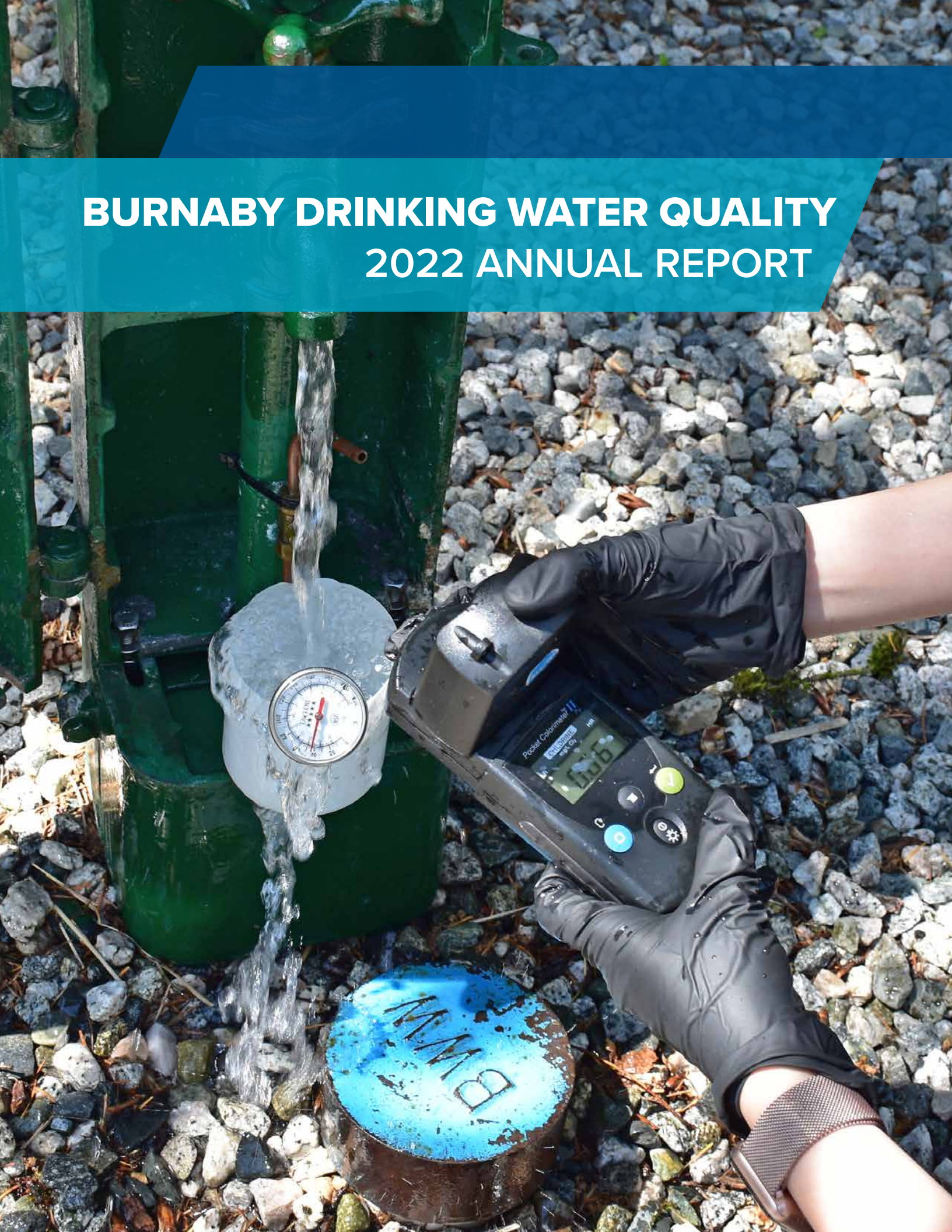
BURNABY DRINKING WATER QUALITY
2022 ANNUAL REPORT



Metro Vancouver Capilano Watershed

TABLE OF CONTENTS

Metro Vancouver Coquitlam Watershed

INTRODUCTION

This report provides an overview of the regulatory context and outlines the drinking water quality program for 2022 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 Metro Vancouver and the member municipalities by generally assigning the responsibility of source water monitoring and reporting to Metro Vancouver and the responsibility for distribution system monitoring and reporting to the 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 to detail the investments in water treatment, supply and conservation programs necessary to provide consistently high-quality drinking water, improved supply reliability, and greater environmental protection. A progress report was published in 2014 which outlines the steps implemented by Metro Vancouver to meet the goals and objectives set out in the 2011 plan. Details of the Plan and the municipal actions identified and adopted by the City are posted on the Metro Vancouver website at: **metrovancouver.org**

Metro Vancouver Seymour-Capilano Filtration Plant

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. Coquitlam source water uses ozone for pre-treatment and UV and chlorine as primary disinfectants. The source waters are then subsequently re-chlorinated at various 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 coliforms, *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 samples and tests the drinking water for indicator organisms (total coliforms, *E. Coli*, and HPC), and a limited number of chemicals (free chlorine residual, polycyclic aromatic hydrocarbons (PAHs) and benzene, toluene, ethylbenzene, xylene (BTEX)). The 2020 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 2022 source water quality to the Metro Vancouver Utilities Committee on May 1, 2023 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 2022 can be found in their publication *"The Greater Vancouver Water District Quality Control Annual Report 2022, 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 Information Line at 604-451-6010. This publication will be posted on Metro Vancouver's website **metrovancouver.org** by the end of June 2023.

