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Beaver Falls Waterworks District: Level 2 / 3 GARP Assessment

Prepared for:

Beaver Falls Waterworks District
1917 Columbia Gardens Road
Fruitvale, B.C.
V0G 1L0

May 2026
Project: 22-077-03VR

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May 13, 2026

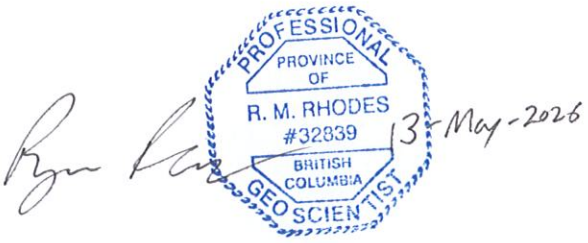
Beaver Falls Waterworks District
1917 Columbia Gardens Road
Fruitvale, B.C.
V0G 1L0

Re: Level 2 / 3 Groundwater at Risk of Containing Pathogens (GARP) Assessment, Beaver Falls Waterworks District Well 2

Western Water Associates Ltd. was retained to complete the above noted study, which was completed with support from Beaver Falls Waterworks District operators between April and November of 2025.

We trust that the professional opinions and advice presented in this document are sufficient for your current requirements. Should you have any questions, or if we can be of further assistance in this matter, please contact the undersigned.

WESTERN WATER ASSOCIATES LTD.
(EGBC Permit to Practice number 1001419)



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1. INTRODUCTION

This report presents the results of Western Water Associates Ltd.'s (WWAL) assessment of the Beaver Falls Waterworks District (BFWD) source well's potential to be considered Groundwater At Risk of containing Pathogens (GARP). The water system is at present supplied by one well (Well 2). This assessment was completed in response to a condition on the Interior Health Authority operating permit for the water system. Our scope of work for this project was outlined in our proposal P25-024 dated February 10, 2025. Approval to proceed with the project was provided by the BFWD on March 12, 2026.

1.1 Assessment Framework: BC GUDI-GARP Guidelines

Well 2 was assessed using the criteria outlined in the *Guidance Document for Determining Ground Water at Risk of Containing Pathogens (GARP) (Ministry of Health, September 2017)*. This guidance document is the third version released by the Ministry of Health and has evolved through several draft versions, which have been reviewed and commented on by regulatory agencies and groundwater professionals in the province.

Our assessment also included elements of the Ontario GUDI Guidelines (2001), a widely used tool used for Groundwater under Direct Influence of Surface Water (GUDI) screening, as well as elements of U.S. Environmental Protection Agency (EPA) guidance documents, on which the B.C. Guidance is largely based. Professional practice guidelines outlined by Engineers and Geoscientists (EGBC; 2019) in the document entitled *Assessment of Groundwater at Risk of Containing Pathogens (GARP)* were also considered.

1.1.1 Definitions

The BC guidance document uses the U.S. EPA's (1999) definition for GUDI, which is "any water beneath the surface of the ground with:

a) significant occurrence of insects or other macro-organisms, algae, organic debris or large-diameter pathogens such as *Giardia lamblia, Cryptosporidium,* or

b) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH, which closely correlate to climatological or surface water conditions."

Although some groundwater supply sources may be hydraulically connected to surface water, the potential threat to human health only exists where conditions allow microbial pathogens to freely travel from surface water to the groundwater source (i.e., subsurface filtration of surface water is incomplete/inadequate). If a groundwater source is determined to be GUDI, the water must be treated to the same level as surface water with respect to pathogen removal and inactivation. The GUDI potential of a well source is determined by a professional hydrogeologist who applies professional judgment on a case-by-case basis.

The BC guidance document defines GARP as "any groundwater source that is likely to be contaminated from any sources of human disease-causing microorganisms (pathogens) including various types of bacteria, viruses and protozoa". Contamination may be continuous or intermittent. Potential sources of

pathogens to groundwater may include wastewater discharge to land, agricultural waste stockpiles and surface water that is hydraulically connected to groundwater.

There is some overlap between the definitions of GARP and GUDI, which may lead to misinterpretation. GARP is a more encompassing definition that considers any possible source of microbiological contamination. GUDI should be considered a potential risk contributing to a well's GARP determination. It is possible for a well to not be considered GUDI, while being classified as GARP. For example, a well located a great distance from any surface water sources that is installed in an unconfined aquifer near a community wastewater dispersal field could be considered GARP but not GUDI.

1.2 Objectives

This project is intended to support the BFWD with long-term planning and decision making for the water system, as well as fulfilling its conditions on permit. GARP assessments are key considerations in determining if treatment of groundwater supplies is required and, if so, to what degree. True groundwater sources found to be neither GUDI nor GARP may not require any water treatment, while sources with a higher risk of containing pathogens, surface water related or otherwise, typically require one or more forms of pathogen treatment to address the potential risk to human health.

The main objective of this study was to compile and collect the information necessary to assess the GARP status of Well 2. Specifically, it was the intent of this study to classify the well as either:

I. **GARP** – One or more identified hazards pose an obvious risk of pathogenic contamination. GARP sources require the same level of treatment as surface water sources.

II. **GARP-viruses only** – The source is only at risk of containing viruses but not at risk for large diameter pathogens associated with surface water (*Giardia* and *Cryptosporidium*). As chlorine is highly effective at killing viruses, GARP-virus only status is often addressed with chlorine disinfection with adequate contact time.

III. **Low Risk** – The source has a low risk of containing pathogens ("secure groundwater"). Low risk sources may not require any pathogen treatment.

2. WATER SYSTEM BACKGROUND

The BFWD is a community water system that provides water to approximately 600 people within the Beaver Falls community. The water system originated in 1959, originally developed as a gravity fed system extracting water from Bath Creek, a small watershed located westward and uphill of the community. The BFWD continues to hold surface water licenses for Bath Creek but has since moved to using groundwater for their supply.

The BFWD service area extends approximately 7.5 km, located between the Villages of Fruitvale to the northeast and Montrose to the southwest (Figure 1). System works include the supply well and pumphouse, 16 fire hydrants and two above ground steel reservoirs capable of holding 300 m^3 and 500 m^3. As of 2024, the BFWD service area contains 200 parcels with 198 active connections. Currently there

is no treatment in place for the BFWD municipal water supply, and raw groundwater is pumped directly into the distribution system. There is an interconnect between the BFWD and Montrose municipal water system (valve typically closed) that allows water to be transferred between systems when needed.

Since the 1970's, the BFWD has obtained water from drilled wells located at the end of Scout Road, on the Scout Camp property (1620 Scout Road; PID 016-038-134). Our understanding is that the BFWD has a blanket easement over the Scout Camp property for waterworks purposes.

The system is currently supplied solely by a 250 mm (10-inch) diameter supply well (Well 2) constructed in 1985.

In 2005, the BFWD commissioned the drilling of Well 3, intended to replace Well 1, the oldest production well. In 2008, testing indicated Well 3 was less productive than Well 1, even with Well 1 operating at a reduced capacity from its original yield (Golder 2009). As a result, Well 3 was never put into service. Wells 1 and 3 were decommissioned in accordance with the *Groundwater Protection Regulation* in 2024.

In 2023, WWAL provided hydrogeological support for the installation of a new supply well (Well 4) for the BFWD. This well was installed to provide redundancy and for asset renewal. Our understanding is that Well 4 has not yet been put into production related to concerns expressed by IHA about adequate treatment (e.g. GARP status).

Select details on BFWD wells are summarized in Table 2.1.

Table 2.1 Summary of BFWD Well Completion Details

	Date Drilled	Depth	Screen Interval	Screen Details	Original Yield	Status
Well 1	1973	68 ft	43 - 68 ft	60 to 100 slot 80 slot at top, 60 slot in middle, 100 slot at bottom.	307 US gpm (specific capacity 10.2 US gpm/ft)	Decommissioned In 2024
Well 2	1985	92 ft	67 - 92 ft	20 to 120 slot 120 slot at top, 20 slot in middle, 80 slot at bottom.	302 US gpm (specific capacity 6.9 US gpm/ft)	Sole Active Well. Operated at 17 L/s (270 US gpm)
Well 3	2005	76 ft	54 - 76 ft	50 to 150 slot 50 slot at top, 150 slot at bottom. Progressively coarser with depth.	100 US gpm (specific capacity 3.0 US gpm/ft)	Decommissioned In 2024
Well 4	2023	94 ft	68 - 93 ft	20 to 100 slot 100 slot from top to nearly bottom, 20 slot at bottom	400 US gpm (specific capacity 7.3 US gpm/ft)	Not in operation. Requires IHA approval.

Table 2.2 outlines available total annual water consumption from BFWD annual water reports (2014, 2015 and 2016). These data provide a reasonable analog for present day consumption, as no additional connections have been added since these years according to the annual water reports.

Table 2.2 BFWD Annual Water Consumption (2014-2016)

Year	Total Water Consumption (m^3)
2016	101,245
2015	101,245
2014	94,280

2.1 Previous GARP-Related Assessments

As part of their work to develop a preliminary groundwater protection plan for the BFWD in 2008/2009, Golder completed an assessment of Well 2's potential to be GUDI (note that this assessment predated the current GARP assessment guidance document). The assessment included a review of raw water bacteriological sampling, comparison of field water quality parameters collected from Well 2 and Beaver Creek from May to July 2009, comparison of chemical water quality samples from Well 2 and the creek, and the collection of one sample from Well 2 for Microparticulate Analysis (MPA) testing.

Review of raw water bacteriological data (which we infer was a combination of samples directly from the wells and from various locations in the distribution system) for the period of 2007 through May 2009 did not have any positive occurrences of *E.Coli* and only one occurrence of one total coliform in November 2008 (the study did not indicate how many samples comprised this data set). The one positive total coliform was potentially a result of water sharing between the BFWD and Montrose; and follow up samples were negative for bacteria. In addition, 13 samples were collected directly from Well 2 between April and July 2009, all of which were negative for total coliform and *E.Coli.* This data indicates good bacteriological water quality for the time period assessed.

The comparative field water quality sampling data was of short duration (3-4 months) and of limited use. The results indicate consistently low turbidity from Well 2 and lower than that measured in Beaver Creek. The results also indicate stable and higher conductivity in groundwater while conductivity in the creek varied with the expected seasonal pattern following freshet. The results of comparing water quality samples collected from Well 2 and the creek indicated a similar general chemistry, with groundwater being relatively more mineralized.

The results of the one MPA sample collected indicated a low (0) risk factor of the well being GUDI. Ultimately, based on their assessment, Golder concluded that Well 2 was not GUDI.

As part of WWAL reporting on the drilling of Well 4 in 2023, we completed a GARP screening assessment and parts of a Level 2 GARP assessment for Well 4. The assessment identified several potential risk factors including the interpreted unconfined nature of the aquifer, the location of the well in the Beaver Creek floodplain and the presence of pathogen sources (septic systems) within 300 m of the well. As part of that screening we reviewed available bacteriological data from both the wells directly and from the distribution system. The available data indicated good bacteriological water quality, with no positive bacteria

occurrences for samples collected from Well 2 (30 samples). We ultimately concluded that there was some level of GARP risk for Well 4 (and by extension, Well 2, as the wells are located in the same general area, have nearly identical completions and share many of the same risk factors) and recommended that a more detailed study be completed.

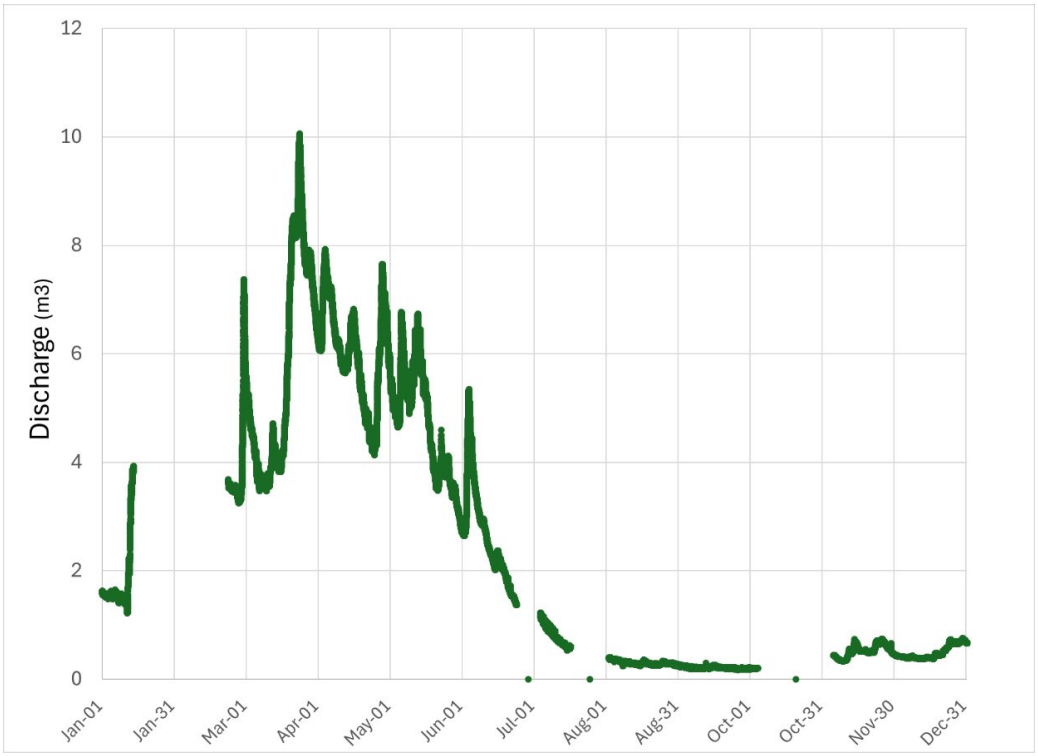
3. SITE DESCRIPTION AND HYDROGEOLOGIC SETTING

3.1 Physiography and Climate

The BFWD well site is located on the north side of Beaver Creek approximately 1.5 km southwest and downstream of the Village of Fruitvale town core. Based on Google Earth, elevation at the well sites is approximately 578 m above sea level (m-asl). Land at the well site is relatively flat with a slight southeastward slope towards the creek. Across the creek from the site an embankment rises steeply. The Well 2 site is situated approximately 17 m from the western bank of Beaver Creek which flows southward. Kelly Creek, a major tributary of Beaver Creek, confluences approximately 120 m upstream of Well 2 (Figure 2 - attached).

Living Lakes Canada maintains a hydrometric station on Beaver Creek in downtown Fruitvale, B.C approximately 2.5 km upstream of the site, established in 2023. Figure 3.1 below presents a discharge hydrograph for 2024. The freshet dominated discharge regime of this creek is clear as water levels rise in late March in response to snowmelt, with peak levels between in late March to mid-May. Flows subsequently decline steadily towards baseflow levels in early August.

Figure 3.1 Beaver Creek 2024 Discharge Hydrograph at Station LCKBVR01H



Climate Normal data from the Warfield climate station (ID 1148700), located approximately 15 km to the west and at a similar elevation, are summarized below. The data indicate an average annual precipitation of 779 mm, of which ~23% occurs as snow. November through January are the wettest months of the year on average, while August and September are the driest.

Table 3.1 Climate Normal Data for Warfield, B.C. Climate Station 1148700

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	27.8	35.2	55.8	60.7	73.9	74.4	48.2	35.5	39.7	49.7	64.4	34.7	599.9
Snowfall (cm)	50.6	25.4	10.3	1.4	0.1	0.0	0.0	0.0	0.0	1.7	32.0	57.7	179.1
Precipitation (mm)	78.4	60.6	66.1	62.0	74.0	74.4	48.2	35.5	39.7	51.4	96.5	92.4	779.0
Daily Average (°C)	-1.8	0.1	4.6	9.1	13.5	16.9	20.4	20.4	15.2	8.1	2.0	-2.4	8.9

Source: Environment Canada, 2025

The Pacific Climate Impacts Consortium climate change summary for the Kootenay Region (PCIC 2013) forecasts warming in all seasons, with the largest projected increase in the summer. The average prediction of multiple climate change models predicts that average summer temperatures will increase by 2.2°C over the 1961-1990 average summer temperature by 2050. Precipitation is expected to increase in the autumn through spring and decrease in the summer months. Coupled with rising temperatures, this could mean more precipitation falling as rain at low and mid-elevations and decreased mid-elevation snowpacks. At higher elevations, the projected increase in precipitation could result in increased snowpacks and a higher potential for spring flooding. The climate change summary acknowledges that the topography in the Kootenay region is highly variable and that climate change effects may therefore vary significantly over short distances.

3.2 Hydrogeologic Setting

The BFWD wells are all completed in recently delineated Aquifer 1284. Aquifer 1284 is a sand and gravel aquifer located in the Beaver Creek valley bottom and hosted in glaciofluvial sand and gravel deposits. The aquifer is characterized by the Province as unconfined and highly vulnerable, and likely in hydraulic connection with Beaver Creek (ENV 2022). Aquifer recharge is believed to occur via infiltration of precipitation over the footprint of the aquifer, losses from streams flowing over or in hydraulic connection with the aquifer, and from mountain block recharge (discharge of groundwater in bedrock aquifers into overlying sand and gravel aquifers).

Multiple test wells and production wells have been drilled at the BFWD well site. In 2023, as part of the Well 4 drilling campaign, two wells were attempted further north and away from Beaver Creek (Figure 3.2). These wells were sited to increase distance between the wells and the creek and to be located outside of the local floodplain in attempt to reduce or eliminate GARP hazards. Both of these wells encountered bedrock at relatively shallow depths and were abandoned, before Well 4 was constructed closer to the creek (WWAL 2023). These results suggest that the aquifer at the BFWD well site is limited to areas fairly close to Beaver Creek.

Figure 3.2 BFWD Well Locations

Stratigraphy at the BFWD well site is fairly similar between the wells present. Lithology documented for Well 1 indicates compact, dirty silty sand and gravel to a depth of 11 m (36 ft). The drillers' log for Well 3 indicates clay and gravel to a depth of 12 m (39 ft), and in Well 4, fine silty sand was observed to 8 m (26 ft). Detailed lithology is not available for Well 2 but is inferred to be similar. The available lithology indicates that the upper 8 – 12 m of surficial deposits are finer-grained (i.e. contain silt and clay) but do not constitute a clear and consistent confining unit. Below 8 - 12 m depth, deposits consist of sands and gravels, and overlie bedrock which was encountered at 28.7 m (94 ft) at Well 4, with bedrock presumed to be at a similar depth at Well 2 based on the screen location. In summary, we interpret the aquifer to be unconfined at the BFWD well site, or at best, semi-confined.

WWAL estimated aquifer transmissivity based on data obtained from a pumping test on Well 4 to be 1.1 x 10^3 m^2/day. Assuming an aquifer thickness of 27.4 m, aquifer hydraulic conductivity was calculated to be on the order of 40 m/day. Golder (2009) estimated aquifer transmissivity to be 1.8 x 10^2 m^2/day based on

pumping test data from Well 3 and observation wells. Groundwater flow direction is inferred to be similar to the direction of flow in Beaver Creek, which is generally southwestwards.

3.3 Land Use near the BFWD Well Field

Land use in the area is predominantly rural residential (Figure 2). The Scout Camp property where the wells are located is used seasonally, primarily in the summer. A septic system and ground disposal field services the Scout Camp and is believed to be located 105 m north of Well 2 based on the septic records obtained from Interior Health (Figure 2). Properties in the vicinity of the well site and on the western side of Beaver Creek utilize septic tanks and fields for wastewater disposal. Including the Scout Camp system, there are approximately 6 – 8 septic systems within 300 m of Well 2 based on recent orthophoto imagery, the closest likely just over 30 m southwest of Well 2. To the east of Beaver Creek, most properties within 300 m of Well 2 are serviced by the Village of Fruitvale community wastewater system.

Floodplain mapping was completed for Beaver Creek by the Province of BC in 1989 (ENV 1989), and as such may be somewhat dated. Available mapping indicates that the Well 2 and Well 4 are within the 1:200 year floodplain for Beaver Creek (Figure 3.3).

Figure 3.3 Beaver Creek Floodplain Mapping near the BFWD Well Site (ENV 1989).

