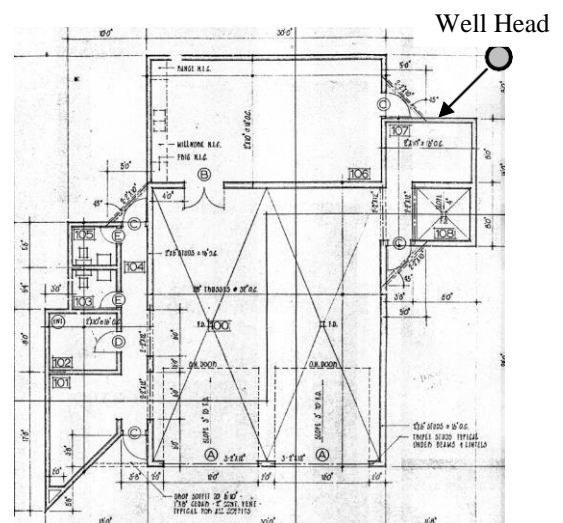




## Maple Ridge Parks, Recreation & Culture

# WATER QUALITY REPORT 2019

## Fire Hall #2 Water System



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Prepared by:

Andrew McAusland  
Facilities Maintenance Supervisor  
City of Maple Ridge

## INTRODUCTION

Maple Ridge Parks, Recreation & Culture, Facilities Department, provides well water under permit by the Fraser Health Authority (FHA). As required by Section 15 of the British Columbia Drinking Water Protection Act, this document is the Maple Ridge Parks, Recreation & Culture, Facilities Department annual report on the Small Drinking Water systems that the City operates on behalf of users at Firehall Number 2; 27501 – 112<sup>th</sup> Avenue, Whonnock.

## OUTLINE

**Well identification number -** 688  
**GPS location of well head -** N49.20605° – W112.45865° accuracy 19'

Fire Hall Number 2 well is 120 ft. deep and provides fresh water to the Fire Hall building. The pump house is located immediately northeast of the building. The well head is contained within the pump house which also contains the pressure tank and switch; filter tank, head and medium; locking valve, circuits and removable fuse. The pump is located in the well shaft.

## EQUIPMENT

AquaFlow Pressure Tank AFL82. Serial #AFL8200199: April 13, 2018  
Canister filter: 5 micron/string wound Model # 14-G5WP2-05 /EP-20BB Carbon Block Filter 5 Micron  
Pump : Duro Dynaflor Model# WG5AD55. Half horsepower 10GPM. March 27, 2014  
Pressure switch : 60-40 115v  
Clock head: Pentair Fleck TMI 50 9000 Valve SX7  
Media filter : Canature Resin/Fire Gravel/Course Gravel  
UV Light – Pura Model #BOV12  
Well drilled - Dec. 1972  
Well depth 120 ft., Pump at 110 ft; Static level 70 ft. Casing size 6”  
Well yield 5 gpm at 50 psi

## FACILITY MAINTENANCE

This well is maintained by the Maple Ridge Parks, Recreation & Culture, Facilities Department. A qualified Small Water System Operators provides security, monitoring, maintenance, upgrades and emergency response to all of Parks & Facilities small water systems.

## ROUTINE WATER SAMPLING

Water samples are taken from each location every Tuesday morning by the Operations Department and a courier delivers these samples on the same day, to the Metro Vancouver laboratory in Burnaby. The Metro Vancouver lab sends the results to the City of Maple Ridge and the Fraser Health Authority by e-mail. The results are reported weekly unless an indicator is found in the sample. In this event, a communication from the Metro Vancouver lab is issued on the Wednesday (Thursday latest) to the City of Maple Ridge.

It is important to note that this monitoring program provides a representative picture of drinking water quality in the well system to the tap only.

