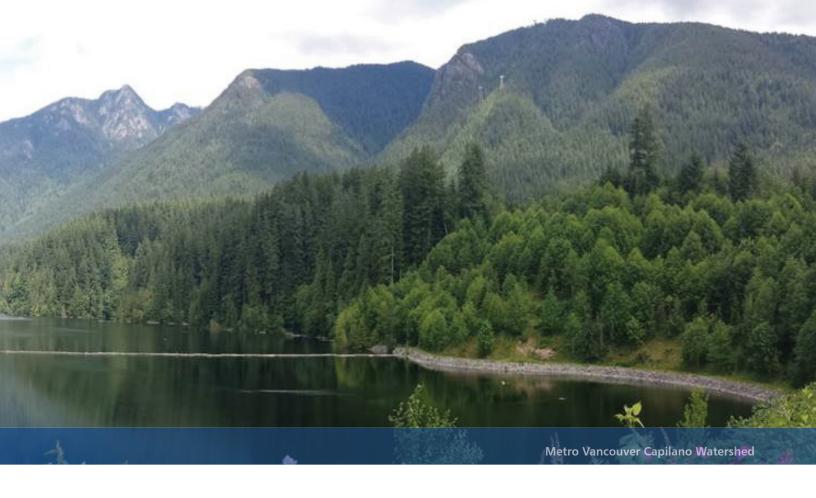


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# INTRODUCTION

This report provides an overview of the regulatory context and outlines the drinking water quality program for 2017 and associated sample results to provide evidence of potability and compliance with the *British Columbia Drinking Water Protection Regulation*.

### REGULATORY CONTEXT

Drinking water in the City of Burnaby (the City) falls under the regulatory jurisdiction of several government agencies:

### **Provincial/Federal Regulatory Requirements**

The British Columbia Drinking Water Protection Regulation promulgated under the Drinking Water Protection Act requires, amongst other aspects, suppliers of drinking water in British Columbia to hold an Operating Permit, demonstrate that the drinking water is appropriately treated and monitored from a microbial perspective, have appropriate emergency and public notification plans in place, and prepare and make public an annual report on the results of the previous year. In addition, the Federal Guidelines for Canadian Drinking Water Quality provide references for acceptable concentration values for various microbial, chemical and physical parameters for potable water.

#### **Regional Health Authority Requirements**

In 2000, a "Water Quality Monitoring and Reporting Plan for the GVRD and Member Municipalities" (WQMRP) was established by the Regional Medical Health Officials, the Greater Vancouver Water District and member municipalities. This document, which was reviewed and amended in January 2006, is a cornerstone in providing regional consistency in the monitoring and reporting of bacteriological and chemical drinking water quality parameters. In order to avoid duplication, the WQMRP separates the responsibilities for water quality monitoring and reporting between the GVRD (now Metro Vancouver) and the member municipalities by generally assigning the responsibility of source water and reporting to Metro Vancouver and the responsibility for distribution system monitoring and reporting to the monitoring municipalities.

### **Metro Vancouver Requirements**

In addition to the WQMRP, the Drinking Water Management Plan (DWMP) was adopted in 2005 to ensure that our region's water needs will be met affordably and sustainably for Metro Vancouver and its member municipalities. In 2007, the Plan was amended to fully incorporate management of the source watersheds. In June 2011, the Plan was updated again detailing the investments in water treatment, supply and conservation programs necessary to provide consistently high quality drinking water, improved supply reliability, and greater environmental protection. Details of the Plan and the municipal actions identified and adopted by the City are posted on the Metro Vancouver website at: metrovancouver.org



## DRINKING WATER SYSTEM

Metro Vancouver draws its water from Capilano, Seymour and Coquitlam reservoirs and distributes it through its waterworks systems to member municipalities after treatment. Metro Vancouver uses filtration, UV and chlorine to treat the Seymour and Capilano source waters at the Seymour-Capilano Filtration Plant (SCFP) which opened in 2009. The Coquitlam Water Treatment Plant uses ozone for pre-treatment and UV and chlorine as primary disinfectants. The source waters are then subsequently re-chlorinated at regional secondary disinfection facilities (eight stations located throughout Metro Vancouver) installed in 1998. The disinfectant dosages are monitored at the regional chlorination facilities using on-line chlorine meters.