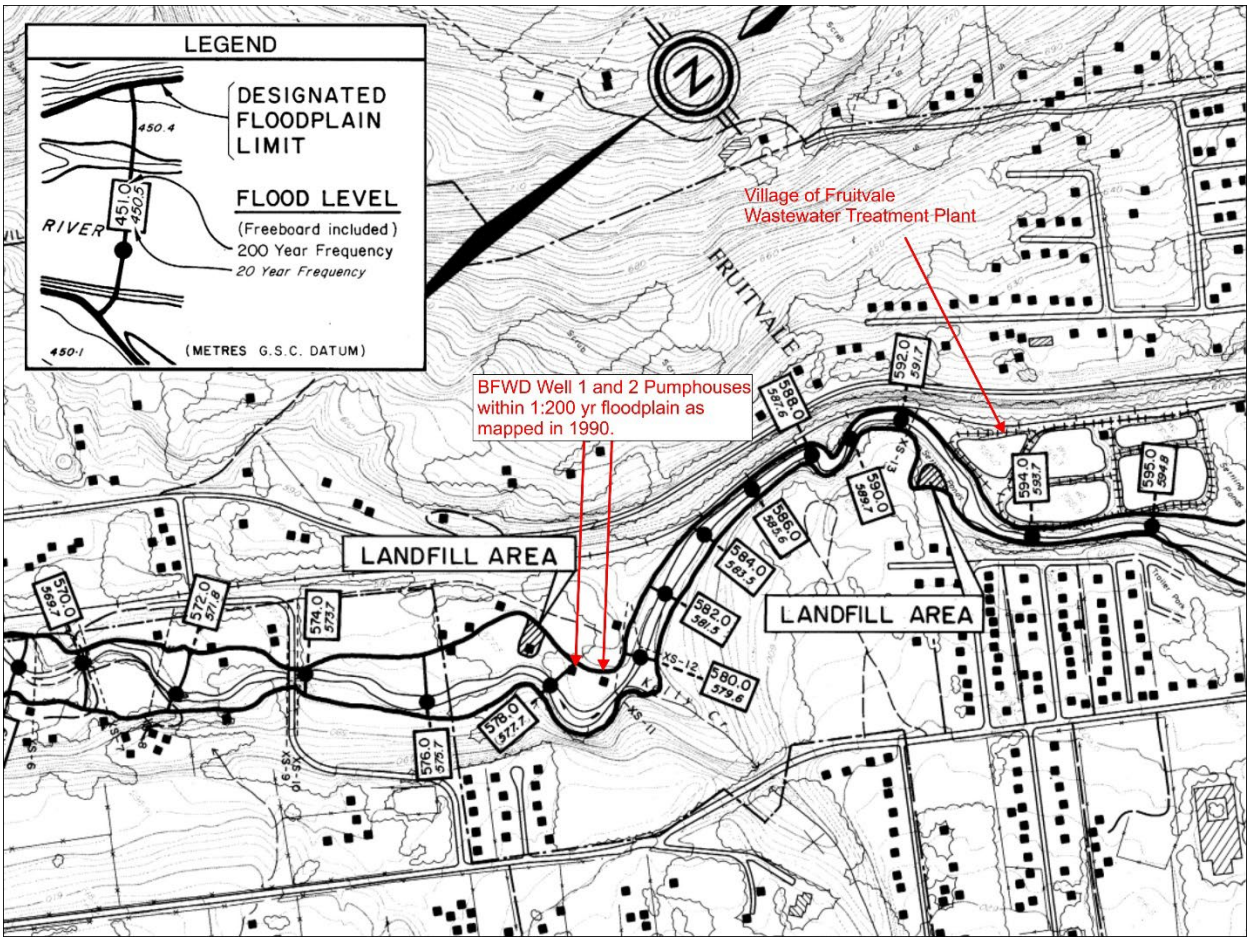


Image Source: ENV 1989. Drawing No. 88-35-1

A rail line and Highway 3B are located 125 m and 160 m west of the well site, respectively. Of note, the Village of Fruitvale wastewater treatment plant (WWTP) is located 600 m north and upstream of the well site. The WWTP treats wastewater collected within the Village of Fruitvale boundary, and discharges treated wastewater into Beaver Creek.

Village of Fruitvale Wastewater Treatment Plant

The WWTP has undergone many upgrades since the 1990's in efforts to reduce potential impacts of effluent discharge to Beaver Creek. An Environmental Impact Assessment (Wescott et al., 2004) conducted prior to many of the recent facility upgrades reviewed historical water quality data from 1980 to 1999 as a basis for their assessment and found that there was a notable influence of effluent discharge on nutrients (ammonia, nitrate, phosphorus) which were present at higher concentrations downstream of the outfall, but at concentrations that were of limited concern and that effectively diluted in Beaver Creek. Effluent discharge was found to have a negligible impact on bacteriological parameters within Beaver Creek.

The WWTP currently operates under effluent discharge permit 133, most recently updated in 2021. The discharge permit sets the maximum daily discharge rate to 1,425 m^3/day, with effluent quality requirements of 45 mg/L TSS and $CBOD_5$ and Fecal coliforms <200CFU/100mL. There are no current requirements for nitrogen or phosphorous.

The WWTP consists of two aerated treatment lagoons operated in series, one storage lagoon, three emergency overflow cells used at times of high effluent flows (which are influenced by seasonal infiltration and inflow), and UV disinfection prior to outfall to Beaver Creek.

The Village of Fruitvale provided the 2024 WWTP annual report for our review (Quarmby, 2025). During 2024, all permit effluent discharge criteria were met (Quarmby, 2025), as were applicable water quality guidelines in Beaver Creek, which are assessed 100 m upstream and 100 m and 200 m downstream of the outfall. Of particular importance are pathogens in the discharged treated effluent. In 2024, seven effluent samples were collected for fecal coliform and *E.Coli*. The results are provided in Table 3.2 and indicate low concentrations of these bacteria in the discharged effluent (maximum 11 CFU/100mL Fecal coliform and *E.coli*), much lower than concentrations measured in Beaver Creek as part of this study (see Section 4.4).

Table 3.2 Fruitvale WWTP Effluent 2024 Bacteria Summary

Date	Fecal Coliforms	E.Coli
10-Jan-24	11	11
05-Mar-24	<1	<1
07-May-24	5	<1
03-Jul-24	2	2
07-Aug-24	<1	<1
04-Sep-24	<1	<1
05-Nov-24	1	<1

Date Source: Quarmby 2025. All values in CFU/100 mL

Receiving environment data for nitrogen also indicates low concentrations of this nutrient in Beaver Creek. Nitrate-nitrogen in Beaver Creek downstream of the outfall in 2024 was less than 0.2 mg/L, and has been less than 0.35 mg/L since 2012.

4. 2025 FIELD PROGRAM – METHODS AND RESULTS

The following sections provide the methodology and results of the 2025 field program. The program was designed to collect several types of data so that multiple lines of evidence could be used in the GARP determination. The works completed by WWAL constitute much of the scope for Level 2 and 3 hydrogeological investigations suggested by the BC guidance document. The field investigation program focused on the period from April to November 2025 and included:

1. Collection of biweekly field parameter data (pH, conductivity, temperature, turbidity) from Well 2 and Beaver Creek.
2. Collection of multiple untreated groundwater samples from Well 2 and surface water from Beaver Creek for total coliform and *E. coli* analysis to better quantify the presence of bacteriological pathogens in the aquifer and the primary aquifer recharge source.
3. Continuous water level and temperature monitoring of Aquifer 1248 (Well 4) and Beaver Creek at the upstream hydrometric station throughout the assessment period.
4. Collection of untreated groundwater samples from Well 2 and Beaver Creek for general potability (metals, nutrient, general parameters) to provide a means for geochemical comparison between groundwater and surface water.
5. Collection of untreated samples from Well 2 and Beaver Creek for enumeration of aerobic spores. This analysis completed by Hyperion Research is intended to provide an assessment of the amount of groundwater filtration occurring in an aquifer. Aerobic spores are of similar size and shape to *Giardia* and *Cryptosporidium* and are common in surface water but generally absent in secure groundwater.
6. Collection of untreated groundwater samples from Well 2 for modified Method 1623 MPA analysis.

The field data collection program spanned from April 2025 to November 2025. The timing of the study included the period of peak surface water and groundwater levels (early spring). Wendy Settle, the BFWD water system operator, completed much of the field water quality measurements for the program. WWAL junior hydrogeologist, Avi Bains, GIT., visited the site to collect the initial MPA sample, water quality samples and field parameters and trained staff at the BFWD on sampling techniques used for the rest of the program. Subsequent field parameter measurements, water quality sampling and the two remaining MPA sampling events were conducted by BFWD staff.

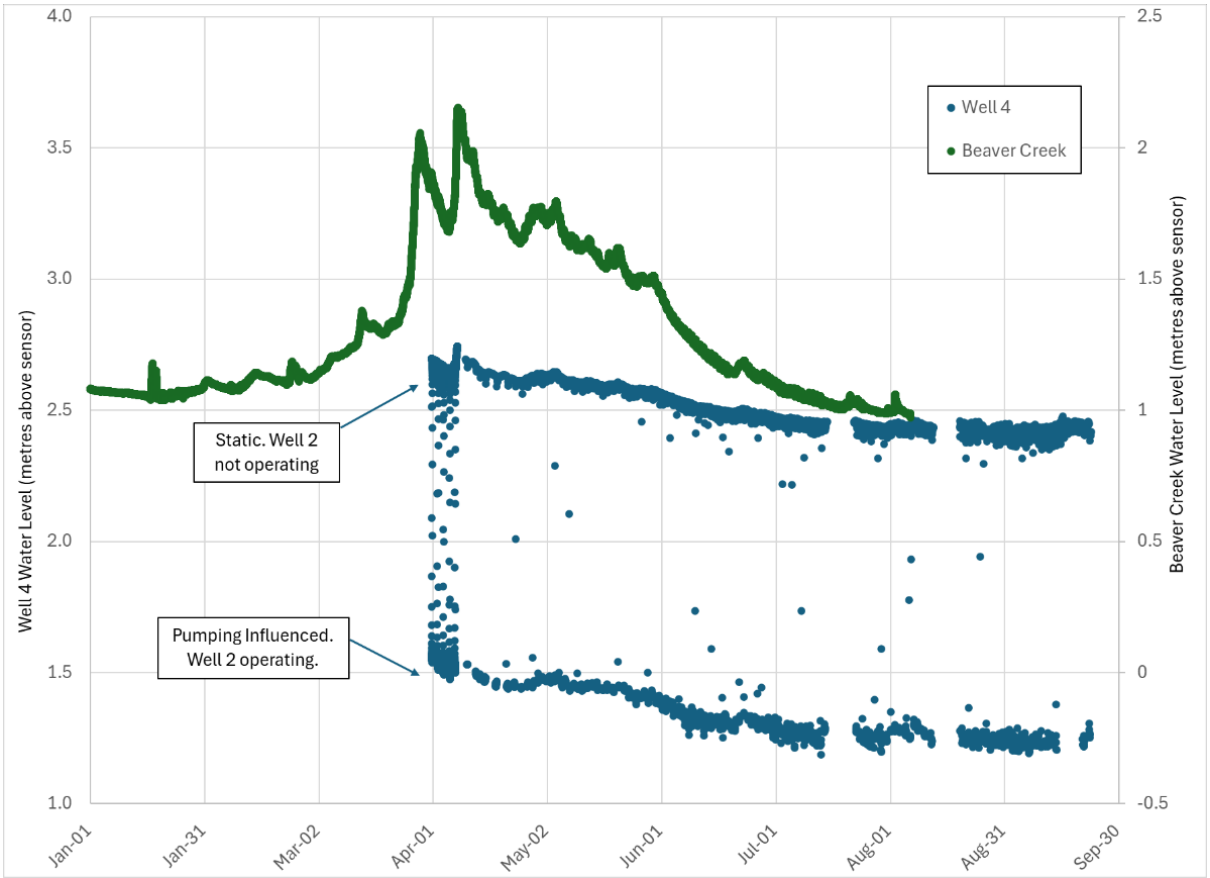
4.1 Hydrometric Data (Groundwater and Beaver Creek)

A transducer was installed in Well 4 to record groundwater levels and temperature throughout the monitoring period. Water level data for Beaver Creek was obtained from a nearby hydrometric station (Station ID LCKBVR01H), located ~2.5 km upstream of Well 4. During a routine data download in mid-October, the transducer in Well 4 was found to have detached and fallen into the well (subsequently removed). As a result, data is only available up to the last downloaded from September 23, 2025. Data

from the Beaver Creek hydrometric station is also limited, as measurements are only uploaded periodically by Living Lakes Canada; at the time of reporting, hydrometric data to mid-August 2025 was available. Groundwater and surface water data are provided in Figure 4.1.

The data indicate that aquifer and Beaver Creek levels move in unison. The dataset shows the same twin freshet peaks in both groundwater and surface water, with the highest aquifer levels and Beaver Creek levels recorded on the same day (April 8). The range in fluctuation in Beaver Creek is higher than in the aquifer, and we attribute this to the different measurement locations.

Figure 4.1 Groundwater (Well 4) and Surface Water (Beaver Creek) Elevations



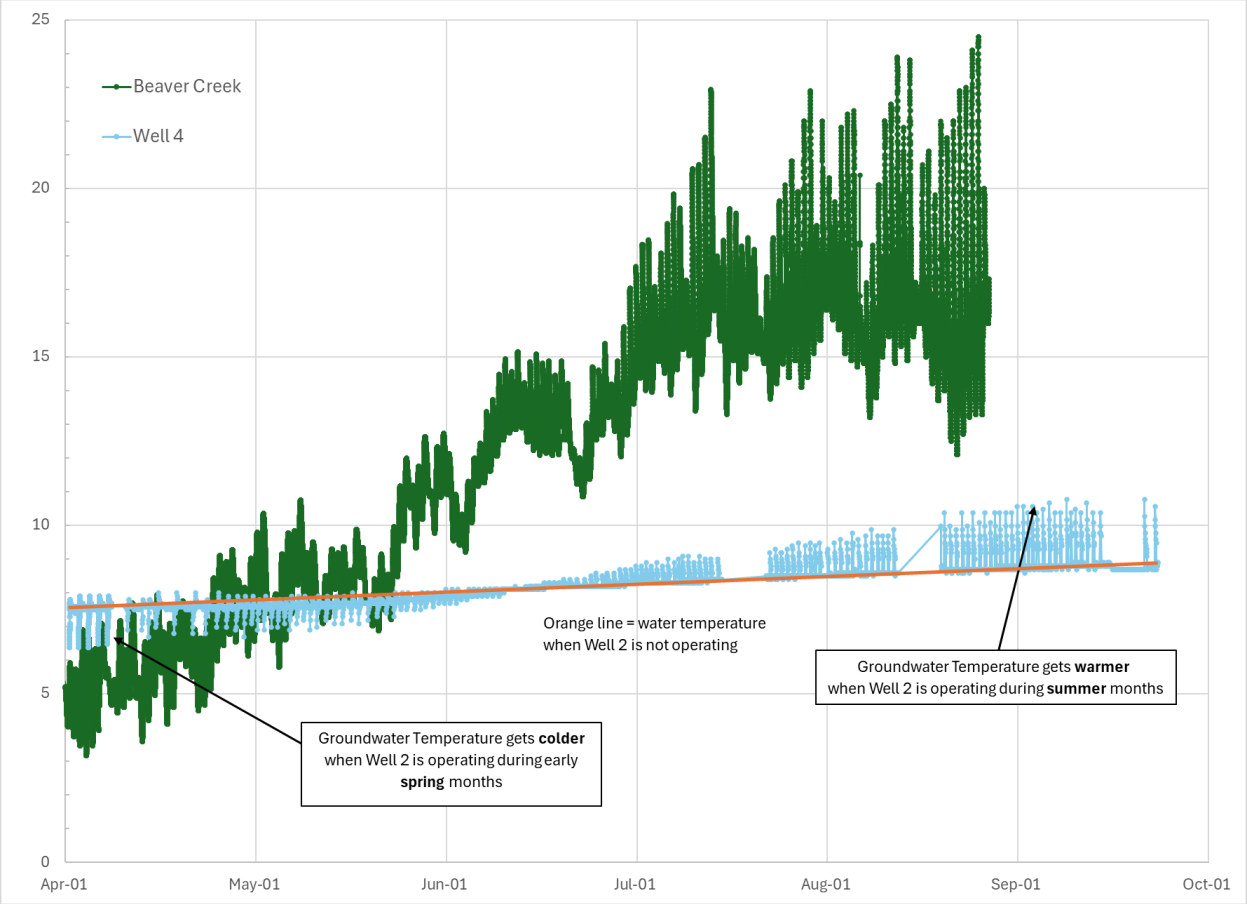
4.2 Temperature

Figure 4.2 depicts Beaver Creek water temperature as measured at the hydrometric station in Fruitvale alongside groundwater temperature measured in Well 4. As expected, surface water sees greater variation in temperature than groundwater. Surface water is greatly influenced by the atmospheric conditions, rising and falling rapidly with seasonal temperature changes. Surface water temperature ranged from 3.2°C in April to 24.5°C in August over the monitoring period, while groundwater was more stable and ranged from 6.4 to 10.8°C. More stability in groundwater temperatures is expected, but closer inspection of the data indicates groundwater temperatures change when Well 2 is operating. When Well 2 was operating in the spring when surface water was colder, the groundwater became colder. In the summer, when

Beaver Creek water was warmer, operation of Well 2 resulted in an increase in groundwater temperature. The induced change in the summer is larger, interpreted to be due to the greater difference in water temperatures and due to increased pumping from Well 2 to meet higher summer demands.

In summary, the water temperature data collected does indicate groundwater temperatures change to become more like Beaver Creek when Well 2 is operated.

Figure 4.2 Groundwater & Surface Water Temperature



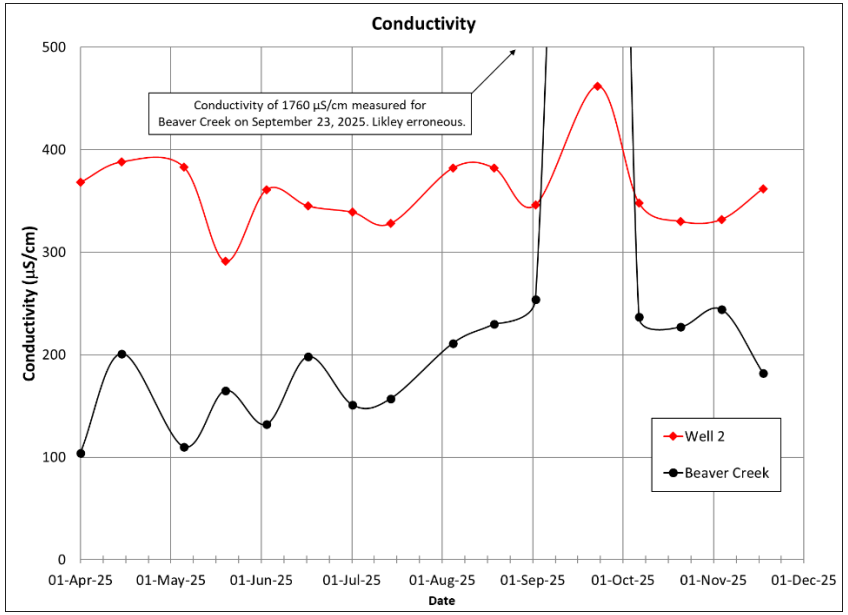
4.3 Field Water Quality

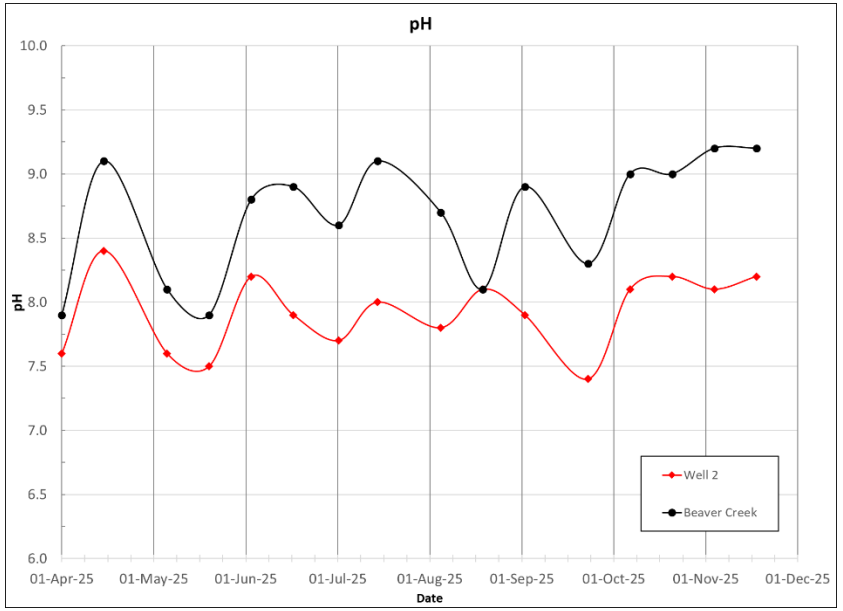
During the assessment period, BFWD water system operators completed field water quality measurements of groundwater from Well 2 and Beaver Creek on a biweekly basis. Dedicated field probes and calibration solutions were purchased for the project to measure temperature, pH, conductivity, while the BFWD obtained a turbidity meter from another source. A summary of all field measurements collected is presented in Table 4.3. Time series plots for the parameters measured are provided in Figure 4.3.

