Clearbrook Waterworks District
2021 Water Quality Report

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Cover image: New Reservoir B – photo was taken from inside the reservoir facing towards the sky (image courtesy: James Wiens).

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Foreword

We are pleased to offer our 2021 Water Quality Report to the stakeholders of the Clearbrook Waterworks District (CWD) which has been prepared in collaboration with our hydrogeological consultant, Dr. Ineke Kalwij of Kalwij Water Dynamics Inc. (KWD). The report includes contributions from James Wiens, CWP (CWD's Field Supervisor) and Ryan Federau, CWP (CWD's Water Quality Technician).

This report, submitted annually, is intended to update the rate payers about our water system and also to document the ongoing commitment by the CWD Board of Trustees and staff to maintain and deliver our high-quality, award-winning water from source to tap.

CWD's water system operators are highly-trained, skilled and diligent in their roles as stewards of your water system. All of CWD's operators are trained and certified through the Environmental Operator's Certification Program. Currently, we employ 3 Level II Water Distribution System Operators and 2 Operators-in-Training.

CWD complies with all provincial and federal regulations relating to the supply and delivery of potable water, while promoting responsible stewardship of our natural resource. We value our collaboration with Fraser Health Authority and their feedback. We remain committed to the protection of public health while ensuring an uninterrupted supply of drinking water to our rate payers.

To ensure the highest standards of Water Quality Management, CWD employs a holistic approach, utilizing proactive maintenance schedules, asset management practices and new technologies to achieve efficiencies in operation and to ensure the system (from our wells to our end points) is secure and safe from intrusion or contamination. We at CWD recognize the need for "due diligence and care" when it comes to managing and maintaining our production wells and our most important natural asset; the Abbotsford-Sumas Aquifer.

With water quality, consistency of operations and future growth in our District in mind, a new reservoir was placed online in December of 2021, thereby adding 4,500 m^3 of storage. Combined with the existing Reservoir C, our water system now has 9,050 m^3 of storage which is sufficient to sustain upcoming development and water demand well into the future.

On behalf of the Board of Trustees and the staff at CWD, I would like to extend our warmest thank you to our stakeholders for your support and interest in our operations. At CWD, our Mission Statement is simple; ***To provide superior water in sufficient quantity to the residents and businesses of the District and to ensure long-term sustainability of product and service.***

To that end, we believe that people are CWD's most valuable asset and water is its greatest resource. We remain committed to look after the former and safeguard the latter.

Respectfully submitted,

Jason Hildebrandt, CWP
Corporate Administrator

Units & Abbreviations

Units

Billion Litres	BL
Cubic metres	m^3
Hour(s)	hr(s)
Inch	in
Kilometres	km
Litres per second	L/s
Litres per capital per day	L/c/d
Metres	m
Millimetres	mm
Million Litres	ML
Milligrams per litre	mg/L
Minute	min
Percent	%
US gallons per minute	US gpm

Abbreviations

Advanced Metering Infrastructure	AMI
Aesthetic Objective	AO
Bacteriological Activity Reaction Test	BART
Clearbrook Waterworks District	CWD
Environmental Operators Certificate Program	EOCP
Fraser Health Authority	FHA
Heterotrophic Aerobic Bacteria	HAB
Iron Related Bacteria	IRB
Maximum Acceptable Concentration	MAC
Most Probable Number	MPN
Nephelometric Turbidity Units	NTU
Slime Forming Bacteria	SLYM
Sulphate Reducing Bacteria	SRB
Supervisory Control and Data Acquisition	SCADA

1. Introduction

This annual water quality report has been prepared for our rate payers and Fraser Health Authority (FHA) and summarizes pertinent water system and water quality information of Clearbrook Waterworks District (CWD). Our water system is in operation since 1954 (year of incorporation) and is supplied, through four production wells, by groundwater from the Abbotsford-Sumas Aquifer.

As per regulatory requirements, under the *Drinking Water Protection Act*[1], water purveyors are required to monitor the quality of water supply source(s), the water in the distribution system, and the water supplied to the end users. CWD is working in close collaboration with the Drinking Water Officers of FHA to ensure safe drinking water at all times. A message from the Fraser Health Authority, dated February 1, 2021, regarding metals in drinking water ("*Flush Message*") is included as **Appendix A**.

CWD's website provides information for the rate payers regarding: (i) the water system & history; (ii) water rates and (e-)billing; (iii) bylaws; (iv) selected documents (water quality reports, water system map, leak relief request forms), and (v) the schedule of Board meetings and Annual General Meeting. Rate payer may also submit water meter reading through an online portal on the website. CWD's website: https://www.clearbrookwaterworks.com.

For information about preventing water-borne infections for people with weakened immune systems:

https://www.healthlinkbc.ca/healthlinkbc-files/preventing-water-borne-infections-people-weakened-immune-systems

For a brief overview about the role of FHA in drinking water safety:

https://www.fraserhealth.ca/Service-Directory/Services/Health-Protection-Services/drinking-water-safety-program

In this report:

Section 2 of this report provides an overview of CWD's water system. **Section 3** provides an overview of CWD's groundwater monitoring program. **Section 4** summarizes selected work and projects completed in **2021** and projects planned for **2022**. **Section 5** provides information about our water quality assurance protocol and presents the annual report from CWD's water quality technician. **Section 6** presents information about the **2021** water quality analysis results as well as the results of the Bacteriological Activity Reaction Test (BART).

[1] https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/01009_01.

2. Water System Overview

The Water System

CWD's supply and distribution system provides potable water to residential dwellings and commercial buildings (1,406 connections as of the end of 2021), serving an estimated population of just over 10,000 people. The water system also provides water for fire flow requirements, and CWD is responsible for installing and maintaining the fire hydrants. The water system is fully metered. CWD is in the process of installing Advanced Metering Infrastructure (AMI) through the entire water system.

A combined length of an approximated 32 km of water mains distributes the water through the district. Water is distributed directly from the source (production wells) and from the reservoirs. The watermain pipe sizes vary between 150-mm (6-in) and 400-mm (16-in), and the reservoirs have a combined storage of 9,050 m^3. The new Reservoir B was placed online in December 2021.

CWD's operators are all EOCP-certified[2] Water Distribution System Operators Level 2 (three operators) and two Operators-in-Training.

IMAGE | PUMP STATION AT THE RESERVOIR SITE.

[2] Environmental Operators Certificate Program; for more information: http://eocp.ca.

Our Production Wells

The water system relies on four replacement production wells for water supply, located at our Lynden and Autumn Well Fields at Lynden Street and Autumn Avenue, respectively (with two production wells at each well field). All four production wells replace old well infrastructure and were constructed under CWD's Well Replacement Program (from 2010 to 2017).

IMAGE | AUTUMN WELL FIELD.

Supervisory Control and Data Acquisition

The Supervisory Control and Data Acquisition (SCADA) system CWD has in place is integral to CWD's operation and monitoring of the water system and our natural asset (i.e.: the aquifer). Through SCADA, CWD has real-time access to pertinent operation and monitoring aspects of the water system. Monitoring includes continuous data recording of flow information, water levels in wells, reservoir levels, water system pressure, and water temperature (reservoirs and wells). SCADA data analysis, completed by our hydrogeologist, provides essential information of our supply and distribution system. Also, through SCADA, alarm features are enabled, and CWD's system operators are notified instantaneously (through their hand-held devices) in case there is a problem with the system's operation or in case of unauthorized access.

Emergency Response Plan

CWD has a comprehensive Emergency Response Plan in place, approved by FHA. Furthermore, at each pump house (Lynden and Autumn well fields), fully functioning emergency chlorinators are installed. These chlorinators are solely used in the event of a water quality related emergency. CWD is also equipped with emergency water supply provisions, which will enable us to set up temporary mobile water supply stations in the event of an emergency. The idea is that no one should have to walk more than 500 metres to get access to potable water in the event of water system failure due to a catastrophic event.

IMAGE |FROM LEFT TO RIGHT: Jason Hildebrandt (Corporate Administrator, WDSO II), Cole O'Malley (O-I-T), James Wiens (Field Supervisor, WDSO II), Ryan Federau (Water Quality Technician, WDSO II), and Ryan Allen (O-I-T).

IMAGE | CLEARBROOK WATERWORKS DISTRICT OFFICE AND WORKS YARD AT THE RESERVOIR SITE.

Community Outreach

CWD organizes open houses on an annual basis, typically held in July or August. CWD started with this event as an opportunity for our stakeholders to informally meet with CWD staff and Board Members, and to learn more about the water system and groundwater. At the same time, vendors and consultants CWD works with are invited showcase latest technology and educational material. Unfortunately, due to COVID-19 Pandemic we were unable to host this event in 2020 and 2021, but we are happy to announce that there will be a combined **Open House** and **Annual General Meeting** held at the **Reservoir Site** (2889 Grandview Crescent) on *July 21, 2022*.

IMAGE | CWD ANNUAL OPEN HOUSE AT LYNDEN WELL FIELD.

3. Water Supply Source Monitoring

Our Aquifer

CWD's production wells extract water from the Abbotsford-Sumas Aquifer (**Figure 1**). This trans-boundary aquifer covers an area of approximately 161 km^2 and extends from the Fraser Valley into Whatcom County of Washington State, USA. It is an unconsolidated aquifer composed of sands and gravels (glacial outwash deposits). Although the aquifer is classified as an unconfined aquifer, some parts of the aquifer are confined. CWD production wells screen the aquifer at a location characterized by an overlaying confining layer. This confining layer of low permeability consists of silt and clay (also termed an *aquitard*). The presence of such *aquitard* is advantageous from an aquifer protection point of view as the aquitard forms a barrier to possible contamination introduced at the ground surface.

The aquifer is considered high-productive. The City of Abbotsford, CWD, and Fraser Valley Trout Hatchery are the major commercial groundwater users (of the Canadian portion of the aquifer). Furthermore, agriculture relies on the aquifer for water supply. There are also a significant number of domestic water supply wells extracting water from this aquifer. The Government of B.C. classifies the Abbotsford-Sumas Aquifer as a heavily developed and highly vulnerable aquifer. CWD has a wellhead and aquifer protection program in place to safeguard the groundwater resource.