# Source and Transmission Water Quality Monitoring

Metro Vancouver undertakes comprehensive biological and chemical monitoring of the water while it is in their system. At the intake the following parameters are tested as outlined in the WQMRP: Total Coliform, *E. coli*, Heterotrophic Plate Count (HPC), turbidity, pesticides, herbicides, all chemical parameters listed in the *Guidelines for Canadian Drinking Water Quality*, and protozoans (*Giardia* and *Cryptosporidium*)

In the transmission mains and reservoirs, Metro Vancouver also sample and test the drinking water for indicator organisms (Total Coliforms, E. coli, and HPC), and a limited number of chemicals (free chlorine residual, polycyclic aromatic hydrocarbons (PAH's) and Benzene, Toluene, Ethylbenzene, Xylene (BTEX)). The 2017 water quality results for Capilano, Seymour and Coquitlam watersheds can be found in Appendix B.

### **Source Water Quality Reporting**

Metro Vancouver staff presented their annual report on 2017 source water quality to the Metro Vancouver Utilities Committee on April 12, 2018 to demonstrate their compliance with the BC Drinking Water Protection Regulation and the regional health authorities' requirements. A summary and highlights of the region's water quality monitoring for 2017 can be found in their publication "The Greater Vancouver Water District Quality Control Annual Report 2017, Volume I" (Appendix B). Volume II of the report provides a full tabulation of data for both chemical and physical monitoring results. In an effort to reduce paper usage, the printing of Volume II has been limited by Metro Vancouver but can be made available if requested either in hard copy or electronically. Requests for Volume II should be directed to the Water Quality Enquiry Line at 604-451-6010. This publication will be available at public libraries and posted on Metro Vancouver's website metrovancouver.org by the end of June 2018.



### **Water Conservation In A Rainforest?**

Metro Vancouver gets a lot of rain throughout the year (over one meter per year in some regions) except during the months of July, August and September. These are also the months that water demand increases, in part, due to watering our lawns which can create a shortage of fresh water. A healthy lawn needs only one hour of rain or watering per week. Metro Vancouver's Drinking Water Conservation Plan describes watering restrictions that are in place from May 1 to October 15 for 2018. This Plan helps to conserve water in the summer months, when we use water faster than our reservoirs can refill. More details on lawn watering restrictions are available at burnaby.ca/waterrestrictions.



**Burnaby Mountain Conservation Area** 

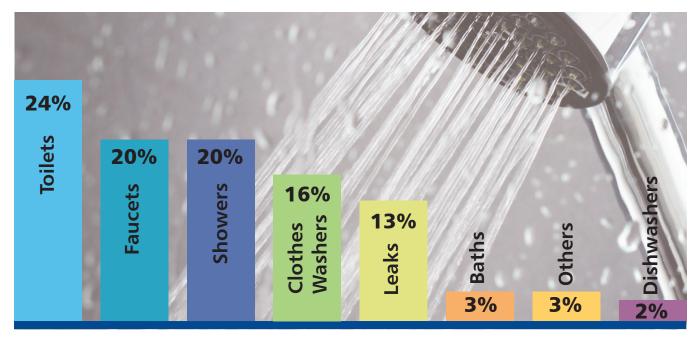


Figure 1 – How Do You Use Your Water? Data from Metro Vancouver

#### Water Conservation

Here, in Burnaby, surrounded by waterways and with our mild, wet winters, it's easy to forget that water is a precious and limited resource. On average, Lower Mainland residents use more than 270 litres per day for activities such as showering, washing dishes and clothes and flushing toilets (Figure 1). With our climate and accessible resources, it's easy to take water for granted.

### Water conservation is important for:

Ensuring sufficient drinking water supply through the year particularly when low snow-pack levels along with hot summers prevent our reservoirs from a full recharge. The Capilano, Seymour and Coquitlam reservoirs are filled by precipitation and snowmelt.

Meeting the demands of a growing population and delaying (or eliminating) the need for costly upgrades in the future.

Reducing waterfront pollution by minimizing how much waste water is generated.