## ADVISORIES

In the event of a concern discovered upon analysis, the Metro Vancouver Water Department lab will email until the report has been received by the City of Maple Ridge. The communications should follow the following list until a response has been assured:

- |                     |                   |                     |
|---------------------|-------------------|---------------------|
| 1. Michael Albrecht | 604 363 6671 cell |                     |
| 2. Andrew McAusland | 604 788 6543 cell | 604-467-7476 office |
| 3. Michael Millward | 604-619-8314 cell | 604-467-7385 office |
| 4. David Boag       | 604-619-8315 cell | 604-467-7344 office |

### Fraser Health Authority contact info:

Binny Sivia - Public Health Officer	604-870-7902
-------------------------------------	--------------

If required, the well is shut down immediately and a notice will be posted advising the users that the water is not potable until further notice

## EMERGENCY MEASURES

### Response instructions

- Keys, devices and signs are taken to the location described in the alarm advisory and the water valve is physically shut off and locked out.
- Signs are posted at all entrance doors, informing the public of the water shut-off.
- The date of the notice and the responding staff's initial should be written on each posting.

### Contacts:

- Doug Armour, Assistant Chief Prevention and Operations 604-476-3068
- Fire Hall #1 604-463-5880
- Binny Sivia (Public Health Inspector) is to be notified at 604-870-7902 within one business day.
- Inform Michael Millward (604-467-7385), and David Boag (604-467-7344) when the above steps have been completed.
- City Water Works (604-467-7393) must be contacted to arrange an immediate sample taken for re-test.

All inquiries from the media and public must be referred to the Parks and Facilities Director (604-467-7344).

### Bacteriological Monitoring Standards

Weekly samples are analyzed for fecal coliform, total coliform and heterotrophic plate count (HPC) and response is made according to provincial guidelines.

**Table 1. BC Drinking Water Protection Regulation Microbiological Standards**

Parameter	Occurrence	Standard
Fecal Coliform	1 sample	Less than 1 fecal coliform per 100mL
E.coli	a) 1 sample in a 30 day period	0 E.coli per 100mL
	b) more than 1 sample in a 30 day period.	At least 90% of samples have 0 E.coli per 100mL and no sample has more than 10 E.coli per 100mL



## Arsenic in Drinking Water

Arsenic is found naturally in the rocks in the earth's crust. It can be found in some drinking water supplies, and wells. Drinking water containing arsenic can have serious short-term and long-term health effects.

### How does arsenic get into drinking water?

Arsenic can get into drinking water from natural deposits or runoff from agriculture, mining and industrial processes.

In B.C., natural minerals are the most common sources of arsenic in drinking water.

The amount of arsenic in ground water supplies like wells is usually higher than in surface water supplies such as lakes, streams and rivers.

### What are the health effects of arsenic exposure?

Short to medium term (days to weeks) exposure to very high levels of arsenic in drinking water can lead to arsenic poisoning.

Symptoms of exposure to high levels of arsenic include stomach pain, vomiting, diarrhea, and impaired nerve function, which may result in 'pins and needles' sensation or numbness and burning in hands and feet.

Arsenic can also cause skin changes, which include darkening, and wart-like or corn-like growths. These are mostly found on the palms of the hands or bottoms of the feet. Other symptoms can include skin flushing and rashes.

As children tend to drink more water per unit of body weight than adults, they may have more exposure to arsenic in drinking water. As a result children may be at greater risk of illness when higher levels of arsenic are present.

Long-term (years to decades) exposure to even relatively low amounts of arsenic in drinking water can increase your risk of developing certain cancers, including:

- skin,
- lung,
- kidney,
- bladder, and
- liver.

The risk of cancer is the reason for developing the Canadian guideline for arsenic in drinking water. For more information on The Guidelines for Canadian Drinking Water Quality see, [www.canada.ca/en/health-canada/services/publications/healthy-living/guidelines-canadian-drinking-water-quality-guideline-technical-document-arsenic.html](http://www.canada.ca/en/health-canada/services/publications/healthy-living/guidelines-canadian-drinking-water-quality-guideline-technical-document-arsenic.html).

### What amount of arsenic causes health effects?

Health Canada set a Maximum Acceptable Concentration (MAC) of 10 micrograms per litre for arsenic in drinking water. This can also be reported as 10 µg/L, or as 0.010 milligrams per litre (mg/L).