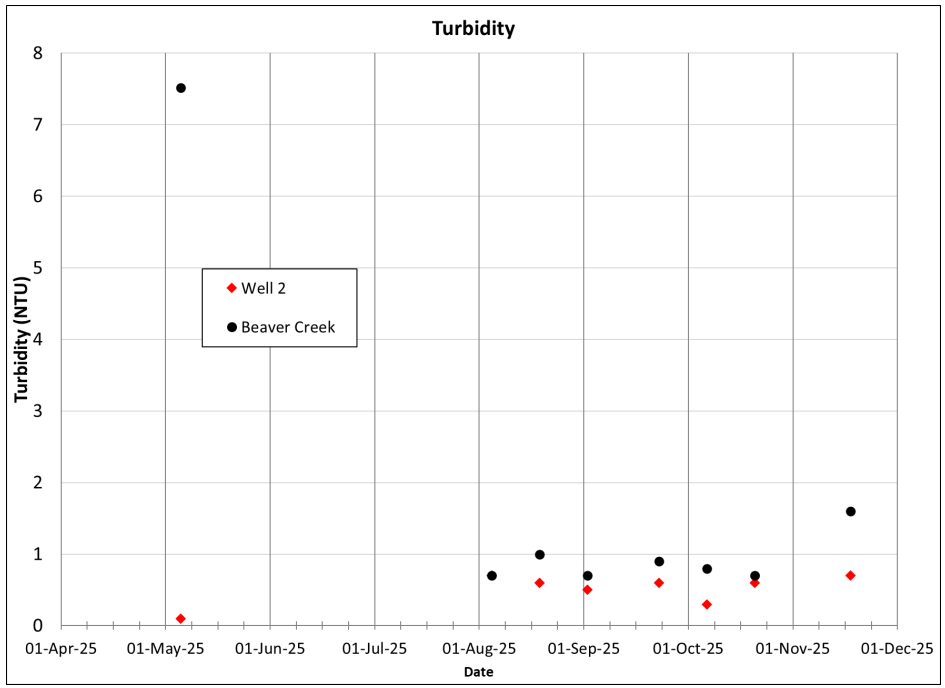
Table 4.1 Supply Well Field Measurement Summary

	Beaver Creek				Well 2			
Date	pH (unitless	Cond. (µS/cm)	Turbidity (NTU)	Temp, (°C)	pH (unitless	Cond. (µS/cm)	Turbidity (NTU)	Temp, (°C)
2025-04-01	7.9	104	-	10.1	7.6	368	-	13.2
2025-04-15	9.1	201	-	12.0	8.4	388	-	13.1
2025-05-06	8.1	110	7.5	14.0	7.6	383	0.1	15.2
2025-05-20	7.9	165	-	11.9	7.5	291	-	17.4
2025-06-03	8.8	132	-	13.6	8.2	361	-	11.9
2025-06-17	8.9	198	-	18.1	7.9	345	-	11.4
2025-07-02	8.6	151	-	20.8	7.7	339	-	14.4
2025-07-15	9.1	157	-	20.8	8.0	328	-	14.6
2025-08-05	8.7	211	0.7	19.3	7.8	382	0.7	12.9
2025-08-19	8.1	230	1.0	20.4	8.1	382	0.6	14.4
2025-09-02	8.9	254	0.7	20.0	7.9	346	0.5	15.1
2025-09-23	8.3	1760	0.9	19.8	7.4	462	0.6	17.5
2025-10-07	9.0	237	0.8	13.9	8.1	348	0.3	11.9
2025-10-21	9.0	227	0.7	12.0	8.2	330	0.6	11.9
2025-11-04	9.2	244	-	10.9	8.1	332	-	11.3
2025-11-18	9.2	182	1.6	11.5	8.2	362	0.7	12.1

Figure 4.3 Beaver Creek – Groundwater Field Parameter Time-Series Plots







4.3.1 pH

pH is the measure of the acidity/basicity of a given water source and is interrelated with other water characteristics such as temperature, dissolved carbon, hardness and buffering capacity (alkalinity). Over the assessment period, pH values from Beaver Creek ranged from 7.9 to 9.2, indicating a basic composition. Except for the mid-August measurement, when both sites recorded a pH of 8.1, pH values in Well 2 were consistently lower than those in Beaver Creek. For groundwater, pH values ranged from 7.4 to 8.4. When viewed together on Figure 4.3, pH in Beaver Creek and groundwater tend to move in unison for almost all monitoring events, suggesting and influence of surface water on groundwater.

4.3.2 Conductivity

Conductivity is a measure of water's capability to transmit electrical current and is directly related to the concentration of ions in solution, with higher ion concentrations producing higher conductivity readings. Ions in water can originate from natural sources such as carbonaceous minerals in the aquifer and/or from anthropogenic sources such as road salt or fertilizers. Groundwater generally has a higher conductivity than surface water, due to the extended duration the water spends in contact with the aquifer's matrix. Conductivity is perhaps the most useful field parameter for highlighting the differences between groundwater and surface water geochemistry.

Conductivity was relatively stable in groundwater, ranging from 291 to 462 µS/cm. Laboratory conductivity measurements (see Section 4.5) indicate even more stability, with the groundwater samples collected in May, August and October 2025 only ranging from 343 to 346 µs/cm.

In contrast, electrical conductivity in Beaver Creek displayed more variability and the expected seasonal pattern of fluctuation, from low conductivity (~100 µs/cm) in the spring during freshet when snowmelt is a major contributor to streamflow, to higher values (~250 µS/cm) in the summer when groundwater discharge forms a larger component of stream flows.

In summary, the conductivity data collected does not change rapidly along with shifts in surface water conductivity, suggesting a weak hydraulic connection.

4.3.3 Turbidity

Turbidity is a measure of the degree to which water clarity is reduced by the presence of suspended particles, including fine sediments, organic matter, and microorganisms. Turbidity is generally lower and stable in secure groundwater sources due to natural filtration of water through the soil and aquifer materials, while higher turbidity and greater fluctuations in turbidity in surface water in response to freshet and storms is common. Elevated turbidity in groundwater, particularly when it corresponds to elevated turbidity in nearby surface waters, may indicate recent recharge, short groundwater residence times, or the presence of preferential flow pathways that allow fine particles to bypass the aquifer matrix. Turbidity can also increase due to hydraulic disturbances, such as pumping-induced mobilization of fine sediments within the well or aquifer. Persistently low turbidity in groundwater is typically associated with well-developed wells, and confined or hydraulically isolated aquifers where surface water influence and particle transport are limited.

Unfortunately, limited turbidity data was collected, with only one turbidity measurement collected in the more critical freshet period when higher turbidity was likely present in Beaver Creek. The available data are limited to eight corresponding measurements from May through November. The six data points between August and October indicate turbidity in both Beaver Creek and Well 2 were both below 1 NTU, with slightly lower turbidity in Well 2 than in the Creek. The November data point indicated slightly elevated turbidity in Beaver Creek (1.6 NTU), while turbidity in Well 2 remained low at 0.7 NTU. The most enlightening data point is from May 6, when Beaver Creek flows were still elevated following freshet. At that time, turbidity in Beaver Creek was 7.5 NTU, while Well 2 water was 0.1 NTU.

The limited 2025 turbidity data, while indicating consistently low turbidity produced by Well 2, does not provide robust data on potential seasonal changes in the parameter, particularly in the key freshet period. The 2009 study by Golder also completed comparative turbidity measurements from Beaver Creek and Well 2. That data also suggested consistently low turbidity in Well 2, and lower than in Beaver Creek, but unfortunately data around the key freshet window was also not collected.

4.4 Untreated Groundwater Microbiological Sampling

Throughout the assessment, a total of eighteen bacteriological samples (total coliforms and *E. coli*) were collected from Well 2 (laboratory reports provided in Appendix A). A sampling tap in the pumphouse was used to collect the samples. The tap was wiped down with a chlorine solution and opened for 5 minutes to flush any stagnant, non-representative water from the system prior to sample collection. To avoid cross contamination, a disposable pair of nitrile gloves was worn throughout sample collection and the sample was collected in clean, laboratory supplied bottles. Bacteriological samples (total coliforms and *E. coli*) were also collected from Beaver Creek, approximately 100 m to the east of the supply well.

All samples were transported to a laboratory in an ice-filled cooler within 24 hours. Water quality testing was completed by CARO Analytical, in Kelowna, BC, or Passmore Labs in Passmore, B.C., both laboratories accredited by the Canadian Association of Laboratory Accreditation (CALA) for the analysis completed.

As shown in Table 4.1 below, the results of the microbiology testing indicated total coliforms and *E. coli* were not detected in groundwater from Well 2. As expected, total coliforms were detected in Beaver Creek during all sampling events, *E. coli* was detected in 18 of the 20 samples and fecal coliforms were detected in 16 out of the 17 samples in which it was analyzed. The data indicate good filtration of bacteria in the aquifer matrix prior to the Well 2 screen.

Table 4.2 Microbiological Testing of Untreated Groundwater/Surface Water

Sample Date	*Sampling Lab*	Well 2		Beaver Creek		
		Total Coliform	*E. coli*	Total Coliform	*E. coli*	*Fecal Coliforms*
01-Apr-2025	Passmore	<1	<1	83	<1	<1
15-Apr-2025	Passmore	<1	<1	89	2	2
06-May-2025	CARO	<1	<1	Overgrown	Overgrown	-
06-May-2025	Passmore	-	-	80	1	4
20-May-2025	Passmore (Upstream)	<1	<1	253	33	24
	Passmore (Downstream)			217	23	23
03-Jun-2025	Passmore	<1	<1	165	7	49
17-Jun-2025	Passmore	<1	<1	785	10	11
02-Jul-2025	Passmore	<1	<1	2242	12	TNTC
15-Jul-2025	Passmore	<1	<1	693	64	87
05-Aug-2025	CARO	<1	<1	520	<1	-
05-Aug-2025	Passmore	<1	<1	448	70	50
19-Aug-2025	Passmore	<1	<1	1481	150	182
02-Sep-2025	Passmore	<1	<1	1169	94	195
09-Sep-2025	Passmore	<1	<1	-	-	-
19-Sep-2025	Passmore	<1	<1	-	-	-
23-Sep-2025	Passmore (Upstream)	<1	<1	732	45	56
	Passmore (Downstream)			1560	400	164
07-Oct-2025	CARO	<1	<1	850	≥ 54	-
07-Oct-2025	Passmore	<1	<1	488	60	42
21-Oct-2025	Passmore	<1	<1	-	-	-
04-Nov-2025	Passmore	-	-	361	10	4
18-Nov-2025	Passmore	<1	<1	251	25	12

Note: On May 20 and September 23, Beaver Creek samples were collected both upstream and downstream of the well field.
TNTC = Too numerous to count

4.4.1 Historical Microbiological Sampling

To expand the dataset of bacteriological parameters, WWAL compiled all available microbiological data from 2021 through 2025. A summary of these results is provided below in Table 4.3, with complete datasets provided in Appendix C. The data include samples collected from various locations in the distribution system, and directly from Wells 1 and 2.

The raw bacteriological quality is very good for the groundwater sources (Well 1 and Well 2). Total coliforms were detected on two occasions out of 97 sampling events, including a concentration of 1 CFU/100mL detected in Well 1 on November 3, 2021 and a concentration of 3 CFU/100mL detected in Well 2 on August 6, 2024. *E.Coli* was never detected in groundwater.

Total coliforms were detected in 9 out of 66 samples collected from the distribution system, with all detections occurring within 2024 and 2025. Detected concentration in the distribution system ranged

from 1 to 18 CFU/100mL. The occurrence of bacteria in the distribution system appears to occur in clusters in August 2024, October 2024 and August-September 2025. We note that these occurrences occurred during or shortly after the summer higher water use period for the water system. *E-Coli* was not detected in any groundwater source or distribution system samples.

Table 4.3 Summary of Historical Bacteriological Testing Results (2021 – 2025)

Sampling Location	Number of Samples (paired total coliform and E.Coli)	# of Positive Total Coliform Results	% positive Total Coliform	# of Positive E.Coli results
Distribution System	66	9	13.6%	0
Well 1	21	1	4.7%	0
Well 2	76	1	1.3%	0
Total	**163**	**11**		**0**

4.5 Comparison of Groundwater-Surface Water Geochemistry

WWAL collected three sets of concurrent groundwater and surface water samples for chemical analysis which are summarized in Table 4.4 (laboratory reports provided in Appendix B). As expected, groundwater is more mineralized than the creek and changes in chemistry from one sample to the next are typically less pronounced in the groundwater samples versus the surface water samples. For example, turbidity and iron values varied considerably in surface water over the three sampling events, whereas no variation was detected in groundwater. Figure 4.4 presents a piper plot for the surface water and groundwater chemistry data collected for this project. The piper plot is a means for visualizing the relative proportion of common ions for a given sample and can highlight subtle differences between the samples. The piper plot indicates the chemical composition of the two water types is quite similar, with a slightly higher proportion of chloride in groundwater samples. Overall, the two water types are classified as calcium-bicarbonate waters, as these two ions make up the bulk of the dissolved constituents in the samples, with groundwater being more mineralized.

Parameters associated with anthropogenic impacts, such as nitrate and chloride, were slightly elevated in the groundwater samples compared to expected typical background conditions. Nitrate in Well 2 ranged from 0.73 to 1.65 mg/L, where as nitrate in Beaver Creek was in the 0.01 to 0.21 mg/L range. The source of the elevated nitrate in groundwater is not clear, but inferred to be a result of septic disposal to ground in the area. While the Fruitvale WWTP has a surface outfall, there are unlined emergency ponds and the potential exists for leakage to be occurring from the lined treatment ponds that could report to Aquifer 1284. This is a speculative statement, as there is no indication in the report reviewed that leakage from Fruitvale WWTP lined ponds is known to be occurring. Chloride and sodium are other indicators of septic discharge to ground (but could have other sources such as road salting), and both are elevated in groundwater compared to surface water.

Guidelines for Canada Drinking Water Quality (GCDWQ) are provided in Table 4.4 for comparative purposes, and show that raw water from Well 2 meets all health based and aesthetic guidelines.

Figure 4.4 Piper Plot of Groundwater and Surface Water

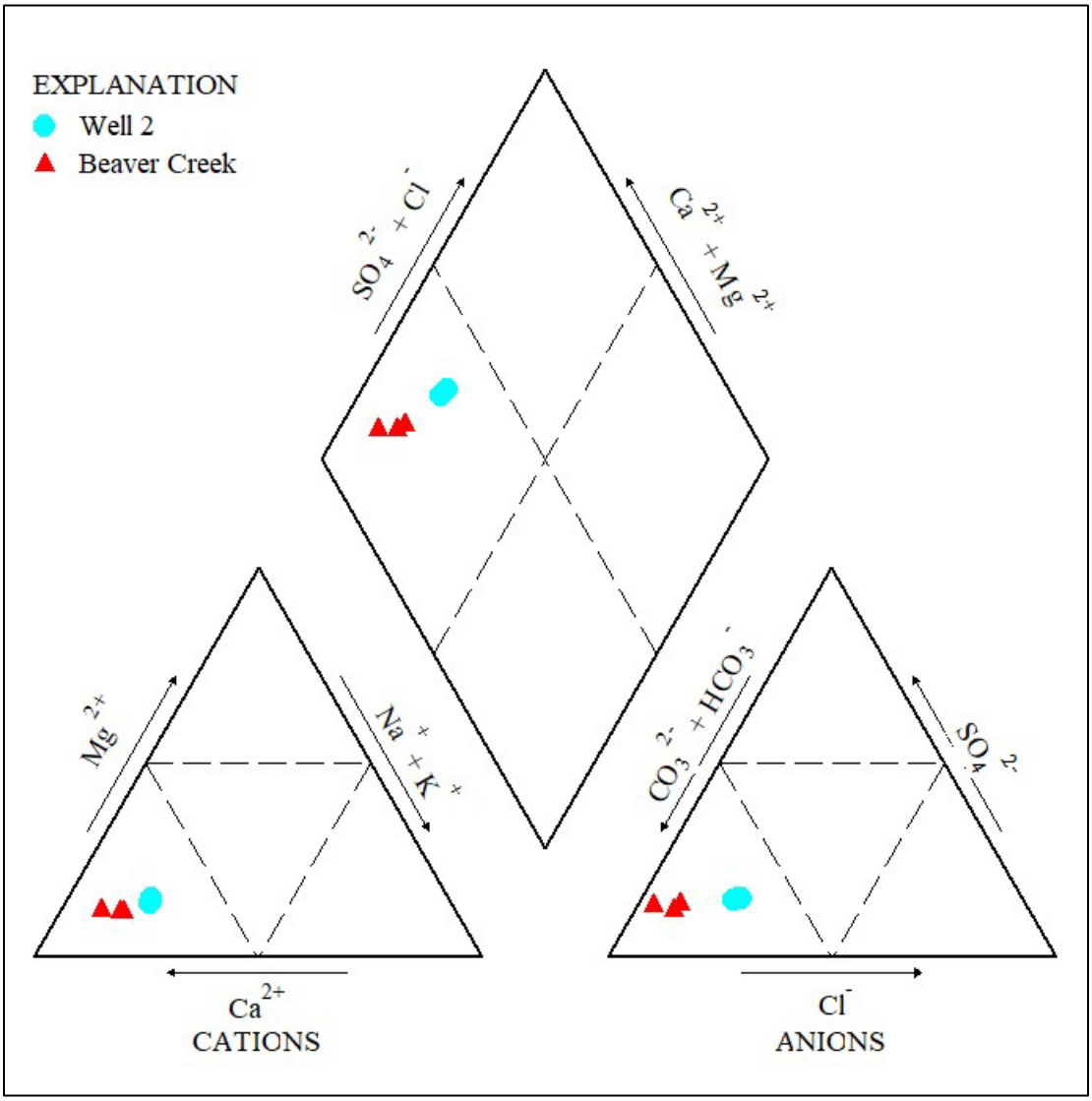


Table 4.4 Summary of Groundwater and Surface Water Geochemistry

Parameters	Units	Well 2 2025-05-06	Beaver Creek 2025-05-06	Well 2 2025-08-05	Beaver Creek 2025-08-05	Well 2 2025-10-07	Beaver Creek 2025-10-07	Well 2 2025-12-01	GCDWQ
General Parameters									
Conductivity	us/cm	346	106	343	209	345	241	356	n/a
Turbidity	NTU	0.10	0.76	0.12	1.01	0.11	0.95	0.91	varies
Total Dissolved Solids	mg/L	181	57	183	110	188	132	202	AO ≤ 500
Hardness, Total (CaC03)	mg/L	139	52.3	143	93.8	139	103	148	n/a
Alkalinity, Total (CaCO3)	mg/L	106	44.9	110	84	117	102	128	n/a
Select Ions									
Fluoride	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	MAC = 1.5
Nitrate, N	mg/L	1.44	0.012	1.36	0.211	0.726	0.06	1.65	MAC =10
Nitrite, N	mg/L	<0.010	<0.010	<0.010	0.026	<0.010	0.019	<0.010	MAC = 1
Chloride	mg/L	22	1.15	20.7	5.37	23.4	7.08	25.3	AO ≤ 250
Sulfate	mg/L	20.3	5.8	19.5	10.2	21.9	14.6	19.6	AO ≤ 500
Total Metals									
Aluminum	mg/L	<0.0050	0.0243	<0.0050	0.0162	<0.0050	0.006	0.0083	MAC = 2.9 OG < 0.1
Arsenic	mg/L	0.00051	<0.00050	0.00053	0.00092	0.00051	0.0006	<0.00050	MAC = 0.01
Barium	mg/L	0.0288	0.0100	0.0299	0.0185	0.0298	0.0216	0.0319	MAC = 2
Boron	mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	MAC = 5
Cadmium	mg/L	0.000019	0.000012	0.000024	0.000017	0.000023	<0.000010	0.000018	MAC = 0.007
Calcium	mg/L	46.1	18.2	47.5	32.4	45.5	35.5	49.6	n/a
Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00067	MAC = 0.05
Copper	mg/L	0.00111	0.00053	0.00576	0.00044	0.00224	<0.00040	0.00158	MAC = 2 AO = 1
Iron	mg/L	<0.010	0.080	<0.010	0.292	<0.010	0.162	0.055	AO ≤ 0.1
Lead	mg/L	<0.00020	<0.00020	0.00032	<0.00020	<0.00020	<0.00020	<0.00020	MAC = 0.005
Manganese	mg/L	0.00047	0.00903	0.00022	0.0317	0.00039	0.0183	0.00126	MAC = 0.12 AO ≤ 0.02
Sodium	mg/L	14.0	1.97	13.9	5.5	13.8	6.68	14.2	AO ≤ 200
Uranium	mg/L	0.000397	0.000113	0.000397	0.000322	0.000385	0.000383	0.000429	MAC = 0.02
Zinc	mg/L	<0.0040	<0.0040	0.0082	<0.0040	<0.0040	<0.0040	<0.0040	AO ≤ 5

Notes: GCDWQ – Guidelines for Canadian Drinking Water Quality Guidelines, OG = Operational Guideline (designed for water treatment facilities); AO = Aesthetic Objective); MAC = Maximum Acceptable Concentration; *Surface water sample, not compared to GCDWQ

4.6 Microparticulate Analysis (MPA)

MPA sampling for this project was completed following the methodology outlined by Hyperion Research, and microscopic analysis was completed by Peter Wallis, Ph.D. and his staff at Hyperion Research in Medicine Hat, AB. The initial sampling event was conducted by WWAL during which BFWD staff were trained in proper sampling procedures. The following two sampling events were then conducted by BFWD staff.