Our water use can increase by 50% during the summer months, largely due to lawn watering and other outdoor uses.

The City of Burnaby encourages residents to use water sustainably to protect our water supply, conserve energy and help reduce personal utility costs. Water use can typically be reduced with a few simple changes to both your indoor and outdoor water use:

- » Turn off the tap while brushing your teeth or washing dishes.
- » Use a City rain barrel to collect rain water for use in gardens and planters.
- >> Use spring-loaded garden hose nozzles. This saves 23 litres of water per minute.
- » Wash full loads and use shorter cycles when doing laundry. This will save 95 litres of water per load.
- » Use low-flow toilets to save 6 to 14 litres of water per flush.
- » Use toilet inserts to save up to 100 litres of water per day.
- » Use aerator and flow restrictors on the kitchen tap to save up to 20 litres of water per day.
- » Fix leaks in kitchen and bathroom taps and save 47 litres of water per day.
- » An hour a week of watering or rain is all you need for a healthy lawn. This saves up to 17,000 litres of water per household over the summer months.





## **Distribution System**

The City receives its treated water from Metro Vancouver and distributes it through a series of reservoirs and a network of pipes to the consumers. In order to ensure potability of the water at the point of use, the City has a comprehensive program consisting of water quality monitoring, routine uni-directional flushing of water mains, cross-connection control and exercising reservoirs.

#### Infrastructure

The City's water system consists of four water pump (or booster) stations, four active water storage reservoirs (storage capacity 13.0 ML), twenty-two (22) pressure reducing stations, twenty-one (21) pressure zones and over 710 km of water mains valued at over \$490 M.

The City has a water main replacement program (average age of pipe is 29 years) to replace aging water mains at a rate of about 2% a year (approximately 12 to 14 km per year), and a program to install and maintain dedicated water quality sampling stations.

# **Cross Connection Control Program**

The City's cross connection control program is in place to ensure the potable water supply is protected from contamination in the event of back siphonage or back pressure. The City requires that appropriate backflow preventers are installed and tested annually as prescribed in the City of Burnaby Plumbing Bylaw #11148. Regulations for the cross connection control can be found in the British Columbia Plumbing Code. Further information on the City's cross connection control program can be obtained directly from Burnaby Building Department – Plumbing and Gas Inspections at 604-294-7130.





# WATER QUALITY MONITORING PROGRAM

In 2017, there were 63 water quality sample locations in Burnaby (detailed in Figure 2 and Appendix A). These sample locations were selected on the basis of determining water quality in various pressure zones, dead ends, reservoirs, feed lines from Metro Vancouver water mains, residences and institutions. These locations were grouped into four different routes for sample collection purposes. Water samples were collected on average twice per week on a two week sample location cycle. At the time of sample collection, free chlorine residual, turbidity and temperature were measured using field test kits. In addition, Metro Vancouver also collected water samples from 17 sites along its transmission network in the City (detailed in Figure 2 and Appendix A).

The collected samples were submitted to the Metro Vancouver Laboratory for analysis. The Metro Vancouver Laboratory is a member of the Canadian Association of Environmental Analytical Laboratories (CAEAL), is accredited by the Standards Council of Canada (SCC) and is also approved by the Provincial Medical Health Officer for potable water testing.

A total of 2621 routine drinking water samples were obtained in 2017 for bacteriological analysis. These included 1562 samples collected from City sample sites (see Appendix A for details) and 1059 samples collected from Metro Vancouver transmission line sites located within the City boundary. The average number of samples collected for bacterial monitoring by the City every month was over 130. Based on Burnaby's population of 232,755, this is above the 104 monthly sample requirement stipulated in the BC Drinking Water Protection Regulation for Burnaby's population size (see Figure 3 and Table 1 – Schedule B).

From a reporting perspective, Fraser Health Authority (FHA) was provided with the drinking water quality results directly by the Metro Vancouver laboratory at the same time as the results were sent to the City. It is to be noted that information regarding sampling locations, sample frequency, sample collection methodology, sample parameters and the laboratory to be used for sample analysis were submitted and accepted by FHA. Furthermore, FHA also collects water samples from City kiosks for audit purposes on a regular basis.

