ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2019

Presented By

Town of Burlington, DPW, Water Department

PWS ID#: 3048000

Our Mission Continues

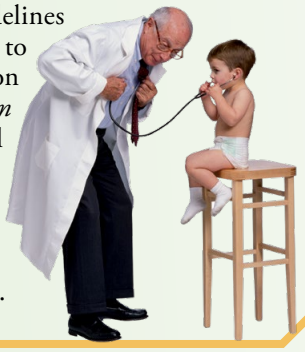
We are pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2019. We dedicate ourselves to producing drinking water that meets or exceeds all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. We remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

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 parts 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.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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.



Source Water Assessment

The Department of Environmental Protection (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, but 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. You may view Lexington's SWAP at https://www.mass.gov/doc/northeast-region-source-water-assessment-protection-swap-program-reports/download

Where Does My Water Come From?

The sources for our treatment facilities are the Shawsheen River and the Vine Brook Aquifer. We produced 1.015 billion gallons of drinking water in 2019. The daily average was 2.78 million gallons, and the maximum day was 4.36 million gallons.

Groundwater Sources

We utilize seven wells (4 still in service) 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 15.415 million gallons of water from the Town of Lexington, which is served by the MWRA.

QUESTIONS?

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

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (MA 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 that 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;

> We remain vigilant in delivering the best-quality drinking water

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and 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.

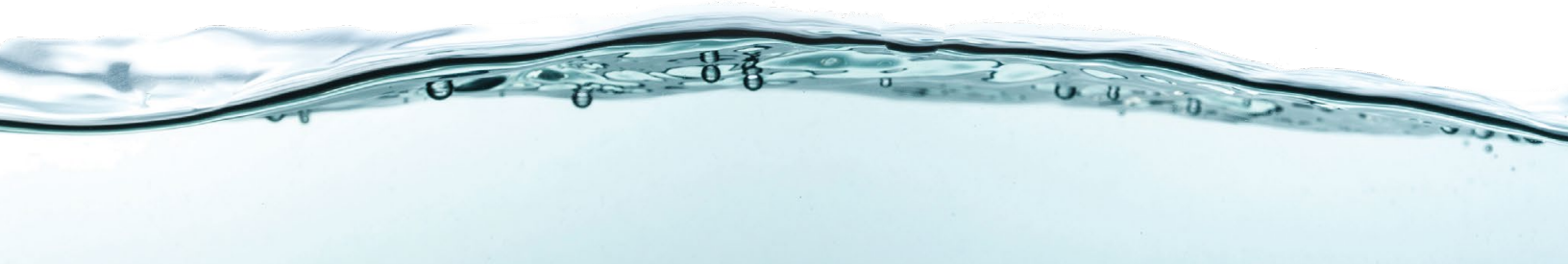
Level 1 Assessment Update

Coliform are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential problem is happening in our drinking water distribution system. We had coliform positive samples during July, indicating the need to look for potential problems in water treatment or distribution. If this occurs, we are required by DEP to conduct assessments to identify problems and to correct any problems that were identified during these assessments.

During the past year, we were required to conduct one Level 1 assessment. We identified the cause in our assessment and were not required to take any further actions.

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 2 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.



Analysis Results

Our water is analyzed for many substances on a very strict sampling schedule. The water we provide must meet specific health standards. Here in this table, we are required show those substances that were detected in our water. It is important to 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 contaminant levels.

The state recommends monitoring for certain substances less often 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 are participating in the 4th 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 EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the 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.

MA DEP requires that a copy of our CCR and a Certification Form be submitted to them by July 1. These items were submitted on July 2, 2019, resulting in a violation. This technical violation had no impact on public health and safety, and we have taken the steps to ensure that this oversight will not be repeated.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2015	10	0	2	1–2	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2015	2	2	0.051	0.02–0.051	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chloramines (ppm)	2019	[4]	[4]	2.49	1.80–2.49	No	Disinfectant used in the treatment process to inhibit bacteriological growth
Chlorine (ppm)	2019	[4]	[4]	2.29	1.77–2.29	No	Disinfectant used to control bacteriological growth
Cyanide (ppb)	2015	200	200	30	30–30	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
Fluoride (ppm)	2019	4	4	0.93	0.01–0.93	No	Water additive that promotes strong teeth; Can also be found in groundwater sources
Haloacetic Acids [HAAs] (ppb)	2019	60	NA	40	9.0–40.0	No	By-product of drinking water disinfection
Selenium (ppb)	2015	50	50	4	3–4	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2019	80	NA	75	13–75	No	By-product of drinking water disinfection
Total Organic Carbon[1] (ppm)	2019	TT	NA	2.52	2.03–2.52	No	Naturally present in the environment
Turbidity[2] (NTU)	2019	TT	NA	0.099	0.029–0.099	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2019	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)	2019	1.3	1.3	0.037	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2019	15	0	0	0/31	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	EXCEEDANCE	TYPICAL SOURCE
Aluminum (ppb)	2019	200	NA	17	0–17	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2019	250	NA	380	190–380	No	Runoff/leaching from natural deposits
Iron (ppb)	2019	300	NA	180	0–180	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2019	50	NA	39	0–39	No	Leaching from natural deposits
Total Dissolved Solids [TDS] (ppm)	2019	500	NA	760	400–760	No	Runoff/leaching from natural deposits
pH (Units)	2019	6.5–8.5	NA	8.84	8.13–8.84	No	Naturally occurring; Also, adjusted by chemical addition

UNREGULATED SUBSTANCES [3]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,4 Dioxane (ppb)[4]	2019	16	12–16	Stabilizers, chlorinated solvents, and paint strippers
Bromodichloromethane (ppb)	2015	8.1	1–8.1	By-product of drinking water disinfection
Bromoform (ppb)	2015	1.7	1–1.7	By-product of drinking water disinfection
Chloroform (ppb)	2015	9.9	0.5–9.9	By-product of drinking water disinfection
Dibromochloromethane (ppb)	2015	3.2	2–3.2	By-product of drinking water disinfection
Sodium[5] (ppm)	2015	130	110–130	Runoff from road treatment and natural ground deposits

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

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

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

[4] These data come from monthly analysis of the Vine Brook finished water. The MA DEP MCL is 30 ppb.

[5] The Massachusetts Department of Environmental Protection maintains a guideline level of 20 ppm for sodium.

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 that, if exceeded, triggers treatment or other requirements that 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.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

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

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.

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 (backpressure). 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 (backsiphonage).

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 when 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.