Water Conservation in a Rainforest?

Metro Vancouver gets a lot of rain throughout the year (over one metre per year in some regions) except during the months of July, August and September. These are also the months during which water demand increases, in part, due to watering our lawns which can create a shortage of fresh drinking 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 annually. 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**.

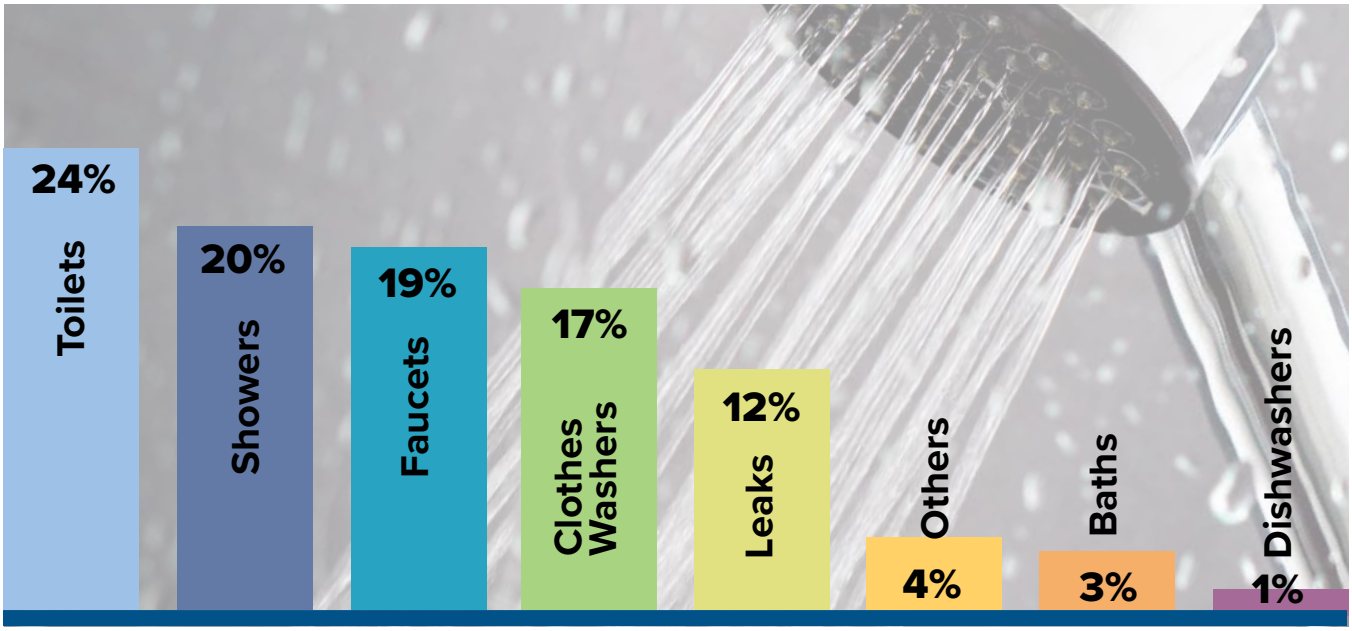


Figure 1 – How Do You Use Your Water? *Data from Metro Vancouver*

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, Metro Vancouver residents use about 270 litres per day for activities such as showering, washing dishes, 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 throughout 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 up to 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 consumption 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.
- Take shorter showers. Reducing your shower by two minutes can save 15 litres of water per day.
- Wash full loads and use shorter cycles when doing laundry. This saves 95 litres of water per load.
- Save the water you use while rinsing fruit and vegetables for watering house plants.
- Use dual-flush or low-flow toilets to save 6 to 14 litres of water per flush.
- 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.
- An hour a week of sprinkling 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.
- Use spring-loaded garden hose nozzles. This saves 23 litres of water per minute.
- Water your lawn early in the morning to reduce the amount of water lost to wind and evaporation.
- Use a broom instead of a hose to sweep driveways, decks, patios and sidewalks.

Aldrin Pump Station

Distribution System

The City receives its treated water from Metro Vancouver and distributes it to consumers through a series of reservoirs and a network of pipes. 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 watermains, cross-connection control and reservoir exercising.

Infrastructure

The City's water system consists of four water pump (or booster) stations, four active water storage reservoirs (storage capacity 13.0 ML), 26 pressure reducing stations, 21 pressure zones and over 710 km of watermains valued at over $490 million.