The MPA sampling method conforms to U.S. EPA Method 1623 for identifying *giardia* and *Cryptosporidium* (US EPA, 2005) and the Consensus Method for Determining Groundwater Under the Direct Influence of Surface Water Using Microparticulate Analysis (US EPA, 1992). The type of filter used (IDEXX Filta-Max) during sampling is named as an acceptable alternative filter in the Method 1623 guidance document and was recommended by Hyperion Research. According to Hyperion, the Filta-Max filter has superior organism recovery and requires smaller sampling volumes

when compared to the standard filter. Particles trapped on the filter media are identified and enumerated in the laboratory. Based on the number and proportion of primary and secondary particles, a matrix is used to assign a score that determines the risk of surface water contamination, with 0-9 indicating a low risk, 10-19 a moderate risk and 20+ a high risk. Table 4.5 summarizes the results of the modified MPA testing and the aerobic spore forming bacteria testing. Laboratory reports from Hyperion Research are provided in Appendix C.

The results of the MPA sampling from Well 2 identified very few surface water indicator particles (laboratory reports provided in Appendix C). As a result, all three samples were assigned a low-risk rating for surface water contamination with a risk factor of 0. Algae (non-chlorophyll suggesting not recently transported from the creek) was detected during the August 2025 sample, and plant debris was detected in the October 2025 sample. *Giardia* and *Cryptosporidium* were not detected in any of the three samples. Overall, the results indicate a consistent low risk of GUDI (large diameter surface water pathogens) and that effective filtration is occurring in the subsurface.

Table 4.5 Summary of MPA Testing Results

Parameter	Well 2	Well 2	Well 2
Sampling Date	06-May-2025	05-Aug-2025	07-Oct-2025
Water Filtered	250.8 L	250.8 L	250.8 L
Primary Particulates			
Diatoms	0	0	0
Other Algae	0	1	0
Insects/Larvae	0	0	0
Rotifers	0	0	0
Plant Debris	0	0	2
Giardia/Crypto	0	0	0
Secondary Particulates			
Nematodes	2	2	1
Pollen	0	1	0
Crustacea	0	0	0
Unknown	0	0	0
Additional Parameters			
Giardia cysts	0.0/100L	0.0/100L	0.0/100L
Cryptosporidium oocysts	0.0/100L	0.0/100L	0.0/100L
Overall Risk Factor	0 (low risk)	0 (low risk)	0 (low risk)

Note: Pollen is sometimes introduced during sample collection from suspended pollen in the air at the time of sampling.

4.7 Aerobic Spore Forming Bacteria Enumeration

The results of the aerobic spore forming bacteria (ASFB) from Well 2 and surface water for the three sampling events are summarized in Table 4.6. As expected, ASFB were detected in all samples collected from Beaver Creek, with the highest concentrations occurring during the August sampling event. For the supply well, two of the three samples tested negative for ASFB, while the May sample contained 5 CFU/L. Interpretation of these results indicates that substantial (minimum 3-log removal) filtration is occurring in the aquifer prior the reaching Well 2, and ASFB (and similarly sized *Giardia* and *Cryptosporidium*) are effectively being filtered.

Table 4.6 Results of Aerobic Spore Forming Bacteria Enumeration

Sample Location	06-May-2025	05-Aug-2025	07-Oct-2025
Well 2	5 CFU/L	0 CFU/L	0 CFU/L
Beaver Creek	9,100 CFU/L	109,200 CFU/L	11,800 CFU/L

5. DISCUSSION AND CONCLUSIONS

Table 5.1 provides a concise summary of a Stage 1 GARP screening for Well 2, and also summarizes the lines of evidence collected for this Level 2 / 3 GARP study. A Stage 1 screening indicates some risk factors are present, including the unconfined nature of the aquifer, the presence of septic fields within 300 m, close proximity of the wells to Beaver Creek and relatively shallow depths to the top of the well screen. The Stage 1 screening flags Well 2 as potentially GARP, which is why a more detailed assessment was completed.

The more detailed Level 2 / 3 GARP assessment completed for this study evaluated multiple lines of evidence which were inconsistent. Lines of evidence indicating a GARP risk included water level and water temperature data that indicated a hydraulic connection between the aquifer and Beaver Creek. Chemical water quality testing indicated the presence of elevated indicators of septic impacts, particularly nitrate in groundwater. The risk factors related to the depth of the well, unconfined nature of the aquifer, location in the mapped floodplain and presence of potential pathogen sources in the area remain.

In contrast, data collected and compiled for the study indicates good filtration and attenuation of pathogens in the aquifer prior to reaching Well 2. There is a robust dataset of bacteriological water quality from Wells 1 and 2 (97 samples total between 2021 and 2025) with only two isolated occurrences of total coliforms in low concentrations. *E.Coli* has never been detected. The results of the aerobic spore testing indicates good aquifer filtration with at least 3-log removal of particles similar in size and property to *giardia* and *cryptosporidium*. The results of three MPA samples collected in 2025 were consistent: few surface water indicator parameters were detected, *giardia* and *cryptosporidium* were not detected, and the overall risk factor for all three samples was 0.

We find that the risk of Well 2 containing *giardia* and *cryptosporidium* is low. The data indicates that the bacteriological risk is also low, but the potential for viruses to be present remains and cannot be conclusively ruled out, as viruses are smaller, more mobile in saturated aquifers and more resistant to environmental degradation than bacteria (Health Canada 2019). Studies have shown that the correlation between the presence of bacteria and viruses is not strong. While the absence of bacteria in groundwater is a positive sign, it does not conclusively mean that viruses are also absent. The virus risk would be higher during high water conditions, and particularly during a flood event where surface water nears or surrounds the Well 2 pumphouse.

We conclude that Well 2 should be considered a GARP virus-only source.

While this study focused on Well 2, Well 4 has a very similar construction and shares the same inherent aquifer protections (plus the addition of a surface seal) and risk factors as Well 2. It is reasonable to assume that Well 4 is also a GARP virus-only source. Should Well 4 be put into service, we recommend that three rounds of MPA sampling be completed as a precaution to confirm that *giardia* and *cryptosporidium* are not a risk factor to that well specifically. If a GARP virus-only classification for Well 4 is accepted, a full Level 2 / 3 GARP assessment of that source is likely not warranted. Completion of Well 4 should be such that the risk of flooding is mitigated, with the well head and surrounding land elevated above the local flooding level. Floodplain mapping for the area is dated and should be reassessed.

Table 5.1 GARP Screening and Level 2 / 3 GARP Assessment Summary Results

Stage 1 GARP Screening Criteria	Well 2
Recurring Bacteria?	No
Turbidity > 1 NTU?	No
Well Located within HHR Setback?	Unlikely. Nearest septic field likely just over 30 m away.
Has intake < 15m below ground, located within flood-prone area?	Partial. Top of screen 20.5 m, within mapped floodplain.
Has intake < 15 m below ground, and within 150 m of natural boundary of Surface Water?	Partial. Top of screen 20.5 m, within 20 m of Beaver Creek.
Located within 300 m of probable source of enteric virus source without a barrier to virus transport?	Yes. Septic fields, particularly those at low elevation near Beaver Creek likely to have limited unsaturated thickness (Scout camp, houses to west).
Surface Seal	Unknown. Unlikely to have a surface seal
Well Cap	Adequate.
Flood Proofing	While well is within mapped floodplain, pumphouse floor is elevated and has never been flooded.
Wellhead Completion	Adequate.
Highly Vulnerable Aquifer	Yes. The aquifer is considered unconfined.
Karst Bedrock	No
GARP Screening Result	**Potentially GARP**
Level 2/3 GARP Study Lines of Evidence	
Hydraulic Connection (based on water levels)	Yes. Water levels in Beaver Creek and Aquifer move in unison. Aquifer 1284 and Beaver Creek likely hydraulically connected.
Hydraulic Connection (based on field parameters)	Mixed. Conductivity indicates stability and low surface water influence, pH indicates some influence.
Hydraulic Connection (based on temperature)	Yes. Data shows groundwater temperature becomes more like surface water when Well 2 is operated.
Turbidity	Limited data, but Turbidity in Well 2 consistently less than 1 NTU and does not show indication of seasonal changes.
Depth to Groundwater	Shallow, limited unsaturated thickness over aquifer, indicates limited potential for pathogen attenuation.
Bacteriological Water Quality	Aquifer has very good bacteriological water quality.
General Water Quality	Indication of septic impacts, elevated nitrate, slightly elevated chloride and sodium.
Land Use in Capture Zone	Relatively benign, but septic fields present nearby and upgradient. Not considered a high density of septic systems in the area.
Microparticulate Analysis (MPA)	Low Risk. Few surface water particles detected, no *giardia* or *cryptosporidium*, consistent 0 risk factor.
Aerobic Spore Forming Bacteria (ASFB)	Low Risk. Data indicates 3-log or better filtration of large diameter surface water pathogens.
Risk posed from Fruitvale WWTP discharge.	Appears low. UV disinfection prior to discharge efficiently reduces bacteria.
Conclusion	**GARP virus-only**

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3. A complete assessment of all possible conditions or circumstances that may exist at the Site or within the Study Area referenced, has not been undertaken. Therefore, if a service is not expressly indicated, it has not been provided and if a matter is not addressed, no determination has been made by Western Water Associates Ltd. in regards to it.
4. Conditions may exist which were undetectable given the limited nature of the enquiry that Western Water Associates Ltd. was retained to undertake with respect to the assignment. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the Site, or Study Area, which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.
5. In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Western Water Associates Ltd's opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed Western Water Associates Ltd to form no more than an opinion of the actual conditions of the Site , or Study Area, at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the Site, or Study Area, nor the surroundings, or any laws or regulations.
6. Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either expressed or implied, that the actual conditions will conform exactly to the assessments contained in this Document.
7. Where data supplied by the Client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated.
8. No responsibility is accepted by Western Water Associates Ltd for incomplete or inaccurate data supplied by others.
9. The Client acknowledges that Western Water Associates Ltd may have retained sub-consultants affiliated to provide Services. Western Water Associates Ltd will be fully responsible to the Client for the Services and work done by all of its sub-consultants and subcontractors. The Client agrees that it will only assert claims against and seek to recover losses, damages or other liabilities from Western Water Associates Ltd.
10. This Document is provided for sole use by the Client and is confidential to it and its professional advisers. No responsibility whatsoever for the contents of this Document will be accepted to any person other than the Client. Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. Western Water Associates Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Document.

Figures

Beaver Falls Waterworks District
BFWD Level 3 GARP Study
WWAL Ref: 22-077-03VR

western water ASSOCIATES LTD

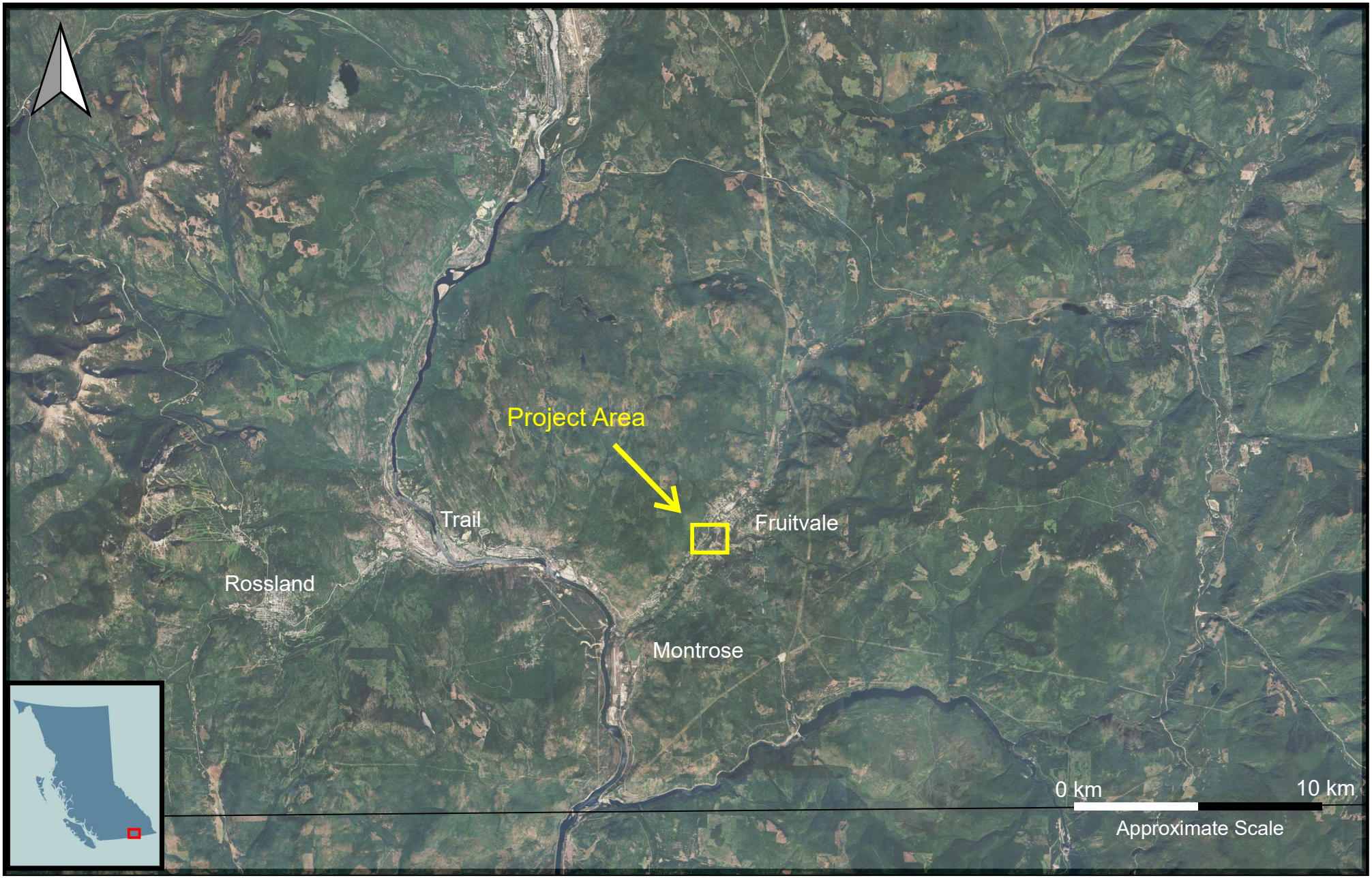

Figure 1 - General Location of Project Site

Date: January 2025	Image Source: Google Earth Pro	Project: BFWD Level 3 GARP Study
Drawn by: AB	Checked by: RR	WWAL Project: 22-077-03VR

western water ASSOCIATES LTD
Consultants in Hydrogeology and Water Resources Management

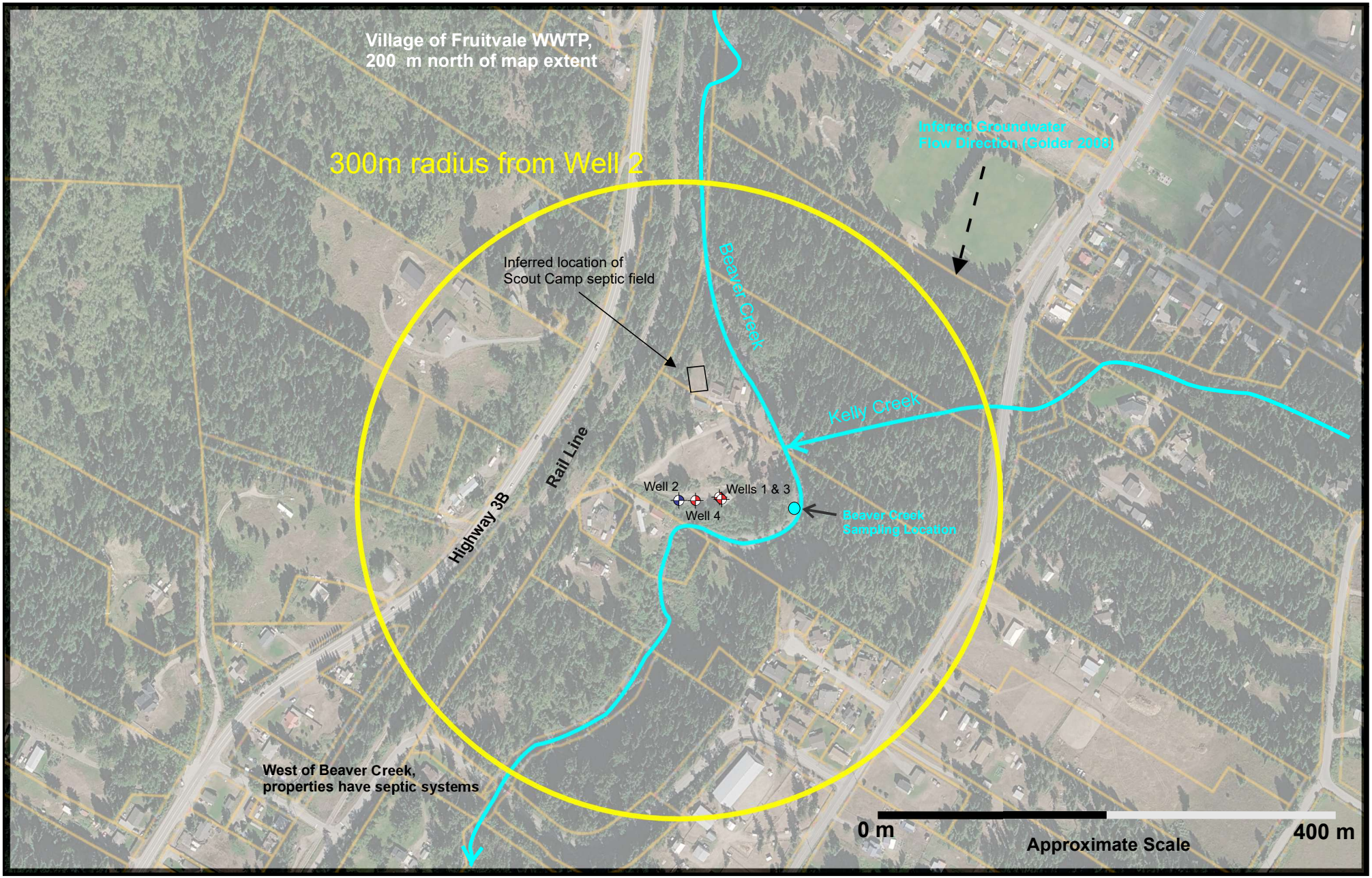

Figure 2 - Detailed Location of Project Site

Date: January 2025	Image Source: Google Earth Pro	Project: BFWD Level 3 GARP Study
Drawn by: AB	Checked by: RR	WWAL Project: 22-077-03VR

western water ASSOCIATES LTD
Consultants in Hydrogeology and Water Resources Management

Appendix A
CARO and Passmore Laboratory
Water Quality Results (chronological)

Beaver Falls Waterworks District
BFWD Level 3 GARP Study
WWAL Ref: 22-077-03VR

western water ASSOCIATES LTD

PASSMORE LABORATORY LTD.
4240 Passmore Upper Road, Winlaw BC, V0G2J0
250-226-7339
test@passmorelaboratory.ca
passmorelaboratory.ca

Report# 7897
Filename 250402BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Allen

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID	Well 2					Sample #	1
Date/Time Sampled	2025-04-01	3:00 PM	Matrix	UGW		Temperature on Receipt	7
Date/Time on Test	2025-04-02	12:50 PM					

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID	Yard Hydrant 1620 Scout Rd					Sample #	2
Date/Time Sampled	2025-04-01	3:00 PM	Matrix	UGW		Temperature on Receipt	7
Date/Time on Test	2025-04-02	12:55 PM					