This level was set based on the ability to treat water practicably to this level. This amount is still linked with a health risk higher than the level considered to be a very minor risk. For this reason people should consider taking precautions with their drinking water even if the arsenic levels are slightly below the guideline. Data collected in Canada indicates that the levels of arsenic in drinking water is usually less than 0.005 mg/L, but concentrations may be higher in some areas.

### How do I know if there is arsenic in my drinking water?

Public drinking water systems are monitored regularly. In drinking water, arsenic has no odor or taste and can only be detected by a chemical test.

Most private wells are not tested routinely for water quality or contaminants. It is the well owner's responsibility to test the water for arsenic. Any well may contain arsenic or other contaminants. Private wells should be tested regularly for water quality.

Contact your local public health unit or environmental health officer for information on the testing process in British Columbia.

For more information about private well water testing, see [HealthLinkBC File #05b Should I Get My Well Water Tested?](#)

### What can I do if there is arsenic in my drinking water?

Water with arsenic is only a concern if it is being used for drinking or preparing food.

Exposure through breathing and skin contact is not harmful. For example, there are no known health effects from hand washing, bathing or washing clothing in water with arsenic.

If an initial test detects arsenic, even at levels below the guideline, it is important to have a second test done to confirm the results. If your water tests positive for arsenic above the recommended level, you should use another source for drinking water or treat the current source.

There are several treatment devices and options including reverse osmosis filters and distillation. Chlorination and mechanical filters do not remove arsenic from water. Boiling water may increase the concentration of arsenic.

There is no regulatory control over treatment devices for private homes, therefore the well owner must be careful and select an appropriate treatment device that has been certified for the removal of arsenic.

When purchasing a treatment device, you should consider one that has been certified by an organization accredited by the Standards Council of Canada (SCC). The treatment device should meet the following standards:

- NSF/ANSI Standard 62 on drinking water distillation and adsorption systems; or
- Standard 58 on reverse osmosis drinking water treatment systems; or
- Standards 53 on drinking water treatment units – with specific designation for the water quality parameters you are trying to remove (arsenic).

Certification assures that a device works as the manufacturer or distributor claims. Find an up-to-date list of accredited organizations by visiting Standards Council of Canada at [www.scc.ca/en/accreditation/product-process-and-service-certification/directory-of-accredited-clients](http://www.scc.ca/en/accreditation/product-process-and-service-certification/directory-of-accredited-clients).

For more information on drinking water and treatment options, contact your local environmental health officer.

### For More Information

For more information about arsenic and drinking water, visit:

- B.C. Ministry of Environment - Arsenic in Groundwater  
[www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/as020715\\_fin3.pdf](http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/as020715_fin3.pdf)
- Health Canada – Arsenic in Drinking Water  
[www.canada.ca/en/health-canada/services/healthy-living/your-health/environment/arsenic-drinking-water.html](http://www.canada.ca/en/health-canada/services/healthy-living/your-health/environment/arsenic-drinking-water.html)

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For more HealthLinkBC File topics, visit [www.HealthLinkBC.ca/healthfiles](http://www.HealthLinkBC.ca/healthfiles) or your local public health unit. For non-emergency health information and advice in B.C. visit [www.HealthLinkBC.ca](http://www.HealthLinkBC.ca) or call 8-1-1 (toll-free). For deaf and hearing-impaired assistance, call 7-1-1. Translation services are available in more than 130 languages on request.

