	< 0.00020	0.00020	mg/L							
Molybdenum, total	< 0.00010	0.00010	mg/L							
Nickel, total	< 0.00040	0.00040	mg/L							
Potassium, total	< 0.10	0.10	mg/L							
Selenium, total	< 0.00050	0.00050	mg/L							
Sodium, total	< 0.10	0.10	mg/L							
Strontium, total	< 0.0010	0.0010	mg/L							
Uranium, total	< 0.000020	0.000020	mg/L							
Zinc, total	< 0.0040	0.0040	mg/L							

LCS (B5J3871-BS1)

Prepared: 2025-10-17, Analyzed: 2025-10-17

Aluminum, total	3.96	0.0050	mg/L	4.00		99	80-120			
Antimony, total	0.0387	0.00020	mg/L	0.0400		97	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5J3871, Continued									
LCS (B5J3871-BS1), Continued					Prepared: 2025-10-17, Analyzed: 2025-10-17				
Arsenic, total	0.391	0.00050 mg/L	0.400		98	80-120			
Barium, total	0.0391	0.0050 mg/L	0.0400		98	80-120			
Boron, total	0.429	0.0500 mg/L	0.400		107	80-120			
Cadmium, total	0.0387	0.000010 mg/L	0.0400		97	80-120			
Calcium, total	3.96	0.20 mg/L	4.00		99	80-120			
Chromium, total	0.0397	0.00050 mg/L	0.0400		99	80-120			
Cobalt, total	0.0397	0.00010 mg/L	0.0400		99	80-120			
Copper, total	0.0399	0.00040 mg/L	0.0400		100	80-120			
Iron, total	3.98	0.010 mg/L	4.00		100	80-120			
Lead, total	0.0397	0.00020 mg/L	0.0400		99	80-120			
Magnesium, total	4.02	0.010 mg/L	4.00		100	80-120			
Manganese, total	0.0404	0.00020 mg/L	0.0400		101	80-120			
Molybdenum, total	0.0393	0.00010 mg/L	0.0400		98	80-120			
Nickel, total	0.0395	0.00040 mg/L	0.0400		99	80-120			
Potassium, total	4.00	0.10 mg/L	4.00		100	80-120			
Selenium, total	0.380	0.00050 mg/L	0.400		95	80-120			
Sodium, total	3.96	0.10 mg/L	4.00		99	80-120			
Strontium, total	0.0395	0.0010 mg/L	0.0400		99	80-120			
Uranium, total	0.0409	0.000020 mg/L	0.0400		102	80-120			
Zinc, total	0.387	0.0040 mg/L	0.400		97	80-120			
LCS (B5J3871-BS2)					Prepared: 2025-10-17, Analyzed: 2025-10-17				
Aluminum, total	3.95	0.0050 mg/L	4.00		99	80-120			
Antimony, total	0.0391	0.00020 mg/L	0.0400		98	80-120			
Arsenic, total	0.393	0.00050 mg/L	0.400		98	80-120			
Barium, total	0.0392	0.0050 mg/L	0.0400		98	80-120			
Boron, total	0.419	0.0500 mg/L	0.400		105	80-120			
Cadmium, total	0.0392	0.000010 mg/L	0.0400		98	80-120			
Calcium, total	3.87	0.20 mg/L	4.00		97	80-120			
Chromium, total	0.0390	0.00050 mg/L	0.0400		97	80-120			
Cobalt, total	0.0397	0.00010 mg/L	0.0400		99	80-120			
Copper, total	0.0398	0.00040 mg/L	0.0400		99	80-120			
Iron, total	4.01	0.010 mg/L	4.00		100	80-120			
Lead, total	0.0397	0.00020 mg/L	0.0400		99	80-120			
Magnesium, total	4.04	0.010 mg/L	4.00		101	80-120			
Manganese, total	0.0403	0.00020 mg/L	0.0400		101	80-120			
Molybdenum, total	0.0396	0.00010 mg/L	0.0400		99	80-120			
Nickel, total	0.0394	0.00040 mg/L	0.0400		99	80-120			
Potassium, total	4.02	0.10 mg/L	4.00		101	80-120			
Selenium, total	0.382	0.00050 mg/L	0.400		96	80-120			
Sodium, total	4.04	0.10 mg/L	4.00		101	80-120			
Strontium, total	0.0393	0.0010 mg/L	0.0400		98	80-120			
Uranium, total	0.0408	0.000020 mg/L	0.0400		102	80-120			
Zinc, total	0.388	0.0040 mg/L	0.400		97	80-120			

Total Metals, Batch B5J4156

Blank (B5J4156-BLK1)					Prepared: 2025-10-21, Analyzed: 2025-10-21				
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B5J4156-BLK2)					Prepared: 2025-10-21, Analyzed: 2025-10-21				
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B5J4156-BLK3)					Prepared: 2025-10-21, Analyzed: 2025-10-21				
Mercury, total	< 0.000010	0.000010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25J2001
2025-10-24 14:30

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5J4156, Continued									
Blank (B5J4156-BLK4)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Mercury, total	< 0.000010	0.000010 mg/L							
LCS (B5J4156-BS1)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Mercury, total	0.00279	0.000010 mg/L	0.00250		111	80-120			
LCS (B5J4156-BS2)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Mercury, total	0.00271	0.000010 mg/L	0.00250		108	80-120			
LCS (B5J4156-BS3)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Mercury, total	0.00269	0.000010 mg/L	0.00250		108	80-120			
LCS (B5J4156-BS4)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Mercury, total	0.00262	0.000010 mg/L	0.00250		105	80-120			

Volatile Organic Compounds (VOC), Batch B5J4223

Blank (B5J4223-BLK1)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Bromodichloromethane	< 0.0010	0.0010 mg/L							
Bromoform	< 0.0010	0.0010 mg/L							
Chloroform	< 0.0010	0.0010 mg/L							
Dibromochloromethane	< 0.0010	0.0010 mg/L							
Surrogate: Toluene-d8	0.0246	mg/L	0.0250		98	70-130			
Surrogate: 4-Bromofluorobenzene	0.0184	mg/L	0.0249		74	70-130			
LCS (B5J4223-BS1)				Prepared: 2025-10-21, Analyzed: 2025-10-21					
Bromodichloromethane	0.0170	0.0010 mg/L	0.0198		86	70-130			
Bromoform	0.0174	0.0010 mg/L	0.0200		87	70-130			
Chloroform	0.0178	0.0010 mg/L	0.0198		90	70-130			
Dibromochloromethane	0.0172	0.0010 mg/L	0.0200		86	70-130			
Surrogate: Toluene-d8	0.0240	mg/L	0.0250		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0210	mg/L	0.0249		84	70-130			

QC Qualifiers:

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).
HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX D

Chlorophyll A Certificate of Analysis

CERTIFICATE OF ANALYSIS

REPORTED TO Castlegar, City of
460 Columbia Avenue
CASTLEGAR, BC V1N 1G7

ATTENTION Aaron Geck

PO NUMBER 502

PROJECT General Potability

PROJECT INFO

WORK ORDER 25I0483

RECEIVED / TEMP 2025-09-03 09:45 / 20.2°C

REPORTED 2025-09-10 11:04

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Hanane El Hannaoui
Junior Account Manager

1-888-311-8846 | www.caro.ca

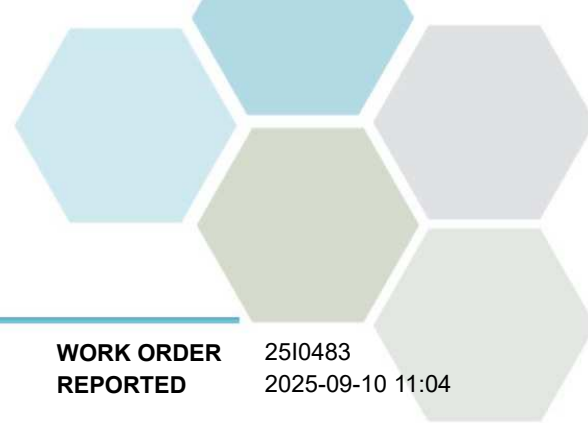
#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7 |
#108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO PROJECT	Castlegar, City of General Potability	WORK ORDER REPORTED	25I0483 2025-09-10 11:04
---------------------	--	---------------------	-----------------------------

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
481E - WTC - Raw Water (25I0483-01) Matrix: Water Sampled: 2025-09-02 11:00						
General Parameters						
Chlorophyll a	1.21	N/A	1.00	µg/L	2025-09-09	



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 2510483
2025-09-10 11:04

Analysis Description	Method Ref.	Technique	Accredited	Location
Chlorophyll-A in Water	SM 10200 H (2022)	Spectrophotometry		Kelowna

Glossary of Terms:

RL	Reporting Limit (default)
µg/L	Micrograms per litre
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

Guidelines Referenced in this Report:

[Guidelines for Canadian Drinking Water Quality \(Health Canada\)](#)

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

General Comments:

The results in this report apply to samples received by CARO and analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety and must not be modified. CARO is not responsible for losses or damages resulting directly or indirectly from errors or omissions in the conduct of the testing. Any liability is limited to the cost of analysis. CARO will dispose of all samples within 30 days of sample receipt, unless otherwise agreed.

Results in **Bold** indicate values that are above CARO's method reporting limits. Results in **red** indicate values above the regulatory limits where these have been included. 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: hhannaoui@caro.ca

Regulatory limits are added to test reports on request and are as a convenience only. While CARO makes every effort to ensure accuracy of regulatory limits, CARO assumes no liability for the use of this information. It remains the client's responsibility to ensure that regulatory limits are correct for their circumstances.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 2510483
2025-09-10 11:04

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

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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

General Parameters, Batch B5I2173

Blank (B5I2173-BLK1)			Prepared: 2025-09-03, Analyzed: 2025-09-09						
Chlorophyll a	< 1.00	1.00 µg/L							

APPENDIX E

North Well Chemical Analysis

TEST RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

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

North Well (25A0357-05) | Matrix: Water | Sampled: 2025-01-06 09:25

Anions

Chloride	20.1	AO ≤ 250	0.10	mg/L	2025-01-09	
Fluoride	0.12	MAC = 1.5	0.10	mg/L	2025-01-09	
Nitrate (as N)	1.53	MAC = 10	0.010	mg/L	2025-01-09	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-01-09	
Sulfate	50.0	AO ≤ 500	1.0	mg/L	2025-01-09	

Calculated Parameters

Hardness, Total (as CaCO ₃)	212	None Required	0.500	mg/L	N/A	
Langelier Index	0.5	N/A	-5.0		2025-01-14	CT6
Solids, Total Dissolved	271	AO ≤ 500	1.00	mg/L	N/A	

General Parameters

Alkalinity, Total (as CaCO ₃)	159	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Bicarbonate (as CaCO ₃)	159	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-01-08	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-01-08	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-01-07	
Conductivity (EC)	495	N/A	2.0	µS/cm	2025-01-08	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-01-08	
pH	8.02	7.0-10.5	0.10	pH units	2025-01-08	HT2
Temperature, at pH	21.4	N/A		°C	2025-01-08	HT2
Turbidity	3.49	OG < 1	0.10	NTU	2025-01-08	