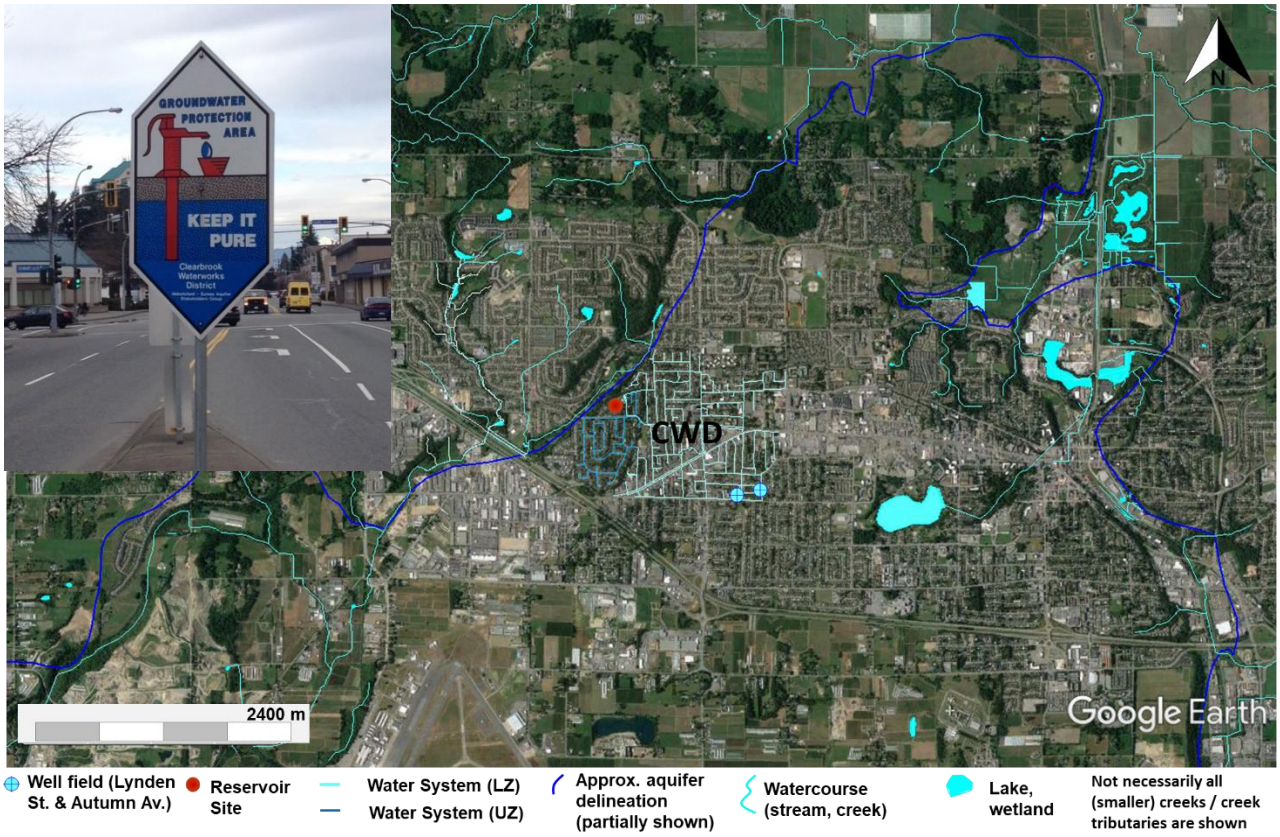

FIGURE 1 - Partial Delineation of the Abbotsford-Sumas Aquifer and CWD's Water System. Inset (Photograph): Clearbrook Waterworks District is a Designated Groundwater Projection Area.

Regarding Groundwater Licensing:

As required under the Provincial *Water Sustainability Act* (WSA)[3] and *Water Sustainability Regulation*[4] CWD has applied for an existing groundwater use license for their four production wells (submitted in January 2017). At present groundwater licence application is being processed by the Ministry of Forests (the Ministry responsible for issuing water authorizations).

Groundwater Monitoring

CWD has a comprehensive well and groundwater monitoring program in place for many years. Under this program, among other, collected data (recorded through SCADA) is analyzed to provide a meaningful interpretation of various data, some of which presented in this report.

Groundwater Withdrawal

CWD's production wells have been operating (in rotation) throughout 2021. **Figure 2** shows the monthly groundwater withdrawal for 2021. The figure shows the monthly volumetric contribution of each well. The total height of each bar reflects combined monthly groundwater withdrawal volume, also indicated by the red circular markers. For comparison purposes, the figure also shows total monthly groundwater withdrawal volumes of 2021 data (shown as a yellow circular markers). (The lines which connect markers in the figure have no meaning.)

Monthly water use was high in June - August (compared to 2020), exceeding 100,000 m^3 in each of those three months. This was likely a result of hotter-than-usual (and drier) weather condition, including the heat wave in June which peaked in British Columbia on June 28-29 in 2021. The combined withdrawal volume for the months June - August accounted for 31% of the total annual withdrawal volume.

2021 Groundwater Withdrawal Information and Related Statistics

- The annual total volume of combined withdrawal is 1,098,822 m^3 (1.1 BL).
- Combined average monthly withdrawal volume is 91,568 m^3 (91.6 ML).
- The combined average daily withdrawal volume is 3,010 m^3 (3.0 ML).
- The average pumping rate is 44.3 L/s (160 m^3/hr).
- The combined annual hours of well operation are 6,889 hrs (18.8 hrs per day)
- The combined annual energy cost for extracting water is $43,802 (4 ¢ per m^3)

[3] http://www.bclaws.ca/civix/document/id/complete/statreg/14015
[4] http://www.bclaws.ca/civix/document/id/complete/statreg/36_2016

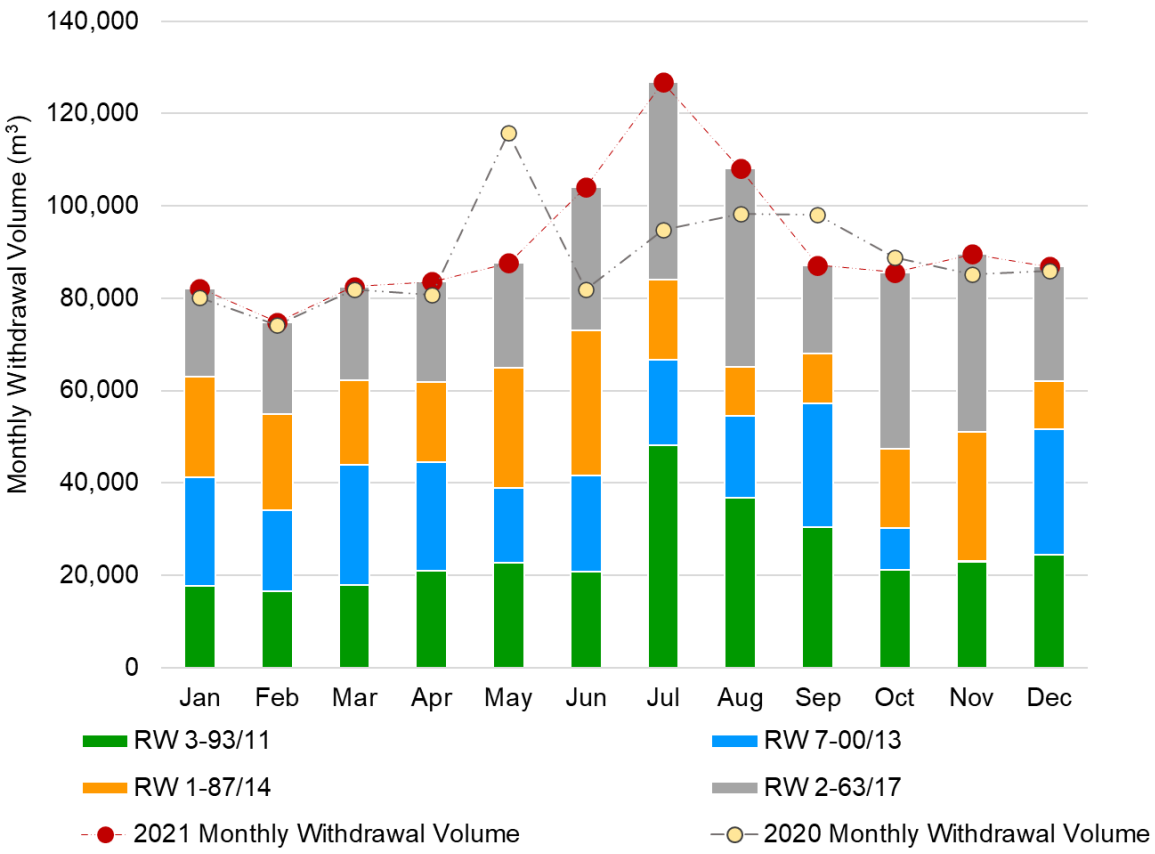

FIGURE 2 - **Monthly Groundwater Withdrawal Volumes (2021).**

Groundwater levels

CWD has a designated groundwater monitoring well, MW 6-59, at Lynden well field, connected to SCADA for continuous real-time recording of groundwater levels. The groundwater level (elevation) trend, shown in **Figure 3** (for years 2016 to 2021), provides valuable insight in the variation in groundwater levels seasonally, and between years, as observed at the designated monitoring well and representative for the local groundwater level. This is important information for safeguarding the sustainability of the aquifer.

The sine-shaped data series illustrate seasonal variation in groundwater levels within a year and between years. The observed trend suggests periods of (seasonal) **groundwater recharge** during which groundwater levels rise (indicated by the blue arrow in the figure) and periods during which the groundwater level declines (**groundwater discharge**), indicated by the red arrow in the figure. The figure illustrates variation in the amount of recharge and discharge between years. In 2021, there was a slightly negative balance suggesting that the groundwater decline (discharge) in 2021 (from early spring to late fall) was slightly more than the groundwater recharge during the (earlier) 2020/2021 winter season. In the previous year (2020), the groundwater discharge (from spring to fall) was less compared to the groundwater recharge during the 2019/2020 winter season.

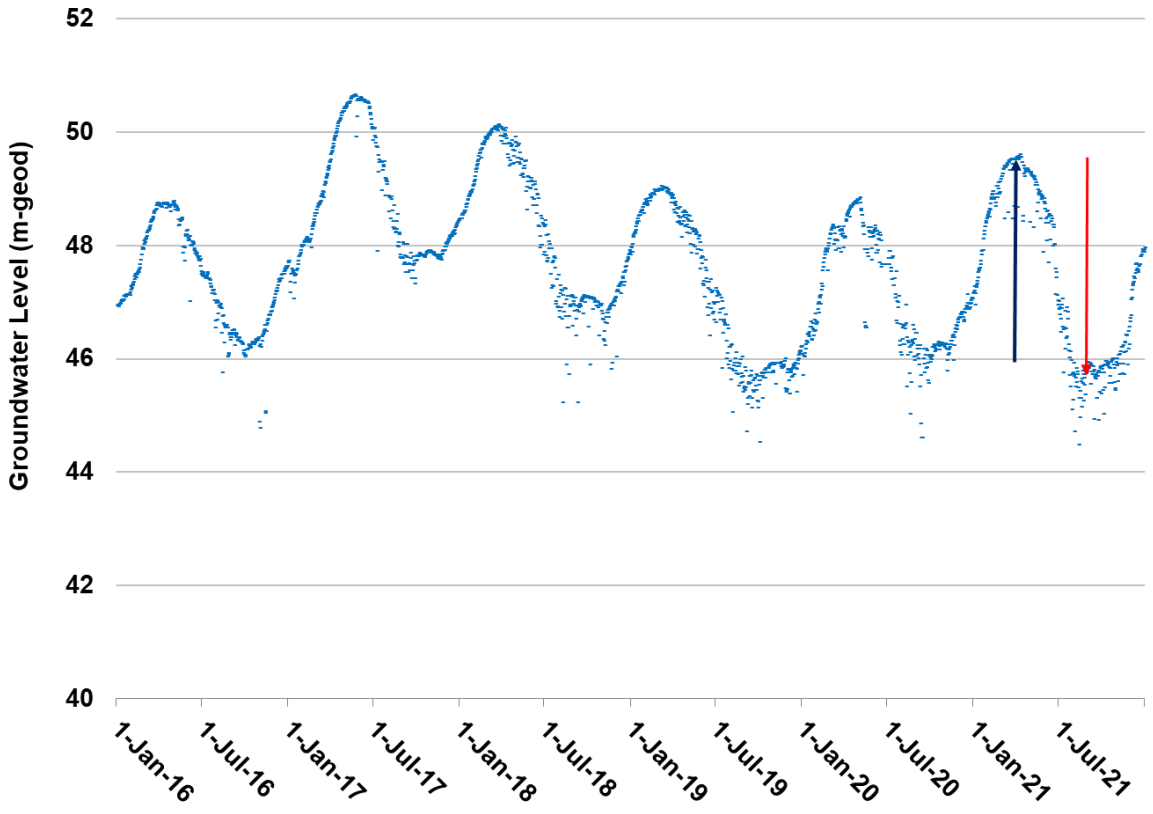

FIGURE 3 - Groundwater Level Trends Observed at CWD MW 6-59 (2016-2021).