## Sample Range Report

Fraser Health Authority

**Facility Name:** City of Maple Ridge - Firehall #2 Water System

**Date Range:** Jan 1 2019 to Dec 31 2019

**Operator**

Sampling Site	Date Collected	Total Coliform	E. Coli	Fecal Coliform
<u>AUDIT - Tap 2</u>				
<u>27501 112 Ave</u>				
	1-23-2019	L1	L1	
	2-27-2019	L1	L1	
	4-3-2019	L1	L1	
	6-3-2019	L1	L1	
	8-12-2019	L1	L1	
	9-23-2019	<u>L1</u>	<u>L1</u>	
	<b>Total Positive:</b>	<b>0</b>	<b>0</b>	<b>0</b>

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:	6	

**Comments:**

\_\_\_\_\_  
Environmental Health Officer

Feb 11 2020

FOR FURTHER INFORMATION PLEASE CALL: Binny Sivia



# Metro Vancouver Analysis Report

## Fire Hall #2

Sample Name	Sample Description	Sample Date	Sample Type	Chlorine Free	Ecoli	Ecoli	HPC	Temperature	Total Coliform	Total Coliform	Turbidity
MPR-WP4	Fire Hall #2	1/3/2019 12:20				<1	190	14		<1	0.12
MPR-WP4	Fire Hall #2	1/8/2019 12:28				<1	140	14		<1	0.41
MPR-WP4	Fire Hall #2	1/15/2019 11:20	GRAB			<1	2600	16		<1	0.29
MPR-WP4	Fire Hall #2	1/22/2019 9:20				<1	110	10		<1	0.14
MPR-WP4	Fire Hall #2	1/29/2019 11:32				<1	92	16		<1	0.22
MPR-WP4	Fire Hall #2	2/5/2019 12:25				<1	400	18		<1	0.23
MPR-WP4	Fire Hall #2	2/12/2019 11:10				<1	LA	12		<1	0.22
MPR-WP4	Fire Hall #2	2/19/2019 10:55				<1	58	12		<1	0.14
MPR-WP4	Fire Hall #2	2/26/2019 11:05				<1	76	12		<1	0.14
MPR-WP4	Fire Hall #2	3/5/2019 10:50				<1	660	11		<1	0.16
MPR-WP4	Fire Hall #2	3/12/2019 11:47				<1	64	13		<1	0.13
MPR-WP4	Fire Hall #2	3/19/2019 11:03				<1	130	12		<1	0.21
MPR-WP4	Fire Hall #2	3/26/2019 11:31				<1	290	13		<1	0.37
MPR-WP4	Fire Hall #2	4/2/2019 10:50				<1	3000	15		<1	0.22
MPR-WP4	Fire Hall #2	4/9/2019 10:50				<1	1800	11		<1	0.16
MPR-WP4	Fire Hall #2	4/16/2019 11:00				<1	570	12		<1	0.15
MPR-WP4	Fire Hall #2	4/23/2019 10:59				<1	170	12		<1	0.15
MPR-WP4	Fire Hall #2	4/30/2019 11:30				<1	250	11		<1	0.14
MPR-WP4	Fire Hall #2	5/7/2019 11:11				<1	190	12		<1	0.22
MPR-WP4	Fire Hall #2	5/14/2019 10:55				<1	>11000	14		<1	0.26
MPR-WP4	Fire Hall #2	5/21/2019 11:05				<1	3700	16		<1	0.13
MPR-WP4	Fire Hall #2	5/28/2019 11:59				<1	290	14		<1	0.19
MPR-WP4	Fire Hall #2	6/4/2019 11:16				<1	450	12		<1	0.23
MPR-WP4	Fire Hall #2	6/11/2019 12:08				<1	830	13		<1	0.27
MPR-WP4	Fire Hall #2	6/18/2019 11:05				<1	4600	20		<1	0.28
MPR-WP4	Fire Hall #2	6/25/2019 11:10				<1	4200	20		<1	0.15
MPR-WP4	Fire Hall #2	7/2/2019 11:05				<1	1300	21		<1	0.23
MPR-WP4	Fire Hall #2	7/9/2019 11:00				<1	38	20		<1	0.15
MPR-WP4	Fire Hall #2	7/16/2019 10:55				<1	800	22		<1	0.16
MPR-WP4	Fire Hall #2	7/23/2019 11:59				<1	76	12		<1	0.19
MPR-WP4	Fire Hall #2	7/30/2019 11:25				<1	150	10		<1	0.11
MPR-WP4	Fire Hall #2	8/6/2019 11:00				<1	60	23		<1	0.34
MPR-WP4	Fire Hall #2	8/13/2019 10:50				<1	2700	20		<1	0.24
MPR-WP4	Fire Hall #2	8/20/2019 13:01				<1	86	13		<1	0.16
MPR-WP4	Fire Hall #2	8/27/2019 11:02				<1	1100	15		<1	0.18
MPR-WP4	Fire Hall #2	9/3/2019 11:11				<1	210	15		<1	0.19
MPR-WP4	Fire Hall #2	9/10/2019 11:10				<1	1200	17		<1	0.21
MPR-WP4	Fire Hall #2	9/17/2019 11:15				<1	11000	17		<1	0.30
MPR-WP4	Fire Hall #2	9/24/2019 11:30				<1	460	20		<1	0.15
MPR-WP4	Fire Hall #2	10/1/2019 11:02				<1	140	12		<1	0.19
MPR-WP4	Fire Hall #2	10/8/2019 11:50				<1	260	15		<1	0.21
MPR-WP4	Fire Hall #2	10/15/2019 11:05	GRAB			<1	940	13		<1	0.27
MPR-WP4	Fire Hall #2	10/22/2019 13:20	GRAB			<1	1300	17		<1	0.21
MPR-WP4	Fire Hall #2	10/29/2019 11:08	GRAB			<1	2600	18		<1	0.15
MPR-WP4	Fire Hall #2	11/5/2019 11:10	GRAB			<1	180	12		<1	0.13
MPR-WP4	Fire Hall #2	11/12/2019 11:25	GRAB			<1	240	18		<1	0.13
MPR-WP4	Fire Hall #2	11/19/2019 11:52	GRAB			<1	52	13		<1	0.3
MPR-WP4	Fire Hall #2	11/26/2019 11:37	GRAB			<1	2300	13		<1	0.14
MPR-WP4	Fire Hall #2	12/3/2019 11:50	GRAB			<1	650	16		<1	0.17
MPR-WP4	Fire Hall #2	12/10/2019 11:20	GRAB			<1	1800	12		<1	0.16
MPR-WP4	Fire Hall #2	12/17/2019 11:40	GRAB			<1	340	17		<1	0.17
MPR-WP4	Fire Hall #2	12/23/2019 11:45	GRAB			<1	NA	15		<1	0.14
MPR-WP4	Fire Hall #2	12/30/2019 11:15	GRAB			<1	NA	18		<1	0.18