Total Metals

Aluminum, total	0.114	OG < 0.1	0.0050	mg/L	2025-01-08	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-01-08	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2025-01-08	
Barium, total	0.106	MAC = 2	0.0050	mg/L	2025-01-08	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-01-08	
Cadmium, total	0.000020	MAC = 0.007	0.000010	mg/L	2025-01-08	
Calcium, total	67.0	None Required	0.20	mg/L	2025-01-08	
Chromium, total	0.00098	MAC = 0.05	0.00050	mg/L	2025-01-08	
Cobalt, total	0.00012	N/A	0.00010	mg/L	2025-01-08	
Copper, total	0.0111	MAC = 2	0.00040	mg/L	2025-01-08	
Iron, total	0.258	AO ≤ 0.3	0.010	mg/L	2025-01-08	
Lead, total	0.00092	MAC = 0.005	0.00020	mg/L	2025-01-08	
Magnesium, total	10.9	None Required	0.010	mg/L	2025-01-08	
Manganese, total	0.00944	MAC = 0.12	0.00020	mg/L	2025-01-08	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-01-09	
Molybdenum, total	0.00334	N/A	0.00010	mg/L	2025-01-08	
Nickel, total	0.00087	N/A	0.00040	mg/L	2025-01-08	
Potassium, total	3.79	N/A	0.10	mg/L	2025-01-08	
Selenium, total	0.00178	MAC = 0.05	0.00050	mg/L	2025-01-08	



TEST RESULTS

REPORTED TO PROJECT	Castlegar, City of General Potability	WORK ORDER REPORTED	25A0357 2025-01-15 11:32
---------------------	--	---------------------	-----------------------------

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

North Well (25A0357-05) | Matrix: Water | Sampled: 2025-01-06 09:25, Continued

Total Metals, Continued

Sodium, total	15.4	AO ≤ 200	0.10	mg/L	2025-01-08	
Strontium, total	0.455	MAC = 7	0.0010	mg/L	2025-01-08	
Uranium, total	0.00602	MAC = 0.02	0.000020	mg/L	2025-01-08	
Zinc, total	0.0141	AO ≤ 5	0.0040	mg/L	2025-01-08	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Castlegar, City of
General Potability

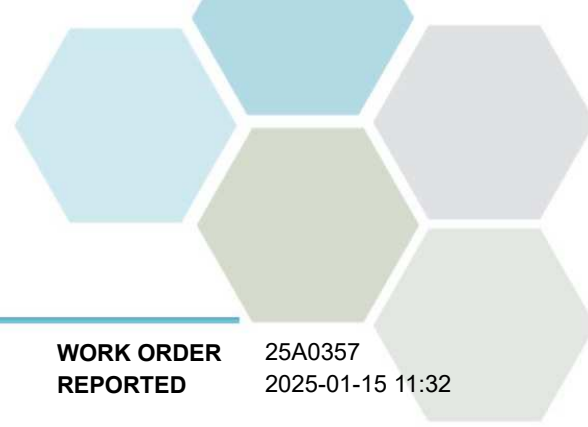
WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H ₂ SO ₄	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	Richmond
Turbidity in Water	SM 2130 B (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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Castlegar, City of
PROJECT General Potability

WORK ORDER 25A0357
REPORTED 2025-01-15 11:32

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.

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: hhannaoui@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.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

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

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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Anions, Batch B5A1787

Blank (B5A1787-BLK1)			Prepared: 2025-01-09, Analyzed: 2025-01-09						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B5A1787-BS1)			Prepared: 2025-01-09, Analyzed: 2025-01-09						
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Fluoride	4.31	0.10 mg/L	4.00		108	88-108			
Nitrate (as N)	4.07	0.010 mg/L	4.00		102	90-110			
Nitrite (as N)	2.05	0.010 mg/L	2.00		103	85-115			
Sulfate	16.1	1.0 mg/L	16.0		101	90-110			

General Parameters, Batch B5A1660

Blank (B5A1660-BLK1)			Prepared: 2025-01-07, Analyzed: 2025-01-07						
Colour, True	< 5.0	5.0 CU							
LCS (B5A1660-BS1)			Prepared: 2025-01-07, Analyzed: 2025-01-07						
Colour, True	18	5.0 CU	20.0		92	85-115			

General Parameters, Batch B5A1696

Blank (B5A1696-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B5A1696-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Cyanide, Total	0.0196	0.0020 mg/L	0.0200		98	82-120			
LCS Dup (B5A1696-BSD1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Cyanide, Total	0.0211	0.0020 mg/L	0.0200		106	82-120	8	10	

General Parameters, Batch B5A1697

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5A1697, Continued									
Blank (B5A1697-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.9	°C							
Blank (B5A1697-BLK2)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.8	°C							
Blank (B5A1697-BLK3)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.8	°C							
LCS (B5A1697-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	93.6	1.0 mg/L	100		94	80-120			
Alkalinity, Phenolphthalein (as CaCO ₃)	44.6	1.0 mg/L	50.0		89	0-200			
LCS (B5A1697-BS2)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
LCS (B5A1697-BS3)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	93.9	1.0 mg/L	100		94	80-120			
Alkalinity, Phenolphthalein (as CaCO ₃)	42.9	1.0 mg/L	50.0		86	0-200			
LCS (B5A1697-BS4)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
LCS (B5A1697-BS5)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	94.1	1.0 mg/L	100		94	80-120			
Alkalinity, Phenolphthalein (as CaCO ₃)	40.9	1.0 mg/L	50.0		82	0-200			
LCS (B5A1697-BS6)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
Duplicate (B5A1697-DUP2)			Source: 25A0357-01 Prepared: 2025-01-08, Analyzed: 2025-01-08						
Alkalinity, Total (as CaCO ₃)	53.7	1.0 mg/L		52.8			2	10	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO ₃)	53.7	1.0 mg/L		52.8			2	10	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	134	2.0 µS/cm		135			< 1	5	
pH	7.36	0.10 pH units		7.23			2	4	HT2
Reference (B5A1697-SRM1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
pH	7.04	0.10 pH units	7.01		100	98-102			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

General Parameters, Batch B5A1697, Continued

Reference (B5A1697-SRM2)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
pH	7.03	0.10 pH units	7.01		100	98-102			
Reference (B5A1697-SRM3)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
pH	7.04	0.10 pH units	7.01		100	98-102			

General Parameters, Batch B5A1720

Blank (B5A1720-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Turbidity	< 0.10	0.10 NTU							
LCS (B5A1720-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Turbidity	15.7	0.10 NTU	14.6		108	90-110			
Duplicate (B5A1720-DUP1)			Source: 25A0357-05		Prepared: 2025-01-08, Analyzed: 2025-01-08				
Turbidity	3.55	0.10 NTU		3.49			2	15	

Haloacetic Acids, Batch B5A1715

Blank (B5A1715-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Monochloroacetic Acid	< 0.0020	0.0020 mg/L							
Monobromoacetic Acid	< 0.0020	0.0020 mg/L							
Dichloroacetic Acid	< 0.0020	0.0020 mg/L							
Trichloroacetic Acid	< 0.0020	0.0020 mg/L							
Dibromoacetic Acid	< 0.0020	0.0020 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0131	mg/L	0.0116		112	70-130			
LCS (B5A1715-BS1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Monochloroacetic Acid	0.0558	0.0020 mg/L	0.0558		100	75-117			
Monobromoacetic Acid	0.0373	0.0020 mg/L	0.0375		99	83-113			
Dichloroacetic Acid	0.0561	0.0020 mg/L	0.0559		100	78-112			
Trichloroacetic Acid	0.0187	0.0020 mg/L	0.0186		100	81-110			
Dibromoacetic Acid	0.0177	0.0020 mg/L	0.0186		95	89-112			
Surrogate: 2-Bromopropionic Acid	0.0121	mg/L	0.0116		104	70-130			
LCS Dup (B5A1715-BSD1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Monochloroacetic Acid	0.0568	0.0020 mg/L	0.0558		102	75-117	2	30	
Monobromoacetic Acid	0.0379	0.0020 mg/L	0.0375		101	83-113	2	30	
Dichloroacetic Acid	0.0561	0.0020 mg/L	0.0559		100	78-112	< 1	30	
Trichloroacetic Acid	0.0187	0.0020 mg/L	0.0186		101	81-110	< 1	30	
Dibromoacetic Acid	0.0199	0.0020 mg/L	0.0186		107	89-112	12	30	
Surrogate: 2-Bromopropionic Acid	0.0111	mg/L	0.0116		96	70-130			

Total Metals, Batch B5A1771

Blank (B5A1771-BLK1)			Prepared: 2025-01-08, Analyzed: 2025-01-08						
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Castlegar, City of
General Potability

WORK ORDER REPORTED 25A0357
2025-01-15 11:32

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Total Metals, Batch B5A1771, Continued

Blank (B5A1771-BLK1), Continued

Prepared: 2025-01-08, Analyzed: 2025-01-08

Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							

LCS (B5A1771-BS1)

Prepared: 2025-01-08, Analyzed: 2025-01-08

Aluminum, total	3.83	0.0050 mg/L	4.00		96	80-120			
Antimony, total	0.0395	0.00020 mg/L	0.0400		99	80-120			
Arsenic, total	0.387	0.00050 mg/L	0.400		97	80-120			
Barium, total	0.0411	0.0050 mg/L	0.0400		103	80-120			
Boron, total	0.418	0.0500 mg/L	0.400		105	80-120			
Cadmium, total	0.0389	0.000010 mg/L	0.0400		97	80-120			
Calcium, total	3.97	0.20 mg/L	4.00		99	80-120			
Chromium, total	0.0399	0.00050 mg/L	0.0400		100	80-120			
Cobalt, total	0.0393	0.00010 mg/L	0.0400		98	80-120			
Copper, total	0.0391	0.00040 mg/L	0.0400		98	80-120			
Iron, total	4.01	0.010 mg/L	4.00		100	80-120			
Lead, total	0.0397	0.00020 mg/L	0.0400		99	80-120			
Magnesium, total	3.93	0.010 mg/L	4.00		98	80-120			
Manganese, total	0.0393	0.00020 mg/L	0.0400		98	80-120			
Molybdenum, total	0.0401	0.00010 mg/L	0.0400		100	80-120			
Nickel, total	0.0399	0.00040 mg/L	0.0400		100	80-120			
Potassium, total	3.88	0.10 mg/L	4.00		97	80-120			
Selenium, total	0.395	0.00050 mg/L	0.400		99	80-120			
Sodium, total	3.88	0.10 mg/L	4.00		97	80-120			
Strontium, total	0.0387	0.0010 mg/L	0.0400		97	80-120			
Uranium, total	0.0403	0.000020 mg/L	0.0400		101	80-120			
Zinc, total	0.384	0.0040 mg/L	0.400		96	80-120			

Total Metals, Batch B5A1852

Blank (B5A1852-BLK1)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	< 0.000010	0.000010 mg/L							
----------------	------------	---------------	--	--	--	--	--	--	--

Blank (B5A1852-BLK2)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	< 0.000010	0.000010 mg/L							
----------------	------------	---------------	--	--	--	--	--	--	--

LCS (B5A1852-BS1)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	0.00254	0.000010 mg/L	0.00250		102	80-120			
----------------	---------	---------------	---------	--	-----	--------	--	--	--