4. Selected Work and Projects

Water System Maintenance

Water system maintenance is on-going throughout the year. The following is a list of selected maintenance work completed in 2021:

- Completion of some water system flushing in fall (145 hydrants were flushed).
- Leak detection: one leak was repaired in a water main; three leaks were repaired by CWD on service lines (on CWD's site).
- Following up on 588 work orders and addressing 196 BC 1 Call requests marking out infrastructure. CWD uses *Mobile311* for their asset maintenance and work order management.
- Three hydrants were replaced after being struck by a vehicle, and two hydrants were rebuilt after use by the Fire Department.
- Instrumentation checks (level transmitters) were completed for all production wells and the designated monitoring well.
- 67 meters were replaced.
- Ground maintenance of all CWD sites throughout the year.
- Various construction and improvement work at the reservoir site.

IMAGE | WATER SYSTEM FLUSHING IN PROGRESS.

Water Quality Monitoring

This is an on-going activity and is addressed in **Section 5** (Water Quality Assurance) and **Section 6** (Water Quality Review).

Work Pertaining to New Developments

- 21 Capital Expenditure Charges (CEC) were completed.
- 18 fire flow tests were completed for potential future developments and lot split developments.

Water Main Construction

The CWD field crew installed the high zone portion of the Palm Loop water main, which services four properties. CWD also installed water main at the reservoir site as part of Reservoir Replacement Project

IMAGE | (A) PALM LOOP WATER MAIN; (B) RESERVOIR SITE WATER MAIN INSTALLATION.

Submersible Pump and Motor Replacement for RW 7-00/13

RW 7-00/13 was temporarily placed off-line on October 21, 2021, as a result of the failure of the submersible pump. Fyfe Well & Water Services replaced the pump-motor assembly on November 30, 2021. RW 7-00/13 was placed back online on December 2, 2021. Earlier in the year, the level transmitter was replaced as the existing one stopped recording groundwater level data.

IMAGE | 75 HORSEPOWER SUBMERSIBLE PUMP-MOTOR ASSEMBLY.

Groundwater Monitoring & Well Assessments

Pertinent information is recorded through SCADA pertaining to the operations of the wells, groundwater levels and temperature and reservoir operation. In addition to the automatic recording of data through SCADA, field staff completes daily pump checks and manual groundwater readings on a bi-weekly basis for selected monitoring well locations.

Furthermore, under the guidance of KWD various tests are completed on the production wells pertaining to well hydraulic performance and pump / motor performance. Step-drawdown pumping tests (for assessing well hydraulic performance) and pump speed tests (submersible pump / motor performance) were completed for all four production wells.

These tests allow for a better understanding of possible changes in well and pumping system performance of time. This information is relevant to the timely scheduling of well maintenance (well rehabilitation) and replacement of the submersible pump and / or motor.

IMAGE | ONE OF CWD'S HIGH-CAPACITY PRODUCTION WELLS.

Capital Projects Completed in 2021

Reservoir Replacement Project

The project entails the replacement of the existing 2.26 ML Reservoir B with a 4.5 ML capacity reservoir. Onsite Engineering Ltd. provided the consulting engineering and design services. Reservoir construction was completed by Industra Construction Corp with structural design and inspection from DN Tanks Inc.

In December 2021 the construction of Reservoir B was completed and was placed online.

IMAGE | RESERVOIR B CONSTRUCTION IN PROGRESS.

IMAGE | RESERVOIR B CONSTRUCTION IN PROGRESS.

IMAGE | RESERVOIR B CONSTRUCTION IN PROGRESS.

IMAGE | RESERVOIR B WATER MAIN CONSTRUCTION.

RW 2-63/17 Well Maintenance

CWD has a comprehensive well maintenance program in place which entails the implementation of preventative well rehabilitation every 4 to 5 years for each production well (on a rotational basis). During such well rehabilitation specific measures are employed in order to 'clean' the well of any accumulated materials (e.g., mineral deposits and biomass) which causes clogging of the well screen openings (slots) which may impact well performance. Goals of a consistent and timely implementation of the preventative well maintenance program are to ensure the wells' productivity and longevity.

RW 2-63/17, located on Autumn Wells Field, has been operating successfully since being commissioned on November 9, 2017. This was the first preventative well rehabilitation scheduled for RW 2-63/17 after being in operation for just over 4 years (during with a volume of 1.2 Mm^3 has been withdrawn from this well). The preventative maintenance for RW 2-63/17 was completed in the week of December 6, 2021. The well rehabilitation was completed by Fyfe Well & Water Services.

The well rehabilitation procedure included the mechanical brushing of the interior of the well (with the well screen as primary focus) and a chemical (acid) treatment, targeting the well screen area, designed to loosen, dislodge and dissolve mineral incrustations accumulated on screen slots and possibly on geological formation (just) outside the well screen. The well rehabilitation was successfully completed, thereby removing observed mineral incrustations in the well screen section. This was confirmed by down-hole video inspections (completed before and after the well rehabilitation).

IMAGE | (A) WELL REHABILITATION IN PROGESS (WELL FLUSHING FOLLOWING A CHEMICAL TREATMENT).

Scheduled Capital Projects for 2022

The following projects are scheduled for 2022:

- **Water Main Upgrade**: Palm Loop lower Zone portion. This includes one new service from a 5-lot subdivision and 2 upgraded services for existing properties; previous 4 lots serviced off the Palm loop high zone piping. Approximately 135 m of 200 mm Bionax pipe. Driven from the Water Master Plan.
- **Water Main Upgrades through Developer contributions**: Water main upgrades along (i) Tims Street and Granite avenue (approximately 169 m of 250 mm Bionax pipe); and (ii) along Tims Street and Tims Avenue (approximately 160.38 m. of 250 mm Bionax pipe).
- **Advanced Metering Infrastructure (AMI):** Continuing with the installation of AMI meters throughout 2022. The plan is to have all existing water meters replaced with AMI by 2023.
- **Reservoir Site**: Reservoir valve kiosk and pump station bypass installation.
- **Reservoir C rehabilitation**: Includes the replacement of some of the interior works such as overflow pipe and brackets. To be replaced with PVC pipe and stainless steel brackets.

Scheduled Well Maintenance Project for 2022

The preventative maintenance for RW 7-00/13 is schedule for this year. This will be the second well rehabilitation since being commissioned in 2013; the first well rehabilitation was completed in 2017.

5. Water Quality Assurance

Water Quality Monitoring

Providing safe, reliable, and clean water to our rate payers remains CWD's key responsibility. We take pride in providing drinking water of the highest quality at a reasonable cost, thereby meeting water demand, complying with provincial regulations, and working responsibly to protect our aquifer.

According to *Section 15 (b) of the Drinking Water Protection Act*, a water supplier must make available to the public the results of the water quality monitoring, and, *in accordance with Section 11 of the Drinking Water Protection Regulation*[5], that this is done within 6 months of the end of the calendar year.

The Drinking Water Protection Regulation sets water quality standards for potable water (selected microbiological constituents in drinking water). The Drinking Water Act and Regulation are enforced for community water systems in British Columbia[6].

Therefore, as a water purveyor, we are required to have our water analyzed to confirm the absence of selected microbiological parameters by an accredited laboratory. This entails routinely (weekly) monitoring of our water supply and distribution system: CWD has 20 water sampling locations throughout the District, in addition to our four (4) production wells and two (2) reservoirs, which, on a rotating basis, are sampled and analyzed for microbiological parameters: *Total Coliforms* and *Escherichia coli (E. coli)*.

The results of the 2021 microbiological water quality samples submitted to the Center for Disease Control by FHA are included as **Appendix B**.

All of the 225 samples collected and processed from the designated sample stations, one reservoir and four production wells, showed absence of the tested microbiological parameters (Total Coliforms and Escherichia coli). Furthermore, in July 2021 and December 2021, CWD collected water samples from the source (i.e.: the production wells) and from the reservoirs. The water samples were submitted to an accredited water testing laboratory (Element, located in Surrey) for potability analysis (**Section 6**). In April and November, water samples were collected for the Bacteriological Activity Reaction Test (BART), completed for all four production wells.

[5] http://www.bclaws.ca/civix/document/id/loo71/loo71/10_200_2003
[6] Environmental health officers routinely inspect, sample and assess community water systems for compliance with the Drinking Water Protection Act and Regulation (www.fraserhealth.ca).

IMAGE | EXAMPLE OF ONE OF THE INSTALLED SAMPLE STATIONS.

Water Quality Technician's Report 2021

2021 was another interesting year for water quality, not without its own unique challenges. In February, we once again entered the Berkeley Springs drinking water contest, and although our samples actually arrived intact for once, we failed to place at all. Given our somewhat tumultuous relationship with this contest in recent years, we plan to sit out 2022 and review in 2023.

Field staff started a flushing program in spring, but were interrupted by required work on the replacement reservoir for B, as well as field operator Dave McWilliams leaving our staff to follow other pursuits. Unidirectional flushing began in late July, but was once again cut short by required reservoir upgrade work, and was not completed.

Samples were submitted to the British Columbia Center for Disease Control (BCCDC) on a weekly basis, and 232 such samples were supplied. In house sampling was performed weekly, as well as after several leaks, main repairs, a well rehabilitation, and a well pump replacement with 293 samples processed in our lab. Other data collected in house includes pH readings for wells (all wells but RW7-00/13 have realtime monitoring, plans are in place to complete the RW 7-00/13 pH monitor in 2022), turbidity for well samples, and Heterotrophic Plate Count (HPC) sample data.

Spring BART sampling took place in mid-April, with nothing particularly noteworthy observed. Fourth quarter BART sampling was started at the end of November, but due to reservoir flushing/filling, and scheduled well rehabilitation for RW 2-63/17, testing of 2 of the wells was postponed until late January, and results from that testing will be published in the 2022 Water Quality Report.

Towards the end of 2021, the physical construction of the new reservoir was completed, and after several attempts to achieve a sufficient chlorine residual, the reservoir and all associated piping and appurtenances passed bacteriological testing in accordance with AWWA standards C651 and C652 respectively. Following commissioning of the new reservoir, multiple samples were taken both from the reservoir itself, as well as throughout the distribution system to confirm that the water quality remained within our expected parameters.

Hopefully 2022 will allow a proper unidirectional flushing program, as there are no major capital projects planned. Assuming that the supply chain allows for it, the pH meter will be installed at RW 7-00/13, and daily data will continue to be collected for the other wells, as we continually build a better picture of how our system operates.

Ryan Federau, CWP

Water Quality

Clearbrook Waterworks District

6. Water Quality Review

Water Quality Review

Water samples were collected by CWD from the supply source (RW 3-93/11, RW 7-00/13, RW 1-87/14, RW 2-63/17), and Reservoir C[7] on July 9, 2021, and December 16, 2021. The water samples were analyzed by Element, an accredited laboratory located in Surrey B.C. **Table 1** summarizes the results of the water quality analysis, which are evaluated towards the most recent edition of the Canadian Drinking Water Guidelines (Health Canada 2020). The reports prepared by Element are included as **Appendix C**.

Results of the water analysis for the four replacement wells and the reservoirs suggest that the water quality meets the Canadian Drinking Water Guidelines requirements in terms of Maximum Acceptable Concentrations (MAC) and Aesthetic Objective (AO), with exception of:

- ✓ Manganese concentrations of 0.06 mg/L and 0.059 mg/L reported for the water samples collected from **RW 1-87/14** on July 19, 2021, and December 16, 2021, respectively: concentrations value exceeds the AO of 0.02 mg/L - *historically, **RW 1-87/14** shows a tendency toward elevated manganese concentration but has been always below* Maximum Acceptable Concentration (MAC)[8].