The City has a watermain replacement program (average age of pipe is 29 years) to replace aging watermains at a rate of nearly 2% a year (approximately 12 to 14 km per year), and a program to install and maintain dedicated sampling kiosks at sampling locations.

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 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 the Burnaby Building Department – Plumbing and Gas Inspections at 604-294-7130.

Drinking Water Sampling

Checking for Free Chlorine

WATER QUALITY MONITORING PROGRAM

In 2022, there were 63 water quality sample locations in Burnaby (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 watermains, 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 and temperature were measured using field test kits. In addition, Metro Vancouver collected water samples from 14 sites along its transmission network in the City (Figure 3).

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 2,411 routine drinking water samples were obtained in 2022 for bacteriological analysis. These included 1,636 samples collected from City sample sites and 775 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 (Figure 3). Based on Burnaby's projected population of around 249,125, this is above the 107 monthly sample requirement stipulated in the BC Drinking Water Protection Regulation for Burnaby's population size (Figure 3 and Table 1).

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

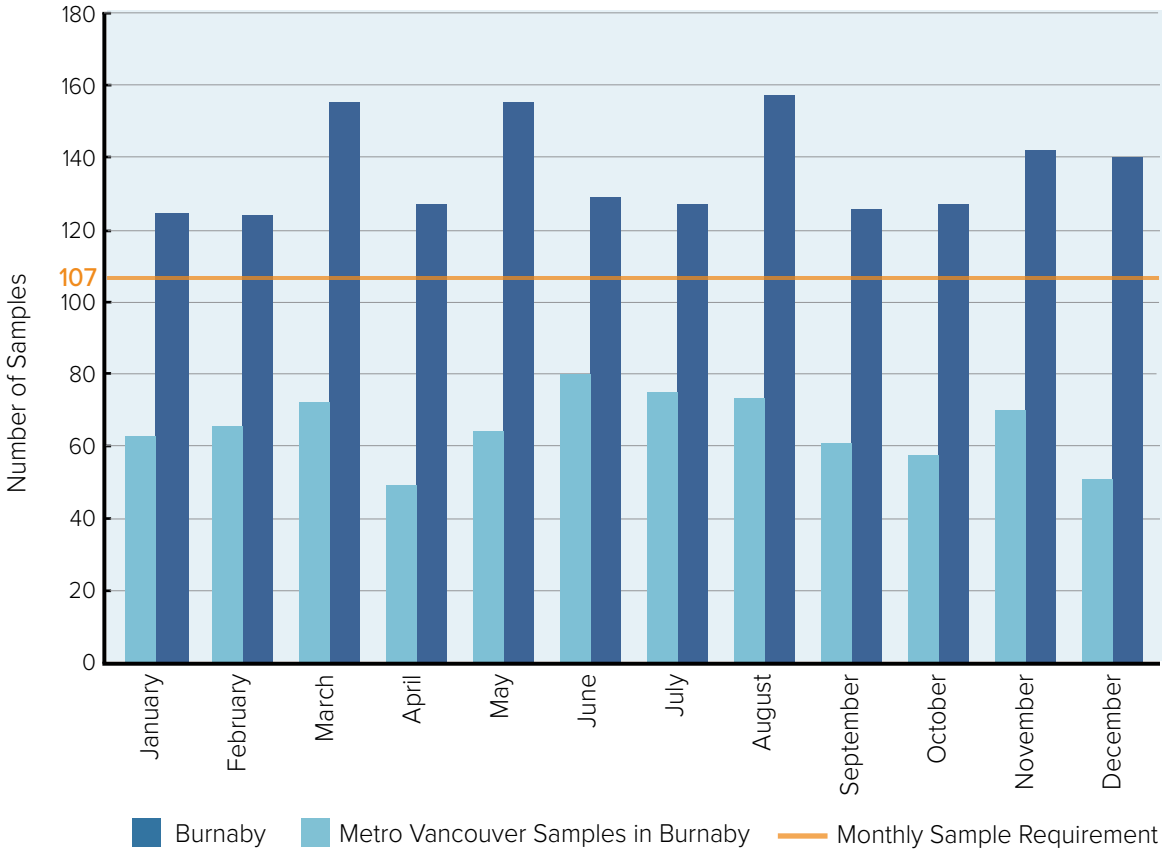


Figure 3 – Number of Monthly Routine Samples Taken in 2022

TABLE 1: SCHEDULE B (FREQUENCY OF MONITORING SAMPLES FOR PRESCRIBED WATER SUPPLY SYSTEMS) OF THE B.C. DRINKING WATER PROTECTION REGULATION	
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