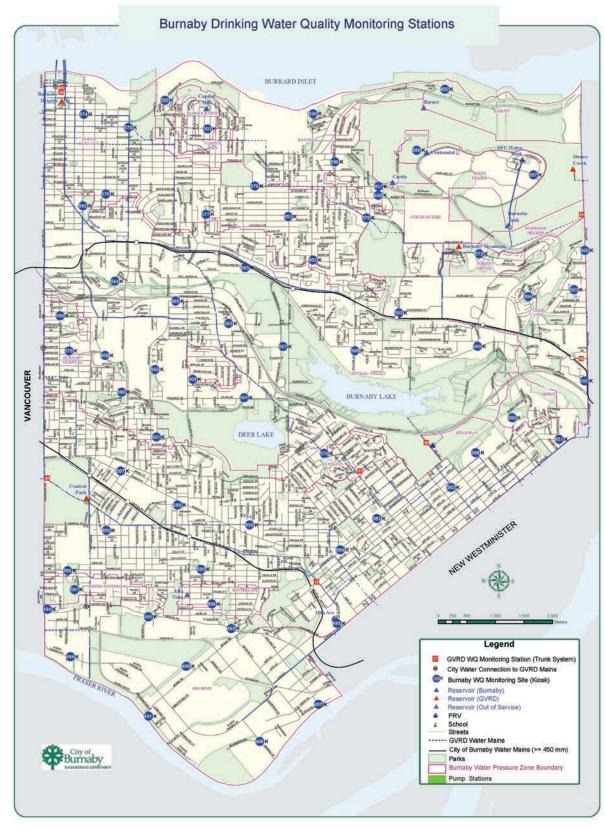


Figure 2 – Burnaby Drinking Water Quality Monitoring Stations Map

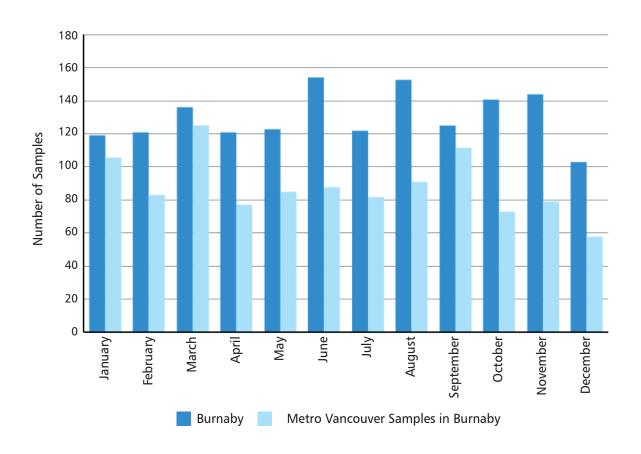


Figure 3 - Number of Monthly Routine Samples Taken in 2017

FREQUENCY	BLE 1- SCHEDULE B OF MONITORING SAMPLES BED WATER SUPPLY SYSTEMS
Population Served	Number of Samples Per Month
Less than 5,000	4
5,000 to 90,000	1 per 1,000 of population
More than 90,000	90 plus 1 per 10,000 of population in excess of 90,000

The water sampling frequency for microbiological characterization of the potable water is stipulated in Schedule B of *Guidelines for Canadian Drinking Water Quality* to be as above (Table 1-Schedule B).