The Canadian Drinking Water Guidelines Summary Table (September 2020), available at https://www.canada.ca, provides information for the various analyzed water quality parameters pertaining to guideline limits, common sources (of the parameter), and health considerations.

Based on the reported results for the production wells:

- ✓ pH values range between 7.13 (**RW 7-00/13** – Dec 16) to 7.89 (**RW 1-87/14** – Jul 9) which suggests that the sampled water is overall basic (pH > 7.0) – pH = 7.0 is considered “pH neutral”.
- ✓ Water hardness (as $CaCO_3$)[9] ranges from 75 mg/L (**RW 7-00/13** – Dec 16) to 127 mg/L (**RW 1-87/14** – Dec 16) and suggests moderately hard water at all four production wells (Moderately hard water ranges from 60 mg/L to less than 120 mg/L.)
- ✓ Turbidity values were typically less than or equal to 0.10 NTU; reported value of 0.21 NTU for RW 2-63/17 (Jul 9) and 0.14 NTU for RW 7-00/13 (Jul 9).

Regarding turbidity: Health Canada has set water treatment limits regarding turbidity (not applicable to CWD’s water system)[10]. Even so, for good operation of the distribution system, it is recommended

[7] Water samples were collected and submitted to Element by Ryan Federau (CWD Water Quality Technician).
[8] Health (2020) has set AO and MAC guidelines for manganese.
[9] Hardness is evaluated based on the concentration of calcium carbonate ($CaCO_3$) because calcium (Ca^{+2}) and carbonate (CO_3^{-2}) are the dominant ions in most hard waters.
[10] Guidelines apply to individual filter turbidity for systems using surface water or groundwater under the direct influence of surface water (Health Canada 2019).

(for systems that use groundwater) that the water entering the distribution system has turbidity levels of 1.0 NTU or less (Health Canada 2020).

Water quality samples were also collected from two sample stations in the district (on December 16, 2021). The result reports are included in **Appendix C**. The water samples meet the Canadian Drinking Water Guidelines requirements.

Summary

- ✓ **Based on the results of the water quality analysis CWD's drinking water is safe and does not require any treatment.**
- ✓ **Based on the evaluation of hardness, CWD'S drinking water does not require any water softeners.**

Contact CWD office for any questions regarding the quality of our drinking water.

Clearbrook WATERWORKS DISTRICT

Table 1

Water Quality Results

Parameter	Units	Guideline Limit	Guideline Type	Analysis											
				Raw water											
Sample Description				RW 3-93/11	RW 7-00/13	RW 1-87/14	RW 2-63/17	RW 3-93/11	RW 7-00/13	RW 1-87/14	RW 2-63/17	Reservoir C	Reservoir C	2464 Sunnyside PL	32350 Diamond Cres
Well ID no.				22547	22547	22521	22521	22595	22595	23702	23702	-	-		
Sample date				Jul. 9, 2021	Jul. 9, 2021	Jul. 9, 2021	Jul. 9, 2021	Dec. 16, 2021	Dec. 16, 2021	Dec. 16, 2021	Dec. 16, 2021	Jul. 9, 2021	Dec. 16, 2021	Dec. 16, 2021	Dec. 16, 2021
Sample time				8:50 AM	9:02 AM	8:05 AM	8:28 AM	2:03 PM	2:15 PM	2:34 PM	2:22 PM	7:34 AM	1:31 PM	1:42 PM	1:55 PM
Lot ID (Exova)				1504852	1504852	1504852	1504852	1543351	1543351	1543351	1543351	1504852	1543351	1543351	1543351
Report number				2640018	2640018	2640018	2640018	2704858	2704858	2704858	2704858	2640018	2704858	2704858	2704858
Report date				Jul. 14, 2021	Jul. 14, 2021	Jul. 14, 2021	Jul. 14, 2021	Dec. 22, 2021	Dec. 22, 2021	Dec. 22, 2021	Dec. 22, 2021	Jul. 14, 2021	Dec. 22, 2021	Dec. 22, 2021	Dec. 22, 2021
Ref. number				1504852-3	1504852-4	1504852-1	1504852-2	1543351-3	1543351-4	1543351-1	1543351-2	1504852-5	1543351-5	1543351-6	1543351-7
Metals Extractable															
Aluminum	mg/L	0.1	OG	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.002	0.003
Antimony	mg/L	0.006	MAC	0.00003	0.00002	0.00012	0.00010	0.00004	0.00003	0.00010	0.00011	0.00008	0.00008	0.00010	0.00007
Arsenic	mg/L	0.010	MAC	0.0003	0.0003	0.0018	0.0008	0.0004	0.0003	0.0017	0.0009	0.0008	0.0007	0.0008	0.0006
Barium	mg/L	1	MAC	0.0064	0.0054	0.021	0.0120	0.0076	0.0061	0.025	0.015	0.013	0.012	0.012	0.011
Boron	mg/L	5	MAC	0.012	0.011	0.039	0.018	0.012	0.012	0.035	0.021	0.017	0.020	0.019	0.014
Cadmium	mg/L	0.005	MAC	0.00002	0.00002	0.00004	0.00002	0.00003	0.00002	0.00002	0.00002	0.00001	0.00001	0.00002	<0.00001
Chromium	mg/L	0.05	MAC	0.00016	0.00018	0.00005	0.00006	0.00014	0.00020	<0.00005	<0.00005	0.00010	0.00008	0.00011	0.00015
Copper	mg/L	1 AO; 2 MAC		0.0022	0.0014	<0.0005	<0.0005	0.0018	0.0016	<0.0005	<0.0005	<0.0005	<0.0005	0.0025	0.0032
Lead	mg/L	0.01	MAC	0.00011	0.00018	0.00003	<0.00001	0.00009	0.00016	<0.00001	0.00003	0.00001	0.00001	0.00026	0.00030
Selenium	mg/L	0.05	MAC	0.0003	<0.0002	<0.0002	0.0007	0.0004	0.0002	<0.0002	0.0006	0.0004	0.0005	0.0006	0.0003
Strontium	mg/L	7.0	MAC	0.11	0.096	0.093	0.080	0.14	0.11	0.11	0.100	0.11	0.11	0.11	0.11
Uranium	mg/L	0.02	MAC	0.00003	0.00001	0.00031	0.00008	0.00006	0.00001	0.00042	0.00015	0.00011	0.00010	0.00017	0.00005
Vanadium	mg/L			0.00018	0.00022	0.00024	0.00007	0.00034	0.00041	0.00037	0.00029	0.00023	0.00033	0.00045	0.00034
Zinc	mg/L	5.0	AO	0.038	0.014	0.0043	0.0011	0.0075	0.015	<0.0005	0.0015	0.0011	0.0006	0.0085	0.0051
Physical and Aggregate Properties															
Colour	Colour units	15	AO	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Turbidity	NTU	0.1	OG	<0.10	0.14	<0.10	0.21	<0.10	<0.10	0.10	<0.10	<0.10	<0.10	0.26	0.16
Routine Water															
pH	-	7.0-10.5		7.27	7.25	7.89	7.57	7.14	7.13	7.76	7.49	7.62	7.45	7.47	7.31
Electrical Conductivity	µS/cm at 25 °C			283	234	333	262	311	232	322	273	287	288	268	258
Calcium	mg/L			30	25	35	30	31	21	35	28	31	27	28	26
Iron	mg/L	0.3	AO	0.008	0.007	0.004	0.014	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Magnesium	mg/L			7.4	6.1	9.2	7.4	7.7	5.4	9.8	6.9	7.4	6.8	6.7	5.9
Manganese	mg/L	0.02 AO; 0.12 MAC		0.002	0.001	**0.060**	0.011	<0.001	<0.001	**0.059**	0.001	0.003	<0.001	<0.001	<0.001
Potassium	mg/L			1.7	1.3	3.1	2.0	1.6	1.1	3.1	1.8	2	1.6	1.7	1.4
Silicon				11	11	7.4	9.0	11	11	8.0	9.0	9.4	9.5	9.3	10
Sodium	mg/L	200	AO	11	7.9	20	9.7	10	6.9	17.0	9.9	11	9.6	9.6	8.2
T-Alkalinity	mg/L			50	41	126	75	51	40	130	79	72	68	71	56
Chloride	mg/L	250	AO	40.2	31.4	17.6	20.4	44.8	29.9	10.9	20.1	29.2	29.4	22.6	28.3
Fluoride	mg/L	1.5	MAC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	0.04	<0.01	<0.01	<0.01	<0.01
Nitrate - N	mg/L	10	MAC	2.41	2.63	0.01	1.30	2.09	2.50	0.01	1.02	1.59	1.50	1.24	2.00
Nitrite - N	mg/L	1	MAC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfate	mg/L	500	AO	16.8	14.5	22.1	21.7	18.7	15.1	22.0	22.5	19.7	21.0	21.4	17.7
Hardness	mg/L			106	88	126	104	110	75	127	97	107	96	98	89
Total Dissolved Solids	mg/L	500	AO	177	152	203	166	183	144	197	165	176	169	163	157
Langelier Index	-														
Saturation pH	pH														
Microbiology															
Total Coliform	MPN/ 100 mL	0 per 100 mL	MAC	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Escherichia coli			MAC	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Heterotrophic Count	MPN / mL	-		<2.0	2.0	<2.0	<2.0	<2.0	68.0	6.0	<2.0	<2.0	2.0	<2.0	12.0

MAC = Maximum Acceptable Concentration; AO = Aesthetic Objective; OG = Operator Guideline for Water Treatment Plants

mg/L = milligrams per litre

Orange = Exceeding AO

MPN = Most Probable Number

Biological Activity Reaction Test

BART is a method for analyzing several bacterial communities that can cause problems for water quality (e.g.: turbidity), aesthetics (e.g.: odour, discoloration, cloudiness) and water infrastructure (e.g.: corrosion). The following bacterial communities are analyzed twice a year (in spring and fall) for each production well:

- **Iron Related Bacteria** (IRB)
- **Sulphate Reducing Bacteria** (SRB)
- **Slime Forming Bacteria** (SLYM)
- **Heterotrophic Aerobic Bacteria** (HAB).

These four indicators are typically used for water supply wells in order to obtain insight into corrosion risk and/or well screen clogging risk (a quantitative diagnostic). High aggressivity of these bacteria could also suggest masking of coliform bacteria[11].

Table 2 summarizes the results using color coding in terms of level of aggressivity of evaluated bacteria for each well: *in the well* (time t = 1 min of pumping), *just outside the well screen* (t = 10 min of pumping), and in the *geological formation* (t = 60 min of pumping). We included orange color coding to reflect the borderline between medium and high aggressivity (applicable for IRB).

BART analysis shows that reactions occurred mostly for **IRB** and **HAB**. Typically, **IRB** was found to be either '**aggressive**' or the borderline of '**moderate and aggressive**'. **HAB** was found to be mostly low in aggressivity. For **SRB**, moderate and low aggressivity was observed for RW 1-87/14 (April 20, 2021, water sample, collected from the well and just outside the well screen). Moderate aggressivity of SLYM was found in the water samples collected from inside the well (April 2021 water samples).

Overall, and historically, IRB and HAB are the most common bacteria (microbes) identified during the tests (i.e.: show borderline or high aggressivity). Generally speaking, microbes are ever present in a well environment, and based on our long-term implementation of BART, the degree of aggressivity of the various bacterial communities varies over time for each of the wells.

BART results in combination with well hydraulic performance data and the interior condition of the well and well screen (i.e.: degree of plugging), observed during the completion of a downhole video inspections, determine well rehabilitation requirements (timing and approach).