LCS (B5A1852-BS2)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Mercury, total	0.00262	0.000010 mg/L	0.00250		105	80-120			
----------------	---------	---------------	---------	--	-----	--------	--	--	--

Volatile Organic Compounds (VOC), Batch B5A1915

Blank (B5A1915-BLK1)

Prepared: 2025-01-09, Analyzed: 2025-01-09

Bromodichloromethane	< 0.0010	0.0010 mg/L							
Bromoform	< 0.0010	0.0010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT	Castlegar, City of General Potability	WORK ORDER REPORTED	25A0357 2025-01-15 11:32
---------------------	--	---------------------	-----------------------------

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B5A1915, Continued									
Blank (B5A1915-BLK1), Continued					Prepared: 2025-01-09, Analyzed: 2025-01-09				
Chloroform	< 0.0010	0.0010 mg/L							
Dibromochloromethane	< 0.0010	0.0010 mg/L							
Surrogate: Toluene-d8	0.0307	mg/L	0.0250		123	70-130			
Surrogate: 4-Bromofluorobenzene	0.0275	mg/L	0.0249		110	70-130			
LCS (B5A1915-BS1)					Prepared: 2025-01-09, Analyzed: 2025-01-09				
Bromodichloromethane	0.0191	0.0010 mg/L	0.0198		97	70-130			
Bromoform	0.0184	0.0010 mg/L	0.0200		92	70-130			
Chloroform	0.0186	0.0010 mg/L	0.0198		94	70-130			
Dibromochloromethane	0.0189	0.0010 mg/L	0.0200		94	70-130			
Surrogate: Toluene-d8	0.0292	mg/L	0.0250		117	70-130			
Surrogate: 4-Bromofluorobenzene	0.0289	mg/L	0.0249		116	70-130			

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

CERTIFICATE OF ANALYSIS

REPORTED TO Interior Health Authority - Penticton
3090 Skaha Lake Rd
Penticton, BC V2A 7H2

ATTENTION Ivor Norlin

PO NUMBER

PROJECT Comprehensive 2024 for Ivor Norlin

PROJECT INFO

WORK ORDER 25B2904

RECEIVED / TEMP 2025-02-26 14:45 / 4.9°C

REPORTED 2025-03-04 13:41

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Sara Gulenchyn, B.Sc, P.Chem.
Client Services Manager

1-888-311-8846 | 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 Interior Health Authority - Penticton
Comprehensive 2024 for Ivor Norlin

WORK ORDER REPORTED 25B2904
2025-03-04 13:41

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

Castlegar North Well 1 (25B2904-01) | Matrix: Water | Sampled: 2025-02-25 10:20

Anions

Chloride	19.9	AO ≤ 250	0.10	mg/L	2025-02-28	
Fluoride	0.16	MAC = 1.5	0.10	mg/L	2025-02-28	
Nitrate (as N)	1.52	MAC = 10	0.010	mg/L	2025-02-28	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-02-28	
Sulfate	49.8	AO ≤ 500	1.0	mg/L	2025-02-28	

Calculated Parameters

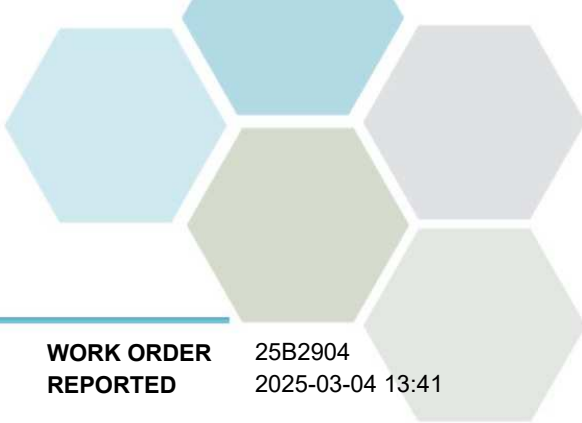
Hardness, Total (as CaCO3)	212	None Required	0.500	mg/L	N/A	
Langelier Index	0.5	N/A	-5.0		2025-03-04	CT6
Solids, Total Dissolved	272	AO ≤ 500	1.00	mg/L	N/A	

General Parameters

Alkalinity, Total (as CaCO3)	162	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Bicarbonate (as CaCO3)	162	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-02-28	
Conductivity (EC)	498	N/A	2.0	µS/cm	2025-02-28	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-03-01	
pH	8.07	7.0-10.5	0.10	pH units	2025-02-28	HT2
Temperature, at pH	22.8	N/A		°C	2025-02-28	HT2
Turbidity	1.81	OG < 1	0.10	NTU	2025-02-28	

Total Metals

Aluminum, total	0.0501	OG < 0.1	0.0050	mg/L	2025-03-03	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-03-03	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2025-03-03	
Barium, total	0.0988	MAC = 2	0.0050	mg/L	2025-03-03	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-03-03	
Cadmium, total	0.000022	MAC = 0.007	0.000010	mg/L	2025-03-03	
Calcium, total	66.5	None Required	0.20	mg/L	2025-03-03	
Chromium, total	0.00079	MAC = 0.05	0.00050	mg/L	2025-03-03	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-03-03	
Copper, total	0.0564	MAC = 2	0.00040	mg/L	2025-03-03	
Iron, total	0.088	AO ≤ 0.3	0.010	mg/L	2025-03-03	
Lead, total	0.00419	MAC = 0.005	0.00020	mg/L	2025-03-03	
Magnesium, total	11.2	None Required	0.010	mg/L	2025-03-03	
Manganese, total	0.00324	MAC = 0.12	0.00020	mg/L	2025-03-03	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-03-02	
Molybdenum, total	0.00348	N/A	0.00010	mg/L	2025-03-03	
Nickel, total	0.00613	N/A	0.00040	mg/L	2025-03-03	
Potassium, total	3.75	N/A	0.10	mg/L	2025-03-03	
Selenium, total	0.00179	MAC = 0.05	0.00050	mg/L	2025-03-03	



TEST RESULTS

REPORTED TO PROJECT	Interior Health Authority - Penticton Comprehensive 2024 for Ivor Norlin	WORK ORDER REPORTED	25B2904 2025-03-04 13:41
---------------------	---	---------------------	-----------------------------

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

Castlegar North Well 1 (25B2904-01) | Matrix: Water | Sampled: 2025-02-25 10:20, Continued

Total Metals, Continued

Sodium, total	16.0	AO ≤ 200	0.10	mg/L	2025-03-03	
Strontium, total	0.446	MAC = 7	0.0010	mg/L	2025-03-03	
Uranium, total	0.00601	MAC = 0.02	0.000020	mg/L	2025-03-03	
Zinc, total	0.0971	AO ≤ 5	0.0040	mg/L	2025-03-03	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Interior Health Authority - Penticton
Comprehensive 2024 for Ivor Norlin

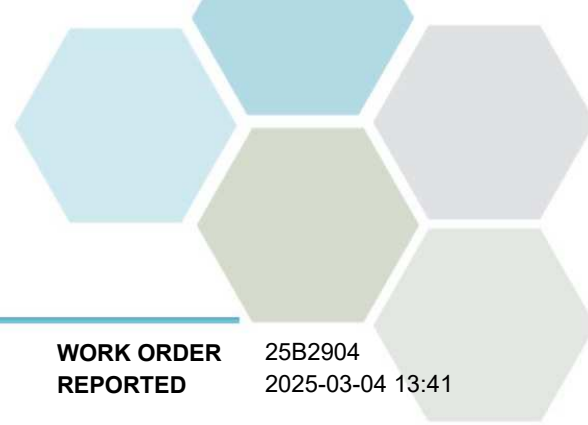
WORK ORDER REPORTED 25B2904
2025-03-04 13:41

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
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Interior Health Authority - Penticton
Comprehensive 2024 for Ivor Norlin

WORK ORDER REPORTED 25B2904
2025-03-04 13:41

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: sgulenchyn@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 Interior Health Authority - Penticton
3090 Skaha Lake Rd
Penticton, BC V2A 7H2

ATTENTION Ivor Norlin

PO NUMBER

PROJECT Comprehensive 2024 for Ivor Norlin

PROJECT INFO

WORK ORDER 25B2902

RECEIVED / TEMP 2025-02-26 14:45 / 4.9°C

REPORTED 2025-03-04 13:48

COC NUMBER No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO/IEC 17025:2017 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

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

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

Authorized By:

Sara Gulenchyn, B.Sc, P.Chem.
Client Services Manager

1-888-311-8846 | 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 Interior Health Authority - Penticton
Comprehensive 2024 for Ivor Norlin

WORK ORDER REPORTED 25B2902
2025-03-04 13:48

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

Castlegar North Well 2 (25B2902-01) | Matrix: Water | Sampled: 2025-02-25 19:55

Anions

Chloride	20.4	AO ≤ 250	0.10	mg/L	2025-02-28	
Fluoride	0.14	MAC = 1.5	0.10	mg/L	2025-02-28	
Nitrate (as N)	1.52	MAC = 10	0.010	mg/L	2025-02-28	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-02-28	
Sulfate	50.5	AO ≤ 500	1.0	mg/L	2025-02-28	

Calculated Parameters

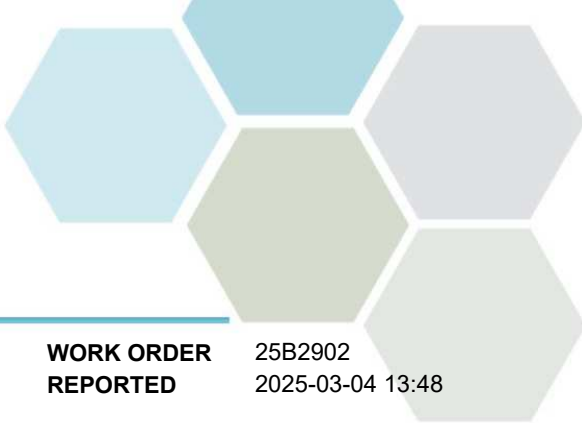
Hardness, Total (as CaCO ₃)	217	None Required	0.500	mg/L	N/A	
Langelier Index	0.5	N/A	-5.0		2025-03-04	CT6
Solids, Total Dissolved	276	AO ≤ 500	1.00	mg/L	N/A	

General Parameters

Alkalinity, Total (as CaCO ₃)	163	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Bicarbonate (as CaCO ₃)	163	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-02-28	
Conductivity (EC)	495	N/A	2.0	µS/cm	2025-02-28	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-03-01	
pH	8.08	7.0-10.5	0.10	pH units	2025-02-28	HT2
Temperature, at pH	22.0	N/A		°C	2025-02-28	HT2
Turbidity	1.05	OG < 1	0.10	NTU	2025-02-28	