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

PASSMORE LABORATORY LTD.
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passmorelaboratory.ca

Report# 7898
Filename 250402BFW1.pdf

Client Beaver Falls Waterworks

Attention Wendy Allen

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 7898
Filename 250402BFW1.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-04-01	3:00 PM	Matrix	UGW		Temperature on Receipt	8
Date/Time on Test	2025-04-02	12:45 PM					

Analyses	Result	Units	RDL
Coliforms, Total	83	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

PASSMORE LABORATORY LTD.
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Report# 7948
Filename 250416BFWa.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID	Well 2					Sample #	1
Date/Time Sampled	2025-04-15	2:00 PM	Matrix	UGW		Temperature on Receipt	13
Date/Time on Test	2025-04-16	1:35 PM					

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID	Sample Station Hwy 3B					Sample #	2
Date/Time Sampled	2025-04-15	2:00 PM	Matrix	UGW		Temperature on Receipt	14
Date/Time on Test	2025-04-16	1:40 PM					

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

PASSMORE LABORATORY LTD.
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test@passmorelaboratory.ca
passmorelaboratory.ca

Report# 7947
Filename 250416BFW.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 7947
Filename 250416BFW.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek			Sample #	1
Date/Time Sampled	2025-04-15	2:00 PM	Matrix UGW	Temperature on Receipt	14
Date/Time on Test	2025-04-16	1:45 PM			

Analyses	Result	Units	RDL
Coliforms, Total	89	CFU/100mL	1
Verified E.coli	2	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	2	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

CERTIFICATE OF ANALYSIS

REPORTED TO	Western Water Associates Ltd 1003 Kalamalka Lake Vernon, BC V1T6V4		
ATTENTION	Ryan Rhodes	**WORK ORDER**	25E0892
PO NUMBER		**RECEIVED / TEMP**	2025-05-07 09:00 / 6.3°C
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40
PROJECT INFO		**COC NUMBER**	B135624

Introduction:

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

Big Picture Sidekicks

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

We've Got Chemistry

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

Ahead of the Curve

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

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

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

Authorized By:

Brent Whitehead
Account Manager

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Beaver Creek (25E0892-01) | Matrix: Drinking Water | Sampled: 2025-05-06 13:50						
Anions						
Chloride	**1.15**	AO ≤ 250	0.10	mg/L	2025-05-08	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-05-08	
Nitrate (as N)	**0.012**	MAC = 10	0.010	mg/L	2025-05-08	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-05-08	
Sulfate	**5.8**	AO ≤ 500	1.0	mg/L	2025-05-08	
Calculated Parameters						
Hardness, Total (as CaCO3)	**52.3**	None Required	0.500	mg/L	N/A	
Langelier Index	**-1.6**	N/A	-5.0		2025-05-12	CT6
Solids, Total Dissolved	**57.0**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**44.9**	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Bicarbonate (as CaCO3)	**44.9**	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-05-08	
Colour, True	**22**	AO ≤ 15	5.0	CU	2025-05-09	
Conductivity (EC)	**106**	N/A	2.0	µS/cm	2025-05-08	
Cyanide, Total	**0.0021**	MAC = 0.2	0.0020	mg/L	2025-05-12	
pH	**7.00**	7.0-10.5	0.10	pH units	2025-05-08	HT2
Temperature, at pH	**20.3**	N/A		°C	2025-05-08	HT2
Turbidity	**0.76**	OG < 1	0.10	NTU	2025-05-08	
Microbiological Parameters						
Coliforms, Total	**Overgrown with**	MAC = 0	1	CFU/100 mL	2025-05-07	MD-2, MIC4
E. coli	**Overgrown with**	MAC = 0	1	CFU/100 mL	2025-05-07	MD-2, MIC13
Total Metals						
Aluminum, total	**0.0243**	OG < 0.1	0.0050	mg/L	2025-05-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-05-12	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2025-05-12	
Barium, total	**0.0100**	MAC = 2	0.0050	mg/L	2025-05-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-05-12	
Cadmium, total	**0.000012**	MAC = 0.007	0.000010	mg/L	2025-05-12	
Calcium, total	**18.2**	None Required	0.20	mg/L	2025-05-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-05-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-05-12	
Copper, total	**0.00053**	MAC = 2	0.00040	mg/L	2025-05-12	
Iron, total	**0.080**	AO ≤ 0.1	0.010	mg/L	2025-05-12	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-05-12	
Magnesium, total	**1.67**	None Required	0.010	mg/L	2025-05-12	
Manganese, total	**0.00903**	MAC = 0.12	0.00020	mg/L	2025-05-12	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Beaver Creek (25E0892-01) | Matrix: Drinking Water | Sampled: 2025-05-06 13:50, Continued						
Total Metals, Continued						
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-05-11	
Molybdenum, total	**0.00041**	N/A	0.00010	mg/L	2025-05-12	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-05-12	
Potassium, total	**0.72**	N/A	0.10	mg/L	2025-05-12	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-05-12	
Sodium, total	**1.97**	AO ≤ 200	0.10	mg/L	2025-05-12	
Strontium, total	**0.0760**	MAC = 7	0.0010	mg/L	2025-05-12	
Uranium, total	**0.000113**	MAC = 0.02	0.000020	mg/L	2025-05-12	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-05-12	
Well 2 (25E0892-02) | Matrix: Drinking Water | Sampled: 2025-05-06 14:20						
Anions						
Chloride	**22.0**	AO ≤ 250	0.10	mg/L	2025-05-08	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-05-08	
Nitrate (as N)	**1.44**	MAC = 10	0.010	mg/L	2025-05-08	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-05-08	
Sulfate	**20.3**	AO ≤ 500	1.0	mg/L	2025-05-08	
Calculated Parameters						
Hardness, Total (as CaCO3)	**139**	None Required	0.500	mg/L	N/A	
Langelier Index	**-0.4**	N/A	-5.0		2025-05-12	CT6
Solids, Total Dissolved	**181**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**106**	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Bicarbonate (as CaCO3)	**106**	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-05-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-05-08	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-05-09	
Conductivity (EC)	**346**	N/A	2.0	µS/cm	2025-05-08	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-05-12	
pH	**7.44**	7.0-10.5	0.10	pH units	2025-05-08	HT2
Temperature, at pH	**21.6**	N/A		°C	2025-05-08	HT2
Turbidity	**0.10**	OG < 1	0.10	NTU	2025-05-08	
Microbiological Parameters						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2025-05-07	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-05-07	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2025-05-12	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-05-12	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well 2 (25E0892-02) | Matrix: Drinking Water | Sampled: 2025-05-06 14:20, Continued						
Total Metals, Continued						
Arsenic, total	**0.00051**	MAC = 0.01	0.00050	mg/L	2025-05-12	
Barium, total	**0.0288**	MAC = 2	0.0050	mg/L	2025-05-12	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-05-12	
Cadmium, total	**0.000019**	MAC = 0.007	0.000010	mg/L	2025-05-12	
Calcium, total	**46.1**	None Required	0.20	mg/L	2025-05-12	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-05-12	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-05-12	
Copper, total	**0.00111**	MAC = 2	0.00040	mg/L	2025-05-12	
Iron, total	< 0.010	AO ≤ 0.1	0.010	mg/L	2025-05-12	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-05-12	
Magnesium, total	**5.90**	None Required	0.010	mg/L	2025-05-12	
Manganese, total	**0.00047**	MAC = 0.12	0.00020	mg/L	2025-05-12	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-05-11	
Molybdenum, total	**0.00053**	N/A	0.00010	mg/L	2025-05-12	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-05-12	
Potassium, total	**2.21**	N/A	0.10	mg/L	2025-05-12	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-05-12	
Sodium, total	**14.0**	AO ≤ 200	0.10	mg/L	2025-05-12	
Strontium, total	**0.200**	MAC = 7	0.0010	mg/L	2025-05-12	
Uranium, total	**0.000397**	MAC = 0.02	0.000020	mg/L	2025-05-12	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-05-12	

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.
MD-2	Test method deviation - Total Coliform and E.coli analysis were run using Chromocult Coliform Agar. Results are estimates.
MIC13	Overgrown; E. coli was detected.
MIC4	Overgrown; Total Coliforms were detected.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
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
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	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

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	Western Water Associates Ltd	**WORK ORDER**	25E0892
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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 B5E2384										
Blank (B5E2384-BLK2)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrate (as N)	< 0.010	0.010	mg/L							
Nitrite (as N)	< 0.010	0.010	mg/L							
Sulfate	< 1.0	1.0	mg/L							
LCS (B5E2384-BS1)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Chloride	15.8	0.10	mg/L	16.0		99	90-110			
Fluoride	4.07	0.10	mg/L	4.00		102	88-108			
Nitrate (as N)	4.02	0.010	mg/L	4.00		100	90-110			
Nitrite (as N)	1.91	0.010	mg/L	2.00		96	85-115			
Sulfate	15.6	1.0	mg/L	16.0		97	90-110			
LCS (B5E2384-BS2)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Chloride	16.0	0.10	mg/L	16.0		100	90-110			
Fluoride	4.13	0.10	mg/L	4.00		103	88-108			
Nitrate (as N)	4.01	0.010	mg/L	4.00		100	90-110			
Nitrite (as N)	1.92	0.010	mg/L	2.00		96	85-115			
Sulfate	16.3	1.0	mg/L	16.0		102	90-110			
General Parameters, Batch B5E2465										
Blank (B5E2465-BLK1)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Turbidity	< 0.10	0.10	NTU							
LCS (B5E2465-BS1)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Turbidity	15.8	0.10	NTU	15.8		100	90-110			
General Parameters, Batch B5E2543										
Blank (B5E2543-BLK1)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5E2543, Continued										
Blank (B5E2543-BLK1), Continued				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.9		°C							
Blank (B5E2543-BLK2)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.3		°C							
Blank (B5E2543-BLK3)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.9		°C							
LCS (B5E2543-BS1)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	93.9	1.0	mg/L	100		94	80-120			
LCS (B5E2543-BS2)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Conductivity (EC)	1440	2.0	µS/cm	1410		102	95-105			
LCS (B5E2543-BS3)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	95.5	1.0	mg/L	100		96	80-120			
LCS (B5E2543-BS4)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Conductivity (EC)	1440	2.0	µS/cm	1410		102	95-105			
LCS (B5E2543-BS5)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	94.9	1.0	mg/L	100		95	80-120			
LCS (B5E2543-BS6)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
Conductivity (EC)	1450	2.0	µS/cm	1410		103	95-105			
Duplicate (B5E2543-DUP1)		**Source: 25E0892-01**		Prepared: 2025-05-08, Analyzed: 2025-05-08						
Alkalinity, Total (as CaCO3)	46.5	1.0	mg/L		44.9			3	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	46.5	1.0	mg/L		44.9			3	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L		< 1.0				10	
Conductivity (EC)	108	2.0	µS/cm		106			1	5	
pH	7.08	0.10	pH units		7.00			1	4	HT2
Reference (B5E2543-SRM1)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
pH	7.01	0.10	pH units	7.01		100	98-102			
Reference (B5E2543-SRM2)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
pH	7.01	0.10	pH units	7.01		100	98-102			
Reference (B5E2543-SRM3)				Prepared: 2025-05-08, Analyzed: 2025-05-08						
pH	7.01	0.10	pH units	7.01		100	98-102			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5E2635										
Blank (B5E2635-BLK1)				Prepared: 2025-05-09, Analyzed: 2025-05-09						
Colour, True	< 5.0	5.0	CU							
Blank (B5E2635-BLK2)				Prepared: 2025-05-09, Analyzed: 2025-05-09						
Colour, True	< 5.0	5.0	CU							
LCS (B5E2635-BS1)				Prepared: 2025-05-09, Analyzed: 2025-05-09						
Colour, True	18	5.0	CU	20.0		90	85-115			
LCS (B5E2635-BS2)				Prepared: 2025-05-09, Analyzed: 2025-05-09						
Colour, True	18	5.0	CU	20.0		91	85-115			
General Parameters, Batch B5E2797										
Blank (B5E2797-BLK1)				Prepared: 2025-05-12, Analyzed: 2025-05-12						
Cyanide, Total	< 0.0020	0.0020	mg/L							
Blank (B5E2797-BLK2)				Prepared: 2025-05-12, Analyzed: 2025-05-12						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B5E2797-BS1)				Prepared: 2025-05-12, Analyzed: 2025-05-12						
Cyanide, Total	0.0194	0.0020	mg/L	0.0200		97	82-120			
LCS (B5E2797-BS2)				Prepared: 2025-05-12, Analyzed: 2025-05-12						
Cyanide, Total	0.0218	0.0020	mg/L	0.0200		109	82-120			
LCS Dup (B5E2797-BSD1)				Prepared: 2025-05-12, Analyzed: 2025-05-12						
Cyanide, Total	0.0195	0.0020	mg/L	0.0200		97	82-120	< 1	10	
LCS Dup (B5E2797-BSD2)				Prepared: 2025-05-12, Analyzed: 2025-05-12						
Cyanide, Total	0.0214	0.0020	mg/L	0.0200		107	82-120	2	10	
Microbiological Parameters, Batch B5E2301										
Blank (B5E2301-BLK1)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK2)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK3)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK4)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK5)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK6)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B5E2301, Continued										
Blank (B5E2301-BLK7)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK8)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLK9)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLKA)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLKB)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLKC)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLKD)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5E2301-BLKE)				Prepared: 2025-05-07, Analyzed: 2025-05-07						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Total Metals, Batch B5E2768										
Blank (B5E2768-BLK1)				Prepared: 2025-05-10, Analyzed: 2025-05-11						
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							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5E2768, Continued										
Blank (B5E2768-BLK2)				Prepared: 2025-05-10, Analyzed: 2025-05-11						
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 (B5E2768-BS1)				Prepared: 2025-05-10, Analyzed: 2025-05-12						
Aluminum, total	4.00	0.0050	mg/L	4.00		100	80-120			
Antimony, total	0.0384	0.00020	mg/L	0.0400		96	80-120			
Arsenic, total	0.389	0.00050	mg/L	0.400		97	80-120			
Barium, total	0.0396	0.0050	mg/L	0.0400		99	80-120			
Boron, total	0.409	0.0500	mg/L	0.400		102	80-120			
Cadmium, total	0.0394	0.000010	mg/L	0.0400		99	80-120			
Calcium, total	4.12	0.20	mg/L	4.00		103	80-120			
Chromium, total	0.0393	0.00050	mg/L	0.0400		98	80-120			
Cobalt, total	0.0392	0.00010	mg/L	0.0400		98	80-120			
Copper, total	0.0390	0.00040	mg/L	0.0400		98	80-120			
Iron, total	3.95	0.010	mg/L	4.00		99	80-120			
Lead, total	0.0389	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	0.0387	0.00010	mg/L	0.0400		97	80-120			
Nickel, total	0.0396	0.00040	mg/L	0.0400		99	80-120			
Potassium, total	4.03	0.10	mg/L	4.00		101	80-120			
Selenium, total	0.395	0.00050	mg/L	0.400		99	80-120			
Sodium, total	4.05	0.10	mg/L	4.00		101	80-120			
Strontium, total	0.0390	0.0010	mg/L	0.0400		98	80-120			
Uranium, total	0.0395	0.000020	mg/L	0.0400		99	80-120			
Zinc, total	0.387	0.0040	mg/L	0.400		97	80-120			
LCS (B5E2768-BS2)				Prepared: 2025-05-10, Analyzed: 2025-05-12						
Aluminum, total	4.02	0.0050	mg/L	4.00		100	80-120			
Antimony, total	0.0381	0.00020	mg/L	0.0400		95	80-120			
Arsenic, total	0.391	0.00050	mg/L	0.400		98	80-120			
Barium, total	0.0393	0.0050	mg/L	0.0400		98	80-120			
Boron, total	0.404	0.0500	mg/L	0.400		101	80-120			
Cadmium, total	0.0389	0.000010	mg/L	0.0400		97	80-120			
Calcium, total	4.13	0.20	mg/L	4.00		103	80-120			
Chromium, total	0.0397	0.00050	mg/L	0.0400		99	80-120			
Cobalt, total	0.0395	0.00010	mg/L	0.0400		99	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25E0892
PROJECT	22-077-03VR	**REPORTED**	2025-05-13 10:40

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5E2768, Continued										
LCS (B5E2768-BS2), Continued				Prepared: 2025-05-10, Analyzed: 2025-05-12						
Copper, total	0.0392	0.00040	mg/L	0.0400		98	80-120			
Iron, total	4.03	0.010	mg/L	4.00		101	80-120			
Lead, total	0.0394	0.00020	mg/L	0.0400		98	80-120			
Magnesium, total	4.02	0.010	mg/L	4.00		100	80-120			
Manganese, total	0.0396	0.00020	mg/L	0.0400		99	80-120			
Molybdenum, total	0.0388	0.00010	mg/L	0.0400		97	80-120			
Nickel, total	0.0394	0.00040	mg/L	0.0400		99	80-120			
Potassium, total	4.03	0.10	mg/L	4.00		101	80-120			
Selenium, total	0.397	0.00050	mg/L	0.400		99	80-120			
Sodium, total	4.05	0.10	mg/L	4.00		101	80-120			
Strontium, total	0.0394	0.0010	mg/L	0.0400		99	80-120			
Uranium, total	0.0399	0.000020	mg/L	0.0400		100	80-120			
Zinc, total	0.390	0.0040	mg/L	0.400		97	80-120			
Total Metals, Batch B5E2789										
Blank (B5E2789-BLK1)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5E2789-BLK2)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5E2789-BLK3)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5E2789-BLK4)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B5E2789-BS1)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	0.00253	0.000010	mg/L	0.00250		101	80-120			
LCS (B5E2789-BS2)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	0.00260	0.000010	mg/L	0.00250		104	80-120			
LCS (B5E2789-BS3)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	0.00262	0.000010	mg/L	0.00250		105	80-120			
LCS (B5E2789-BS4)				Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	0.00254	0.000010	mg/L	0.00250		102	80-120			
Duplicate (B5E2789-DUP3)			**Source: 25E0892-02**	Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	< 0.000010	0.000010	mg/L		< 0.000010				20	
Duplicate (B5E2789-DUP4)			**Source: 25E0892-01**	Prepared: 2025-05-11, Analyzed: 2025-05-11						
Mercury, total	< 0.000010	0.000010	mg/L		< 0.000010				20	

QC Qualifiers:

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

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Report# 8016
Filename 250507BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Beaver Creek Sample # 1

Date/Time Sampled 2025-05-06 2:00 PM Matrix UGW Temperature on Receipt 8 °C

Date/Time on Test 2025-05-07 1:40 PM

Analyses	Result	Units	RDL
Coliforms, Total	80	CFU/100mL	1
Verified E.coli	1	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	4	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8074
Filename 250521BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-05-20 3:00 PM Matrix UGW Temperature on Receipt 14 °C

Date/Time on Test 2025-05-21 12:40 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 2

Date/Time Sampled 2025-05-20 3:00 PM Matrix UGW Temperature on Receipt 14 °C

Date/Time on Test 2025-05-21 12:45 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8073
Filename 250521BFW1.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Beaver Creek (Above) Sample # 1

Date/Time Sampled 2025-05-20 3:00 PM Matrix UGW Temperature on Receipt 14 °C

Date/Time on Test 2025-05-21 12:30 PM

Analyses	Result	Units	RDL
Coliforms, Total	253	CFU/100mL	1
Verified E.coli	33	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	24	CFU/100mL	1

Sample ID Beaver Creek (Below) Sample # 2

Date/Time Sampled 2025-05-20 3:00 PM Matrix UGW Temperature on Receipt 14 °C

Date/Time on Test 2025-05-21 12:35 PM

Analyses	Result	Units	RDL
Coliforms, Total	217	CFU/100mL	1
Verified E.coli	23	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	23	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8133
Filename 250604BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-06-03 2:00 PM Matrix UGW Temperature on Receipt 10 °C

Date/Time on Test 2025-06-04 1:15 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant 1620 Scout Rd Sample # 2

Date/Time Sampled 2025-06-03 2:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-06-04 1:20 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8134
Filename 250604BFW1.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

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Report# 8134
Filename 250604BFW1.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek			Sample #	1
Date/Time Sampled	2025-06-03	2:00 PM	Matrix USW	Temperature on Receipt	12 °C
Date/Time on Test	2025-06-04	1:25 PM			

Analyses	Result	Units	RDL
Coliforms, Total	165	CFU/100mL	1
Verified E.coli	7	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	49	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8184
Filename 250618BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-06-17 3:00 PM Matrix UGW Temperature on Receipt 16 °C

Date/Time on Test 2025-06-18 12:05 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant 1620 Scout Rd Sample # 2