[11] http://www.dbi.ca/BARTs/App-Guide.html

Table 2 BART Results (2021)

Tester	Sample Location			Sample Location		
	Well	Outside well screen	Formation	Well	Outside well screen	Formation
	RW 3-93/11 - Apr 13, 2021			RW 3-93/11 - Nov 30, 2021		
IRB						
SRB	-	-	-	-	-	-
SLYM		-	-	-	-	-
HAB						
	RW 7-00/13 - Apr 13, 2021			RW 7-00/13		
IRB				*BART was not completed in Fall*		
SRB	-	-	-			
SLYM		-	-			
HAB						
	RW 1-87/14 - Apr 20, 2021			RW 1-87/14 - Nov 30, 2021		
IRB			-	-		-
SRB			-	-	-	-
SLYM		-	-	-	-	-
HAB			-	-	-	-
	RW 2-63/17 - Apr 20, 2021			RW 2-63/17		
IRB				*BART was not completed in Fall*		
SRB	-	-	-			
SLYM		-	-			
HAB		-	-			

Key:

- High aggressive
- Borderline moderate- high aggressive
- Moderate aggressive
- Low aggressive
- No reaction

7. References

Health Canada. 1979. Hardness - Technical Document, February 1979 (reprinted 1995). Available at: http://www.hc-sc.gc.ca.

Health Canada. 2020. Guidelines for Canadian Drinking Water Quality. Summary table. Drinking Water Guidelines. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water of the Federal-Provincial-Territorial Committee on Health and the Environment. Available at http://www.hc-sc.gc.ca (most recent update of on-line version: September 2020).

Appendices

Appendix A

Metals in Drinking Water “Flush” Message from Fraser Health Authority

fraserhealth Better health. Best in health care.

February 1, 2022

Water System Operators

Re: Metals in Drinking Water – "Flush" Message in Annual Reports

Fraser Health has recently revised its metals at the tap "Flush" message and we are asking all water systems to please include the following health message with your next annual reports to your users.

Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until you notice a change in temperature. (This could take as little as five to thirty seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take two minutes or longer.) The more time water has been sitting in your home's pipes, the more lead it may contain.

Use only water from the cold-tap for drinking, cooking, and especially making baby formula. Hot water is likely to contain higher levels of lead.

The two actions recommended above are very important to the health of your family. They will probably be effective in reducing lead levels because most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

Conserving water is still important. Rather than just running the water down the drain you could use the water for things such as watering your plants.

If you have any questions, please contact our Drinking Water Program at 604-870-7903.

Sincerely,

Drinking Water Program
Fraser Health Authority
HPLand@fraserhealth.ca

Appendix B

Sample Range Report (Fraser Health Authority)

Sample Range Report

Fraser Health Authority

Facility Name: RW 3-93
Date Range: Jan 1 2021 to Dec 31 2021

Operator

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
RW 3-93, Lynden St				
	2-1-2021 5:41:00 PM	LT1	LT1	
	6-7-2021 8:49:00 AM	LT1	LT1	
	10-4-2021 9:48:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	0	0.00% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	0	
Number of samples that contain total coliform in last 30 days:	0/0	
Total number of samples:	3	

Comments:

_____
Environmental Health Officer
Jun 6 2022

FOR FURTHER INFORMATION PLEASE CALL: David Fowler

Sample Range Report

Fraser Health Authority

Facility Name: Well # 7-00
Date Range: Jan 1 2021 to Dec 31 2021

Operator

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
Well RW 7 - 00/13, Lynden St				
	4-6-2021 9:28:00 AM	LT1	LT1	
	8-3-2021 9:53:00 AM	LT1	LT1	
	12-7-2021 10:00:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	0	0.00% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	0	
Number of samples that contain total coliform in last 30 days:	0/0	
Total number of samples:	3	

Comments:

_____
Environmental Health Officer
Jun 6 2022

FOR FURTHER INFORMATION PLEASE CALL: David Fowler

Sample Range Report

Fraser Health Authority

Facility Name: RW 1-87-14
Date Range: Jan 1 2021 to Dec 31 2021

Operator

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
RW 1-87-14, Autumn Ave				
	1-4-2021 9:25:00 AM	LT1	LT1	
	5-3-2021 10:45:00 AM	LT1	LT1	
	9-7-2021 8:08:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	0	0.00% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	0	
Number of samples that contain total coliform in last 30 days:	0/0	
Total number of samples:	3	

Comments:

_____
Environmental Health Officer
Jun 6 2022

FOR FURTHER INFORMATION PLEASE CALL: David Fowler

Sample Range Report

Fraser Health Authority

Facility Name: Well # 2-63
Date Range: Jan 1 2021 to Dec 31 2021

Operator

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
Well RW 2 - 63 , Autumn Ave				
	3-1-2021 8:27:00 AM	LT1	LT1	
	7-6-2021 12:33:00 PM	LT1	LT1	
	11-2-2021 8:09:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	0	0.00% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	0	
Number of samples that contain total coliform in last 30 days:	0/0	
Total number of samples:	3	

Comments:

_____
Environmental Health Officer
Jun 6 2022

FOR FURTHER INFORMATION PLEASE CALL: David Fowler

Sample Range Report

Fraser Health Authority

Facility Name: Clearbrook Waterworks District
Date Range: Jan 1 2021 to Dec 31 2021

Operator

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
31419 Springhill Court, 31419 Springhill Court				
	1-25-2021 8:19:00 AM	LT1	LT1	
	2-22-2021 9:36:00 AM	LT1	LT1	
	4-6-2021 8:46:00 AM	LT1	LT1	
	5-17-2021 8:21:00 AM	LT1	LT1	
	6-28-2021 9:18:00 AM	LT1	LT1	
	8-9-2021 8:36:00 AM	LT1	LT1	
	9-20-2021 7:59:00 AM	LT1	LT1	
	11-2-2021 7:51:00 AM	LT1	LT1	
	12-13-2021 8:52:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2940 Clearbrook Rd.(Bible Col), 2940 Clearbrook Road				
	1-4-2021 8:56:00 AM	LT1	LT1	
	2-8-2021 8:32:00 AM	LT1	LT1	
	3-15-2021 8:26:00 AM	LT1	LT1	
	4-12-2021 8:38:00 AM	LT1	LT1	
	5-17-2021 8:43:00 AM	LT1	LT1	
	6-21-2021 9:05:00 AM	LT1	LT1	
	7-19-2021 9:15:00 AM	LT1	LT1	
	8-24-2021 9:09:00	LT1	LT1	

	AM			
	9-27-2021 9:42:00 AM	LT1	LT1	
	10-25-2021 8:13:00 AM	LT1	LT1	
	11-29-2021 8:39:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
3089 Claudia Court, 3089 Claudia Court				
	1-4-2021 8:48:00 AM	LT1	LT1	
	2-1-2021 8:54:00 AM	LT1	LT1	
	3-8-2021 8:34:00 AM	LT1	LT1	
	4-12-2021 8:30:00 AM	LT1 GTR200	LT1 GTR200	
	5-10-2021 7:49:00 AM	LT1	LT1	
	5-25-2021 7:35:00 AM	LT1	LT1	
	6-14-2021 8:35:00 AM	LT1	LT1	
	7-19-2021 9:22:00 AM	LT1	LT1	
	8-16-2021 8:43:00 AM	LT1	LT1	
	9-20-2021 8:19:00 AM	LT1	LT1	
	10-25-2021 8:04:00 AM	LT1	LT1	
	11-22-2021 8:17:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2889 Upland Cres, 2889 Upland Cres				
	1-4-2021 8:41:00 AM	LT1	LT1	
	2-16-2021 7:20:00 AM	LT1	LT1	
	3-30-2021 7:49:00 AM	LT1	LT1	
	5-10-2021 7:41:00 AM	LT1	LT1	
	6-21-2021 8:45:00 AM	LT1	LT1	
	8-3-2021 9:05:00 AM	LT1	LT1	
	9-13-2021 7:45:00 AM	LT1	LT1	
	10-25-2021 7:56:00	LT1	LT1	

	AM			
	12-7-2021 9:06:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2459 Centre Street (at United Rentals), 2459 Centre Street (at United Rentals)				
	1-4-2021 9:38:00 AM	LT1	LT1	
	2-16-2021 7:42:00 AM	LT1	LT1	
	3-8-2021 8:24:00 AM	LT1	LT1	
	4-12-2021 8:18:00 AM	LT1	LT1	
	5-17-2021 8:32:00 AM	LT1	LT1	
	6-14-2021 8:52:00 AM	LT1	LT1	
	7-19-2021 9:04:00 AM	LT1	LT1	
	8-24-2021 8:51:00 AM	LT1	LT1	
	9-20-2021 8:08:00 AM	LT1	LT1	
	10-25-2021 8:27:00 AM	LT1	LT1	
	11-29-2021 8:29:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
32171 South Fraser Way (Petro Canada), 32171 South Fraser Way (Petro Canada)				
	1-25-2021 8:37:00 AM	LT1	LT1	
	3-8-2021 8:43:00 AM	LT1	LT1	
	4-6-2021 9:11:00 AM	LT1	LT1	
	5-3-2021 10:07:00 AM	LT1	LT1	
	6-14-2021 8:44:00 AM	LT1	LT1	
	7-12-2021 11:38:00 AM	QRWRT	QRWRT	
	8-9-2021 8:58:00 AM	LT1	LT1	
	9-13-2021 8:12:00 AM	LT1	LT1	

	10-18-2021 9:00:00 AM	LT1	LT1	
	11-15-2021 8:35:00 AM	LT1	LT1	
	12-20-2021 8:20:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2749 Braeside Street, 2749 Braeside Street				
	2-1-2021 8:03:00 AM	LT1	LT1	
	3-1-2021 8:49:00 AM	LT1	LT1	
	4-12-2021 8:09:00 AM	LT1	LT1	
	5-25-2021 7:54:00 AM	LT1	LT1	
	7-6-2021 12:07:00 PM	LT1	LT1	
	8-16-2021 8:22:00 AM	LT1	LT1	
	9-27-2021 9:20:00 AM	LT1	LT1	
	11-9-2021 8:28:00 AM	LT1	LT1	
	12-20-2021 7:56:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
Reservoir C (1985), 2889 Grandview Cres				
	1-4-2021 8:36:00 AM	LT1	LT1	
	2-1-2021 7:55:00 AM	LT1	LT1	
	3-1-2021 8:01:00 AM	LT1	LT1	
	4-6-2021 8:34:00 AM	LT1	LT1	
	5-3-2021 10:53:00 AM	LT1	LT1	
	6-7-2021 9:21:00 AM	LT1	LT1	
	7-6-2021 11:52:00 AM	LT1	LT1	
	8-3-2021 10:30:00 AM	LT1	LT1	
	9-7-2021 9:02:00 AM	LT1	LT1	
	10-4-2021 8:57:00 AM	LT1	LT1	