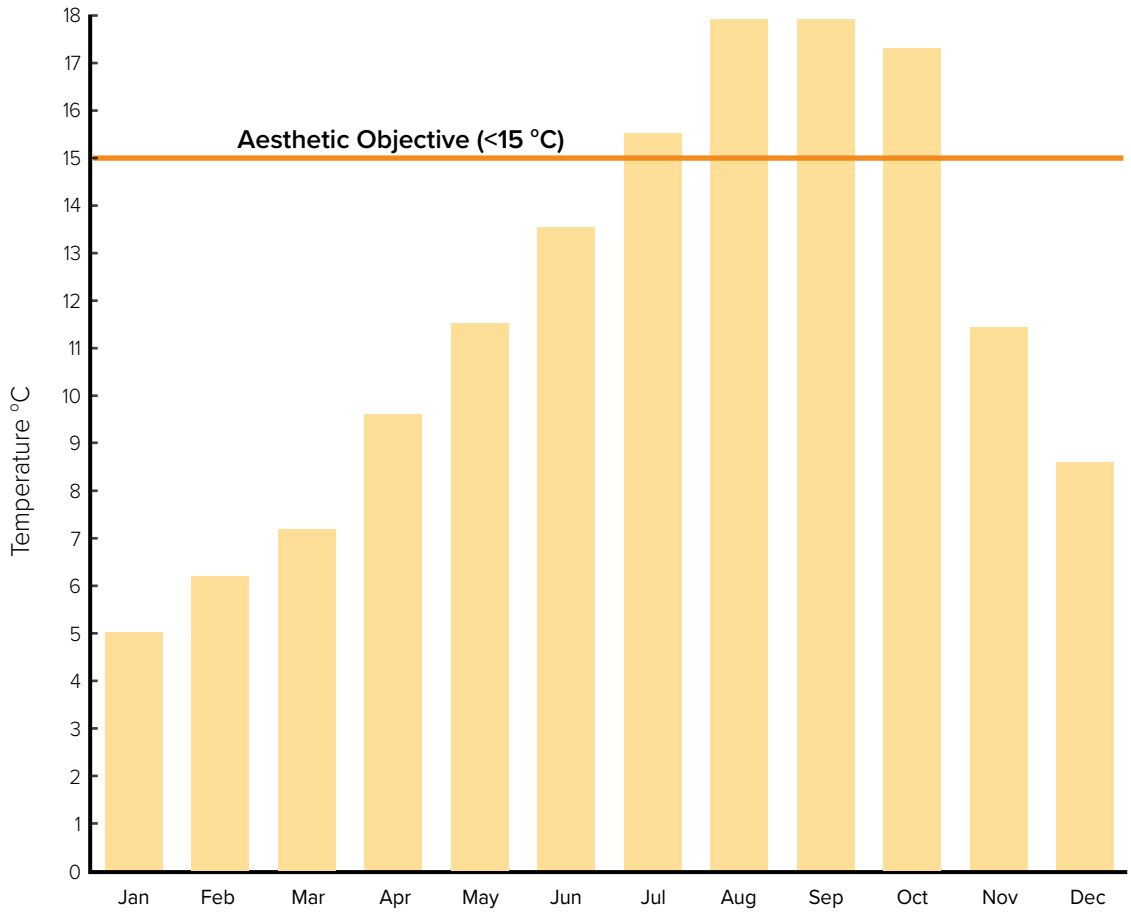


Figure 4 – 2022 Average Monthly Water Temperatures in the Distribution System

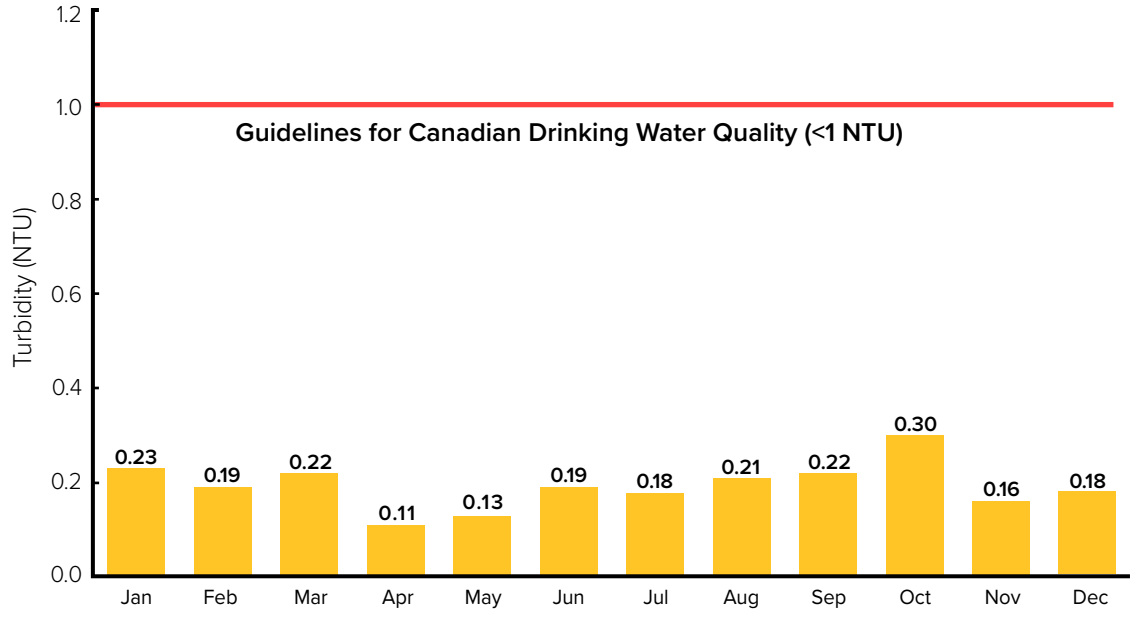


Figure 5 – 2022 Monthly Average Turbidity Levels in the Distribution System

Physical Parameters

In the City's water distribution system, the physical parameters tested 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 the year other than July, August, September and October (Figure 4). Metro Vancouver typically experiences warmer temperatures during these summer months which attributes to increase water temperatures in the distribution system. However, during this period, water quality samples did not show an increase in bacteriological growth, indicating that effective treatment was achieved through means like filtration and chlorine disinfection.

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, watermain flushing, watermain breaks, or a sudden increase in water usage (e.g. 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 watermain(s) and re-sample as appropriate.

In 2022, the majority (99.4%) of the water sampled had turbidity less than 1 NTU. Ten samples (0.6%) had turbidity greater than 1 NTU. The average turbidity in Burnaby's water system is seasonally constant as shown in Figure 5.

Stock photo - Water Sample Testing

TABLE 2: BURNABY DRINKING WATER DISINFECTION BY-PRODUCTS RESULTS (2022)

Sample Site	Sample Date	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average
BUR-498K	17-Feb-22	<1	<1	<1	20	21	29	<0.5	9	<5.0	<5.0	7	16	29