### DRINKING WATER SYSTEM ANNUAL REPORT

Reporting Period: January 1<sup>st</sup> to December 31<sup>st</sup>, 2019 (year)

Water System Fire hall #2 Well

Water System Owner City of Maple Ridge

Primary Contact Name (Operator or Manager) Michael Albrecht

Phone Number (Operator or Manager) 604-363-6671

E-mail (Operator or Manager) malbrecht@mapleridge.ca

### DESCRIBE YOUR WATER SUPPLY SYSTEM

*What is the Source(s) of Raw Water?*

☒ Deep Well ☐ Shallow Well ☐ Surface Water ☐ Other

If other, specify details:

*Does the Drinking Water System have Primary Disinfection?*

☒ Yes ☐ No

☐ Chlorination ☒ Ultraviolet Light ☐ Ozone ☐ Other

If other, specify details:

*Does the Drinking Water System have Secondary Disinfection?*

☐ Yes ☒ No

☐ Chlorination ☐ Other

If other, specify details:

*Does the Drinking Water System have Filtration?*

☒ Yes ☐ No

check all boxes that apply

☒ Cartridge Filter(s) ☒ Carbon Filter ☐ Sand Filtration ☐ Reverse Osmosis ☒ Other

If other, specify details: Water Softner

### PUBLIC REPORTING

**Emergency Response & Contingency Plan (ERCP)**

*Is your ERCP up to Date?*

☒ Yes ☐ No

*How do you Inform the System Users of the ERCP?*

☐ Hand Delivered ☐ Bulletin Board ☐ Newspaper ☐ Utility Bill Insert ☒ Website

☐ Other (specify details)