	11-2-2021 8:43:00 AM	LT1	LT1	
	12-7-2021 8:59:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2903 Palm Crescent, 2903 Palm Crescent				
	1-25-2021 8:00:00 AM	LT1	LT1	
	2-22-2021 9:27:00 AM	LT1	LT1	
	3-30-2021 7:57:00 AM	LT1	LT1	
	5-3-2021 9:44:00 AM	LT1	LT1	
	6-1-2021 8:09:00 AM	QRWRT	QRWRT	
	7-6-2021 11:59:00 AM	LT1	LT1	
	8-9-2021 9:10:00 AM	LT1	LT1	
	9-7-2021 8:49:00 AM	LT1	LT1	
	10-12-2021 8:04:00 AM	LT1	LT1	
	11-15-2021 8:01:00 AM	LT1	LT1	
	12-13-2021 8:15:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2464 Sunnyside Place, 2464 Sunnyside Place				
	1-11-2021 8:17:00 AM	LT1	LT1	
	3-15-2021 8:15:00 AM	LT1	LT1	
	4-26-2021 8:08:00 AM	LT1	LT1	
	6-7-2021 9:31:00 AM	LT1	LT1	
	7-19-2021 8:56:00 AM	LT1	LT1	
	8-30-2021 8:43:00 AM	LT1	LT1	
	10-12-2021 7:55:00 AM	LT1	LT1	
	11-22-2021 7:48:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**

2664 Albert Way, 2664 Albert Way				
	1-18-2021 8:32:00 AM	LT1	LT1	
	3-8-2021 8:13:00 AM	LT1	LT1	
	4-19-2021 8:10:00 AM	LT1	LT1	
	5-31-2021 8:18:00 AM	QRWRT	QRWRT	
	7-12-2021 11:11:00 AM	QRWRT	QRWRT	
	8-24-2021 8:59:00 AM	LT1	LT1	
	10-4-2021 11:03:00 AM	LT1	LT1	
	11-15-2021 8:13:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2577 Victoria Street, 2577 Victoria St				
	1-11-2021 8:08:00 AM	LT1	LT1	
	2-16-2021 7:34:00 AM	LT1	LT1	
	3-22-2021 8:03:00 AM	LT1	LT1	
	4-19-2021 8:23:00 AM	LT1	LT1	
	5-25-2021 7:47:00 AM	LT1	LT1	
	6-28-2021 9:34:00 AM	LT1	LT1	
	7-26-2021 11:10:00 AM	LT1	LT1	
	8-30-2021 8:52:00 AM	LT1	LT1	
	10-4-2021 10:01:00 AM	LT1	LT1	
	11-2-2021 8:00:00 AM	LT1	LT1	
	12-7-2021 9:19:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
31898 Royal Crescent, 31898 Royal Crescent				
	2-1-2021 9:01:00 AM	LT1	LT1	
	3-1-2021 8:56:00 AM	LT1	LT1	
	4-6-2021 8:55:00	LT1	LT1	

	AM			
	5-10-2021 7:57:00 AM	LT1	LT1	
	6-7-2021 9:41:00 AM	LT1	LT1	
	7-12-2021 11:21:00 AM	QRWRT	QRWRT	
	8-16-2021 8:36:00 AM	LT1	LT1	
	9-13-2021 7:55:00 AM	LT1	LT1	
	10-18-2021 8:44:00 AM	LT1	LT1	
	11-22-2021 8:11:00 AM	LT1	LT1	
	12-20-2021 8:08:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
32073 Mt Waddington Ave, 32073 Mt Waddington Ave				
	1-18-2021 9:05:00 AM	LT1	LT1	
	2-22-2021 9:19:00 AM	LT1	LT1	
	3-30-2021 8:06:00 AM	LT1	LT1	
	4-26-2021 8:39:00 AM	LT1	LT1	
	5-31-2021 8:24:00 AM	QRWRT	QRWRT	
	7-6-2021 12:14:00 PM	LT1	LT1	
	8-3-2021 9:24:00 AM	LT1	LT1	
	9-7-2021 8:27:00 AM	LT1	LT1	
	10-12-2021 8:24:00 AM	LT1	LT1	
	11-9-2021 9:04:00 AM	LT1	LT1	
	12-13-2021 8:25:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2425 Lynden Street, 2425 Lynden Street				
	1-25-2021 8:30:00 AM	LT1	LT1	
	3-1-2021 8:36:00 AM	LT1	LT1	
	3-30-2021 8:16:00	LT1	LT1	

	AM			
	4-19-2021 8:33:00 AM	LT1	LT1	
	5-3-2021 10:25:00 AM	LT1	LT1	
	6-7-2021 8:40:00 AM	LT1	LT1	
	7-6-2021 12:24:00 PM	LT1	LT1	
	8-9-2021 8:48:00 AM	LT1	LT1	
	9-13-2021 8:21:00 AM	LT1	LT1	
	10-12-2021 8:16:00 AM	LT1	LT1	
	11-15-2021 8:28:00 AM	LT1	LT1	
	12-20-2021 8:32:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
32350 Diamond Cres, 32350 Diamond Cres				
	1-11-2021 8:30:00 AM	LT1	LT1	
	2-8-2021 8:40:00 AM	LT1	LT1	
	3-15-2021 8:33:00 AM	LT1	LT1	
	4-19-2021 8:43:00 AM	LT1	LT1	
	5-17-2021 8:50:00 AM	LT1	LT1	
	6-21-2021 9:15:00 AM	LT1	LT1	
	7-26-2021 11:28:00 AM	LT1	LT1	
	8-24-2021 9:16:00 AM	LT1	LT1	
	9-27-2021 9:55:00 AM	LT1	LT1	
	11-2-2021 8:53:00 AM	LT1	LT1	
	11-29-2021 8:30:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2580 Langdon St - East end of driveway, 2580 Langdon St - East end of driveway				
	1-18-2021 8:56:00	LT1	LT1	

	AM			
	2-22-2021 9:47:00 AM	LT1	LT1	
	3-22-2021 8:16:00 AM	LT1	LT1	
	4-26-2021 8:28:00 AM	LT1	LT1	
	5-31-2021 8:44:00 AM	QRWRT	QRWRT	
	6-21-2021 8:55:00 AM	LT1	LT1	
	6-28-2021 10:05:00 AM	LT1	LT1	
	8-3-2021 9:35:00 AM	LT1	LT1	
	9-7-2021 8:18:00 AM	LT1	LT1	
	10-4-2021 9:25:00 AM	LT1	LT1	
	11-9-2021 9:11:00 AM	LT1	LT1	
	12-13-2021 8:35:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2743 Moorland St, 2743 Moorland St				
	2-8-2021 8:17:00 AM	LT1	LT1	
	3-22-2021 7:53:00 AM	LT1 GTR200	LT1 GTR200	
	5-3-2021 7:57:00 AM	LT1	LT1	
	6-14-2021 8:25:00 AM	LT1	LT1	
	7-26-2021 11:00:00 AM	LT1	LT1	
	9-7-2021 8:39:00 AM	LT1	LT1	
	10-18-2021 8:33:00 AM	LT1	LT1	
	11-29-2021 8:17:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
31894 Duchess Ave, 31894 Duchess Ave				
	1-18-2021 8:46:00 AM	LT1	LT1	
	2-16-2021 7:27:00 AM	LT1	LT1	
	3-22-2021 8:09:00 AM	LT1	LT1	
	4-26-2021 8:17:00	LT1	LT1	

	AM			
	5-25-2021 7:42:00 AM	LT1	LT1	
	6-28-2021 9:27:00 AM	LT1	LT1	
	8-3-2021 9:15:00 AM	LT1	LT1	
	8-30-2021 8:59:00 AM	LT1	LT1	
	10-4-2021 9:13:00 AM	LT1	LT1	
	11-9-2021 8:35:00 AM	LT1	LT1	
	12-7-2021 9:13:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
32138 George Ferguson Way, 32138 George Ferguson Way				
	2-1-2021 9:12:00 AM	LT1	LT1	
	3-1-2021 9:04:00 AM	LT1	LT1	
	4-6-2021 9:03:00 AM	LT1	LT1	
	5-10-2021 8:05:00 AM	LT1	LT1	
	6-7-2021 9:50:00 AM	LT1	LT1	
	7-12-2021 11:30:00 AM	QRWRT	QRWRT	
	8-16-2021 9:00:00 AM	LT1	LT1	
	9-20-2021 8:30:00 AM	LT1	LT1	
	10-18-2021 8:52:00 AM	LT1	LT1	
	11-22-2021 8:27:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**
2548 Clearbrook Rd., 2548 Clearbrook Rd.				
	7-26-2021 11:19:00 AM	LT1	LT1	
	8-30-2021 9:08:00 AM	LT1	LT1	
	9-27-2021 9:35:00 AM	LT1	LT1	
	11-2-2021 8:17:00 AM	LT1	LT1	

	12-7-2021 9:28:00 AM	LT1	LT1	
	Total Positive:	**0**	**0**	**0**

Result Values: **E - estimated** **L - less than** **G - greater than**

Samples that contain total coliform:	0	0.00% of total
Samples that contain e. coli:	0	0.00% of total
Samples that contain fecal coliform:	0	0.00% of total
Number of consecutive samples that contain total coliform:	0	
Number of samples that contain total coliform in last 30 days:	0/0	
Total number of samples:	213	

Comments:

_____
Environmental Health Officer
Jun 6 2022

FOR FURTHER INFORMATION PLEASE CALL: David Fowler

Appendix C

Water Quality Reports – Routine Water Quality Analysis

July 2021 Water Quality Reports

Element
#104, 19575-55 A Ave.
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Report Transmission Cover Page

Bill To: Clearbrook Waterworks District
2889 Grandview Crescent
Abbotsford, BC, Canada
V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Contact	Company	Address
Accounts Payable	**Clearbrook Waterworks District**	2889 Grandview Crescent Abbotsford, BC V2T 2R6 Phone: (604) 850-6621 Fax: (604) 850-7862 Email: office@clearbrookwaterworks.com

Delivery	Format	Deliverables
Email - Single Report	PDF	Invoice

Contact	Company	Address
Ineke Kalwij	**Kalwij Water Dynamics Inc**	P.O. Box 684 Station Main Port Coquitlam, BC V3B 6H9 Phone: (604) 615-4932 Fax: (604) 475-4062 Email: ineke@kalwijwaterdynamics.com

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA

Contact	Company	Address
Ryan Federau	**Clearbrook Waterworks District**	2889 Grandview Crescent Abbotsford, BC V2T 2R6 Phone: (604) 309-3986 Fax: (604) 850-7862 Email: ryan@clearbrookwaterworks.com

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	COR

Notes To Clients:

- Jul 14, 2021 - Sample 1504852-3; 7554842: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1504852-3. Detection limits are adjusted accordingly.
- Jul 14, 2021 - Sample 1504852-4; 7554843: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1504852-4. Detection limits are adjusted accordingly.
- Jul 14, 2021 - The analysis of water samples 1504852-1 to -5 are below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality for the parameters tested.