	12-May-22	<1	<1	<1	27	29	28	<0.5	11	<0.5	1	9	21	22
	25-Aug-22	<1	<1	<1	36	36	29	<0.5	25	<5.0	<5.0	32	58	28
	17-Nov-22	2	<1	<1	30	33	30	<0.5	3	<0.5	0.6	7	10	26
BUR-561K	17-Feb-22	<1	<1	<1	17	18	21	<0.5	8	<0.5	<0.5	5	12	16
	12-May-22	<1	<1	<1	21	22	22	<0.5	9	<0.5	1	4	14	15
	25-Aug-22	<1	<1	<1	20	20	21	<0.5	10	<0.5	<5.0	5	16	14
	18-Nov-22	1	<1	<1	22	25	21	<0.5	5	<0.5	<0.5	3	9	13
BUR-575K	17-Feb-22	<1	<1	<1	19	20	26	<0.5	9	<0.5	<5.0	6.2	15.0	15
	12-May-22	<1	<1	<1	24	26	26	<0.5	10	<0.5	1	5.7	17.0	15
	25-Aug-22	<1	<1	<1	22	22	24	<0.5	8	<0.5	<5.0	4.1	12.0	14
	18-Nov-22	1	<1	<1	25	27	24	<0.5	6	<0.5	<0.5	3.8	9.3	13
BUR-584K	17-Feb-22	<1	<1	<1	17	18	24	<0.5	9	<0.5	<0.5	5.0	14.0	24
	12-May-22	<1	<1	<1	23	25	25	<0.5	10	<0.5	1	5.3	16.0	23
	25-Aug-22	<1	<1	<1	38	38	26	<0.5	23	<5.0	<5.0	27.0	52.0	25
	18-Nov-22	1	<1	<1	23	25	27	<0.5	6	<0.5	<0.5	4.1	10.0	23
BUR-586K	17/02/2022	<1	<1	<1	24	25	32	<0.5	10	<0.5	1	8.4	19.0	19
	12/05/2022	<1	<1	<1	32	34	32	<0.5	8	<0.5	1	7.0	15.0	17
	25/08/2022	<1	<1	<1	33	33	31	<0.5	8	<5.0	<5.0	10.0	18.0	16
	18/11/2022	2	<1	<1	34	37	32	<0.5	2	<0.5	<5.0	8.4	11.0	16
BUR-594K	17/02/2022	<1	<1	<1	18	19	26	<0.5	9	<0.5	1	5.7	15.0	21
	12/05/2022	<1	<1	<1	24	26	27	<0.5	10	<0.5	1	6.0	17.0	20
	25/08/2022	<1	<1	<1	27	27	25	<0.5	11	<0.5	<5.0	8.5	20.0	18
	18/11/2022	1	<1	<1	26	28	25	<5.0	12	<5.0	<5.0	6.8	19.0	18
BUR-856K	17/02/2022	<1	<1	<1	30	31	40	<0.5	7	<0.5	<0.5	11.0	18.0	8
	12/05/2022	<1	<1	<1	33	35	40	<0.5	8.7	<0.5	0.9	8.7	18.0	11
	25/08/2022	<1	<1	<1	28	28	34	<0.5	6.2	<0.5	<0.5	5.2	11.0	12
	18/11/2022	2	<1	<1	41	44	35	<0.5	1	<5.0	<5.0	12.0	13.0	15