Date/Time Sampled 2025-06-17 3:00 PM Matrix UGW Temperature on Receipt 16 °C

Date/Time on Test 2025-06-18 12:10 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8185
Filename 250618BFW1.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID	Beaver Creek			Sample #	1
Date/Time Sampled	2025-06-17	3:00 PM	Matrix USW	Temperature on Receipt	16 °C
Date/Time on Test	2025-06-18	12:00 PM			

Analyses	Result	Units	RDL
Coliforms, Total	785	CFU/100mL	1
Verified E.coli	10	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	11	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8245
Filename 250703BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-07-02 2:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-07-03 12:05 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant 1620 Scout Rd Sample # 2

Date/Time Sampled 2025-07-02 2:00 PM Matrix UGW Temperature on Receipt 14 °C

Date/Time on Test 2025-07-03 12:15 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8246
Filename 250703BFW1.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8246
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ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-07-02	2:00 PM	Matrix	USW		Temperature on Receipt	13 °C
Date/Time on Test	2025-07-03	11:55 AM					

Analyses	Result	Units	RDL
Coliforms, Total	2242	CFU/100mL	1
Verified E.coli	12	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	unable to count	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8304
Filename 250716BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: Lea Kooznetsoff

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-07-15 2:00 PM Matrix UGW Temperature on Receipt 14 °C

Date/Time on Test 2025-07-16 1:36 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 2

Date/Time Sampled 2025-07-15 2:00 PM Matrix UGW Temperature on Receipt 15 °C

Date/Time on Test 2025-07-16 1:40 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8303
Filename 250716BFW1.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: James Lerch

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8303
Filename 250716BFW1.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek			Sample #	1
Date/Time Sampled	2025-07-15	2:00 PM	Matrix USW	Temperature on Receipt	14 °C
Date/Time on Test	2025-07-16	1:45 PM			

Analyses	Result	Units	RDL
Coliforms, Total	693	CFU/100mL	1
Verified E.coli	64	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	87	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

CERTIFICATE OF ANALYSIS

REPORTED TO	Western Water Associates Ltd 1003 Kalamalka Lake Vernon, BC V1T6V4		
ATTENTION	Ryan Rhodes	**WORK ORDER**	25H0494
PO NUMBER		**RECEIVED / TEMP**	2025-08-06 09:30 / 13.9°C
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16
PROJECT INFO		**COC NUMBER**	B11592

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 efex@caro.ca

Authorized By:

Echo Fex
Junior Account Manager

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
BFWD Well 2 (25H0494-01) | Matrix: Drinking Water | Sampled: 2025-08-05 14:00						
Anions						
Chloride	**20.7**	AO ≤ 250	0.10	mg/L	2025-08-07	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-08-07	
Nitrate (as N)	**1.36**	MAC = 10	0.010	mg/L	2025-08-07	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-08-07	
Sulfate	**19.5**	AO ≤ 500	1.0	mg/L	2025-08-07	
Calculated Parameters						
Hardness, Total (as CaCO3)	**143**	None Required	0.500	mg/L	N/A	
Langelier Index	**-0.4**	N/A	-5.0		2025-08-12	CT6
Solids, Total Dissolved	**183**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**110**	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Bicarbonate (as CaCO3)	**110**	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-08-08	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-08-07	
Conductivity (EC)	**343**	N/A	2.0	µS/cm	2025-08-08	
pH	**7.40**	7.0-10.5	0.10	pH units	2025-08-08	HT2
Temperature, at pH	**22.2**	N/A		°C	2025-08-08	HT2
Turbidity	**0.12**	OG < 1	0.10	NTU	2025-08-06	
Microbiological Parameters						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2025-08-06	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-08-06	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2025-08-08	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-08-08	
Arsenic, total	**0.00053**	MAC = 0.01	0.00050	mg/L	2025-08-08	
Barium, total	**0.0299**	MAC = 2	0.0050	mg/L	2025-08-08	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-08-08	
Cadmium, total	**0.000024**	MAC = 0.007	0.000010	mg/L	2025-08-08	
Calcium, total	**47.5**	None Required	0.20	mg/L	2025-08-08	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-08-08	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-08-08	
Copper, total	**0.00576**	MAC = 2	0.00040	mg/L	2025-08-08	
Iron, total	< 0.010	AO ≤ 0.1	0.010	mg/L	2025-08-08	
Lead, total	**0.00032**	MAC = 0.005	0.00020	mg/L	2025-08-08	
Magnesium, total	**5.95**	None Required	0.010	mg/L	2025-08-08	
Manganese, total	**0.00022**	MAC = 0.12	0.00020	mg/L	2025-08-08	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-08-07	
Molybdenum, total	**0.00054**	N/A	0.00010	mg/L	2025-08-08	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
BFWD Well 2 (25H0494-01) | Matrix: Drinking Water | Sampled: 2025-08-05 14:00, Continued						
Total Metals, Continued						
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-08-08	
Potassium, total	**2.26**	N/A	0.10	mg/L	2025-08-08	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-08-08	
Sodium, total	**13.9**	AO ≤ 200	0.10	mg/L	2025-08-08	
Strontium, total	**0.199**	MAC = 7	0.0010	mg/L	2025-08-08	
Uranium, total	**0.000397**	MAC = 0.02	0.000020	mg/L	2025-08-08	
Zinc, total	**0.0082**	AO ≤ 5	0.0040	mg/L	2025-08-08	
Beaver Creek (25H0494-02) | Matrix: Drinking Water | Sampled: 2025-08-05 13:00						
Anions						
Chloride	**5.37**	AO ≤ 250	0.10	mg/L	2025-08-07	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-08-07	
Nitrate (as N)	**0.211**	MAC = 10	0.010	mg/L	2025-08-07	
Nitrite (as N)	**0.026**	MAC = 1	0.010	mg/L	2025-08-07	
Sulfate	**10.2**	AO ≤ 500	1.0	mg/L	2025-08-07	
Calculated Parameters						
Hardness, Total (as CaCO3)	**93.8**	None Required	0.500	mg/L	N/A	
Langelier Index	**-0.6**	N/A	-5.0		2025-08-12	CT6
Solids, Total Dissolved	**110**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**84.0**	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Bicarbonate (as CaCO3)	**84.0**	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-08-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-08-08	
Colour, True	**9.4**	AO ≤ 15	5.0	CU	2025-08-07	
Conductivity (EC)	**209**	N/A	2.0	µS/cm	2025-08-08	
pH	**7.53**	7.0-10.5	0.10	pH units	2025-08-08	HT2
Temperature, at pH	**21.9**	N/A		°C	2025-08-08	HT2
Turbidity	**1.01**	OG < 1	0.10	NTU	2025-08-06	
Microbiological Parameters						
Coliforms, Total	**520**	MAC = 0	1	CFU/100 mL	2025-08-06	
Background Colonies	**>200**	N/A	200	CFU/100 mL	2025-08-06	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-08-06	
Total Metals						
Aluminum, total	**0.0162**	OG < 0.1	0.0050	mg/L	2025-08-08	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-08-08	
Arsenic, total	**0.00092**	MAC = 0.01	0.00050	mg/L	2025-08-08	
Barium, total	**0.0185**	MAC = 2	0.0050	mg/L	2025-08-08	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Beaver Creek (25H0494-02) | Matrix: Drinking Water | Sampled: 2025-08-05 13:00, Continued						
Total Metals, Continued						
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-08-08	
Cadmium, total	**0.000017**	MAC = 0.007	0.000010	mg/L	2025-08-08	
Calcium, total	**32.4**	None Required	0.20	mg/L	2025-08-08	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-08-08	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-08-08	
Copper, total	**0.00044**	MAC = 2	0.00040	mg/L	2025-08-08	
Iron, total	**0.292**	AO ≤ 0.1	0.010	mg/L	2025-08-08	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-08-08	
Magnesium, total	**3.11**	None Required	0.010	mg/L	2025-08-08	
Manganese, total	**0.0317**	MAC = 0.12	0.00020	mg/L	2025-08-08	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-08-10	
Molybdenum, total	**0.00078**	N/A	0.00010	mg/L	2025-08-08	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-08-08	
Potassium, total	**1.65**	N/A	0.10	mg/L	2025-08-08	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-08-08	
Sodium, total	**5.50**	AO ≤ 200	0.10	mg/L	2025-08-08	
Strontium, total	**0.140**	MAC = 7	0.0010	mg/L	2025-08-08	
Uranium, total	**0.000322**	MAC = 0.02	0.000020	mg/L	2025-08-08	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-08-08	

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	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
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
>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
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	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

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: efex@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	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

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 B5H2348										
Blank (B5H2348-BLK1)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
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 (B5H2348-BS1)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Chloride	16.2	0.10	mg/L	16.0		101	90-110			
Fluoride	4.23	0.10	mg/L	4.00		106	88-108			
Nitrate (as N)	4.03	0.010	mg/L	4.00		101	90-110			
Nitrite (as N)	1.94	0.010	mg/L	2.00		97	85-115			
Sulfate	15.8	1.0	mg/L	16.0		99	90-110			
General Parameters, Batch B5H2204										
Blank (B5H2204-BLK1)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Turbidity	< 0.10	0.10	NTU							
LCS (B5H2204-BS1)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Turbidity	15.4	0.10	NTU	15.8		97	90-110			
General Parameters, Batch B5H2289										
Blank (B5H2289-BLK1)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Colour, True	< 5.0	5.0	CU							
Blank (B5H2289-BLK2)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Colour, True	< 5.0	5.0	CU							
LCS (B5H2289-BS1)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Colour, True	18	5.0	CU	20.0		92	85-115			
LCS (B5H2289-BS2)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Colour, True	20	5.0	CU	20.0		101	85-115			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5H2587										
Blank (B5H2587-BLK1)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.8		°C							
Blank (B5H2587-BLK2)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.6		°C							
Blank (B5H2587-BLK3)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.9		°C							
LCS (B5H2587-BS1)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Alkalinity, Total (as CaCO3)	89.4	1.0	mg/L	100		89	80-120			
LCS (B5H2587-BS2)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
LCS (B5H2587-BS3)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Alkalinity, Total (as CaCO3)	90.3	1.0	mg/L	100		90	80-120			
LCS (B5H2587-BS4)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
LCS (B5H2587-BS5)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Alkalinity, Total (as CaCO3)	90.6	1.0	mg/L	100		91	80-120			
LCS (B5H2587-BS6)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Conductivity (EC)	1410	2.0	µS/cm	1410		100	95-105			
Reference (B5H2587-SRM1)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
pH	7.00	0.10	pH units	7.01		100	98-102			
Reference (B5H2587-SRM2)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
pH	7.00	0.10	pH units	7.01		100	98-102			
Reference (B5H2587-SRM3)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
pH	7.00	0.10	pH units	7.01		100	98-102			
Microbiological Parameters, Batch B5H2147										
Blank (B5H2147-BLK1)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B5H2147, Continued										
Blank (B5H2147-BLK1), Continued				Prepared: 2025-08-06, Analyzed: 2025-08-06						
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK2)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK3)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK4)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK5)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK6)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK7)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK8)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLK9)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLKA)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLKB)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLKC)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLKD)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLKE)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5H2147-BLKF)				Prepared: 2025-08-06, Analyzed: 2025-08-06						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5H2417										
Blank (B5H2417-BLK1)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B5H2417-BS1)				Prepared: 2025-08-07, Analyzed: 2025-08-07						
Mercury, total	0.00287	0.000010	mg/L	0.00250		115	80-120			
Matrix Spike (B5H2417-MS1)		**Source: 25H0494-01**		Prepared: 2025-08-07, Analyzed: 2025-08-07						
Mercury, total	0.00300	0.000010	mg/L	0.00250	< 0.000010	120	70-130			
Total Metals, Batch B5H2545										
Blank (B5H2545-BLK1)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
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							
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 (B5H2545-BS1)				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Aluminum, total	3.97	0.0050	mg/L	4.00		99	80-120			
Antimony, total	0.0386	0.00020	mg/L	0.0400		97	80-120			
Arsenic, total	0.393	0.00050	mg/L	0.400		98	80-120			
Barium, total	0.0403	0.0050	mg/L	0.0400		101	80-120			
Boron, total	0.389	0.0500	mg/L	0.400		97	80-120			
Cadmium, total	0.0389	0.000010	mg/L	0.0400		97	80-120			
Calcium, total	4.00	0.20	mg/L	4.00		100	80-120			
Chromium, total	0.0404	0.00050	mg/L	0.0400		101	80-120			
Cobalt, total	0.0398	0.00010	mg/L	0.0400		99	80-120			
Copper, total	0.0394	0.00040	mg/L	0.0400		99	80-120			
Iron, total	4.15	0.010	mg/L	4.00		104	80-120			
Lead, total	0.0386	0.00020	mg/L	0.0400		97	80-120			
Magnesium, total	4.01	0.010	mg/L	4.00		100	80-120			
Manganese, total	0.0409	0.00020	mg/L	0.0400		102	80-120			
Molybdenum, total	0.0389	0.00010	mg/L	0.0400		97	80-120			
Nickel, total	0.0403	0.00040	mg/L	0.0400		101	80-120			
Potassium, total	4.04	0.10	mg/L	4.00		101	80-120			
Selenium, total	0.388	0.00050	mg/L	0.400		97	80-120			
Sodium, total	3.91	0.10	mg/L	4.00		98	80-120			
Strontium, total	0.0393	0.0010	mg/L	0.0400		98	80-120			
Uranium, total	0.0398	0.000020	mg/L	0.0400		100	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25H0494
PROJECT	22-077-03VR	**REPORTED**	2025-08-12 15:16

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5H2545, Continued										
LCS (B5H2545-BS1), Continued				Prepared: 2025-08-08, Analyzed: 2025-08-08						
Zinc, total	0.388	0.0040	mg/L	0.400		97	80-120			
Total Metals, Batch B5H2687										
Blank (B5H2687-BLK1)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5H2687-BLK2)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5H2687-BLK3)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5H2687-BLK4)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B5H2687-BS1)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	0.00276	0.000010	mg/L	0.00250		110	80-120			
LCS (B5H2687-BS2)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	0.00277	0.000010	mg/L	0.00250		111	80-120			
LCS (B5H2687-BS3)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	0.00274	0.000010	mg/L	0.00250		110	80-120			
LCS (B5H2687-BS4)				Prepared: 2025-08-10, Analyzed: 2025-08-10						
Mercury, total	0.00269	0.000010	mg/L	0.00250		108	80-120			

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Report# 8395
Filename 250806BFW2.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Lea Kooznetsoff

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-08-05 1:00 PM Matrix UGW Temperature on Receipt 16 °C

Date/Time on Test 2025-08-06 1:30 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant PH Sample # 2

Date/Time Sampled 2025-08-06 1:00 PM Matrix UGW Temperature on Receipt 15 °C

Date/Time on Test 2025-08-06 1:35 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8394
Filename 250806BFW1.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023 published by the American Public Health Association.

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Processed by: Lea Kooznetsoff

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8394
Filename 250806BFW1.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek			Sample #	1
Date/Time Sampled	2025-08-05	2:00 PM	Matrix SW	Temperature on Receipt	14 °C
Date/Time on Test	2025-08-06	1:25 PM			

Analyses	Result	Units	RDL
Coliforms, Total	448	CFU/100mL	1
Verified E.coli	70	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	50	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8464
Filename 250820BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Lea Kooznetsoff

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-08-19 3:30 PM Matrix UGW Temperature on Receipt 21 °C

Date/Time on Test 2025-08-20 1:55 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 2

Date/Time Sampled 2025-08-19 3:30 PM Matrix UGW Temperature on Receipt 22 °C

Date/Time on Test 2025-08-20 2:00 PM

Analyses	Result	Units	RDL
Coliforms, Total	2	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8465
Filename 250820BFWC.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Lea Kooznetsoff

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8465
Filename 250820BFWC.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-08-19	3:30 PM	Matrix	USW		Temperature on Receipt	20 °C
Date/Time on Test	2025-08-20	2:10 PM					

Analyses	Result	Units	RDL
Coliforms, Total	1481	CFU/100mL	1
Verified E.coli	150	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	182	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8515
Filename 250903BFW1.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-09-02 3:30 PM Matrix UGW Temperature on Receipt 13 °C

Date/Time on Test 2025-09-03 2:00 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 2

Date/Time Sampled 2025-09-02 3:30 PM Matrix UGW Temperature on Receipt 13 °C

Date/Time on Test 2025-09-03 2:04 PM

Analyses	Result	Units	RDL
Coliforms, Total	1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant Sample # 3

Date/Time Sampled 2025-09-02 3:30 PM Matrix UGW Temperature on Receipt 13 °C

Date/Time on Test 2025-09-03 2:06 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8516
Filename 250903BFW2.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8516
Filename 250903BFW2.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-09-02	3:30 PM	Matrix	USW		Temperature on Receipt	15 °C
Date/Time on Test	2025-09-03	2:10 PM					

Analyses	Result	Units	RDL
Coliforms, Total	1169	CFU/100mL	1
Verified E.coli	94	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	195	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8533
Filename 250909BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-09-09 1:00 PM Matrix UGW Temperature on Receipt 11 °C

Date/Time on Test 2025-09-09 6:25 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 2

Date/Time Sampled 2025-09-09 1:00 PM Matrix UGW Temperature on Receipt 10 °C

Date/Time on Test 2025-09-09 6:30 PM

Analyses	Result	Units	RDL
Coliforms, Total	1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID 1524 Columbia Gard Rd Sample # 3

Date/Time Sampled 2025-09-09 1:00 PM Matrix UGW Temperature on Receipt 9 °C

Date/Time on Test 2025-09-09 6:35 PM

Analyses	Result	Units	RDL
Coliforms, Total	1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8578
Filename 250919BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Mechelle Babic

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1
Date/Time Sampled 2025-09-19 9:00 AM Matrix UGW Temperature on Receipt 13 °C
Date/Time on Test 2025-09-19 11:45 AM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Hydrant Columbia Gardens Sample # 2
Date/Time Sampled 2025-09-19 9:00 AM Matrix UGW Temperature on Receipt 12 °C
Date/Time on Test 2025-09-19 11:50 AM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 3
Date/Time Sampled 2025-09-19 9:00 AM Matrix UGW Temperature on Receipt 13 °C
Date/Time on Test 2025-09-19 11:55 AM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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passmorelaboratory.ca

Report# 8602
Filename 250924BFW.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Beaver Creek (Above) Sample # 1

Date/Time Sampled 2025-09-23 3:30 PM Matrix USW Temperature on Receipt 8 °C

Date/Time on Test 2025-09-24 2:23 PM

Analyses	Result	Units	RDL
Coliforms, Total	732	CFU/100mL	1
Verified E.coli	45	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	56	CFU/100mL	1

Sample ID Beaver Creek (Below) Sample # 2

Date/Time Sampled 2025-09-23 3:30 PM Matrix USW Temperature on Receipt 9 °C

Date/Time on Test 2025-09-24 2:27 PM

Analyses	Result	Units	RDL
Coliforms, Total	1560	CFU/100mL	1
Verified E.coli	400	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	164	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

CERTIFICATE OF ANALYSIS

REPORTED TO	Western Water Associates Ltd 1003 Kalamalka Lake Vernon, BC V1T6V4		
ATTENTION	Ryan Rhodes	**WORK ORDER**	25J1200
PO NUMBER		**RECEIVED / TEMP**	2025-10-08 11:45 / 9.3°C
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43
PROJECT INFO		**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 efex@caro.ca

Authorized By:

Echo Fex
Junior Account Manager

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Beaver Creek (25J1200-01) | Matrix: Drinking Water | Sampled: 2025-10-07 15:00						
Anions						
Chloride	**7.08**	AO ≤ 250	0.10	mg/L	2025-10-09	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-10-09	
Nitrate (as N)	**0.060**	MAC = 10	0.010	mg/L	2025-10-09	
Nitrite (as N)	**0.019**	MAC = 1	0.010	mg/L	2025-10-09	
Sulfate	**14.6**	AO ≤ 500	1.0	mg/L	2025-10-09	
Calculated Parameters						
Hardness, Total (as CaCO3)	**103**	None Required	0.500	mg/L	N/A	
Langelier Index	**-0.8**	N/A	-5.0		2025-10-14	CT6
Solids, Total Dissolved	**132**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**102**	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Bicarbonate (as CaCO3)	**102**	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-10-09	
Colour, True	**6.7**	AO ≤ 15	5.0	CU	2025-10-10	
Conductivity (EC)	**241**	N/A	2.0	µS/cm	2025-10-09	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-10-11	
pH	**7.16**	7.0-10.5	0.10	pH units	2025-10-09	HT2
Temperature, at pH	**22.2**	N/A		°C	2025-10-09	HT2
Turbidity	**0.95**	OG < 1	0.10	NTU	2025-10-09	
Microbiological Parameters						
Coliforms, Total	**850**	MAC = 0	1	CFU/100 mL	2025-10-08	MD-2, MIC15
Background Colonies	**>200**	N/A	200	CFU/100 mL	2025-10-08	MD-2
E. coli	**≥ 54**	MAC = 0	1	CFU/100 mL	2025-10-08	MD-2
Total Metals						
Aluminum, total	**0.0060**	OG < 0.1	0.0050	mg/L	2025-10-13	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-10-13	
Arsenic, total	**0.00060**	MAC = 0.01	0.00050	mg/L	2025-10-13	
Barium, total	**0.0216**	MAC = 2	0.0050	mg/L	2025-10-13	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-10-13	
Cadmium, total	< 0.000010	MAC = 0.007	0.000010	mg/L	2025-10-13	
Calcium, total	**35.5**	None Required	0.20	mg/L	2025-10-13	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-10-13	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-10-13	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2025-10-13	
Iron, total	**0.162**	AO ≤ 0.1	0.010	mg/L	2025-10-13	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-10-13	
Magnesium, total	**3.47**	None Required	0.010	mg/L	2025-10-13	
Manganese, total	**0.0183**	MAC = 0.12	0.00020	mg/L	2025-10-13	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Beaver Creek (25J1200-01) | Matrix: Drinking Water | Sampled: 2025-10-07 15:00, Continued						
Total Metals, Continued						
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-10-10	
Molybdenum, total	**0.00065**	N/A	0.00010	mg/L	2025-10-13	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-10-13	
Potassium, total	**2.03**	N/A	0.10	mg/L	2025-10-13	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-10-13	
Sodium, total	**6.68**	AO ≤ 200	0.10	mg/L	2025-10-13	
Strontium, total	**0.151**	MAC = 7	0.0010	mg/L	2025-10-13	
Uranium, total	**0.000383**	MAC = 0.02	0.000020	mg/L	2025-10-13	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-10-13	
Well 2 (25J1200-02) | Matrix: Drinking Water | Sampled: 2025-10-07 15:00						
Anions						
Chloride	**23.4**	AO ≤ 250	0.10	mg/L	2025-10-09	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2025-10-09	
Nitrate (as N)	**0.726**	MAC = 10	0.010	mg/L	2025-10-09	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2025-10-09	
Sulfate	**21.9**	AO ≤ 500	1.0	mg/L	2025-10-09	
Calculated Parameters						
Hardness, Total (as CaCO3)	**139**	None Required	0.500	mg/L	N/A	
Langelier Index	**-0.9**	N/A	-5.0		2025-10-14	CT6
Solids, Total Dissolved	**188**	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO3)	**117**	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Bicarbonate (as CaCO3)	**117**	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-10-09	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2025-10-09	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2025-10-10	
Conductivity (EC)	**345**	N/A	2.0	µS/cm	2025-10-09	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2025-10-10	
pH	**6.95**	7.0-10.5	0.10	pH units	2025-10-09	HT2
Temperature, at pH	**22.1**	N/A		°C	2025-10-09	HT2
Turbidity	**0.11**	OG < 1	0.10	NTU	2025-10-09	
Microbiological Parameters						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2025-10-08	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2025-10-08	
Total Metals						
Aluminum, total	< 0.0050	OG < 0.1	0.0050	mg/L	2025-10-14	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2025-10-14	

TEST RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
Well 2 (25J1200-02) | Matrix: Drinking Water | Sampled: 2025-10-07 15:00, Continued						
Total Metals, Continued						
Arsenic, total	**0.00051**	MAC = 0.01	0.00050	mg/L	2025-10-14	
Barium, total	**0.0298**	MAC = 2	0.0050	mg/L	2025-10-14	
Boron, total	< 0.0500	MAC = 5	0.0500	mg/L	2025-10-14	
Cadmium, total	**0.000023**	MAC = 0.007	0.000010	mg/L	2025-10-14	
Calcium, total	**45.5**	None Required	0.20	mg/L	2025-10-14	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-10-14	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2025-10-14	
Copper, total	**0.00224**	MAC = 2	0.00040	mg/L	2025-10-14	
Iron, total	< 0.010	AO ≤ 0.1	0.010	mg/L	2025-10-14	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2025-10-14	
Magnesium, total	**6.20**	None Required	0.010	mg/L	2025-10-14	
Manganese, total	**0.00039**	MAC = 0.12	0.00020	mg/L	2025-10-14	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2025-10-10	
Molybdenum, total	**0.00053**	N/A	0.00010	mg/L	2025-10-14	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2025-10-14	
Potassium, total	**2.21**	N/A	0.10	mg/L	2025-10-14	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2025-10-14	
Sodium, total	**13.8**	AO ≤ 200	0.10	mg/L	2025-10-14	
Strontium, total	**0.198**	MAC = 7	0.0010	mg/L	2025-10-14	
Uranium, total	**0.000385**	MAC = 0.02	0.000020	mg/L	2025-10-14	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2025-10-14	

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.
MD-2	Test method deviation - Total Coliform and E.coli analysis were run using Chromocult Coliform Agar. Results are estimates.
MIC15	The final result is estimated due to a high bacterial count.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2021)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2020)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Colour, True in Water	SM 2120 C (2021)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2021)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
E. coli in Water	SM 9222* (2015)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Hardness in Water	SM 2340 B* (2021)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2021)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
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
>=	Greater than or equal to the specified Result
>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	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

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: efex@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	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

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 B5J2815										
Blank (B5J2815-BLK1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
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 (B5J2815-BS1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Chloride	16.0	0.10	mg/L	16.0		100	90-110			
Fluoride	3.75	0.10	mg/L	4.00		94	88-108			
Nitrate (as N)	4.24	0.010	mg/L	4.00		106	90-110			
Nitrite (as N)	1.99	0.010	mg/L	2.00		100	85-115			
Sulfate	16.1	1.0	mg/L	16.0		101	90-110			
Duplicate (B5J2815-DUP1)				Source: 25J1200-01	Prepared: 2025-10-09, Analyzed: 2025-10-09					
Chloride	7.06	0.10	mg/L		7.08			< 1	10	
Fluoride	< 0.10	0.10	mg/L		< 0.10				10	
Nitrate (as N)	0.059	0.010	mg/L		0.060			2	10	
Nitrite (as N)	0.020	0.010	mg/L		0.019				15	
Sulfate	14.8	1.0	mg/L		14.6			1	10	
Matrix Spike (B5J2815-MS1)				Source: 25J1200-01	Prepared: 2025-10-09, Analyzed: 2025-10-09					
Chloride	23.2	0.10	mg/L	16.0	7.08	101	75-125			
Fluoride	3.84	0.10	mg/L	4.00	< 0.10	95	75-125			
Nitrate (as N)	3.96	0.010	mg/L	4.00	0.060	98	75-125			
Nitrite (as N)	1.90	0.010	mg/L	2.00	0.019	94	75-115			
Sulfate	29.9	1.0	mg/L	16.0	14.6	96	75-125			
General Parameters, Batch B5J2857										
Blank (B5J2857-BLK1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Turbidity	< 0.10	0.10	NTU							
LCS (B5J2857-BS1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Turbidity	149	0.10	NTU	151		99	90-110			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5J2972										
Blank (B5J2972-BLK1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.6		°C							
Blank (B5J2972-BLK2)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.4		°C							
Blank (B5J2972-BLK3)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Alkalinity, Total (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L							
Conductivity (EC)	< 2.0	2.0	µS/cm							
Temperature, at pH	22.8		°C							
LCS (B5J2972-BS1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Alkalinity, Total (as CaCO3)	94.6	1.0	mg/L	100		95	80-120			
LCS (B5J2972-BS2)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Conductivity (EC)	1420	2.0	µS/cm	1410		101	95-105			
LCS (B5J2972-BS3)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Alkalinity, Total (as CaCO3)	92.5	1.0	mg/L	100		92	80-120			
LCS (B5J2972-BS4)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Conductivity (EC)	1420	2.0	µS/cm	1410		101	95-105			
LCS (B5J2972-BS5)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Alkalinity, Total (as CaCO3)	92.3	1.0	mg/L	100		92	80-120			
LCS (B5J2972-BS6)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
Conductivity (EC)	1420	2.0	µS/cm	1410		101	95-105			
Reference (B5J2972-SRM1)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
pH	6.99	0.10	pH units	7.01		100	98-102			
Reference (B5J2972-SRM2)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
pH	7.00	0.10	pH units	7.01		100	98-102			
Reference (B5J2972-SRM3)				Prepared: 2025-10-09, Analyzed: 2025-10-09						
pH	7.00	0.10	pH units	7.01		100	98-102			
General Parameters, Batch B5J3069										
Blank (B5J3069-BLK1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Colour, True	< 5.0	5.0	CU							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B5J3069, Continued										
Blank (B5J3069-BLK2)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Colour, True	< 5.0	5.0	CU							
LCS (B5J3069-BS1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Colour, True	21	5.0	CU	20.0		103	85-115			
LCS (B5J3069-BS2)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Colour, True	19	5.0	CU	20.0		96	85-115			
General Parameters, Batch B5J3162										
Blank (B5J3162-BLK1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B5J3162-BS1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Cyanide, Total	0.0184	0.0020	mg/L	0.0200		92	82-120			
LCS Dup (B5J3162-BSD1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Cyanide, Total	0.0180	0.0020	mg/L	0.0200		90	82-120	2	10	
Matrix Spike (B5J3162-MS1)		**Source: 25J1200-02**		Prepared: 2025-10-10, Analyzed: 2025-10-10						
Cyanide, Total	0.0474	0.0020	mg/L	0.0400	< 0.0020	116	70-130			
General Parameters, Batch B5J3174										
Blank (B5J3174-BLK1)				Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	< 0.0020	0.0020	mg/L							
Blank (B5J3174-BLK2)				Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	< 0.0020	0.0020	mg/L							
LCS (B5J3174-BS1)				Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	0.0164	0.0020	mg/L	0.0200		82	82-120			
LCS (B5J3174-BS2)				Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	0.0166	0.0020	mg/L	0.0200		83	82-120			
LCS Dup (B5J3174-BSD1)				Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	0.0167	0.0020	mg/L	0.0200		83	82-120	2	10	
LCS Dup (B5J3174-BSD2)				Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	0.0165	0.0020	mg/L	0.0200		82	82-120	< 1	10	
Matrix Spike (B5J3174-MS2)		**Source: 25J1200-01**		Prepared: 2025-10-11, Analyzed: 2025-10-11						
Cyanide, Total	0.0341	0.0020	mg/L	0.0400	< 0.0020	85	70-130			
Microbiological Parameters, Batch B5J2702										
Blank (B5J2702-BLK1)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK2)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Microbiological Parameters, Batch B5J2702, Continued										
Blank (B5J2702-BLK3)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK4)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK5)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK6)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK7)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK8)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLK9)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLKA)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLKB)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Blank (B5J2702-BLKC)				Prepared: 2025-10-08, Analyzed: 2025-10-08						
Coliforms, Total	< 1	1	CFU/100 mL							
E. coli	< 1	1	CFU/100 mL							
Total Metals, Batch B5J3042										
Blank (B5J3042-BLK1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5J3042-BLK2)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5J3042-BLK3)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	< 0.000010	0.000010	mg/L							
Blank (B5J3042-BLK4)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	< 0.000010	0.000010	mg/L							
LCS (B5J3042-BS1)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	0.00259	0.000010	mg/L	0.00250		104	80-120			
LCS (B5J3042-BS2)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	0.00265	0.000010	mg/L	0.00250		106	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5J3042, Continued										
LCS (B5J3042-BS3)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	0.00268	0.000010	mg/L	0.00250		107	80-120			
LCS (B5J3042-BS4)				Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	0.00276	0.000010	mg/L	0.00250		110	80-120			
Matrix Spike (B5J3042-MS3)		**Source: 25J1200-02**		Prepared: 2025-10-10, Analyzed: 2025-10-10						
Mercury, total	0.00263	0.000010	mg/L	0.00250	< 0.000010	105	70-130			
Total Metals, Batch B5J3216										
Blank (B5J3216-BLK1)				Prepared: 2025-10-11, Analyzed: 2025-10-12						
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 (B5J3216-BS1)				Prepared: 2025-10-11, Analyzed: 2025-10-12						
Aluminum, total	3.97	0.0050	mg/L	4.00		99	80-120			
Antimony, total	0.0390	0.00020	mg/L	0.0400		97	80-120			
Arsenic, total	0.390	0.00050	mg/L	0.400		97	80-120			
Barium, total	0.0405	0.0050	mg/L	0.0400		101	80-120			
Boron, total	0.415	0.0500	mg/L	0.400		104	80-120			
Cadmium, total	0.0392	0.000010	mg/L	0.0400		98	80-120			
Calcium, total	4.00	0.20	mg/L	4.00		100	80-120			
Chromium, total	0.0395	0.00050	mg/L	0.0400		99	80-120			
Cobalt, total	0.0393	0.00010	mg/L	0.0400		98	80-120			
Copper, total	0.0395	0.00040	mg/L	0.0400		99	80-120			
Iron, total	3.96	0.010	mg/L	4.00		99	80-120			
Lead, total	0.0394	0.00020	mg/L	0.0400		99	80-120			
Magnesium, total	3.90	0.010	mg/L	4.00		98	80-120			
Manganese, total	0.0398	0.00020	mg/L	0.0400		99	80-120			
Molybdenum, total	0.0393	0.00010	mg/L	0.0400		98	80-120			
Nickel, total	0.0392	0.00040	mg/L	0.0400		98	80-120			
Potassium, total	4.03	0.10	mg/L	4.00		101	80-120			
Selenium, total	0.382	0.00050	mg/L	0.400		96	80-120			
Sodium, total	3.97	0.10	mg/L	4.00		99	80-120			
Strontium, total	0.0398	0.0010	mg/L	0.0400		99	80-120			
Uranium, total	0.0394	0.000020	mg/L	0.0400		99	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Western Water Associates Ltd	**WORK ORDER**	25J1200
PROJECT	22-077-03VR	**REPORTED**	2025-10-15 11:43

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B5J3216, Continued										
LCS (B5J3216-BS1), Continued				Prepared: 2025-10-11, Analyzed: 2025-10-12						
Zinc, total	0.388	0.0040	mg/L	0.400		97	80-120			
Total Metals, Batch B5J3227										
Blank (B5J3227-BLK1)				Prepared: 2025-10-11, Analyzed: 2025-10-13						
Aluminum, total	< 0.0050	0.0050	mg/L							
Antimony, total	< 0.00020	0.00020	mg/L							
Arsenic, total	< 0.00050	0.00050	mg/L							
Barium, total	< 0.0050	0.0050	mg/L							
Boron, total	< 0.0500	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 (B5J3227-BS1)				Prepared: 2025-10-11, Analyzed: 2025-10-13						
Aluminum, total	3.93	0.0050	mg/L	4.00		98	80-120			
Antimony, total	0.0389	0.00020	mg/L	0.0400		97	80-120			
Arsenic, total	0.394	0.00050	mg/L	0.400		98	80-120			
Barium, total	0.0406	0.0050	mg/L	0.0400		102	80-120			
Boron, total	0.388	0.0500	mg/L	0.400		97	80-120			
Cadmium, total	0.0393	0.000010	mg/L	0.0400		98	80-120			
Calcium, total	4.02	0.20	mg/L	4.00		100	80-120			
Chromium, total	0.0401	0.00050	mg/L	0.0400		100	80-120			
Cobalt, total	0.0403	0.00010	mg/L	0.0400		101	80-120			
Copper, total	0.0396	0.00040	mg/L	0.0400		99	80-120			
Iron, total	4.01	0.010	mg/L	4.00		100	80-120			
Lead, total	0.0395	0.00020	mg/L	0.0400		99	80-120			
Magnesium, total	4.05	0.010	mg/L	4.00		101	80-120			
Manganese, total	0.0399	0.00020	mg/L	0.0400		100	80-120			
Molybdenum, total	0.0396	0.00010	mg/L	0.0400		99	80-120			
Nickel, total	0.0405	0.00040	mg/L	0.0400		101	80-120			
Potassium, total	3.87	0.10	mg/L	4.00		97	80-120			
Selenium, total	0.400	0.00050	mg/L	0.400		100	80-120			
Sodium, total	4.00	0.10	mg/L	4.00		100	80-120			
Strontium, total	0.0405	0.0010	mg/L	0.0400		101	80-120			
Uranium, total	0.0395	0.000020	mg/L	0.0400		99	80-120			
Zinc, total	0.397	0.0040	mg/L	0.400		99	80-120			

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Report# 8646
Filename 251008BFW1.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-10-07 3:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-10-08 2:38 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Sample Station Hwy 3B Sample # 2

Date/Time Sampled 2025-10-07 3:00 PM Matrix UGW Temperature on Receipt 9 °C

Date/Time on Test 2025-10-08 2:41 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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Report# 8647
Filename 251008BFW2.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

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Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8647
Filename 251008BFW2.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-10-07	3:00 PM	Matrix	USW		Temperature on Receipt	11 °C
Date/Time on Test	2025-10-08	2:41 PM					

Analyses	Result	Units	RDL
Coliforms, Total	488	CFU/100mL	1
Verified E.coli	60	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	42	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

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passmorelaboratory.ca

Report# 8696
Filename 251022BFW2.pdf

Client Beaver Falls Waterworks

Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-10-21 4:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-10-22 2:10 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant 1620 Scout Rd Sample # 2

Date/Time Sampled 2025-10-21 4:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-10-22 2:15 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

PASSMORE LABORATORY LTD.
4240 Passmore Upper Road, Winlaw BC, V0G2J0
250-226-7339
test@passmorelaboratory.ca
passmorelaboratory.ca

Report# 8739
Filename 251105BFW2.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8739
Filename 251105BFW2.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-11-04	4:00 PM	Matrix	USW		Temperature on Receipt	8 °C
Date/Time on Test	2025-11-05	12:05 PM					

Analyses	Result	Units	RDL
Coliforms, Total	361	CFU/100mL	1
Verified E.coli	10	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	4	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

PASSMORE LABORATORY LTD.
4240 Passmore Upper Road, Winlaw BC, V0G2J0
250-226-7339
test@passmorelaboratory.ca
passmorelaboratory.ca

Report# 8780
Filename 251119BFW1.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

ANALYTICAL RESULTS

Sample ID Well 2 Sample # 1

Date/Time Sampled 2025-11-18 1:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-11-19 2:00 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Sample ID Yard Hydrant 1620 Scout Rd Sample # 2

Date/Time Sampled 2025-11-18 1:00 PM Matrix UGW Temperature on Receipt 12 °C

Date/Time on Test 2025-11-19 2:05 PM

Analyses	Result	Units	RDL
Coliforms, Total	less than 1	CFU/100mL	1
Verified E.coli	less than 1	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

PASSMORE LABORATORY LTD.
4240 Passmore Upper Road, Winlaw BC, V0G2J0
250-226-7339
test@passmorelaboratory.ca
passmorelaboratory.ca

Report# 8781
Filename 251119BFW2.pdf

Client Beaver Falls Waterworks
Attention Wendy Settle

CERTIFICATE OF ANALYSIS

Analyses	Method Description	Reference
Total Coliforms	Membrane Filtration on LES Endo medium	APHA 9222B
E. coli	MF Partition on NA-MUG medium	APHA 9222I
Fecal Coliforms	Membrane Filtration on mFC medium	APHA 9222D

Tests were performed in accordance with methods outlined in the "Standard Methods for the Examination of Water and Wastewater", 24th Edition, published by the American Public Health Association.

Passmore Laboratory Ltd. complies with methods and certification through the Province of British Columbia Enhanced Water Quality Assurance (EWQA) Program and the Clinical Microbiology Proficiency Testing (CMPT) Program. Other analytical results on this report not listed above are not within the scope of the EWQA. Passmore Laboratory assumes no responsibility for any loss or damage resulting from error or omission in the conduct of testing. Liability is limited to the cost of the analysis.

Processed by: Terry Berg

Mechelle Babic,
Lab Manager

Please call or Email for with any questions, feedback, or more information

PASSMORE LABORATORY LTD.