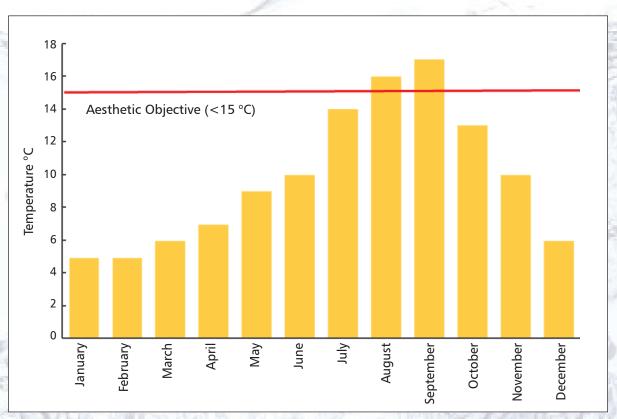


Figure 4 – 2017 Average Monthly Water Temperatures in the Distribution System

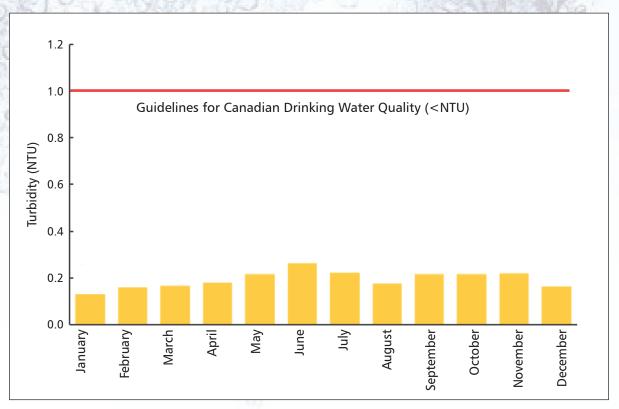


Figure 5 - 2017 Monthly Average Turbidity Levels in the Distribution System



# **Physical Parameters**

The physical parameters tested for in the City's water distribution system include temperature and turbidity.

### **Temperature**

Water temperature in the distribution system is dependent on the seasonal temperature variation experienced by the source water. The *Guidelines for Canadian Drinking Water Quality* set the aesthetic objective (AO) at less than 15°C for drinking water temperature. Temperatures above 15°C can impact aesthetic properties of taste, colour and odour. Temperature is also related to the microbiological characteristics of drinking water through its effect on water treatment processes, especially disinfection, and its effect on the growth and survival of micro-organisms.

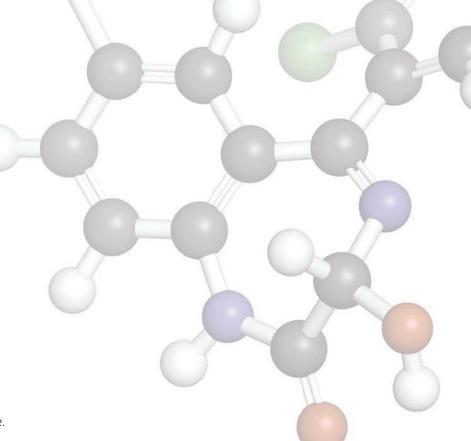
The average water temperature in the distribution system remained well below the AO of 15°C throughout most of the year other than August and September (Figure 4). However, during this period, water quality samples did not show an increase in bacteriological growth, indicating that effective water treatment such as filtration and chlorine disinfection was achieved.

### **Turbidity**

Turbidity is a measure of the relative clarity or cloudiness of water caused by fine suspended matter such as clay, silt and organics. Turbidity is not a direct measure of these particles, but rather a general measure of the effect these particles have on light. Elevated turbidity may be attributed to source water conditions or other transient activities which cause a change in water pressure or flow in the system. These activities include construction, water main flushing, water main breaks, or a sudden increase in water usage (i.e. firefighting). In the event that a sample indicated a high turbidity reading, the procedure would be to follow up with the FHA, immediately flush the applicable water main(s) and re-sample as appropriate.

In 2017, the majority (99.6%) of the water sampled had turbidity less than 1 NTU. Seven samples (0.4%) had turbidity greater than 1 NTU. The average turbidity in Burnaby's water system is seasonally constant as shown in Figure 5.