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.

pH

The pH levels of water sampled was representative of the pH levels of the source water and were all within 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 regrowth 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, 99.1% of water samples obtained from the 63 sampling stations achieved the objective of 0.2 mg/L or above in 2022 (Appendix A). Of the 0.9% (14) of water samples that had free chlorine residual of <0.2 mg/L, nine samples were from two sample locations. Both of the sampling sites are located in low flow areas with one in a dead-end cul-de-sac. There is limited water use from the low number of residents living in this area. The City aims to maintain the residual chlorine levels in these areas by regular frequent flushing of the watermain to enhance flow.

Disinfection Byproducts

Disinfection byproducts 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* (Table 2).

Vinyl Chloride

Two vinyl chloride samples were taken in 2022. The samples were taken at a location where the longest section of polyvinyl chloride (PVC) pipes was installed for conveying drinking water to the end user. The vinyl chloride concentration in each sample was found to be < .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 seven stations were tested for metals on two different occasions. None of the sample results exceeded the Maximum Acceptable Concentration (MAC) guideline values stipulated in the *Federal Guidelines for Canadian Drinking Water Quality* (Table 3).

TABLE 3: BURNABY DRINKING WATER TOTAL METAL SAMPLING RESULTS (2022)

Site		BUR-498K		BUR-561K		BUR-570K		BUR-576K		Guidelines[1]	
Sample Date		05/05/2022	10/11/2022	05/05/2022	10/11/2022	05/05/2022	10/11/2022	05/05/2022	10/11/2022	MAC	AO
Total Metals (µg/L)	Aluminum	34	43	22	33	24	35	23	33	NA	200
	Antimony	<0.5	<0.5	<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	<0.5	<0.5	10 (ALARA)	NA
	Barium	2.9	3.9	2.4	3.4	2.4	3.4	2.5	3.3	1000	NA
	Boron	<10	<10	<10	<10	<10	<10	<10	<10	5000	NA
	Cadmium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	NA
	Calcium	8280	7610	8140	8520	8540	8550	8360	8470	NA	NA
	Chromium	<0.05	0.08	<0.05	0.08	<0.05	0.07	<0.05	0.08	50	NA
	Cobalt	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA
	Copper	3.8	4.9	3.6	5.9	3.2	7.9	2.5	3.4	≤2000	NA
	Iron	8	9	<5	6	<5	6	<5	7	NA	≤ 300
	Lead	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5 (ALARA)	NA
	Magnesium	195	199	193	215	196	216	191	215	NA	NA
	Manganese	2.5	7.6	2.9	7.5	2.8	7.7	3.9	7.1	120	NA
	Mercury	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0	NA
	Molybdenum	<0.5	<0.5	<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	<0.5	<0.5	NA	NA
	Potassium	154	219	153	223	154	226	157	224	NA	NA
	Selenium	<0.5	<0.5	<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	<0.5	<0.5	NA	NA
	Sodium	2000	2620	1530	1840	1540	1800	1510	1780	NA	≤ 200,000
	Zinc	<3.0	3.2	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	NA	≤ 5000

NA – No Current Guideline Available **MAC** – Maximum Allowable Concentration **AO** – Aesthetic Objective
ALARA – As Low As Reasonably Achievable [1]Canadian Drinking Water Quality Guidelines

TABLE 3: BURNABY DRINKING WATER TOTAL METAL SAMPLING RESULTS (2022)									
Site		**BUR-582K**		**BUR-586K**		**BUR-592K**		**Guidelines[1]**	
Sample Date		05/05/2022	10/11/2022	05/05/2022	10/11/2022	05/05/2022	10/11/2022	**MAC**	**AO**
Total Metals (µg/L)	Aluminum	26	34	32	43	27	35	NA	200
	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 (ALARA)	NA
	Barium	2.7	3.4	3.1	3.8	2.6	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	9060	8540	9100	8510	8660	8520	NA	NA
	Chromium	<0.05	0.05	<0.05	0.08	<0.05	0.10	50	NA
	Cobalt	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA
	Copper	4.7	6.5	6.4	6.4	2.8	4.6	≤2000	NA
	Iron	5	5	11	10	<5	5	NA	≤ 300
	Lead	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5 (ALARA)	NA
	Magnesium	202	215	192	186	204	214	NA	NA
	Manganese	4.6	7.1	2.1	7.2	3.6	7.1	120	NA
	Mercury	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0	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	159	224	162	226	158	229	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	1550	1800	1520	1930	1570	1810	NA	≤ 200,000
	Zinc	<3.0	3.0	<3.0	<3.0	<3.0	<3.0	NA	≤ 5000

NA – No Current Guideline Available **MAC** – Maximum Allowable Concentration **AO** – Aesthetic Objective
ALARA – As Low As Reasonably Achievable [1]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 regrowth in the water distribution system. The annual average levels of HPC have been decreasing over the last twenty years (Figure 6). While bacteriological regrowth 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 watermains and maintaining a free chlorine residual objective of 0.2 mg/L helps to keep the HPC numbers below guideline levels of 500 CFU.