Total Metals

Aluminum, total	0.0283	OG < 0.1	0.0050	mg/L	2025-03-03	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-03-03	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2025-03-03	
Barium, total	0.101	MAC = 2	0.0050	mg/L	2025-03-03	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-03-03	
Cadmium, total	0.000019	MAC = 0.007	0.000010	mg/L	2025-03-03	
Calcium, total	68.6	None Required	0.20	mg/L	2025-03-03	
Chromium, total	0.00078	MAC = 0.05	0.00050	mg/L	2025-03-03	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-03-03	
Copper, total	0.0400	MAC = 2	0.00040	mg/L	2025-03-03	
Iron, total	0.046	AO ≤ 0.3	0.010	mg/L	2025-03-03	
Lead, total	0.00231	MAC = 0.005	0.00020	mg/L	2025-03-03	
Magnesium, total	11.0	None Required	0.010	mg/L	2025-03-03	
Manganese, total	0.00168	MAC = 0.12	0.00020	mg/L	2025-03-03	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-03-02	
Molybdenum, total	0.00315	N/A	0.00010	mg/L	2025-03-03	
Nickel, total	0.00246	N/A	0.00040	mg/L	2025-03-03	
Potassium, total	3.69	N/A	0.10	mg/L	2025-03-03	
Selenium, total	0.00187	MAC = 0.05	0.00050	mg/L	2025-03-03	



TEST RESULTS

REPORTED TO PROJECT	Interior Health Authority - Penticton Comprehensive 2024 for Ivor Norlin	WORK ORDER REPORTED	25B2902 2025-03-04 13:48
---------------------	---	---------------------	-----------------------------

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

Castlegar North Well 2 (25B2902-01) | Matrix: Water | Sampled: 2025-02-25 19:55, Continued

Total Metals, Continued

Sodium, total	15.6	AO ≤ 200	0.10	mg/L	2025-03-03	
Strontium, total	0.439	MAC = 7	0.0010	mg/L	2025-03-03	
Uranium, total	0.00594	MAC = 0.02	0.000020	mg/L	2025-03-03	
Zinc, total	0.0522	AO ≤ 5	0.0040	mg/L	2025-03-03	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Interior Health Authority - Penticton
Comprehensive 2024 for Ivor Norlin

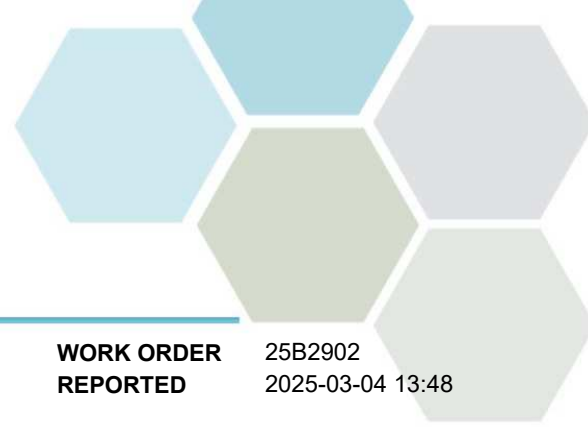
WORK ORDER REPORTED 25B2902
2025-03-04 13:48

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
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
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
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Interior Health Authority - Penticton
Comprehensive 2024 for Ivor Norlin

WORK ORDER REPORTED 25B2902
2025-03-04 13:48

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: sgulenchyn@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 Western Water Associates Ltd
1003 Kalamalka Lake
Vernon, BC V1T6V4

ATTENTION Ryan Rhodes

PO NUMBER
PROJECT 24-122-01VR
PROJECT INFO

WORK ORDER 25B2907

RECEIVED / TEMP 2025-02-26 14:45 / 4.9°C
REPORTED 2025-03-14 16:25
COC NUMBER B131961

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

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

Authorized By:

Brent Whitehead
Account Manager

1-888-311-8846 | 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 Wavburne Drive Burnaby BC V5G 4X4

TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Castlegar North Well (25B2907-01) Matrix: Water Sampled: 2025-02-26 08:10						
Anions						
Chloride	20.3	AO ≤ 250	0.10	mg/L	2025-02-28	
Fluoride	0.13	MAC = 1.5	0.10	mg/L	2025-02-28	
Nitrate (as N)	1.52	MAC = 10	0.010	mg/L	2025-02-28	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-02-28	
Sulfate	49.1	AO ≤ 500	1.0	mg/L	2025-02-28	
BCMOE Aggregate Hydrocarbons						
EPHw10-19	< 250	N/A	250	µg/L	2025-03-02	
EPHw19-32	< 250	N/A	250	µg/L	2025-03-02	
Surrogate: 2-Methylnonane (EPH/F2-4)	98		60-140	%	2025-03-02	
Calculated Parameters						
Hardness, Total (as CaCO ₃)	214	None Required	0.500	mg/L	N/A	
Langelier Index	0.5	N/A	-5.0		2025-03-04	CT6
Nitrogen, Total	1.62	N/A	0.0500	mg/L	N/A	
Nitrogen, Organic	0.101	N/A	0.0500	mg/L	N/A	
Solids, Total Dissolved (calc)	273	N/A	1.00	mg/L	N/A	
Disinfection By-Product Formation Potential						
Incubation pH	6.9	N/A	0.1	pH units	2025-03-07	
Incubation Temperature	25	N/A	1	°C	2025-03-07	
Incubation Duration	7	N/A		Days	2025-03-07	
Free Chlorine, Initial Dose	4.2	N/A	0.1	mg/L	2025-03-07	
Free Chlorine, Final Concentration	4.0	N/A	0.1	mg/L	2025-03-07	
Chlorine Demand, Free	0.16	N/A	0.10	mg/L	N/A	
Total Haloacetic Acids (HAA5)	< 0.0100	MAC = 0.08	0.0100	mg/L	N/A	
Monochloroacetic Acid	< 0.0100	N/A	0.0100	mg/L	2025-03-13	
Monobromoacetic Acid	< 0.0100	N/A	0.0100	mg/L	2025-03-13	
Dichloroacetic Acid	< 0.0050	N/A	0.0050	mg/L	2025-03-13	
Trichloroacetic Acid	< 0.0050	N/A	0.0050	mg/L	2025-03-13	
Dibromoacetic Acid	< 0.0050	N/A	0.0050	mg/L	2025-03-13	
Bromodichloromethane	< 0.0050	N/A	0.0050	mg/L	2025-03-13	
Bromoform	< 0.0050	N/A	0.0050	mg/L	2025-03-13	
Chloroform	< 0.0100	N/A	0.0100	mg/L	2025-03-13	
Dibromochloromethane	< 0.0050	N/A	0.0050	mg/L	2025-03-13	
Total Trihalomethanes	< 0.0100	MAC = 0.1	0.0100	mg/L	N/A	
Total Trihalomethanes (as CHCl ₃)	< 0.0100	N/A	0.0100	mg/L	N/A	
Surrogate: 2-Bromopropionic Acid	101		70-130	%	2025-03-13	
Surrogate: Toluene-d ₈	85		70-130	%	2025-03-13	
Surrogate: 4-Bromofluorobenzene	79		70-130	%	2025-03-13	
Dissolved Metals						
Aluminum, dissolved	< 0.0050	N/A	0.0050	mg/L	2025-03-03	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	2025-03-03	

TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

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

Castlegar North Well (25B2907-01) | Matrix: Water | Sampled: 2025-02-26 08:10, Continued

Dissolved Metals, Continued

Arsenic, dissolved	< 0.00050	N/A	0.00050	mg/L	2025-03-03	
Barium, dissolved	0.103	N/A	0.0050	mg/L	2025-03-03	
Boron, dissolved	< 0.0500	N/A	0.0500	mg/L	2025-03-03	
Cadmium, dissolved	0.000015	N/A	0.000010	mg/L	2025-03-03	
Calcium, dissolved	68.2	N/A	0.20	mg/L	2025-03-03	
Chromium, dissolved	0.00062	N/A	0.00050	mg/L	2025-03-03	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	2025-03-03	
Copper, dissolved	0.0158	N/A	0.00040	mg/L	2025-03-03	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	2025-03-03	
Lead, dissolved	0.00108	N/A	0.00020	mg/L	2025-03-03	
Magnesium, dissolved	10.9	N/A	0.010	mg/L	2025-03-03	
Manganese, dissolved	< 0.00020	N/A	0.00020	mg/L	2025-03-03	
Mercury, dissolved	< 0.000010	N/A	0.000010	mg/L	2025-03-02	
Molybdenum, dissolved	0.00297	N/A	0.00010	mg/L	2025-03-03	
Nickel, dissolved	0.00049	N/A	0.00040	mg/L	2025-03-03	
Potassium, dissolved	4.00	N/A	0.10	mg/L	2025-03-03	
Selenium, dissolved	0.00181	N/A	0.00050	mg/L	2025-03-03	
Sodium, dissolved	16.2	N/A	0.10	mg/L	2025-03-03	
Strontium, dissolved	0.476	N/A	0.0010	mg/L	2025-03-03	
Uranium, dissolved	0.00588	N/A	0.000020	mg/L	2025-03-03	
Zinc, dissolved	0.0226	N/A	0.0040	mg/L	2025-03-03	

General Parameters

Alkalinity, Total (as CaCO ₃)	163	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Bicarbonate (as CaCO ₃)	163	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2025-02-28	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2025-03-05	
Carbon, Total Organic	< 0.50	N/A	0.50	mg/L	2025-02-28	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-02-28	
Conductivity (EC)	497	N/A	2.0	µS/cm	2025-02-28	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-03-01	
Nitrogen, Total Kjeldahl	0.101	N/A	0.050	mg/L	2025-03-05	
pH	8.01	7.0-10.5	0.10	pH units	2025-02-28	HT2
Phosphorus, Total (as P)	0.0074	N/A	0.0050	mg/L	2025-03-03	
Temperature, at pH	22.8	N/A		°C	2025-02-28	HT2
Turbidity	0.57	OG < 1	0.10	NTU	2025-02-28	
UV Transmittance @ 254 nm - Unfiltered	98.1	N/A	0.10	% T	2025-03-01	

Microbiological Parameters

Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2025-02-27	HT3
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-02-27	HT3

TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

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

Castlegar North Well (25B2907-01) | Matrix: Water | Sampled: 2025-02-26 08:10, Continued

Total Metals

Aluminum, total	0.0216	OG < 0.1	0.0050	mg/L	2025-03-03	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-03-03	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2025-03-03	
Barium, total	0.0998	MAC = 2	0.0050	mg/L	2025-03-03	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-03-03	
Cadmium, total	0.000016	MAC = 0.007	0.000010	mg/L	2025-03-03	
Calcium, total	67.4	None Required	0.20	mg/L	2025-03-03	
Chromium, total	0.00073	MAC = 0.05	0.00050	mg/L	2025-03-03	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-03-03	
Copper, total	0.0157	MAC = 2	0.00040	mg/L	2025-03-03	
Iron, total	0.031	AO ≤ 0.3	0.010	mg/L	2025-03-03	
Lead, total	0.00108	MAC = 0.005	0.00020	mg/L	2025-03-03	
Magnesium, total	11.1	None Required	0.010	mg/L	2025-03-03	
Manganese, total	0.00102	MAC = 0.12	0.00020	mg/L	2025-03-03	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-03-02	
Molybdenum, total	0.00298	N/A	0.00010	mg/L	2025-03-03	
Nickel, total	0.00054	N/A	0.00040	mg/L	2025-03-03	
Potassium, total	3.69	N/A	0.10	mg/L	2025-03-03	
Selenium, total	0.00175	MAC = 0.05	0.00050	mg/L	2025-03-03	
Sodium, total	15.7	AO ≤ 200	0.10	mg/L	2025-03-03	
Strontium, total	0.442	MAC = 7	0.0010	mg/L	2025-03-03	
Uranium, total	0.00589	MAC = 0.02	0.000020	mg/L	2025-03-03	
Zinc, total	0.0204	AO ≤ 5	0.0040	mg/L	2025-03-03	