TABLE 2: BURNABY DRINKING WATER DISINFECTION BY-PRODUCTS RESULTS (2017) THM (ppb) HAA (ppb) Total THM Quarterly Average Total HAA Quarterly Average Chlorodibromomethane Bromodichloromethane Monobromoacetic Acid Monochloroacetic Acid Total Trihalomethanes Total Haloacetic Acid Dibromoacetic Acid Trichloroacetic Acid Dichloroacetic Acid Sample Date Sample Site Chloroform Bromoform 02/03/2017 <1 <1 <1 16 18 25 < 0.5 7 <1 <2 8.4 17.9 24 **BUR-561K** 18/05/2017 1 <1 18 21 25 < 0.5 6 <2 4.3 12.3 21 <1 <1 23/08/2017 <1 <1 <1 18 18 21 1.2 7 <1 <2 6.3 15.5 20 27/11/2017 <1 22 23 20 < 0.5 9 <1 <2 9 20.5 17 <1 <1 02/03/2017 <1 <1 <1 16 17 27 < 0.5 6 <2 6.8 14.7 29 <1 **BUR-584K** 18/05/2017 21 23 < 0.5 4.6 12.8 22 1 <1 <1 18 6 <1 <2 23/08/2017 25 < 0.5 19.8 34.2 23 <1 <1 <1 38 38 14 <1 <2 27/11/2017 <1 <1 <1 25 26 26 < 0.5 10 <1 <2 10.9 23.2 21 02/03/2017 20 22 < 0.5 <2 9.1 18.4 29 <1 <1 <1 28 7 <1 **BUR-586K** 18/05/2017 1 25 < 0.5 9 <2 8.4 22 <1 <1 24 27 <1 19.8 23/08/2017 23 23 24 < 0.5 <1 <2 5.9 16.1 21 <1 <1 <1 9 27/11/2017 37 38 28 < 0.5 17 <2 21.5 41 24 <1 <1 <1 <1 02/03/2017 <1 <1 <1 26 28 35 < 0.5 2 <1 <2 14.3 16.6 19 **BUR-598K** 18/05/2017 2 2 16.3 19.7 18 <1 36 39 36 < 0.5 <2 <1 <1 23/08/2017 10.8 <1 <1 <1 34 34 33 < 0.5 1 <1 <2 13 17 27/11/2017 9.5 11.2 15 1 <1 <1 28 30 33 < 0.51 <1 <2



### **Chemical Parameters**

Water in the City's distribution system is also tested for chemical parameters of pH, chlorine, disinfection by-products (Haloacetic Acids and Total Trihalomethanes), metals and vinyl chloride.

### рН

The pH levels of water sampled was representative of the pH levels of the source water. The water sample pH was 7.2 which meets the *Guidelines for Canadian Drinking Water Quality* Aesthetic Objective of 6.5 to 8.5.

#### **Chlorine Residual**

Chlorine is used to disinfect the water and safeguard against any microbial re-growth or contamination in the distribution system. The *Guidelines for Canadian Drinking Water Quality* recommends a minimum free chlorine residual of 0.2 mg/L.

On average, ninety-eight (98) percent of water samples obtained from the sixty-three (63) sampling stations achieved the objective of 0.2 mg/L or above in 2017 (see Appendix A: Burnaby Drinking Water Summary report By Station – City of Burnaby Sites (2017)). Sampling stations that experience temporary lower residual free chlorine do so largely due to low flow/use through the distribution system. The City maintains the residual chlorine levels in these areas by regular frequent flushing of the watermains to enhance flow.

## **Disinfection By-products**

Disinfection by-products are compounds formed by the interaction between chlorine and naturally occurring organic substances in the water such as decaying leaves and vegetation that enter the source water naturally. The disinfection by-products, measured as Trihalomethanes (THM) and Haloacetic Acid (HAA) were found to be below the Maximum Acceptable Concentration (MAC) value of 100 parts per billion and 80 parts per billion, respectively as noted in the *Guidelines for Canadian Drinking Water Quality* (see Table 2).

## **Vinyl Chloride**

One (1) Vinyl chloride sample was taken in 2017. The sample was taken at a location where the longest section of poly vinyl chloride (PVC) pipes was installed for conveying drinking water to the end user. The vinyl chloride concentration in the sample was found to be <0.001 mg/L which is below the guideline value of 0.002 mg/L stipulated in the *Guidelines for Canadian Drinking Water Quality*.

### Metals

Drinking water samples from six stations were tested for metals on two different occasions. None of the sample results exceeded the guideline values stipulated in the *Federal Guidelines for Canadian Drinking Water Quality* (Table 3).