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).

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

With respect to E. Coli, no samples were found to contain any E. Coli bacteria.

With respect to total coliform bacteria, one sample was found to contain 2 CFU/100 mL. But at no time did the percentage of samples that tested positive for total coliform exceed the 10% stipulated in the *British Columbia Drinking Water Regulations*. Furthermore, the sample that tested positive for total coliform did not contain more than 10 coliform bacteria per 100 mL.

As a standard protocol, any sample with greater than 1 total coliform would result in resampling. Any sample with greater than 10 total coliforms would result in a follow-up with FHA and immediate flushing of applicable watermains and resampling.

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

TABLE 4:
SCHEDULE A (WATER QUALITY STANDARDS FOR POTABLE WATER)
OF THE B.C. DRINKING WATER PROTECTION REGULATION

PARAMETER	STANDARD
Fecal Coliform bacteria	No detectable fecal coliform bacteria per 100 mL
***Escherichia Coli* (E. Coli)**	No detectable *Escherichia Coli* per 100 mL
Total Coliform bacteria	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. b) No sample should contain more than 10 total coliform bacteria per 100 mL

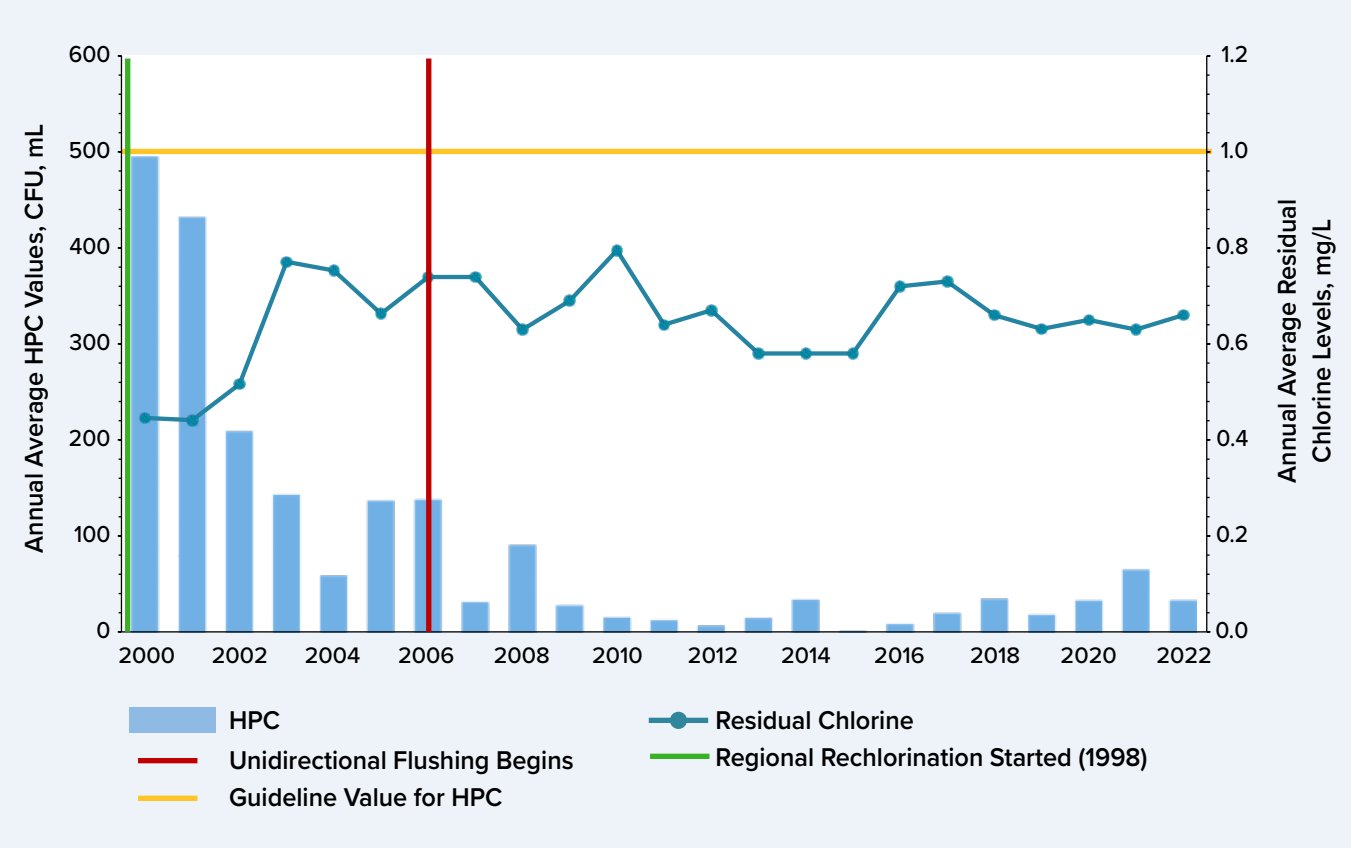


Figure 6 – Improvements in Drinking Water Distribution System (1998-2022)