Volatile Organic Compounds (VOC)

Benzene	< 0.5	MAC = 5	0.5	µg/L	2025-03-05	
Bromodichloromethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
Bromoform	< 1.0	N/A	1.0	µg/L	2025-03-05	
Carbon tetrachloride	< 0.5	MAC = 2	0.5	µg/L	2025-03-05	
Chlorobenzene	< 1.0	AO ≤ 30	1.0	µg/L	2025-03-05	
Chloroethane	< 2.0	N/A	2.0	µg/L	2025-03-05	
Chloroform	< 1.0	N/A	1.0	µg/L	2025-03-05	
Dibromochloromethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,2-Dibromoethane	< 0.3	N/A	0.3	µg/L	2025-03-05	
Dibromomethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,2-Dichlorobenzene	< 0.5	AO ≤ 3	0.5	µg/L	2025-03-05	
1,3-Dichlorobenzene	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,4-Dichlorobenzene	< 1.0	AO ≤ 1	1.0	µg/L	2025-03-05	
1,1-Dichloroethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,2-Dichloroethane	< 1.0	MAC = 5	1.0	µg/L	2025-03-05	
1,1-Dichloroethylene	< 1.0	MAC = 14	1.0	µg/L	2025-03-05	
cis-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2025-03-05	
trans-1,2-Dichloroethylene	< 1.0	N/A	1.0	µg/L	2025-03-05	

TEST RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Castlegar North Well (25B2907-01) Matrix: Water Sampled: 2025-02-26 08:10, Continued						
<i>Volatile Organic Compounds (VOC), Continued</i>						
Dichloromethane	< 3.0	MAC = 50	3.0	µg/L	2025-03-05	
1,2-Dichloropropane	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,3-Dichloropropene (cis + trans)	< 1.0	N/A	1.0	µg/L	2025-03-05	
Ethylbenzene	< 1.0	AO ≤ 1.6	1.0	µg/L	2025-03-05	
Methyl tert-butyl ether	< 1.0	AO ≤ 15	1.0	µg/L	2025-03-05	
Styrene	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,1,2,2-Tetrachloroethane	< 0.5	N/A	0.5	µg/L	2025-03-05	
Tetrachloroethylene	< 1.0	MAC = 10	1.0	µg/L	2025-03-05	
Toluene	< 1.0	MAC = 60	1.0	µg/L	2025-03-05	
1,1,1-Trichloroethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
1,1,2-Trichloroethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
Trichloroethylene	< 1.0	MAC = 5	1.0	µg/L	2025-03-05	
Trichlorofluoromethane	< 1.0	N/A	1.0	µg/L	2025-03-05	
Vinyl chloride	< 1.0	MAC = 2	1.0	µg/L	2025-03-05	
Xylenes (total)	< 2.0	AO ≤ 20	2.0	µg/L	2025-03-05	
Surrogate: Toluene-d8	85		70-130	%	2025-03-05	
Surrogate: 4-Bromofluorobenzene	67		70-130	%	2025-03-05	S02
Surrogate: 1,4-Dichlorobenzene-d4	90		70-130	%	2025-03-05	

Sample Qualifiers:

CT6	Results were based on lab temperature & lab pH.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
HT3	Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

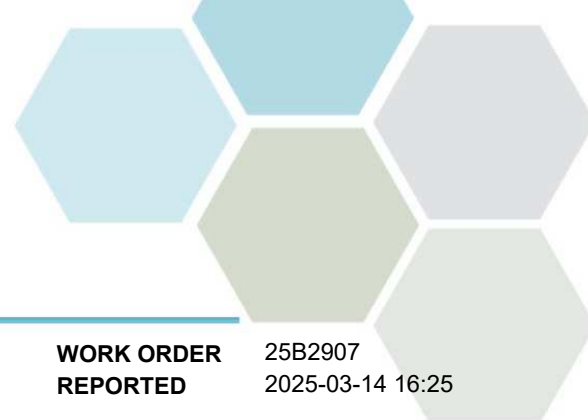
APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2021)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Carbon, Total Organic in Water	SM 5310 B (2022)	Combustion, Infrared CO2 Detection	✓	Kelowna
Chlorine Demand in Water	THFMP / SM 5710 B* (2021)	THFMP / Chlorination, 7-day Incubation		Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
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
EPH in Water	EPA 3511* / BCMOE EPHw	Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID)	✓	Richmond
Haloacetic Acids in Water	EPA 552.3*	Liquid-Liquid Microextraction, Derivatization and GC-ECD	✓	Richmond
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
Nitrogen, Organic in Water	*** DEFAULT SPECIFIC METHOD ***	Unspecified		N/A
Nitrogen, Total in Water	*** DEFAULT SPECIFIC METHOD ***	Unspecified		N/A
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2021)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2021)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2021)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2021)	SM 1030 E		N/A
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Transmittance at 254 nm - Unfiltered in Water	SM 5910 B* (2021)	Ultraviolet Absorption	✓	Kelowna
Trihalomethanes in Water	EPA 5030B / EPA 8260D	Purge&Trap / GC-MSD (SIM)	✓	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



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Glossary of Terms:

RL	Reporting Limit (default)
% T	Percent Transmittance
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
°C	Degrees Celcius
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

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:

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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: bwhitehead@caro.ca

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

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

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

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

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B5B3754									
Blank (B5B3754-BLK1)			Prepared: 2025-02-28, Analyzed: 2025-02-28						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B5B3754-BS1)			Prepared: 2025-02-28, Analyzed: 2025-02-28						
Chloride	16.2	0.10 mg/L	16.0		101	90-110			
Fluoride	4.10	0.10 mg/L	4.00		103	88-108			
Nitrate (as N)	4.17	0.010 mg/L	4.00		104	90-110			
Nitrite (as N)	2.02	0.010 mg/L	2.00		101	85-115			
Sulfate	15.9	1.0 mg/L	16.0		99	90-110			
LCS (B5B3754-BS2)			Prepared: 2025-02-28, Analyzed: 2025-02-28						
Chloride	16.4	0.10 mg/L	16.0		103	90-110			
Fluoride	4.13	0.10 mg/L	4.00		103	88-108			
Nitrate (as N)	4.15	0.010 mg/L	4.00		104	90-110			
Nitrite (as N)	2.01	0.010 mg/L	2.00		100	85-115			
Sulfate	16.0	1.0 mg/L	16.0		100	90-110			
Duplicate (B5B3754-DUP2)			Source: 25B2907-01		Prepared: 2025-02-28, Analyzed: 2025-02-28				
Chloride	20.3	0.10 mg/L		20.3			< 1	10	
Fluoride	0.19	0.10 mg/L		0.13				10	
Nitrate (as N)	1.52	0.010 mg/L		1.52			< 1	10	
Nitrite (as N)	< 0.010	0.010 mg/L		< 0.010				15	
Sulfate	49.2	1.0 mg/L		49.1			< 1	10	
Matrix Spike (B5B3754-MS2)			Source: 25B2907-01		Prepared: 2025-02-28, Analyzed: 2025-02-28				
Chloride	36.5	0.10 mg/L	16.0	20.3	102	75-125			
Fluoride	3.92	0.10 mg/L	4.00	0.13	95	75-125			
Nitrate (as N)	5.54	0.010 mg/L	4.00	1.52	101	75-125			
Nitrite (as N)	1.87	0.010 mg/L	2.00	< 0.010	93	75-115			
Sulfate	66.4	1.0 mg/L	16.0	49.1	108	75-125			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
BCMOE Aggregate Hydrocarbons, Batch B5C1660									
Blank (B5C1660-BLK2)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	2220	µg/L	2480		89	60-140			
LCS (B5C1660-BS2)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
EPHw10-19	19700	250 µg/L	17400		113	70-130			
EPHw19-32	26700	250 µg/L	24800		108	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	1240	µg/L	2480		50	60-140			S09
LCS Dup (B5C1660-BSD2)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
EPHw10-19	20600	250 µg/L	17400		119	70-130	5	20	
EPHw19-32	28200	250 µg/L	24800		114	70-130	5	20	
Surrogate: 2-Methylnonane (EPH/F2-4)	1200	µg/L	2480		48	60-140			S09
Disinfection By-Product Formation Potential, Batch B5B3856									
Blank (B5B3856-BLK1)				Prepared: 2025-03-07, Analyzed: 2025-03-07					
Incubation pH	< 0.1	0.1 pH units							
Incubation Temperature	25	1 °C							
Incubation Duration	7	Days							
Free Chlorine, Initial Dose	4.0	0.1 mg/L							
Free Chlorine, Final Concentration	4.0	0.1 mg/L							
Disinfection By-Product Formation Potential, Batch B5C2937									
Blank (B5C2937-BLK1)				Prepared: 2025-03-13, Analyzed: 2025-03-13					
Monochloroacetic Acid	< 0.0100	0.0100 mg/L							
Monobromoacetic Acid	< 0.0100	0.0100 mg/L							
Dichloroacetic Acid	< 0.0050	0.0050 mg/L							
Trichloroacetic Acid	< 0.0050	0.0050 mg/L							
Dibromoacetic Acid	< 0.0050	0.0050 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0108	mg/L	0.0116		92	70-130			
Blank (B5C2937-BLK2)				Prepared: 2025-03-13, Analyzed: 2025-03-13					
Monochloroacetic Acid	< 0.0100	0.0100 mg/L							
Monobromoacetic Acid	< 0.0100	0.0100 mg/L							
Dichloroacetic Acid	0.0080	0.0050 mg/L							BLK
Trichloroacetic Acid	< 0.0050	0.0050 mg/L							
Dibromoacetic Acid	< 0.0050	0.0050 mg/L							
Surrogate: 2-Bromopropionic Acid	0.0123	mg/L	0.0116		106	70-130			
LCS (B5C2937-BS1)				Prepared: 2025-03-13, Analyzed: 2025-03-13					
Monochloroacetic Acid	0.0536	0.0100 mg/L	0.0558		96	70-130			
Monobromoacetic Acid	0.0371	0.0100 mg/L	0.0374		99	70-130			
Dichloroacetic Acid	0.0543	0.0050 mg/L	0.0563		97	70-130			
Trichloroacetic Acid	0.0182	0.0050 mg/L	0.0186		98	70-130			
Dibromoacetic Acid	0.0186	0.0050 mg/L	0.0188		99	70-130			
Surrogate: 2-Bromopropionic Acid	0.0113	mg/L	0.0116		97	70-130			
LCS Dup (B5C2937-BSD1)				Prepared: 2025-03-13, Analyzed: 2025-03-13					
Monochloroacetic Acid	0.0589	0.0100 mg/L	0.0558		106	70-130	9	30	
Monobromoacetic Acid	0.0384	0.0100 mg/L	0.0374		103	70-130	4	30	
Dichloroacetic Acid	0.0578	0.0050 mg/L	0.0563		103	70-130	6	30	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Disinfection By-Product Formation Potential, Batch B5C2937, Continued