**Drinking Water System Annual Report**

*How do you Inform the System Users of the Annual Report?*

☐ Hand Delivered ☐ Bulletin Board ☐ Newspaper ☐ Utility Bill Insert ☒ Website

☐ Other (specify details)

**COMPLIANCE WITH OPERATING PERMIT**

List the conditions that have been placed on your Operating Permit (if you have conditions, these will be stated on your permit):

No Decal Required

Are you in compliance with the conditions listed on your Operating Permit? ☒ Yes ☐ No ☐ N/A

**BACTERIOLOGICAL TESTING AND DRINKING WATER PROTECTION REGULATION WATER QUALITY STANDARDS**

How many bacteriological samples were collected during this reporting period? 52

What is the minimum required sampling frequency for this system? (#samples/month) 4

Additional sampling details:

Was the minimum required sampling frequency achieved? ☒ Yes ☐ No

Comments:

Bacteriological summary attached to this report? ☒ Yes ☐ No

If no, how do the users of the system view the results?

**WATER QUALITY STANDARDS FOR POTABLE WATER**

Parameter:	Standard:	Did this system meet standard?	
Escherichia coli (for all samples)	No detectable Escherichia coli per 100ml	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Total Coliform Bacteria (if only 1 sample collected in a 30 day period)	No detectable total coliform bacteria per 100ml	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Total Coliform Bacteria (if more than 1 sample collected in a 30 day period)	No more than 10% of samples contain total coliform bacteria, and No sample has more than 10 total coliform bacteria per 100ml	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

If the system did not meet any of above Drinking Water Protection Regulation standards, record the results in the table below; attach additional sheets if necessary.

Date	TC/100ml	E.coli/100ml	Reason	Corrective Action

#### CHEMICAL SAMPLING COMPLETED DURING THIS REPORTING PERIOD

Was any chemical sampling conducted during reporting period? ☒ Yes ☐ No

If no, when were the last chemical samples conducted for this system? (date) 27-Mar-2020 ☐ Don't Know ☐ Never

If yes, did all water samples meet the Guidelines for Canadian Drinking Water Quality? ☒ Yes ☐ No

If any water samples did not meet the Guidelines for Canadian Drinking Water Quality, record the results in the table below; attach additional sheets if necessary.

Parameter	Result	Corrective Action / Treatment / Comments

#### ADDITIONAL TESTING

Does the system have analyzers for continuous monitoring? ☐ Yes ☒ No

If yes, check all boxes that apply:

☐ Chlorine ☐ Turbidity ☐ Other (details)

Are the results available on request?

If any additional testing or sampling was conducted, record results in the table below; attach additional sheets if necessary.

Additional Testing & Reason for Sampling	Corrective Action Taken

#### WATER QUALITY COMPLAINTS

Were there any water quality complaints in this reporting period? (e.g. taste, odour, colour etc.) ☐ Yes ☒ No

If yes, complete the table below; attach additional sheets if necessary.

Date	Water Quality Complaint	Corrective Action / Treatment

**OPERATIONAL PROBLEMS**

Were there any operational problems during this reporting period? (e.g. insufficient water supply, malfunction of disinfection equipment, line breaks, elevated turbidity etc.). ☐ Yes ☒ No

If yes, complete the table below; attach additional sheets if necessary.

Incident Date	Type of Operational Problem	Corrective Action Taken

**MAJOR UPGRADES/REPAIRS & EXPENSES**

Were there any major upgrades/repairs or any major costs incurred during this reporting period? ☐ Yes ☒ No

If yes, complete the table below; attach additional sheets if necessary.

Major Upgrades/Expenses	Details
Improvements required by DWO	
Additions/changes to system	
Purchase or install new equipment	
Equipment repair or replacement	
Annual maintenance of system	
Specialist report	
Other	

**FUTURE IMPROVEMENTS**

Are there any plans for future improvements? ☐ Yes ☒ No

If yes, complete the table below; attach additional sheets if necessary.

