

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020



Presented By
**Town of Burlington,
DPW, Water Dept.**

PWS ID#: 3048000



Quality First

We are pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2020. As in years past, we are committed to delivering the best-quality drinking water possible. We remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all our water users. Thank you for allowing us the opportunity to serve you and your family.

We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies.

Where Does My Water Come From?

The sources for our treatment facilities are the Shawsheen River and the Vine Brook Aquifer. We produced 978.79 million gallons of drinking water in 2020. The daily average was 2.698 million gallons, and the maximum per day was 5.017 million gallons.

Groundwater Sources

We utilize four wells located in the Vine Brook Aquifer.

Surface Water Source

The Mill Pond Plant source water is the Mill Pond Reservoir. Our reservoir holds 513 million gallons when full. Water is pumped from the Shawsheen River to fill the reservoir.

We also purchased 6.692 million gallons of water from the Town of Lexington, which is served by the MWRA.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater/lead.

Level 1 Assessment Update

Coliforms are bacteria that are naturally present in the environment and used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and correct any problems that were found during these assessments.

During the past year, we were required to conduct a Level 1 Assessment. We identified the suspected issue in our assessment, and no further action was required.

Source Water Assessment

The DEP has completed source water assessments for all drinking water sources across Massachusetts. The purpose of this Source Water Assessment Program (SWAP) was to determine the susceptibility of each drinking water source to potential contaminant sources. The relative susceptibility rating for all our wells was high. The susceptibility rating for the Shawsheen River was also rated as high, while the Mill Pond Reservoir was given a rating of moderate. It is important to understand that these susceptibility ratings do not imply poor water quality, rather that the system has a potential to become contaminated within the assessment area.

The complete SWAP report is available at the Burlington Department of Public Works and online at www.mass.gov/files/documents/2016/08/uc/3048000.pdf. For more information, call (781) 270-1648.

The Town of Lexington's SWAP Report can be found at <https://www.mass.gov/doc/northeast-region-source-water-assessment-protection-swap-program-reports/download>

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



QUESTIONS? For more information about this report, please call Russell Makiej, Water Treatment Manager, at (781) 270-1648 or email rmakiej@burlington.org

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and which may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system the fluoride level is adjusted to an optimal level averaging 0.7 part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the U.S. who receive the health and economic benefits of fluoridation.

What's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air-conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (back pressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (back siphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water is needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water is used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water is required to produce one quart of milk, and 4,200 gallons of water is required to produce two pounds of beef.

According to the U.S. EPA, the average American uses over 180 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet, twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.watercalculator.org.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. The water we deliver must meet specific health standards. Here, we are required to show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the fourth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water in order to determine if U.S. EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.



Definitions

90th %ile: Out of every 10 homes sampled, 9 were at or below this level. This number is compared to the Action Level to determine lead and copper compliance.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloramines (ppm)	2020	[4]	[4]	2.72	1.77–2.72	No	Disinfectant used in the treatment process to inhibit bacteriological growth
Chlorine (ppm)	2020	[4]	[4]	2.52	1.53–2.52	No	Disinfectant used to control bacteriological growth
Fluoride (ppm)	2020	4	4	0.88	0.01–0.88	No	Water additive which promotes strong teeth; Naturally occurring
Haloacetic Acids [HAAs] (ppb)	2020	60	NA	31	9–31	No	By-product of drinking water disinfection
Total Organic Carbon ¹ (ppm)	2020	TT	NA	2.7	2.0–2.7	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	2020	80 ²	NA	93	20–93	No	By-product of drinking water disinfection
Turbidity ³ (NTU)	2020	TT	NA	0.114	0.024–0.114	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2020	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2020	1.3	1.3	0.024	0/34	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2020	15	0	ND	0/34	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2020	200	NA	21	15–21	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2020	250	NA	493	190–493	No	Runoff/leaching from natural deposits
Iron (ppb)	2020	300	NA	240	ND–240	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2020	50	NA	47	ND–47	No	Leaching from natural deposits
pH (units)	2020	6.5–8.5	NA	9.14	7.68–9.14	No	Naturally occurring, adjusted by chemical addition
Sulfate (ppm)	2020	250	NA	89	12–89	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2020	500	NA	820	370–820	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES⁴

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,4 Dioxane ⁵ (ppb)	2020	16	11–16	Stabilizers, chlorinated solvents, and paint strippers

What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, and toothbrush holders and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including humans). The bacteria can be introduced into the house through any of the above-mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

Serratia will not survive in chlorinated drinking water.



¹The value reported under Amount Detected for TOC is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one indicates that the water system is in compliance with TOC removal requirements. A value of less than one indicates a violation of the TOC removal requirements.

²Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system and may have an increased risk of getting cancer.

³Turbidity is a measure of particulates in the water. It is monitored because it is a good indicator of the effectiveness of the filtration systems.

⁴Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

⁵These data come from monthly analysis of Vine Brook finished water. The MA DEP MCL is 30 ppb.