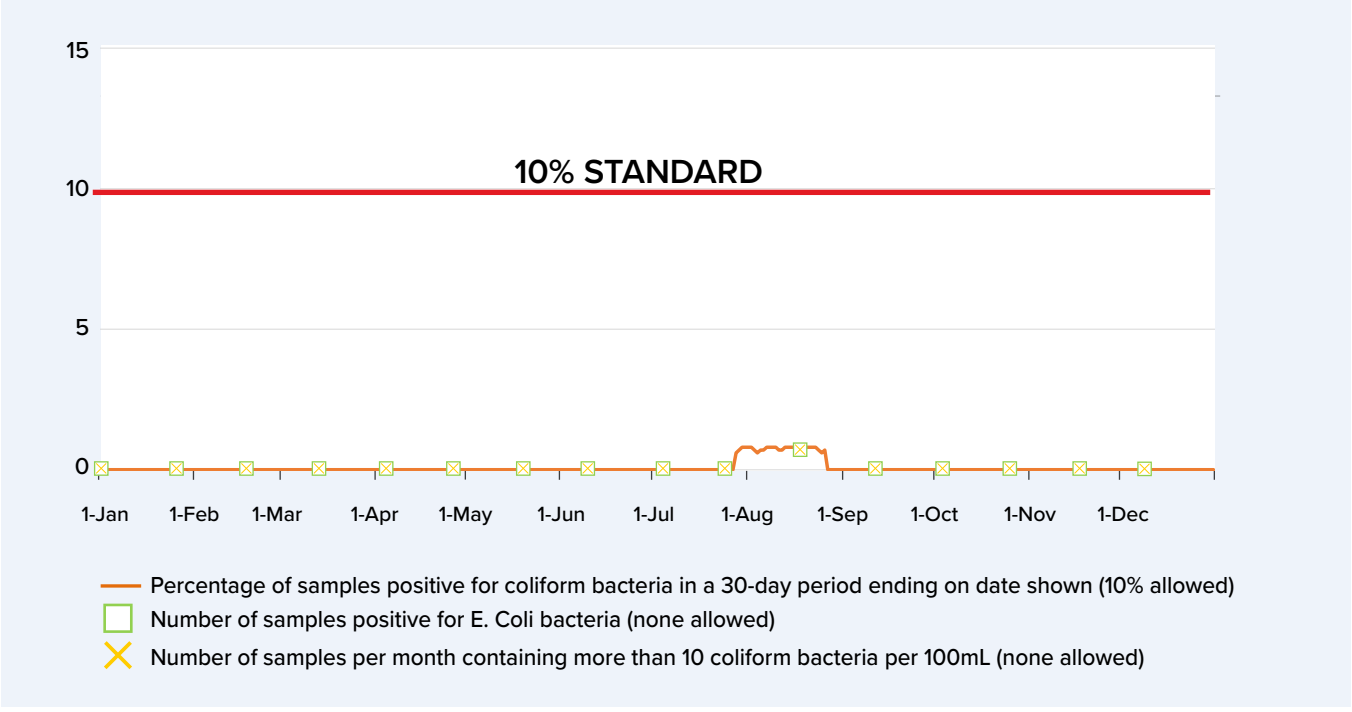


Figure 7 – City of Burnaby – 2022 Results of Bacteriological Analyses of Potable Water Samples Compliance with BC Drinking Water Protection Regulation Provided by Metro Vancouver

WATER CONTINUITY PLAN

In the event of major emergencies or disasters, the Engineering Department is responsible for restoring and maintaining water utility operations. Furthermore, this will ensure that water quality, quantities and pressures are sufficient for the distribution of drinking water and effective firefighting. The Water Continuity Plan replaces the Water Utility Incident Response Plan and is the Engineering Department's action plan to ensure compliance with 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

In partnership with Metro Vancouver, the City of Burnaby consistently delivers clean, safe and aesthetically pleasing drinking water to residents, businesses and visitors in Burnaby. In 2022, the physical, chemical, and bacteriological characteristics of the drinking water continued to be of high quality and in compliance with applicable regulations and guidelines.

Burnaby.ca | climateactionandenergy@burnaby.ca
604-294-7850
4946 Canada Way, Burnaby, BC, V5G 4H7

Printed on recycled paper.

PLANNING AND DEVELOPMENT DEPARTMENT

City of Burnaby