Future Upgrades or Improvements	Estimated Date of Completion

DATE COMPLETED: 23-Mar-2020

COMPLETED BY: Michael Albrecht





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

T: +1 (604) 514-3322  
F: +1 (604) 514-3323  
E: [info.vancouver@element.com](mailto:info.vancouver@element.com)  
W: [element.com](http://element.com)

## Report Transmission Cover Page

Bill To: City of Maple Ridge 11995 Haney Place Maple Ridge, BC, Canada V2X 6A9 Attn: Accounts Payable Sampled By: Company:	Project ID: Project Name: Firehall #2 Water System Project Location: LSD: P.O.: Proj. Acct. code:	Lot ID: <b>1415338</b> Control Number: Date Received: Mar 24, 2020 Date Reported: Mar 27, 2020 Report Number: 2502403
--	--	---

Contact	Company	Address
Binny Sivia	Fraser Health Authority	400, 2777 Gladwin Road Abbotsford, BC V2T 4V1 Phone: (604) 870-7900 Fax: (604) 852-1558 Email: <a href="mailto:Binny.Sivia@FraserHealth.ca">Binny.Sivia@FraserHealth.ca</a>

<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>
Email - Single Report	PDF	Test Report

Mike Albrecht	City of Maple Ridge	Maple Ridge, BC V3S 8P8 Phone: (604) 363-6671 Fax: Email: <a href="mailto:malbrecht@mapleridge.ca">malbrecht@mapleridge.ca</a>
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<u>Delivery</u>	<u>Format</u>	<u>Deliverables</u>
Email - Single Report	PDF	COA
Email - Single Report	PDF	Invoice
Email - Single Report	PDF	Test Report

### Notes To Clients:

- Mar 27, 2020 - The analysis of water sample 1415338-1 is below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the June 2019 Guidelines for Canadian Drinking Water Quality for the parameters tested.

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## Analytical Report

Bill To: City of Maple Ridge  
11995 Haney Place  
Maple Ridge, BC, Canada  
V2X 6A9  
Attn: Accounts Payable  
Sampled By:  
Company:

Project ID:  
Project Name: Firehall #2 Water System  
Project Location:  
LSD:  
P.O.:  
Proj. Acct. code:

Lot ID: **1415338**  
Control Number:  
Date Received: Mar 24, 2020  
Date Reported: Mar 27, 2020  
Report Number: 2502403

		Reference Number	1415338-1			
		Sample Date	March 24, 2020			
		Sample Time	10:15			
		Sample Location				
		Sample Description	Firehall #2 Water System / 9.0 °C			
		Sample Matrix	Drinking Water			
Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
<b>Metals Extractable</b>						
Aluminum	Extractable	mg/L	0.017	0.001	0.1	Below OG
Antimony	Extractable	mg/L	<0.00002	0.00002	0.006	Below MAC
Arsenic	Extractable	mg/L	0.0019	0.0001	0.010	Below MAC
Barium	Extractable	mg/L	<0.0001	0.0001	2.0	Below MAC
Boron	Extractable	mg/L	0.004	0.002	5	Below MAC
Cadmium	Extractable	mg/L	<0.00001	0.00001	0.005	Below MAC
Chromium	Extractable	mg/L	<0.00005	0.00005	0.05	Below MAC
Copper	Extractable	mg/L	0.0024	0.0005	1 AO; 2 MAC	Below AO
Lead	Extractable	mg/L	0.00007	0.00001	0.005	Below MAC
Selenium	Extractable	mg/L	<0.0002	0.0002	0.05	Below MAC
Strontium	Extractable	mg/L	0.0002	0.0001	7.0	Below MAC
Uranium	Extractable	mg/L	<0.00001	0.00001	0.02	Below MAC
Vanadium	Extractable	mg/L	0.00043	0.00005		
Zinc	Extractable	mg/L	0.0017	0.0005	5.0	Below AO
<b>Microbiological Analysis</b>						
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
<b>Physical and Aggregate Properties</b>						
Colour	True	Colour units	<5	5		
Turbidity		NTU	<0.10	0.1	0.1	Below OG
<b>Routine Water</b>						
pH - Holding Time			Exceeded			
pH	at 25 °C		7.71	0.01	7.0-10.5	Within Range
Electrical Conductivity		µS/cm at 25 °C	102	1		
Calcium	Extractable	mg/L	<0.01	0.01		
Iron	Extractable	mg/L	<0.004	0.004	0.3	Below AO
Magnesium	Extractable	mg/L	<0.02	0.02		
Manganese	Extractable	mg/L	<0.001	0.001	0.02 AO; 0.12 MAC	Below AO
Potassium	Extractable	mg/L	<0.04	0.04		
Silicon	Extractable	mg/L	6.6	0.005		
Sodium	Extractable	mg/L	22	0.1	200	Below AO
T-Alkalinity	as CaCO3	mg/L	51	5		
Chloride	Dissolved	mg/L	0.80	0.05	250	Below AO
Fluoride	Dissolved	mg/L	0.06	0.01	1.5	Below MAC
Nitrate - N	Dissolved	mg/L	<0.01	0.01	10	Below MAC
Nitrite - N	Dissolved	mg/L	<0.01	0.01	1	Below MAC
Sulfate (SO4)	Dissolved	mg/L	2.4	0.1	500	Below AO