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Analytical Report

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Abbotsford, BC, Canada
V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-1
Sample Date	July 09, 2021
Sample Time	08:05
Sample Location	
Sample Description	RW 1-87/14 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1	Below OG
Antimony	Extractable	mg/L	0.00012	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0018	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.021	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.039	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00004	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00005	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	<0.0005	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00003	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.093	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00031	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00024	0.00005		
Zinc	Extractable	mg/L	0.0043	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.89	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	333	1		
Calcium	Extractable	mg/L	35	0.01		
Iron	Extractable	mg/L	0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	9.2	0.02		
Manganese	Extractable	mg/L	0.060	0.001	0.02 AO; 0.12 MAC	Above AO
Potassium	Extractable	mg/L	3.1	0.04		
Silicon	Extractable	mg/L	7.4	0.005		
Sodium	Extractable	mg/L	20	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	126	5		
Chloride	Dissolved	mg/L	17.6	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.01	0.01	10	Below MAC

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V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-1
Sample Date	July 09, 2021
Sample Time	08:05
Sample Location	
Sample Description	RW 1-87/14 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	22.1	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	126	1		
Total Dissolved Solids	Extractable	mg/L	203	1	500	Below AO

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Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-2
Sample Date	July 09, 2021
Sample Time	08:28
Sample Location	
Sample Description	RW 2-63/17 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1	Below OG
Antimony	Extractable	mg/L	0.00010	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0008	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.012	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.018	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00006	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	<0.0005	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	<0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0007	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.080	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00008	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00007	0.00005		
Zinc	Extractable	mg/L	0.0011	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.21	0.1	0.1	Above OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.57	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	262	1		
Calcium	Extractable	mg/L	30	0.01		
Iron	Extractable	mg/L	0.014	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	7.4	0.02		
Manganese	Extractable	mg/L	0.011	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.0	0.04		
Silicon	Extractable	mg/L	9.0	0.005		
Sodium	Extractable	mg/L	9.7	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	75	5		
Chloride	Dissolved	mg/L	20.4	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.30	0.01	10	Below MAC

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Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-2
Sample Date	July 09, 2021
Sample Time	08:28
Sample Location	
Sample Description	RW 2-63/17 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	21.7	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	104	1		
Total Dissolved Solids	Extractable	mg/L	166	1	500	Below AO

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Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-3
Sample Date	July 09, 2021
Sample Time	08:50
Sample Location	
Sample Description	RW 3-93/11 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	<0.001	0.001	0.1	Below OG
Antimony	Extractable	mg/L	0.00003	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0003	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0064	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.012	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00016	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0022	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00011	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0003	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00003	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00018	0.00005		
Zinc	Extractable	mg/L	0.038	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.27	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	283	1		
Calcium	Extractable	mg/L	30	0.01		
Iron	Extractable	mg/L	0.008	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	7.4	0.02		
Manganese	Extractable	mg/L	0.002	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.7	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	11	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	50	5		
Chloride	Dissolved	mg/L	40.2	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	2.41	0.01	10	Below MAC

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V2T 2R6
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Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-3
Sample Date	July 09, 2021
Sample Time	08:50
Sample Location	
Sample Description	RW 3-93/11 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	16.8	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	106	1		
Total Dissolved Solids	Extractable	mg/L	177	1	500	Below AO

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Analytical Report

Bill To: Clearbrook Waterworks District
2889 Grandview Crescent
Abbotsford, BC, Canada
V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-4
Sample Date	July 09, 2021
Sample Time	09:02
Sample Location	
Sample Description	RW 7-00/13 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	<0.001	0.001	0.1	Below OG
Antimony	Extractable	mg/L	0.00002	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0003	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0054	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.011	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00018	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0014	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00018	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.096	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00001	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00022	0.00005		
Zinc	Extractable	mg/L	0.014	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.14	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.25	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	234	1		
Calcium	Extractable	mg/L	25	0.01		
Iron	Extractable	mg/L	0.007	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	6.1	0.02		
Manganese	Extractable	mg/L	0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.3	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	7.9	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	41	5		
Chloride	Dissolved	mg/L	31.4	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	2.63	0.01	10	Below MAC

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V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-4
Sample Date	July 09, 2021
Sample Time	09:02
Sample Location	
Sample Description	RW 7-00/13 / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	14.5	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	88	1		
Total Dissolved Solids	Extractable	mg/L	152	1	500	Below AO

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Project Name:
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Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-5
Sample Date	July 09, 2021
Sample Time	07:34
Sample Location	
Sample Description	Reservoir / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1	Below OG
Antimony	Extractable	mg/L	0.00008	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0008	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.013	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.017	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00010	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	<0.0005	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0004	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00011	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00023	0.00005		
Zinc	Extractable	mg/L	0.0011	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.62	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	287	1		
Calcium	Extractable	mg/L	31	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	7.4	0.02		
Manganese	Extractable	mg/L	0.003	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	2.0	0.04		
Silicon	Extractable	mg/L	9.4	0.005		
Sodium	Extractable	mg/L	11	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	72	5		
Chloride	Dissolved	mg/L	29.2	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.59	0.01	10	Below MAC

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Analytical Report

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V2T 2R6
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Project Name:
Project Location:
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Proj. Acct. code:

Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Reference Number	1504852-5
Sample Date	July 09, 2021
Sample Time	07:34
Sample Location	
Sample Description	Reservoir / 7.5 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	19.7	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	107	1		
Total Dissolved Solids	Extractable	mg/L	176	1	500	Below AO

Approved by:

Carol Nam, Dipl. T.
Quality Assurance Coordinator

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

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Methodology and Notes

Bill To: Clearbrook Waterworks District
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Lot ID: **1504852**
Control Number:
Date Received: Jul 9, 2021
Date Reported: Jul 14, 2021
Report Number: 2640018

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	*	Alkalinity - Titration Method, 2320 B	Jul 12, 2021	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	Conductivity, 2510 B	Jul 12, 2021	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	pH - Electrometric Method, 4500-H+ B	Jul 12, 2021	Element Vancouver
Anions by IEC in water (VAN)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Jul 12, 2021	Element Vancouver
Heterotrophic (Standard) Plate Count (Aerobic SP) - VAN	APHA		Enzyme Substrate Method, 9215 E	Jul 9, 2021	Element Vancouver
Metals SemiTrace (Extractable) in water (VAN)	US EPA	*	Metals & Trace Elements by ICP-AES, 6010C	Jul 9, 2021	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA		Enzyme Substrate Test, APHA 9223 B	Jul 9, 2021	Element Vancouver
Trace Metals (extractable) in Water (VAN)	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Jul 9, 2021	Element Vancouver
True Color in water (VAN)	APHA	*	Spectrophotometric - Single Wavelength Method, 2120 C	Jul 9, 2021	Element Vancouver
Turbidity - Water (VAN)	APHA	*	Turbidity - Nephelometric Method, 2130 B	Jul 9, 2021	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
US EPA	US Environmental Protection Agency Test Methods

Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

Comments:

- Jul 14, 2021 - Sample 1504852-3; 7554842: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1504852-3. Detection limits are adjusted accordingly.
- Jul 14, 2021 - Sample 1504852-4; 7554843: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1504852-4. Detection limits are adjusted accordingly.
- Jul 14, 2021 - The analysis of water samples 1504852-1 to -5 are below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality for the parameters tested.

The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted.

Exova — Testing, calibrating, advising

www.exova.com

ED 120-02

Invoice to:

Company: Clearbrook Waterworks

Address:

Attention:

Phone:

Cell:

Fax:

E-mail:

Agreement ID:

Copy of report:

Report To:

Company:

Address:

Attention:

Phone:

Cell:

Fax:

E-mail 1:

E-mail 2:

Copy of invoice:

Report Results

E-Mail		HCDWQG	
Mail		Ab Tier 1	
Online		SPIGEC	
Fax		BCCSR	
PDF		Other (list below)	
Excel			
QA/QC			

Regulatory Requirement

Project Information

Project ID:

Project Name:

Project Location:

Legal Location:

PO/AFE#:

Proj. Acct. Code:

Quote #

Sample Custody (please print)

Sampled by:

Company:

RUSH Priority

- Emergency (contact lab for turnaround and pricing)
- Priority 1-2 working days (100% surcharge)
- Urgent 2-3 working days (50% surcharge)

When "ASAP" is requested, turn around will default to a 100% RUSH priority, with pricing and turn around time to match. Please contact the lab prior to submitting RUSH samples. If not all samples require RUSH, please indicate in the special instructions.

Date Required: _____ Signature: _____

Special Instructions/Comments (please include contact information including ph. # if different from above).

This section for Lab use only

Date/Time stamp:

	Site I.D.	Sample Description	Depth start in	Depth start cm	Depth start m	Depth end in	Depth end cm	Depth end m	Date/Time Sampled	Matrix	Sampling Method	Number of Containers	Enter tests above (√ relevant samples below)	Indicate in the space allotted any deficiencies by the corresponding number.
1		RW 1-87/14							July 9/21 @ 8:05AM			3	✓	
2		RW 2-63/17							July 9/21 @ 8:28AM			3	✓	
3		RW 3-93/11							July 9/21 @ 8:50AM			3	✓	
4		RW 3-00/13							July 9/21 @ 9:02AM			3	✓	
5		Reservoir "C"							July 9/21 @ 7:34AM			3	✓	
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														

1. Indicate any samples that were not packaged well
2. Indicate any samples not received in Exova supplies
3. Indicate any samples that were not clearly labeled
4. Indicate any samples not received within the required hold time or temp.
5. Indicate any missing or extra samples
6. Indicate any samples that were received broken
7. Indicate any samples where sufficient volume was not received
8. Indicate any samples received in an inappropriate container

ED 120-02

Submission of this form acknowledges acceptance of Exova's Standard Terms and Conditions (http://www.exova.com/about/terms-and-conditions/)

Lot: 1504852 COC

Shipping: COD Y/ N

and size of coolers

Temp. received: 7.5

Delivery Method:

Waybill:

Received by:

RECEIVED JUL 09 2021 @ 10:11

Please indicate any potentially hazardous samples

Page _____ of _____ Control # C 117927

December 2021 Water Quality Reports

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Report Transmission Cover Page

Bill To: Clearbrook Waterworks District
2889 Grandview Crescent
Abbotsford, BC, Canada
V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Contact	Company	Address
Accounts Payable	**Clearbrook Waterworks District**	2889 Grandview Crescent Abbotsford, BC V2T 2R6 Phone: (604) 850-6621 Fax: (604) 850-7862 Email: office@clearbrookwaterworks.com

Delivery	Format	Deliverables
Email - Single Report	PDF	Invoice

Contact	Company	Address
Ineke Kalwij	**Kalwij Water Dynamics Inc**	P.O. Box 684 Station Main Port Coquitlam, BC V3B 6H9 Phone: (604) 615-4932 Fax: (604) 475-4062 Email: ineke@kalwijwaterdynamics.com

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	COR

Contact	Company	Address
Ryan Federau	**Clearbrook Waterworks District**	2889 Grandview Crescent Abbotsford, BC V2T 2R6 Phone: (604) 309-3986 Fax: (604) 850-7862 Email: ryan@clearbrookwaterworks.com

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	COR

Notes To Clients:

- Dec 22, 2021 - Sample 1543351-3; 7835627: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1543351-3. Detection limits are adjusted accordingly.
- Dec 22, 2021 - The analysis of water sample 1543350-1 is below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality for the parameters tested.