LCS Dup (B5C2937-BSD1), Continued			Prepared: 2025-03-13, Analyzed: 2025-03-13						
Trichloroacetic Acid	0.0192	0.0050 mg/L	0.0186		103	70-130	6	30	
Dibromoacetic Acid	0.0190	0.0050 mg/L	0.0188		101	70-130	2	30	
Surrogate: 2-Bromopropionic Acid	0.0119	mg/L	0.0116		103	70-130			
Matrix Spike (B5C2937-MS1)			Source: 25B2907-01		Prepared: 2025-03-13, Analyzed: 2025-03-13				
Monochloroacetic Acid	0.0626	0.0100 mg/L	0.0558	< 0.0100	112	60-140			
Monobromoacetic Acid	0.0375	0.0100 mg/L	0.0374	< 0.0100	99	60-140			
Dichloroacetic Acid	0.0545	0.0050 mg/L	0.0563	< 0.0050	94	60-140			
Trichloroacetic Acid	0.0188	0.0050 mg/L	0.0186	< 0.0050	96	60-140			
Dibromoacetic Acid	0.0130	0.0050 mg/L	0.0188	< 0.0050	67	60-140			
Surrogate: 2-Bromopropionic Acid	0.0113	mg/L	0.0116		97	70-130			

Disinfection By-Product Formation Potential, Batch B5C2962

Blank (B5C2962-BLK1)			Prepared: 2025-03-13, Analyzed: 2025-03-13						
Bromodichloromethane	< 0.0050	0.0050 mg/L							
Bromoform	< 0.0050	0.0050 mg/L							
Chloroform	0.0125	0.0100 mg/L							BLK
Dibromochloromethane	< 0.0050	0.0050 mg/L							
Surrogate: Toluene-d8	0.0190	mg/L	0.0250		76	70-130			
Surrogate: 4-Bromofluorobenzene	0.0188	mg/L	0.0249		75	70-130			
LCS (B5C2962-BS1)			Prepared: 2025-03-13, Analyzed: 2025-03-13						
Chloroform	4.08	3.00 mg/L	2.90		141	70-130			SPK
Surrogate: Toluene-d8	0.0223	mg/L	0.0250		89	70-130			
Surrogate: 4-Bromofluorobenzene	0.0195	mg/L	0.0249		78	70-130			
Duplicate (B5C2962-DUP1)			Source: 25B2907-01		Prepared: 2025-03-13, Analyzed: 2025-03-13				
Bromodichloromethane	< 0.0050	0.0050 mg/L		< 0.0050					30
Bromoform	< 0.0050	0.0050 mg/L		< 0.0050					30
Chloroform	< 0.0100	0.0100 mg/L		< 0.0100					30
Dibromochloromethane	< 0.0050	0.0050 mg/L		< 0.0050					30
Surrogate: Toluene-d8	0.0198	mg/L	0.0250		79	70-130			
Surrogate: 4-Bromofluorobenzene	0.0179	mg/L	0.0249		72	70-130			
Matrix Spike (B5C2962-MS1)			Source: 25B2907-01		Prepared: 2025-03-13, Analyzed: 2025-03-13				
Bromodichloromethane	0.0188	0.0050 mg/L	0.0201	< 0.0050	81	60-140			
Bromoform	0.0232	0.0050 mg/L	0.0201	< 0.0050	114	60-140			
Chloroform	0.0194	0.0100 mg/L	0.0201	< 0.0100	82	60-140			
Dibromochloromethane	0.0190	0.0050 mg/L	0.0201	< 0.0050	89	60-140			
Surrogate: Toluene-d8	0.0185	mg/L	0.0250		74	70-130			
Surrogate: 4-Bromofluorobenzene	0.0242	mg/L	0.0249		97	70-130			

Dissolved Metals, Batch B5C1687

Blank (B5C1687-BLK1)			Prepared: 2025-03-02, Analyzed: 2025-03-02						
Mercury, dissolved	< 0.000010	0.000010 mg/L							
Blank (B5C1687-BLK2)			Prepared: 2025-03-02, Analyzed: 2025-03-02						
Mercury, dissolved	< 0.000010	0.000010 mg/L							
LCS (B5C1687-BS1)			Prepared: 2025-03-02, Analyzed: 2025-03-02						
Mercury, dissolved	0.00265	0.000010 mg/L	0.00250		106	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Dissolved Metals, Batch B5C1687, Continued

LCS (B5C1687-BS2)

Prepared: 2025-03-02, Analyzed: 2025-03-02

Mercury, dissolved	0.00268	0.000010 mg/L	0.00250	107	80-120				
--------------------	---------	---------------	---------	-----	--------	--	--	--	--

Dissolved Metals, Batch B5C1761

Blank (B5C1761-BLK1)

Prepared: 2025-03-03, Analyzed: 2025-03-03

Aluminum, dissolved	< 0.0050	0.0050 mg/L
Antimony, dissolved	< 0.00020	0.00020 mg/L
Arsenic, dissolved	< 0.00050	0.00050 mg/L
Barium, dissolved	< 0.0050	0.0050 mg/L
Boron, dissolved	< 0.0500	0.0500 mg/L
Cadmium, dissolved	< 0.000010	0.000010 mg/L
Calcium, dissolved	< 0.20	0.20 mg/L
Chromium, dissolved	< 0.00050	0.00050 mg/L
Cobalt, dissolved	< 0.00010	0.00010 mg/L
Copper, dissolved	< 0.00040	0.00040 mg/L
Iron, dissolved	< 0.010	0.010 mg/L
Lead, dissolved	< 0.00020	0.00020 mg/L
Magnesium, dissolved	< 0.010	0.010 mg/L
Manganese, dissolved	< 0.00020	0.00020 mg/L
Molybdenum, dissolved	< 0.00010	0.00010 mg/L
Nickel, dissolved	< 0.00040	0.00040 mg/L
Potassium, dissolved	< 0.10	0.10 mg/L
Selenium, dissolved	< 0.00050	0.00050 mg/L
Sodium, dissolved	< 0.10	0.10 mg/L
Strontium, dissolved	< 0.0010	0.0010 mg/L
Uranium, dissolved	< 0.000020	0.000020 mg/L
Zinc, dissolved	< 0.0040	0.0040 mg/L

Blank (B5C1761-BLK2)

Prepared: 2025-03-03, Analyzed: 2025-03-03

Aluminum, dissolved	< 0.0050	0.0050 mg/L
Antimony, dissolved	< 0.00020	0.00020 mg/L
Arsenic, dissolved	< 0.00050	0.00050 mg/L
Barium, dissolved	< 0.0050	0.0050 mg/L
Boron, dissolved	< 0.0500	0.0500 mg/L
Cadmium, dissolved	< 0.000010	0.000010 mg/L
Calcium, dissolved	< 0.20	0.20 mg/L
Chromium, dissolved	< 0.00050	0.00050 mg/L
Cobalt, dissolved	< 0.00010	0.00010 mg/L
Copper, dissolved	< 0.00040	0.00040 mg/L
Iron, dissolved	< 0.010	0.010 mg/L
Lead, dissolved	< 0.00020	0.00020 mg/L
Magnesium, dissolved	< 0.010	0.010 mg/L
Manganese, dissolved	< 0.00020	0.00020 mg/L
Molybdenum, dissolved	< 0.00010	0.00010 mg/L
Nickel, dissolved	< 0.00040	0.00040 mg/L
Potassium, dissolved	< 0.10	0.10 mg/L
Selenium, dissolved	< 0.00050	0.00050 mg/L
Sodium, dissolved	< 0.10	0.10 mg/L
Strontium, dissolved	< 0.0010	0.0010 mg/L
Uranium, dissolved	< 0.000020	0.000020 mg/L
Zinc, dissolved	< 0.0040	0.0040 mg/L

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B5C1761, Continued									
LCS (B5C1761-BS1)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Aluminum, dissolved	4.06	0.0050 mg/L	4.00		102	80-120			
Antimony, dissolved	0.0401	0.00020 mg/L	0.0400		100	80-120			
Arsenic, dissolved	0.407	0.00050 mg/L	0.400		102	80-120			
Barium, dissolved	0.0396	0.0050 mg/L	0.0400		99	80-120			
Boron, dissolved	0.401	0.0500 mg/L	0.400		100	80-120			
Cadmium, dissolved	0.0396	0.000010 mg/L	0.0400		99	80-120			
Calcium, dissolved	3.97	0.20 mg/L	4.00		99	80-120			
Chromium, dissolved	0.0407	0.00050 mg/L	0.0400		102	80-120			
Cobalt, dissolved	0.0405	0.00010 mg/L	0.0400		101	80-120			
Copper, dissolved	0.0406	0.00040 mg/L	0.0400		102	80-120			
Iron, dissolved	4.04	0.010 mg/L	4.00		101	80-120			
Lead, dissolved	0.0408	0.00020 mg/L	0.0400		102	80-120			
Magnesium, dissolved	4.02	0.010 mg/L	4.00		100	80-120			
Manganese, dissolved	0.0404	0.00020 mg/L	0.0400		101	80-120			
Molybdenum, dissolved	0.0401	0.00010 mg/L	0.0400		100	80-120			
Nickel, dissolved	0.0410	0.00040 mg/L	0.0400		103	80-120			
Potassium, dissolved	4.14	0.10 mg/L	4.00		104	80-120			
Selenium, dissolved	0.396	0.00050 mg/L	0.400		99	80-120			
Sodium, dissolved	4.10	0.10 mg/L	4.00		102	80-120			
Strontium, dissolved	0.0417	0.0010 mg/L	0.0400		104	80-120			
Uranium, dissolved	0.0401	0.000020 mg/L	0.0400		100	80-120			
Zinc, dissolved	0.409	0.0040 mg/L	0.400		102	80-120			
LCS (B5C1761-BS2)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Aluminum, dissolved	4.06	0.0050 mg/L	4.00		101	80-120			
Antimony, dissolved	0.0390	0.00020 mg/L	0.0400		98	80-120			
Arsenic, dissolved	0.407	0.00050 mg/L	0.400		102	80-120			
Barium, dissolved	0.0395	0.0050 mg/L	0.0400		99	80-120			
Boron, dissolved	0.396	0.0500 mg/L	0.400		99	80-120			
Cadmium, dissolved	0.0396	0.000010 mg/L	0.0400		99	80-120			
Calcium, dissolved	4.04	0.20 mg/L	4.00		101	80-120			
Chromium, dissolved	0.0405	0.00050 mg/L	0.0400		101	80-120			
Cobalt, dissolved	0.0408	0.00010 mg/L	0.0400		102	80-120			
Copper, dissolved	0.0410	0.00040 mg/L	0.0400		102	80-120			
Iron, dissolved	4.08	0.010 mg/L	4.00		102	80-120			
Lead, dissolved	0.0400	0.00020 mg/L	0.0400		100	80-120			
Magnesium, dissolved	4.07	0.010 mg/L	4.00		102	80-120			
Manganese, dissolved	0.0405	0.00020 mg/L	0.0400		101	80-120			
Molybdenum, dissolved	0.0400	0.00010 mg/L	0.0400		100	80-120			
Nickel, dissolved	0.0405	0.00040 mg/L	0.0400		101	80-120			
Potassium, dissolved	4.15	0.10 mg/L	4.00		104	80-120			
Selenium, dissolved	0.404	0.00050 mg/L	0.400		101	80-120			
Sodium, dissolved	4.13	0.10 mg/L	4.00		103	80-120			
Strontium, dissolved	0.0411	0.0010 mg/L	0.0400		103	80-120			
Uranium, dissolved	0.0405	0.000020 mg/L	0.0400		101	80-120			
Zinc, dissolved	0.408	0.0040 mg/L	0.400		102	80-120			
Duplicate (B5C1761-DUP1)				Source: 25B2907-01		Prepared: 2025-03-03, Analyzed: 2025-03-03			
Aluminum, dissolved	< 0.0050	0.0050 mg/L		< 0.0050				20	
Antimony, dissolved	< 0.00020	0.00020 mg/L		< 0.00020				20	
Arsenic, dissolved	< 0.00050	0.00050 mg/L		< 0.00050				20	
Barium, dissolved	0.103	0.0050 mg/L		0.103			< 1	20	
Boron, dissolved	< 0.0500	0.0500 mg/L		< 0.0500				20	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Dissolved Metals, Batch B5C1761, Continued