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## Analytical Report

Bill To: City of Maple Ridge 11995 Haney Place Maple Ridge, BC, Canada V2X 6A9	Project ID: Project Name: Firehall #2 Water System Project Location: LSD: P.O.: Proj. Acct. code:	Lot ID: <b>1415338</b> Control Number: Date Received: Mar 24, 2020 Date Reported: Mar 27, 2020 Report Number: 2502403
Attn: Accounts Payable		
Sampled By:		
Company:		

Reference Number		1415338-1
Sample Date		March 24, 2020
Sample Time		10:15
Sample Location		
Sample Description		Firehall #2 Water System / 9.0 °C
Sample Matrix		Drinking Water

Analyte	Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continued					
Hardness	as CaCO <sub>3</sub> (extractable)	mg/L	<1.00	1	
Total Dissolved Solids	Extractable	mg/L	74	1	500 Below AO

Approved by:



Matthew Norman, BSc, PChem  
Operations Chemist

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: City of Maple Ridge 11995 Haney Place Maple Ridge, BC, Canada V2X 6A9	Project ID: Project Name: Firehall #2 Water System Project Location: LSD: P.O.: Proj. Acct. code:	Lot ID: <b>1415338</b> Control Number: Date Received: Mar 24, 2020 Date Reported: Mar 27, 2020 Report Number: 2502403
Attn: Accounts Payable Sampled By: Company:		

## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water (BC)	APHA	* Alkalinity - Titration Method, 2320 B	Mar 26, 2020	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	* Conductivity, 2510 B	Mar 26, 2020	Element Vancouver
Alk, pH, EC, Turb in water (BC)	APHA	* pH - Electrometric Method, 4500-H+ B	Mar 26, 2020	Element Vancouver
Anions by IEC in water (VAN)	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	Mar 24, 2020	Element Vancouver
Metals SemiTrace (Extractable) in water (VAN)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	Mar 25, 2020	Element Vancouver
Total and E-Coli - Colilert - DW (VAN)	APHA	Enzyme Substrate Test, APHA 9223 B	Mar 24, 2020	Element Vancouver
Trace Metals (extractable) in Water (VAN)	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Mar 25, 2020	Element Vancouver
True Color in water (VAN)	APHA	* Spectrophotometric - Single Wavelength Method, 2120 C	Mar 25, 2020	Element Vancouver
Turbidity - Water (VAN)	APHA	* Turbidity - Nephelometric Method, 2130 B	Mar 24, 2020	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, June 2019
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 <a href="http://www.hc-sc.gc.ca">www.hc-sc.gc.ca</a>

## Comments:

- Mar 27, 2020 - The analysis of water sample 1415338-1 is below Maximum Acceptable Concentrations for the chemical and bacteriological health related guidelines specified by the June 2019 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.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

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