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Project ID:
Project Name:
Project Location:
LSD:
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Proj. Acct. code:

Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-1
Sample Date	December 16, 2021
Sample Time	14:34
Sample Location	
Sample Description	1-87 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	<0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00010	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0017	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.025	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.035	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	<0.00005	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	<0.0005	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	<0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00042	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00037	0.00005		
Zinc	Extractable	mg/L	<0.0005	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	6.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.76	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	322	1		
Calcium	Extractable	mg/L	35	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	9.8	0.02		
Manganese	Extractable	mg/L	0.059	0.001	0.02 AO; 0.12 MAC	Above AO
Potassium	Extractable	mg/L	3.1	0.04		
Silicon	Extractable	mg/L	8.0	0.005		
Sodium	Extractable	mg/L	17	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	130	5		
Chloride	Dissolved	mg/L	10.9	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.05	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	0.01	0.01	10	Below MAC

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Project ID:
Project Name:
Project Location:
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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-1
Sample Date	December 16, 2021
Sample Time	14:34
Sample Location	
Sample Description	1-87 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	22.0	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	127	1		
Total Dissolved Solids	Extractable	mg/L	197	1	500	Below AO

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-2
Sample Date	December 16, 2021
Sample Time	14:22
Sample Location	
Sample Description	2-63 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00011	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0009	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.015	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.021	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	<0.00005	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	<0.0005	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00003	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.100	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00015	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00029	0.00005		
Zinc	Extractable	mg/L	0.0015	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.49	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	273	1		
Calcium	Extractable	mg/L	28	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	6.9	0.02		
Manganese	Extractable	mg/L	0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.8	0.04		
Silicon	Extractable	mg/L	9.0	0.005		
Sodium	Extractable	mg/L	9.9	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	79	5		
Chloride	Dissolved	mg/L	20.1	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.04	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.02	0.01	10	Below MAC

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Analytical Report

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V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
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Proj. Acct. code:

Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-2
Sample Date	December 16, 2021
Sample Time	14:22
Sample Location	
Sample Description	2-63 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	22.5	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	97	1		
Total Dissolved Solids	Extractable	mg/L	165	1	500	Below AO

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Project ID:
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Project Location:
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Proj. Acct. code:

Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-3
Sample Date	December 16, 2021
Sample Time	14:03
Sample Location	
Sample Description	3-93 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	<0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00004	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0004	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0076	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.012	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00003	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00014	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0018	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00009	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0004	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.14	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00006	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00034	0.00005		
Zinc	Extractable	mg/L	0.0075	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.14	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	311	1		
Calcium	Extractable	mg/L	31	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	7.7	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.6	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	10	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	51	5		
Chloride	Dissolved	mg/L	44.8	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	2.09	0.01	10	Below MAC

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-3
Sample Date	December 16, 2021
Sample Time	14:03
Sample Location	
Sample Description	3-93 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	18.7	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	110	1		
Total Dissolved Solids	Extractable	mg/L	183	1	500	Below AO

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-4
Sample Date	December 16, 2021
Sample Time	14:15
Sample Location	
Sample Description	7-00 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	<0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00003	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0003	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.0061	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.012	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00020	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0016	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00016	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00001	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00041	0.00005		
Zinc	Extractable	mg/L	0.015	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	68.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.13	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	232	1		
Calcium	Extractable	mg/L	21	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	5.4	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.1	0.04		
Silicon	Extractable	mg/L	11	0.005		
Sodium	Extractable	mg/L	6.9	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	40	5		
Chloride	Dissolved	mg/L	29.9	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	2.50	0.01	10	Below MAC

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-4
Sample Date	December 16, 2021
Sample Time	14:15
Sample Location	
Sample Description	7-00 / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	15.1	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	75	1		
Total Dissolved Solids	Extractable	mg/L	144	1	500	Below AO

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-5
Sample Date	December 16, 2021
Sample Time	13:31
Sample Location	
Sample Description	Reservoir "C" / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.001	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00008	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0007	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.012	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.020	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00008	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	<0.0005	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00001	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0005	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00010	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00033	0.00005		
Zinc	Extractable	mg/L	0.0006	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.45	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	288	1		
Calcium	Extractable	mg/L	27	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	6.8	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.6	0.04		
Silicon	Extractable	mg/L	9.5	0.005		
Sodium	Extractable	mg/L	9.6	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	68	5		
Chloride	Dissolved	mg/L	29.4	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.50	0.01	10	Below MAC

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-5
Sample Date	December 16, 2021
Sample Time	13:31
Sample Location	
Sample Description	Reservoir "C" / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	21.0	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	96	1		
Total Dissolved Solids	Extractable	mg/L	169	1	500	Below AO

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-6
Sample Date	December 16, 2021
Sample Time	13:42
Sample Location	
Sample Description	2464 Sunnyside PL / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.002	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00010	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0008	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.012	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.019	0.002	5	Below MAC
Cadmium	Extractable	mg/L	0.00002	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00011	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0025	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00026	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0006	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00017	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00045	0.00005		
Zinc	Extractable	mg/L	0.0085	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	<2.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.26	0.1	0.1	Above OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.47	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	268	1		
Calcium	Extractable	mg/L	28	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	6.7	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.7	0.04		
Silicon	Extractable	mg/L	9.3	0.005		
Sodium	Extractable	mg/L	9.6	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	71	5		
Chloride	Dissolved	mg/L	22.6	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	1.24	0.01	10	Below MAC

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-6
Sample Date	December 16, 2021
Sample Time	13:42
Sample Location	
Sample Description	2464 Sunnyside PL / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	21.4	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	98	1		
Total Dissolved Solids	Extractable	mg/L	163	1	500	Below AO

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Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-7
Sample Date	December 16, 2021
Sample Time	13:55
Sample Location	
Sample Description	32350 Diamond Cres / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Extractable						
Aluminum	Extractable	mg/L	0.003	0.001	0.1 OG; 2.9 MAC	Below OG
Antimony	Extractable	mg/L	0.00007	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0006	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	0.011	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.014	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.007	Below MAC
Chromium	Extractable	mg/L	0.00015	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0032	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00030	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	0.0003	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.11	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	0.00005	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00034	0.00005		
Zinc	Extractable	mg/L	0.0051	0.0005	5.0	Below AO
Microbiological Analysis						
Total Coliforms	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Escherichia coli	Enzyme Substrate Test	MPN/100 mL	<1.0	1.0	0 per 100 mL	Below MAC
Heterotrophic Count - Aerobic	SimPlate	MPN/mL	12.0	2		
Physical and Aggregate Properties						
Colour	True	Colour units	<5	5		
Turbidity		NTU	0.16	0.1	0.1	Above OG
Routine Water						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.31	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	258	1		
Calcium	Extractable	mg/L	26	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	5.9	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	1.4	0.04		
Silicon	Extractable	mg/L	10	0.005		
Sodium	Extractable	mg/L	8.2	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	56	5		
Chloride	Dissolved	mg/L	28.3	0.05	250	Below AO
Fluoride	Dissolved	mg/L	<0.01	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	2.00	0.01	10	Below MAC

Element
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
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E: info.vancouver@element.com
W: www.element.com

Analytical Report

Bill To: Clearbrook Waterworks District
2889 Grandview Crescent
Abbotsford, BC, Canada
V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Reference Number	1543351-7
Sample Date	December 16, 2021
Sample Time	13:55
Sample Location	
Sample Description	32350 Diamond Cres / 6.8 °C
Sample Matrix	Drinking Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued						
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	17.7	0.1	500	Below AO
Hardness	as CaCO3 (extractable)	mg/L	89	1		
Total Dissolved Solids	Extractable	mg/L	157	1	500	Below AO

Approved by:

Max Hewitt
Operations Manager

Data have been validated by Analytical Quality Control and Element's Integrated Data Validation System (IDVS).
Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

Element
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Surrey, British Columbia
V3S 8P8, Canada

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Methodology and Notes

Bill To: Clearbrook Waterworks District
2889 Grandview Crescent
Abbotsford, BC, Canada
V2T 2R6
Attn: Accounts Payable
Sampled By:
Company:

Project ID:
Project Name:
Project Location:
LSD:
P.O.:
Proj. Acct. code:

Lot ID: **1543351**
Control Number:
Date Received: Dec 16, 2021
Date Reported: Dec 22, 2021
Report Number: 2704858

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	*	Alkalinity - Titration Method, 2320 B	Dec 17, 2021	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	Conductivity, 2510 B	Dec 17, 2021	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	*	pH - Electrometric Method, 4500-H+ B	Dec 17, 2021	Element Vancouver
Anions by IEC in water (VAN)	APHA	*	Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Dec 17, 2021	Element Vancouver
Heterotrophic (Standard) Plate Count (Aerobic SP) - VAN	APHA		Enzyme Substrate Method, 9215 E	Dec 16, 2021	Element Vancouver
Metals SemiTrace (Extractable) in water (VAN)	US EPA	*	Metals & Trace Elements by ICP-AES, 6010C	Dec 20, 2021	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA		Enzyme Substrate Test, APHA 9223 B	Dec 16, 2021	Element Vancouver
Trace Metals (extractable) in Water (VAN)	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Dec 20, 2021	Element Vancouver
True Color in water (VAN)	APHA	*	Spectrophotometric - Single Wavelength Method, 2120 C	Dec 17, 2021	Element Vancouver
Turbidity - Water (VAN)	APHA	*	Turbidity - Nephelometric Method, 2130 B	Dec 17, 2021	Element Vancouver

** Reference Method Modified*

References

APHA	Standard Methods for the Examination of Water and Wastewater
US EPA	US Environmental Protection Agency Test Methods

Guidelines

Guideline Description	Health Canada GCDWQ
Guideline Source	Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020
Guideline Comments	MAC = Maximum Acceptable Concentration AO = Aesthetic Objective OG = Operational Guideline for Water Treatment Plants (does not apply to private groundwater wells). Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

Comments:

- Dec 22, 2021 - Sample 1543351-3; 7835627: Reduction of analytical volume was necessary for chloride analysis to bring results within the analytical range for sample 1543351-3. Detection limits are adjusted accordingly.
- Dec 22, 2021 - The analysis of water sample 1543350-1 is below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the September 2020 Guidelines for Canadian Drinking Water Quality for the parameters tested.

EXOVA Testing, calibrating, advising

www.exova.com ED 120-02

Invoice to:
Company: Clearbrook Waterworks
Address:
Attention:
Phone:
Cell:
Fax:
E-mail:
Agreement ID:
Copy of report:

Report To:
Company:
Address:
Attention:
Phone:
Cell:
Fax:
E-mail 1:
E-mail 2:
Copy of invoice:

Report Results		Regulatory Requirement	
E-Mail		HCDWQG	
Mail		Ab Tier 1	
Online		SPIGEC	
Fax		BCCSR	
PDF		Other (list below)	
Excel			
QA/QC			

Project Information
Project ID:
Project Name:
Project Location:
Legal Location:
PO/AFE#:
Proj. Acct. Code:
Quote #

Sample Custody (please print)
Sampled by:
Company:

RUSH Priority
- Emergency (contact lab for turnaround and pricing)
- Priority 1-2 working days (100% surcharge)
- Urgent 2-3 working days (50% surcharge)

When "ASAP" is requested, turn around will default to a 100% RUSH priority, with pricing and turn around time to match. Please contact the lab prior to submitting RUSH samples. If not all samples require RUSH, please indicate in the special instructions.

Date Required: Signature:

This section for Lab use only
Date/Time stamp: RECEIVED DEC 16 2021 @15:38

Special Instructions/Comments (please include contact information including ph. # if different from above).

	Site I.D.	Sample Description	Depth start in	Depth start cm	Depth end m	Date/Time Sampled	Matrix	Sampling Method	Number of Containers	Enter tests above (√ relevant samples below)	Indicate in the space allotted any deficiencies by the corresponding number.
1		1-87				Dec. 16/21 @ 2:34PM			3		
2		2-63				" " " @ 2:22PM			3		
3		3-93				" " " @ 2:03PM			3		
4		7-00				" " " @ 2:15PM			3		
5		Reservoir "C"				" " " @ 1:31PM			3		
6		2464 Sunnyside Pl				" " " @ 1:42PM			3		
7		32350 Diamond Cres.				" " " @ 1:55PM			3		
8											
9											
10											
11											
12											
13											
14											
15											

Indicate in the space allotted any deficiencies by the corresponding number.

1. Indicate any samples that were not packaged well
2. Indicate any samples not received in Exova supplies
3. Indicate any samples that were not clearly labeled
4. Indicate any samples not received within the required hold time or temp.
5. Indicate any missing or extra samples
6. Indicate any samples that were received broken
7. Indicate any samples where sufficient volume was not received
8. Indicate any samples received in an inappropriate container

ED 120-02

Submission of this form acknowledges acceptance of Exova's Standard Terms and Conditions (http://www.exova.com/about/terms-and-conditions/)

Lot: 1543351 COC

Please indicate any potentially hazardous samples

Page _____ of _____ Control # C 117925

Shipping: COD Y/ N
and size of coolers
Temp. received: 6.8
Delivery Method:
Waybill:
Received by:

End of Document