Duplicate (B5C1761-DUP1), Continued		Source: 25B2907-01		Prepared: 2025-03-03, Analyzed: 2025-03-03					
Cadmium, dissolved	0.000014	0.000010	mg/L	0.000015				20	
Calcium, dissolved	67.8	0.20	mg/L	68.2			< 1	20	
Chromium, dissolved	0.00070	0.00050	mg/L	0.00062				20	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	< 0.00010				20	
Copper, dissolved	0.0158	0.00040	mg/L	0.0158			< 1	20	
Iron, dissolved	< 0.010	0.010	mg/L	< 0.010				20	
Lead, dissolved	0.00108	0.00020	mg/L	0.00108			< 1	20	
Magnesium, dissolved	11.0	0.010	mg/L	10.9			< 1	20	
Manganese, dissolved	< 0.00020	0.00020	mg/L	< 0.00020				20	
Molybdenum, dissolved	0.00294	0.00010	mg/L	0.00297			1	20	
Nickel, dissolved	0.00051	0.00040	mg/L	0.00049				20	
Potassium, dissolved	3.99	0.10	mg/L	4.00			< 1	20	
Selenium, dissolved	0.00185	0.00050	mg/L	0.00181				20	
Sodium, dissolved	16.5	0.10	mg/L	16.2			1	20	
Strontium, dissolved	0.467	0.0010	mg/L	0.476			2	20	
Uranium, dissolved	0.00587	0.000020	mg/L	0.00588			< 1	20	
Zinc, dissolved	0.0228	0.0040	mg/L	0.0226			1	20	

Matrix Spike (B5C1761-MS1)		Source: 25B2907-01		Prepared: 2025-03-03, Analyzed: 2025-03-03					
Aluminum, dissolved	3.99	0.0050	mg/L	4.00	< 0.0050	100	70-130		
Antimony, dissolved	0.0411	0.00020	mg/L	0.0400	< 0.00020	103	70-130		
Arsenic, dissolved	0.405	0.00050	mg/L	0.400	< 0.00050	101	70-130		
Barium, dissolved	0.145	0.0050	mg/L	0.0400	0.103	105	70-130		
Boron, dissolved	0.402	0.0500	mg/L	0.400	< 0.0500	95	70-130		
Cadmium, dissolved	0.0404	0.000010	mg/L	0.0400	0.000015	101	70-130		
Calcium, dissolved	68.8	0.20	mg/L	4.00	68.2	13	70-130		MS2
Chromium, dissolved	0.0400	0.00050	mg/L	0.0400	0.00062	98	70-130		
Cobalt, dissolved	0.0377	0.00010	mg/L	0.0400	< 0.00010	94	70-130		
Copper, dissolved	0.0524	0.00040	mg/L	0.0400	0.0158	91	70-130		
Iron, dissolved	3.88	0.010	mg/L	4.00	< 0.010	97	70-130		
Lead, dissolved	0.0415	0.00020	mg/L	0.0400	0.00108	101	70-130		
Magnesium, dissolved	14.2	0.010	mg/L	4.00	10.9	82	70-130		
Manganese, dissolved	0.0387	0.00020	mg/L	0.0400	< 0.00020	97	70-130		
Molybdenum, dissolved	0.0442	0.00010	mg/L	0.0400	0.00297	103	70-130		
Nickel, dissolved	0.0383	0.00040	mg/L	0.0400	0.00049	95	70-130		
Potassium, dissolved	7.74	0.10	mg/L	4.00	4.00	93	70-130		
Selenium, dissolved	0.393	0.00050	mg/L	0.400	0.00181	98	70-130		
Sodium, dissolved	19.5	0.10	mg/L	4.00	16.2	83	70-130		
Strontium, dissolved	0.485	0.0010	mg/L	0.0400	0.476	23	70-130		MS2
Uranium, dissolved	0.0471	0.000020	mg/L	0.0400	0.00588	103	70-130		
Zinc, dissolved	0.413	0.0040	mg/L	0.400	0.0226	98	70-130		

General Parameters, Batch B5B3495

Blank (B5B3495-BLK1)		Prepared: 2025-02-26, Analyzed: 2025-02-26							
Carbon, Total Organic	< 0.50	0.50	mg/L						
Blank (B5B3495-BLK2)		Prepared: 2025-02-27, Analyzed: 2025-02-28							
Carbon, Total Organic	< 0.50	0.50	mg/L						
Blank (B5B3495-BLK3)		Prepared: 2025-02-27, Analyzed: 2025-02-28							
Carbon, Total Organic	< 0.50	0.50	mg/L						

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5B3495, Continued									
Blank (B5B3495-BLK4)				Prepared: 2025-02-27, Analyzed: 2025-02-28					
Carbon, Total Organic	< 0.50	0.50 mg/L							
Blank (B5B3495-BLK5)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Carbon, Total Organic	< 0.50	0.50 mg/L							
LCS (B5B3495-BS1)				Prepared: 2025-02-26, Analyzed: 2025-02-28					
Carbon, Total Organic	9.48	0.50 mg/L	10.0		95	78-116			
LCS (B5B3495-BS2)				Prepared: 2025-02-27, Analyzed: 2025-02-28					
Carbon, Total Organic	9.36	0.50 mg/L	10.0		94	78-116			
LCS (B5B3495-BS3)				Prepared: 2025-02-27, Analyzed: 2025-02-28					
Carbon, Total Organic	9.55	0.50 mg/L	10.0		95	78-116			
LCS (B5B3495-BS4)				Prepared: 2025-02-27, Analyzed: 2025-02-28					
Carbon, Total Organic	9.36	0.50 mg/L	10.0		94	78-116			
LCS (B5B3495-BS5)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Carbon, Total Organic	9.28	0.50 mg/L	10.0		93	78-116			
General Parameters, Batch B5B3767									
Blank (B5B3767-BLK1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	21.6	°C							
Blank (B5B3767-BLK2)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Temperature, at pH	22.8	°C							
LCS (B5B3767-BS1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Alkalinity, Total (as CaCO ₃)	94.5	1.0 mg/L	100		95	80-120			
LCS (B5B3767-BS2)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Conductivity (EC)	1410	2.0 µS/cm	1410		100	95-105			
LCS (B5B3767-BS3)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Alkalinity, Total (as CaCO ₃)	95.9	1.0 mg/L	100		96	80-120			
LCS (B5B3767-BS4)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Conductivity (EC)	1400	2.0 µS/cm	1410		100	95-105			
Reference (B5B3767-SRM1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
pH	7.01	0.10 pH units	7.01		100	98-102			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5B3767, Continued									
Reference (B5B3767-SRM2)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
pH	7.00	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B5B3770									
Blank (B5B3770-BLK1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Turbidity	< 0.10	0.10 NTU							
Blank (B5B3770-BLK2)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Turbidity	< 0.10	0.10 NTU							
LCS (B5B3770-BS1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Turbidity	16.0	0.10 NTU	14.6		110	90-110			
LCS (B5B3770-BS2)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Turbidity	149	0.10 NTU	140		106	90-110			
General Parameters, Batch B5B3783									
Blank (B5B3783-BLK1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Colour, True	< 5.0	5.0 CU							
LCS (B5B3783-BS1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
Colour, True	21	5.0 CU	20.0		105	85-115			
General Parameters, Batch B5B3800									
Blank (B5B3800-BLK1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
UV Transmittance @ 254 nm - Unfiltered	< 0.10	0.10 % T							
LCS (B5B3800-BS1)				Prepared: 2025-02-28, Analyzed: 2025-02-28					
UV Transmittance @ 254 nm - Unfiltered	38.3	0.10 % T	39.1		98	95-105			
General Parameters, Batch B5B3867									
Blank (B5B3867-BLK1)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	< 0.0020	0.0020 mg/L							
Blank (B5B3867-BLK2)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	< 0.0020	0.0020 mg/L							
Blank (B5B3867-BLK3)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	< 0.0020	0.0020 mg/L							
LCS (B5B3867-BS1)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	0.0226	0.0020 mg/L	0.0200		113	82-120			
LCS (B5B3867-BS2)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	0.0201	0.0020 mg/L	0.0200		100	82-120			
LCS (B5B3867-BS3)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	0.0196	0.0020 mg/L	0.0200		98	82-120			
LCS Dup (B5B3867-BSD1)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	0.0210	0.0020 mg/L	0.0200		105	82-120	7	10	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5B3867, Continued									
LCS Dup (B5B3867-BSD2)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	0.0207	0.0020 mg/L	0.0200		103	82-120	3	10	
LCS Dup (B5B3867-BSD3)				Prepared: 2025-03-01, Analyzed: 2025-03-01					
Cyanide, Total	0.0200	0.0020 mg/L	0.0200		100	82-120	2	10	
General Parameters, Batch B5C1698									
Blank (B5C1698-BLK1)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B5C1698-BLK2)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
Blank (B5C1698-BLK3)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Phosphorus, Total (as P)	< 0.0050	0.0050 mg/L							
LCS (B5C1698-BS1)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Phosphorus, Total (as P)	0.108	0.0050 mg/L	0.100		108	85-115			
LCS (B5C1698-BS2)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Phosphorus, Total (as P)	0.109	0.0050 mg/L	0.100		109	85-115			
LCS (B5C1698-BS3)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Phosphorus, Total (as P)	0.109	0.0050 mg/L	0.100		109	85-115			
General Parameters, Batch B5C1836									
Blank (B5C1836-BLK1)				Prepared: 2025-03-04, Analyzed: 2025-03-05					
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
Blank (B5C1836-BLK2)				Prepared: 2025-03-04, Analyzed: 2025-03-05					
Nitrogen, Total Kjeldahl	< 0.050	0.050 mg/L							
LCS (B5C1836-BS1)				Prepared: 2025-03-04, Analyzed: 2025-03-05					
Nitrogen, Total Kjeldahl	1.01	0.050 mg/L	1.00		101	85-115			
LCS (B5C1836-BS2)				Prepared: 2025-03-04, Analyzed: 2025-03-05					
Nitrogen, Total Kjeldahl	1.00	0.050 mg/L	1.00		100	85-115			
General Parameters, Batch B5C1955									
Blank (B5C1955-BLK1)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B5C1955-BLK2)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B5C1955-BLK3)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
Blank (B5C1955-BLK4)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	< 0.050	0.050 mg/L							
LCS (B5C1955-BS1)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	0.911	0.050 mg/L	1.00		91	85-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5C1955, Continued									
LCS (B5C1955-BS2)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	0.928	0.050 mg/L	1.00		93	85-115			
LCS (B5C1955-BS3)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	0.915	0.050 mg/L	1.00		92	85-115			
LCS (B5C1955-BS4)				Prepared: 2025-03-05, Analyzed: 2025-03-05					
Ammonia, Total (as N)	0.939	0.050 mg/L	1.00		94	85-115			
Microbiological Parameters, Batch B5B3697									
Blank (B5B3697-BLK1)				Prepared: 2025-02-27, Analyzed: 2025-02-27					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5B3697-BLK2)				Prepared: 2025-02-27, Analyzed: 2025-02-27					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5B3697-BLK3)				Prepared: 2025-02-27, Analyzed: 2025-02-27					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5B3697-BLK4)				Prepared: 2025-02-27, Analyzed: 2025-02-27					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5B3697-BLK5)				Prepared: 2025-02-27, Analyzed: 2025-02-27					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Blank (B5B3697-BLK6)				Prepared: 2025-02-27, Analyzed: 2025-02-27					
Coliforms, Total	< 1	1 CFU/100 mL							
E. coli	< 1	1 CFU/100 mL							
Total Metals, Batch B5C1687									
Blank (B5C1687-BLK1)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
Mercury, total	< 0.000010	0.000010 mg/L							
Blank (B5C1687-BLK2)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
Mercury, total	< 0.000010	0.000010 mg/L							
LCS (B5C1687-BS1)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
Mercury, total	0.00265	0.000010 mg/L	0.00250		106	80-120			
LCS (B5C1687-BS2)				Prepared: 2025-03-02, Analyzed: 2025-03-02					
Mercury, total	0.00268	0.000010 mg/L	0.00250		107	80-120			
Total Metals, Batch B5C1782									
Blank (B5C1782-BLK1)				Prepared: 2025-03-03, Analyzed: 2025-03-03					
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
---------	--------	----------	-------------	---------------	-------	-----------	-------	-----------	-----------