	TABLE 3: BURNA	BY DRINI	KING WA	TER TOT	AL META	L SAMPI	LING RES	G RESULTS (2017)		
Site		BUR-561K		BUR-570K		BUR-576K		Guidelines <sup>1</sup>		
Sam	ple Date	03/05/2017	24/10/2017	03/05/2017	24/10/2017	03/05/2017	24/10/2017	Max.	Aesthetic	
	Aluminum	21	30	21	27	37	29	200	NA	
	Antimony	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	6	NA	
	Arsenic	<0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5	10	NA	
	Barium	3.6	3.4.	2.5	3.3	2.9	3.3	1000	NA	
	Boron	<10	<10	<10	<10	<10	<10	5000	NA	
	Cadmium	<0.2	<0.2	<0.2	< 0.2	<0.2	<0.2	5	NA	
	Calcium	5900	4030	2560	3980	2180	4070	NA	NA	
	Chromium	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	50	NA	
g/L)	Cobalt	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	NA	NA	
Total Metals (µg/L)	Copper	10.0	10.5	8.8	7.9	7.7	5.9	NA	<1000	
tals	Iron	7	5	<5	9	47	16	NA	<300	
Med	Lead	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	10	NA	
<u> </u>	Magnesium	162	168	140	166	140	168	NA	NA	
10t	Manganese	1.4	4.2	1.5	3.1	17.1	5.0	NA	<50	
	Mercury	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1	NA	
	Molybdenum	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	NA	NA	
	Nickel	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	NA	NA	
	Potassium	144	196	134	191	136	195	NA	NA	
	Selenium	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	50	NA	
	Silver	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	NA	NA	
	Sodium	1400	1560	1430	1540	1310	1570	NA	<200000	
	Zinc	<3	<3.0	3.6	<3.0	3.7	<3.0	NA	<5000	

NA – No Current Guideline Available <sup>1</sup>Canadian Drinking Water Quality Guidelines

TABLE 3: BURNABY DRINKING WATER TOTAL METAL SAMPLING RESULTS (2017)

Site		BUR-	582K	BUR-586K		BUR-	592K	Guidelii	nes <sup>1</sup>
Sam	ple Date	03/05/2017	24/10/2017	03/05/2017	24/10/2017	03/05/2017	24/10/2017	Max. Aesthetic	
	Aluminum	72	27	19	22	31	26	200	NA
	Antimony	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	6	NA
	Arsenic	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	10	NA
	Barium	2.5	3.4	4.7	3.7	3.0	3.5	1000	NA
	Boron	<10	<10	<10	<10	<10	<10	5000	NA
	Cadmium	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	5	NA
	Calcium	1780	4010	5850	4450	4250	4020	NA	NA
	Chromium	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	50	NA
) (T)	Cobalt	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA
Total Metals (µg/L)	Copper	13.4	10.3	34.0	23.4	21.6	10.6	NA	<1000
tals	Iron	43	<5	11	14	8	5	NA	<300
Med	Lead	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	10	NA
<u> </u>	Magnesium	113	165	159	157	148	165	NA	NA
10	Manganese	5.1	2.5	1.0	1.0	5.2	2.3	NA	<50
	Mercury	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1	NA
	Molybdenum	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA
	Nickel	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA	NA
	Potassium	117	192	146	205	134	199	NA	NA
	Selenium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	50	NA
	Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA
	Sodium	4400	1590	1440	1630	1700	1600	NA	<200000
	Zinc	4.8	4.9	7.3	5.8	<3.0	3.9	NA	< 5000

NA – No Current Guideline Available <sup>1</sup>Canadian Drinking Water Quality Guidelines

# **Bacteriological Quality**

The bacteriological monitoring conducted regularly by the City includes testing for heterotrophic plate count (HPC), total coliform and E. coli.

# **Heterotrophic Plate Count**

Heterotrophic Plate Count (HPC) is measured to monitor the system for early bacterial re-growth in the water distribution system. The annual average levels of HPC have been decreasing over the last twenty years (Figure 6). While bacteriological re-growth in the late summer and fall period is still occurring (due to warmer water temperatures), it is to a much lesser extent than in previous years. Continued efforts in unidirectional flushing of water mains and maintaining a free chlorine residual objective of 0.2 mg/L helps to keep the HPC numbers below guideline levels.