Report# 8781
Filename 251119BFW2.pdf

ANALYTICAL RESULTS

Sample ID	Beaver Creek					Sample #	1
Date/Time Sampled	2025-11-18	1:00 PM	Matrix	USW		Temperature on Receipt	12 °C
Date/Time on Test	2025-11-19	1:10 PM					

Analyses	Result	Units	RDL
Coliforms, Total	251	CFU/100mL	1
Verified E.coli	25	CFU/100mL	1
Fecal (Thermotolerant) Coliforms	12	CFU/100mL	1

Glossary of Terms

Less than 1	Less than the Reportable Detection Limit, except under circumstances where the detection limit is higher due to interferences, insufficient sample volume, or dilutions.
APHA	American Public Health Association
CFU/100mL	Colony Forming Units per 100 milliliters
Matrix	SW = Surface water, TW =Treated water, DW= Distribution water, UGW = Untreated Ground water, RW = Raw water
RDL	Reportable Detection Limit

References

Appendix B
Hyperion Research Laboratory Reports

Beaver Falls Waterworks District
BFWD Level 3 GARP Study
WWAL Ref: 22-077-03VR

western water ASSOCIATES LTD

Hyperion Research Ltd.

1008 Allowance Ave. SE, Medicine Hat, AB T1A 3G8
Telephone (888) 529-0847 Fax (403) 5290852 hyperion@telusplanet.net
www.hyperionlab.ca

CALA Testing Accreditation No. A3538

To: **Ryan Rhodes**
Western Water Associates
1008 Kalamalka Lake Rd
Vernon BC
V1T 6V4
(205) 308-6160
ryan@westernwater.ca

Sample Date:	06-May-25
Sample Type:	Raw
Work Order No.	22-077-03
Volume Filtered (L):	250.8
Rec'd within 96h?:	Yes
Temp on arrival <20 °C?:	Yes
Conductivity (uS/cm):	291

Project:	22-077-03
Rainfall 24h (mm)	
Field pH:	7.49
Field Temp °C:	14.8
Field Turb (NTU)	0.05
Location:	Fruitvale BC

The methodology used to produce this report conforms to USEPA Method 1623 and/or the USEPA Consensus Method for the Microscopic Particulate Analysis. Based on the validation data, the method is fit for its intended use Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025 standard. These results apply to this sample as received only.

Raw Data

Primary Particulates	Total Count	#/380L (100 US gal)	Relative Risk Factor
Diatoms	0	0.0	0
Other Algae	0	0.0	0
Insect/larvae	0	0.0	0
Rotifers	0	0.0	0
Plant Debris	0	0.0	0
Giardia/Crypto	0	0.0	0

Sum of Relative Risk Factors = **0**

From the EPA Consensus Method:
Risk of Surface Water Contamination based on sum of Relative Risk Factors

0 to 9	Low Risk
10 to 19	Moderate Risk
20+	High Risk

Secondary Particulates	Total Count	#/380L (100 US gal)	
Nematodes	2	3.0	These particulates are sometimes found in groundwater and are not considered to add risk
Pollen	0	0.0	
Crustacea	0	0.0	
Unknown	0	0.0	

Minerals Observed: Iron, Silica, Clay

Giardia cysts/100L **0** ***Cryptosporidium oocysts/100L*** **0**

Spore Count Surface Water CFU/L: 9100

Spore Count Well Water CFU/L: 5

Processing Data

Date/Time Rec'd:	2025-05-08 10:05:00 AM
Sample Temp:	11.2
Lab ID:	65205
Filter Type	Filta-Max
Date/Time Conc:	2025-05-08 12:00:00 PM
Eluted By	GG/CW
IMS System	Dynabeads
IMS Lot No:	2934406
Pellet Vol (mL):	<0.1
Resusp Vol (uL):	100.0
MAb Conjugate:	EasyStainCY3
MAb Lot No:	C104G203
Control G:	4
Control C:	4
Date/Time Stained:	2025-05-09 11:15:00 AM
Stained By:	CW
Read By:	KW
Vol Used (uL):	100.0
Sample Equivalent Vol (L)	251

Recovery efficiencies for particles are known to be low by the Consensus method. Minimum recovery was measured to be 6.5 +/-1.2% for Giardia cysts, 0.5 +/-0.2% for Cryptosporidium oocysts and 4.2+/2.3% for Euglena (algae). The average recovery using the MPA-1623 Method is 58.2+/-4.4 for Giardia, 53.2+/-5.6 for Cryptosporidium and 23.1+/-6.5% for Diatoms.

Comments:
Sample contains 74 non-chlorophyll Algae with a variety of taxa represented that was not counted towards risk. Bever Creek contains Diatoma, Cyclotella, Euglena, Fraglaria, and Ciliates.

Analyst:

Peter M. Wallis, Ph.D.

Conclusion: Based on this sample, the risk of surface water contamination is judged to be: **Low**

Hyperion Research Ltd.

1008 Allowance Ave. SE, Medicine Hat, AB T1A 3G8
Telephone (888) 529-0847 Fax (403) 5290852 hyperion@telusplanet.net
www.hyperionlab.ca

CALA Testing Accreditation No. A3538

To: **Ryan Rhodes**
Western Water
1003 Kalamalka Lake Rd
Vernon BC
V1T 6V4
(250)-308-6160
ryan@westernwater.ca

Sample Date:	05-Aug-25
Sample Type:	Raw
Work Order No.	22-077-03
Volume Filtered (L):	239.4
Rec'd within 96h?:	Yes
Temp on arrival <20 °C?:	No
Conductivity (uS/cm):	382

Project:	22-077-03
Rainfall 24h (mm)	
Field pH:	8.13
Field Temp °C:	14.4
Field Turb (NTU)	0.68
Location:	Beaver Falls Well 2

The methodology used to produce this report conforms to USEPA Method 1623 and/or the USEPA Consensus Method for the Microscopic Particulate Analysis. Based on the validation data, the method is fit for its intended use Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025 standard. These results apply to this sample as received only.

Raw Data

Primary Particulates	Total Count	#/380L (100 US gal)	Relative Risk Factor
Diatoms	0	0.0	0
Other Algae	0	0.0	0
Insect/larvae	0	0.0	0
Rotifers	0	0.0	0
Plant Debris	0	0.0	0
Giardia/Crypto	0	0.0	0

Sum of Relative Risk Factors = **0**

From the EPA Consensus Method:
Risk of Surface Water Contamination based on sum of Relative Risk Factors

0 to 9	Low Risk
10 to 19	Moderate Risk
20+	High Risk

Secondary Particulates	Total Count	#/380L (100 US gal)	
Nematodes	2	3.2	These particulates are sometimes found in groundwater and are not considered to add risk
Pollen	1	1.6	
Crustacea	0	0.0	
Unknown	0	0.0	

Minerals Observed: iron floc, silica chips, clay sheets

Processing Data

Date/Time Rec'd:	2025-08-07 9:30:00 AM
Sample Temp:	21.2
Lab ID:	65571
Filter Type	Filta-Max
Date/Time Conc:	2025-08-07 11:00:00 AM
Eluted By	SK
IMS System	Dynabeads
IMS Lot No:	3129019
Pellet Vol (mL):	0.1
Resusp Vol (uL):	100.0
MAb Conjugate:	EasyStainCY3
MAb Lot No:	C104G203
Control G:	4
Control C:	4
Date/Time Stained:	2025-08-08 11:30:00 AM
Stained By:	SK
Read By:	KW
Vol Used (uL):	100.0
Sample Equivalent Vol (L)	239

Recovery efficiencies for particles are known to be low by the Consensus method. Minimum recovery was measured to be 6.5 +/-1.2% for Giardia cysts, 0.5 +/-0.2% for Cryptosporidium oocysts and 4.2+/2.3% for Euglena (algae). The average recovery using the MPA-1623 Method is 58.2+/-4.4 for Giardia, 53.2+/-5.6 for Cryptosporidium and 23.1+/-6.5% for Diatoms.

***Giardia cysts/100L* 0** ***Cryptosporidium oocysts/100L* 0**

Spore Count Surface Water CFU/L: 109200

Spore Count Well Water CFU/L: 0

Comments:
Beaver Creek contains Diatoma, Cyclotella, Cymbella, and Fragilaria. Well #2 has 1 non-chlorophyll Palmella observed but not counted towards risk.

Analyst:

Peter M. Wallis, Ph.D.

Conclusion: Based on this sample, the risk of surface water contamination is judged to be: **Low**

Hyperion Research Ltd.

1008 Allowance Ave. SE, Medicine Hat, AB T1A 3G8
Telephone (888) 529-0847 Fax (403) 5290852 hyperion@telusplanet.net
www.hyperionlab.ca

CALA Testing Accreditation No. A3538

To: **Ryan Rhodes**
Western Water Associates
1003 Kalamalka Lake Rd
Vernon BC
V1T 8G4
(205) 308-6160
ryan@westernwater.ca

Sample Date:	07-Oct-25
Sample Type:	Raw
Work Order/PO No.	
Volume Filtered (L):	254.6
Rec'd within 96h?:	Yes
Temp on arrival <20 °C?:	Yes
Conductivity (uS/cm):	330

Project:	22-077-03
Rainfall 24h (mm)	0
Field pH:	8.24
Field Temp °C:	11.9
Field Turb (NTU)	0.25
Location:	Beaver Falls Well #2

The methodology used to produce this report conforms to USEPA Method 1623 and/or the USEPA Consensus Method for the Microscopic Particulate Analysis. Based on the validation data, the method is fit for its intended use Hyperion Research Ltd. is accredited for this analysis by CALA under the ISO/IEC 17025 standard. These results apply to this sample as received only.

Raw Data

Primary Particulates	Total Count	#/380L (100 US gal)	Relative Risk Factor
Diatoms	0	0.0	0
Other Algae	0	0.0	0
Insect/larvae	0	0.0	0
Rotifers	0	0.0	0
Plant Debris	2	3.0	0
Giardia/Crypto	0	0.0	0

Sum of Relative Risk Factors = **0**

From the EPA Consensus Method:
Risk of Surface Water Contamination based on sum of Relative Risk Factors

0 to 9	Low Risk
10 to 19	Moderate Risk
20+	High Risk

Secondary Particulates	Total Count	#/380L (100 US gal)	
Nematodes	1	1.5	These particulates are sometimes found in groundwater and are not considered to add risk
Pollen	0	0.0	
Crustacea	0	0.0	
Unknown	0	0.0	

Minerals Observed: mineral complexes, iron, clay sheets

Giardia cysts/100L **0** ***Cryptosporidium oocysts/100L*** **0**

Spore Count Surface Water CFU/L: 11800

Spore Count Well Water CFU/L: 0

Processing Data

Date/Time Rec'd:	2025-10-10 10:50:00 AM
Sample Temp:	16.7
Lab ID:	65774
Filter Type	Filta-Max
Date/Time Conc:	2025-10-10 1:05:00 PM
Eluted By	CW
IMS System	Dynabeads
IMS Lot No:	3066884
Pellet Vol (mL):	0.1
Resusp Vol (uL):	100.0
MAb Conjugate:	EasyStainCY3
MAb Lot No:	C104G203
Control G:	4
Control C:	4
Date/Time Stained:	2025-10-14 11:40:00 AM
Stained By:	GG
Read By:	KW
Vol Used (uL):	100.0
Sample Equivalent Vol (L)	255

Recovery efficiencies for particles are known to be low by the Consensus method. Minimum recovery was measured to be 6.5 +/-1.2% for Giardia cysts, 0.5 +/-0.2% for Cryptosporidium oocysts and 4.2+/2.3% for Euglena (algae). The average recovery using the MPA-1623 Method is 58.2+/-4.4 for Giardia, 53.2+/-5.6 for Cryptosporidium and 23.1+/-6.5% for Diatoms.

Comments:
Surface water contains: Asterionella, Cyclotella Cymbella and Euglena. Sample contains a large amount of non-chlorophyll algae with a wide variety of taxa represented but not counted towards risk.

Analyst:

Peter M. Wallis, Ph.D.

Conclusion: Based on this sample, the risk of surface water contamination is judged to be: **Low**

Appendix C
Summary of Historical (2021-2025) Bacteriological Sampling Results

Beaver Falls Waterworks District
BFWD Level 3 GARP Study
WWAL Ref: 22-077-03VR

western water ASSOCIATES LTD

Table C1: Summary of BFWD Provided/Available Bacteriological Testing Results
Distribution System Samples

Date on Test	Sample Location	Total Coliforms (CFU/100mL)	E-Coli (CFU/100mL)
3-Mar-21	Hydrant 1	<1	<1
3-Mar-21	Hydrant 16	<1	<1
21-Apr-21	Hydrant 16	<1	<1
5-May-21	Hydrant 1	<1	<1
19-May-21	Hydrant 14	<1	<1
2-Jun-21	Hydrant 16	<1	<1
16-Jun-21	Hydrant 1	<1	<1
7-Jul-21	Hydrant 16	<1	<1
8-Sep-21	Hydrant 1	<1	<1
8-Sep-21	Hydrant 16	<1	<1
6-Apr-22	Hydrant 1	<1	<1
6-Apr-22	Hydrant 16	<1	<1
2-Nov-22	Hydrant 16	<1	<1
16-Nov-22	Hydrant 13	<1	<1
18-Jan-23	Hydrant 16	<1	<1
17-May-23	Hydrant 16	<1	<1
7-Jun-23	Hydrant 16	<1	<1
2-Jan-24	Hydrant 16	<1	<1
16-Jan-24	1041 Christie Rd	<1	<1
6-Feb-24	Hydrant 16	<1	<1
20-Feb-24	1091 Christie Rd	<1	<1
5-Mar-24	Hydrant 16	<1	<1
19-Mar-24	1664 Stang Rd	<1	<1
2-Apr-24	Hydrant 16	<1	<1
16-Apr-24	1041 Christie Rd	<1	<1
7-May-24	Hydrant 16	<1	<1
21-May-24	1041 Christie Rd	<1	<1
4-Jun-24	Hydrant 16	<1	<1
18-Jun-24	Stang Rd	<1	<1
2-Jul-24	1091 Christie Rd	<1	<1
16-Jul-24	1091 Christie Rd	<1	<1
6-Aug-24	1041 Christie Rd	**18**	<1
14-Aug-24	1041 Christie Rd	<1	<1
20-Aug-24	Hydrant 16	**2**	<1
3-Sep-24	1041 Christie Rd	<1	<1
17-Sep-24	Hydrant 1	<1	<1
1-Oct-24	1041 Christie Rd	**2**	<1
8-Oct-24	1041 Christie Rd	**5**	<1
15-Oct-24	Reservoir 1	<1	<1
15-Oct-24	Reservoir 2	**1**	<1
5-Nov-24	Sample Station Hwy 3B	<1	<1
19-Nov-24	Yard Hydrant PH1	<1	<1
3-Dec-24	Sample Station Hwy 3B	<1	<1
17-Dec-24	Yard hydrant @ pumphouse	<1	<1
7-Jan-25	Yard hydrant @ pumphouse	<1	<1
21-Jan-25	Sample Station Hwy 3B	<1	<1
18-Feb-25	Sample Station Hwy 3B	<1	<1
4-Mar-25	Yard Hydrant PH1	<1	<1
19-Mar-25	Sample Station Hwy 3B	<1	<1
1-Apr-25	Yard Hydrant 1620 Scout Rd	<1	<1
15-Apr-25	Sample Station Hwy 3B	<1	<1
20-May-25	Sample Station Hwy 3B	<1	<1
3-Jun-25	Yard Hydrant 1620 Scout Rd	<1	<1
17-Jun-25	Yard Hydrant 1620 Scout Rd	<1	<1
2-Jul-25	Yard Hydrant 1620 Scout Rd	<1	<1
15-Jul-25	Sample Station Hwy 3B	<1	<1
5-Aug-25	Yard Hydrant PH	<1	<1
19-Aug-25	Sample Station Hwy 3B	**2**	<1
2-Sep-25	Sample Station Hwy 3B	**1**	<1
2-Sep-25	Yard Hydrant PH	<1	<1
9-Sep-25	1524 Columbia Gard Rd	**1**	<1
9-Sep-25	Sample Station Hwy 3B	**1**	<1
19-Sep-25	Hydrant Columbia Gardens	<1	<1
19-Sep-25	Sample Station Hwy 3B	<1	<1
21-Oct-25	Yard Hydrant 1620 Scout Rd	<1	<1
4-Nov-25	Sample Station Hwy 3B	<1	<1

Table C1: Summary of BFWD Provided/Available Bacteriological Testing Results

Date on Test	Sample Location	Total Coliforms (CFU/100mL)	E-Coli (CFU/100mL)
Well 1 Samples			
3-Feb-21	Well 1	<1	<1
17-Feb-21	Well 1	<1	<1
17-Mar-21	Well 1	<1	<1
21-Jul-21	Well 1	<1	<1
22-Sep-21	Well 1	<1	<1
6-Oct-21	Well 1	<1	<1
3-Nov-21	Well 1	**1**	<1
17-Nov-21	Well 1	<1	<1
8-Dec-21	Well 1	<1	<1
22-Dec-21	Well 1	<1	<1
5-Jan-22	Well 1	<1	<1
2-Mar-22	Well 1	<1	<1
16-Mar-22	Well 1	<1	<1
4-May-22	Well 1	<1	<1
18-May-22	Well 1	<1	<1
8-Jun-22	Well 1	<1	<1
6-Jul-22	Well 1	<1	<1
17-Aug-22	Well 1	<1	<1
18-Aug-22	Well 1	<1	<1
20-Feb-24	Well 1	<1	<1
7-May-24	Well 1	<1	<1

Table C1: Summary of BFWD Provided/Available Bacteriological Testing Results

Date on Test	Sample Location	Total Coliforms (CFU/100mL)	E-Coli (CFU/100mL)
Well 2 Samples			
3-Feb-21	Well 2	<1	<1
17-Feb-21	Well 2	<1	<1
17-Mar-21	Well 2	<1	<1
21-Apr-21	Well 2	<1	<1
5-May-21	Well 2	<1	<1
19-May-21	Well 2	<1	<1
2-Jun-21	Well 2	<1	<1
16-Jun-21	Well 2	<1	<1
7-Jul-21	Well 2	<1	<1
21-Jul-21	Well 2	<1	<1
22-Sep-21	Well 2	<1	<1
6-Oct-21	Well 2	<1	<1
3-Nov-21	Well 2	<1	<1
17-Nov-21	Well 2	<1	<1
8-Dec-21	Well 2	<1	<1
22-Dec-21	Well 2	<1	<1
5-Jan-22	Well 2	<1	<1
2-Mar-22	Well 2	<1	<1
16-Mar-22	Well 2	<1	<1
4-May-22	Well 2	<1	<1
18-May-22	Well 2	<1	<1
8-Jun-22	Well 2	<1	<1
6-Jul-22	Well 2	<1	<1
17-Aug-22	Well 2	<1	<1
18-Aug-22	Well 2	<1	<1
2-Nov-22	Well 2	<1	<1
16-Nov-22	Well 2	<1	<1
18-Jan-23	Well 2	<1	<1
17-May-23	Well 2	<1	<1
7-Jun-23	Well 2	<1	<1
2-Jan-24	Well 2	<1	<1
16-Jan-24	Well 2	<1	<1
6-Feb-24	Well 2	<1	<1
5-Mar-24	Well 2	<1	<1
19-Mar-24	Well 2	<1	<1
2-Apr-24	Well 2	<1	<1
16-Apr-24	Well 2	<1	<1
21-May-24	Well 2	<1	<1
4-Jun-24	Well 2	<1	<1
18-Jun-24	Well 2	<1	<1
2-Jul-24	Well 2	<1	<1
16-Jul-24	Well 2	<1	<1
6-Aug-24	Well 2	**3**	<1
14-Aug-24	Well 2	<1	<1
20-Aug-24	Well 2	<1	<1
17-Sep-24	Well 2	<1	<1
1-Oct-24	Well 2	<1	<1
5-Nov-24	Well 2	<1	<1
19-Nov-24	Well 2	<1	<1
3-Dec-24	Well 2	<1	<1
17-Dec-24	Well 2	<1	<1
7-Jan-25	Well 2	<1	<1
21-Jan-25	Well 2	<1	<1
18-Feb-25	Well 2	<1	<1
4-Mar-25	Well 2	<1	<1
19-Mar-25	Well 2	<1	<1
1-Apr-25	Well 2	<1	<1
15-Apr-25	Well 2	<1	<1
6-May-25	Well 2	<1	<1
13-May-25	Well 2	<1	<1
20-May-25	Well 2	<1	<1
3-Jun-25	Well 2	<1	<1
17-Jun-25	Well 2	<1	<1
2-Jul-25	Well 2	<1	<1
15-Jul-25	Well 2	<1	<1
5-Aug-25	Well 2	<1	<1
5-Aug-25	Well 2	<1	<1
19-Aug-25	Well 2	<1	<1
2-Sep-25	Well 2	<1	<1
9-Sep-25	Well 2	<1	<1
19-Sep-25	Well 2	<1	<1
7-Oct-25	Well 2	<1	<1
7-Oct-25	Well 2	<1	<1
21-Oct-25	Well 2	<1	<1
4-Nov-25	Well 2	<1	<1
18-Nov-25	Well 2	<1	<1