Total Metals, Batch B5C1782, Continued

Blank (B5C1782-BLK1), Continued

Prepared: 2025-03-03, Analyzed: 2025-03-03

Barium, total	< 0.0050	0.0050 mg/L							
Boron, total	< 0.0500	0.0500 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							

LCS (B5C1782-BS1)

Prepared: 2025-03-03, Analyzed: 2025-03-03

Aluminum, total	3.81	0.0050 mg/L	4.00		95	80-120			
Antimony, total	0.0388	0.00020 mg/L	0.0400		97	80-120			
Arsenic, total	0.386	0.00050 mg/L	0.400		97	80-120			
Barium, total	0.0391	0.0050 mg/L	0.0400		98	80-120			
Boron, total	0.393	0.0500 mg/L	0.400		98	80-120			
Cadmium, total	0.0389	0.000010 mg/L	0.0400		97	80-120			
Calcium, total	3.64	0.20 mg/L	4.00		91	80-120			
Chromium, total	0.0390	0.00050 mg/L	0.0400		97	80-120			
Cobalt, total	0.0392	0.00010 mg/L	0.0400		98	80-120			
Copper, total	0.0389	0.00040 mg/L	0.0400		97	80-120			
Iron, total	3.89	0.010 mg/L	4.00		97	80-120			
Lead, total	0.0396	0.00020 mg/L	0.0400		99	80-120			
Magnesium, total	3.85	0.010 mg/L	4.00		96	80-120			
Manganese, total	0.0394	0.00020 mg/L	0.0400		98	80-120			
Molybdenum, total	0.0393	0.00010 mg/L	0.0400		98	80-120			
Nickel, total	0.0388	0.00040 mg/L	0.0400		97	80-120			
Potassium, total	3.81	0.10 mg/L	4.00		95	80-120			
Selenium, total	0.361	0.00050 mg/L	0.400		90	80-120			
Sodium, total	3.88	0.10 mg/L	4.00		97	80-120			
Strontium, total	0.0400	0.0010 mg/L	0.0400		100	80-120			
Uranium, total	0.0394	0.000020 mg/L	0.0400		98	80-120			
Zinc, total	0.388	0.0040 mg/L	0.400		97	80-120			

Volatile Organic Compounds (VOC), Batch B5C1848

Blank (B5C1848-BLK1)

Prepared: 2025-03-05, Analyzed: 2025-03-05

Benzene	< 0.5	0.5 µg/L							
Bromodichloromethane	< 1.0	1.0 µg/L							
Bromoform	< 1.0	1.0 µg/L							
Carbon tetrachloride	< 0.5	0.5 µg/L							
Chlorobenzene	< 1.0	1.0 µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B5C1848, Continued									
Blank (B5C1848-BLK1), Continued					Prepared: 2025-03-05, Analyzed: 2025-03-05				
Chloroethane	< 2.0	2.0 µg/L							
Chloroform	< 1.0	1.0 µg/L							
Dibromochloromethane	< 1.0	1.0 µg/L							
1,2-Dibromoethane	< 0.3	0.3 µg/L							
Dibromomethane	< 1.0	1.0 µg/L							
1,2-Dichlorobenzene	< 0.5	0.5 µg/L							
1,3-Dichlorobenzene	< 1.0	1.0 µg/L							
1,4-Dichlorobenzene	< 1.0	1.0 µg/L							
1,1-Dichloroethane	< 1.0	1.0 µg/L							
1,2-Dichloroethane	< 1.0	1.0 µg/L							
1,1-Dichloroethylene	< 1.0	1.0 µg/L							
cis-1,2-Dichloroethylene	< 1.0	1.0 µg/L							
trans-1,2-Dichloroethylene	< 1.0	1.0 µg/L							
Dichloromethane	< 3.0	3.0 µg/L							
1,2-Dichloropropane	< 1.0	1.0 µg/L							
1,3-Dichloropropane (cis + trans)	< 1.0	1.0 µg/L							
Ethylbenzene	< 1.0	1.0 µg/L							
Methyl tert-butyl ether	< 1.0	1.0 µg/L							
Styrene	< 1.0	1.0 µg/L							
1,1,2,2-Tetrachloroethane	< 0.5	0.5 µg/L							
Tetrachloroethylene	< 1.0	1.0 µg/L							
Toluene	< 1.0	1.0 µg/L							
1,1,1-Trichloroethane	< 1.0	1.0 µg/L							
1,1,2-Trichloroethane	< 1.0	1.0 µg/L							
Trichloroethylene	< 1.0	1.0 µg/L							
Trichlorofluoromethane	< 1.0	1.0 µg/L							
Vinyl chloride	< 1.0	1.0 µg/L							
Xylenes (total)	< 2.0	2.0 µg/L							
Surrogate: Toluene-d8	21.2	µg/L	25.0		85	70-130			
Surrogate: 4-Bromofluorobenzene	18.0	µg/L	24.9		72	70-130			
Surrogate: 1,4-Dichlorobenzene-d4	19.6	µg/L	24.5		80	70-130			
LCS (B5C1848-BS1)					Prepared: 2025-03-05, Analyzed: 2025-03-05				
Benzene	21.0	0.5 µg/L	19.8		106	70-130			
Bromodichloromethane	21.8	1.0 µg/L	19.8		110	70-130			
Bromoform	20.8	1.0 µg/L	19.8		105	70-130			
Carbon tetrachloride	23.2	0.5 µg/L	20.0		116	70-130			
Chlorobenzene	20.7	1.0 µg/L	20.0		103	70-130			
Chloroethane	22.4	2.0 µg/L	20.0		112	60-140			
Chloroform	23.0	1.0 µg/L	19.9		115	70-130			
Dibromochloromethane	21.1	1.0 µg/L	20.2		104	70-130			
1,2-Dibromoethane	19.8	0.3 µg/L	20.0		99	70-130			
Dibromomethane	21.1	1.0 µg/L	19.8		106	70-130			
1,2-Dichlorobenzene	21.4	0.5 µg/L	19.6		109	70-130			
1,3-Dichlorobenzene	21.6	1.0 µg/L	20.0		108	70-130			
1,4-Dichlorobenzene	20.5	1.0 µg/L	20.0		103	70-130			
1,1-Dichloroethane	23.3	1.0 µg/L	19.8		118	70-130			
1,2-Dichloroethane	21.3	1.0 µg/L	20.0		106	70-130			
1,1-Dichloroethylene	22.5	1.0 µg/L	19.8		114	70-130			
cis-1,2-Dichloroethylene	21.8	1.0 µg/L	19.8		110	70-130			
trans-1,2-Dichloroethylene	22.2	1.0 µg/L	20.0		111	70-130			
Dichloromethane	22.5	3.0 µg/L	20.0		113	70-130			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Western Water Associates Ltd
24-122-01VR

WORK ORDER REPORTED 25B2907
2025-03-14 16:25

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Volatile Organic Compounds (VOC), Batch B5C1848, Continued									
LCS (B5C1848-BS1), Continued					Prepared: 2025-03-05, Analyzed: 2025-03-05				
1,2-Dichloropropane	21.8	1.0 µg/L	20.0		109	70-130			
1,3-Dichloropropene (cis + trans)	39.6	1.0 µg/L	37.6		105	70-130			
Ethylbenzene	18.4	1.0 µg/L	20.1		91	70-130			
Methyl tert-butyl ether	20.3	1.0 µg/L	20.0		102	70-130			
Styrene	18.6	1.0 µg/L	20.0		93	70-130			
1,1,2,2-Tetrachloroethane	22.0	0.5 µg/L	19.7		112	70-130			
Tetrachloroethylene	23.7	1.0 µg/L	20.0		118	70-130			
Toluene	20.6	1.0 µg/L	20.1		103	70-130			
1,1,1-Trichloroethane	22.9	1.0 µg/L	20.0		114	70-130			
1,1,2-Trichloroethane	21.8	1.0 µg/L	19.7		111	70-130			
Trichloroethylene	19.6	1.0 µg/L	20.0		98	70-130			
Trichlorofluoromethane	27.1	1.0 µg/L	20.2		134	60-140			
Vinyl chloride	20.6	1.0 µg/L	20.0		103	60-140			
Xylenes (total)	57.5	2.0 µg/L	59.8		96	70-130			
Surrogate: Toluene-d8	26.3	µg/L	25.0		105	70-130			
Surrogate: 4-Bromofluorobenzene	27.8	µg/L	24.9		111	70-130			
Surrogate: 1,4-Dichlorobenzene-d4	24.8	µg/L	24.5		101	70-130			

QC Qualifiers:

BLK Analyte concentration in the Method Blank is above the Reporting Limit (RL).
MS2 The native sample concentration is greater than the spike concentration hence the matrix spike limits do not apply.
S09 The surrogate recovery for this sample is outside of established control limits .
SPK The recovery of this analyte was outside of established control limits.