#### Total Coliform and E. coli

For a waterworks system to be in compliance, the potable water sample must meet the following standards set out in Schedule A of the *British Columbia Drinking Water Protection Regulations* for the parameter tested (Table 4 – Schedule A):

Overall, the bacteriological water quality complied with the *BC Drinking Water Protection Regulations* (Figure 7).

Neither E. coli or total coliforms were detected in the drinking water samples tested.

For a complete list of results by sampling locations, see Appendix A.

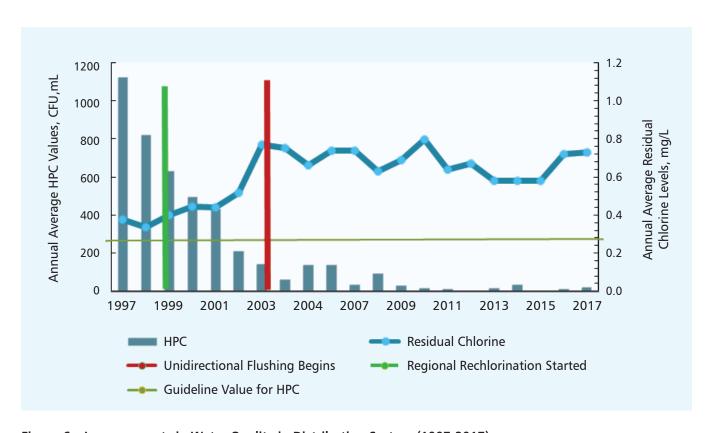


Figure 6 – Improvements in Water Quality in Distribution System (1997-2017)

TABLE 4 - SCHEDULE A WATER QUALITY STANDARDS FOR POTABLE WATER				
PARAMETER	STANDARD			
Fecal coliform bacteria	No detectable fecal coliform bacteria per 100 ml			
Escherichia coli (E. coli)	No detectable <i>Escherichia coli</i> per 100 ml			
Total coliform bacteria	<ul> <li>a) No more than 10% of the samples in a 30 day period should be positive for total coliform bacteria when more than one sample is collected.</li> <li>b) No sample should contain more than 10 total coliform bacteria per 100 mL</li> </ul>			

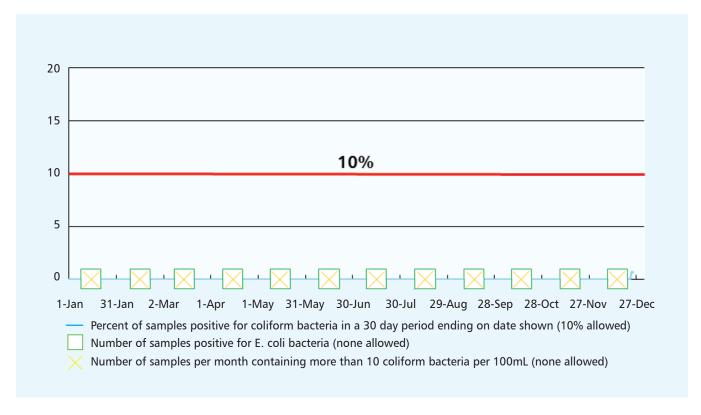


Figure 7 – City of Burnaby – Results of Bacteriological Analyses of Potable Water Samples Compliance with BC Drinking Water Protection Regulation. Provided By Metro Vancouver.



# WATER UTILITY INCIDENT RESPONSE PLAN

In the event of major emergencies or disasters, the Engineering Department is responsible for restoring/ maintaining water utility operations in order to ensure that water quality, quantities and pressures are sufficient for the distribution of drinking water and effective fire-fighting. The Water Utility Incident Response Plan is the Engineering Department's action plan to ensure compliance to the legislated requirements under the BC Drinking Water Protection Act and Regulation. Should water utility service be diminished by an emergency or disaster, this plan will assist in reducing the impact and ensuring orderly response.



# **CONCLUSION**

The City of Burnaby in partnership with Metro Vancouver consistently deliver clean, safe and aesthetically pleasing drinking water to the residents, businesses and visitors in Burnaby. In 2017, the physical, chemical, and bacteriological characteristics of the drinking water continue to be of high quality and in compliance with applicable regulations and guidelines.

