ANNUAL WATER QUALITY REPORT

Reporting Year 2022

Presented By
Veolia

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Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2022. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, 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. Please remember that we are always available should you ever have any questions or concerns about your water.

For any questions relating to your drinking water, call Joseph Zadrozny, Project Manager, at (978) 630-8791.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the 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.

On January 27, 2022, while filling the newly coated clearwell, it was observed that the chlorine residual reading was lower than the targeted set point. The chlorine dose was immediately increased to reach the set point. It took about 40 minutes for the residual to get into the proper range.

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 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.

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 an assessment to identify and correct any problems that are found.

During the past year, we were required to conduct one Level 1 assessment. One Level 1 assessment was completed. In addition, we were required to take one corrective action, and we completed this action.

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.

Treatment Train Description

Our water system makes every effort to provide safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We add sodium hypochlorite and ammonium sulfate to protect you against microbial contaminants.
- We add polyaluminum chloride to coagulate the dirt particles within the untreated water, which helps the microfiltration process.
- We filter the water to remove small particles and organisms such as sediment, algae, and bacteria.
- We add sodium fluoride to the water to aid dental health.
- We add an inorganic phosphate blend for corrosion control and to reduce lead and copper concentrations from leaching out of your household plumbing.
- We add soda ash to adjust the pH of the water in the distribution system.

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.

Source Water Description

Your drinking water comes from groundwater and surface water sources: Cowee Pond, Perley Brook, and Crystal Lake, all of which are located in Gardner. Water flows by gravity from Cowee Pond to Perley Brook and is then pumped to Crystal Lake.

The Crystal Lake Water Treatment Facility continues to produce high-quality drinking water. It uses microfiltration membranes and has a total capacity of 4.5 million gallons per day. In 2022 474 million gallons of raw water was pumped from Crystal Lake and treated to produce 383 million gallons of finished water for the City of Gardner.

The Snake Pond Well Treatment Facility is a groundwater source used to help with seasonal water demand. It continues to produce high-quality drinking water. This facility was upgraded and has been online since April 2006. It pumped 168 million gallons of raw water to produce 149 million gallons of finished water for the City of Gardner and has a capacity of 1.3 million gallons a day.

There are three aboveground drinking water storage tanks in the City of Gardner. They are used to help ensure a safe, reliable supply of drinking water and provide fire protection. The capacity of these storage tanks is 4.75 million gallons.

Source Water Assessment

Massachusetts DEP has prepared a Source Water Assessment Program (SWAP) report for the water supply sources serving this system. The report assesses the susceptibility of each source of public water supplies. A susceptibility ranking of high was assigned to this system using information collected during the assessment by DEP. The plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources. You can download a copy at https://www.mass.gov/doc/gardner-water-department-swap-report/download

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies. In our system fluoride is adjusted to a level averaging 0.7 part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless.

Opportunities for Public Participation

You may attend the Public Service Committee meetings. They are held every month before the city council meeting.

Cryptosporidium in Drinking Water

Cryptosporidium is a microbial parasite found in surface water. Although filtration removes *Cryptosporidium*, the most commonly used methods cannot guarantee 100-percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only 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.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2022	2	2	0.024	0.024–0.024	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2022	[4]	[4]	2.02[1]	0.02–3.22[1]	No	Water additive used to control microbes
Fluoride (ppm)	2022	4	4	0.58[1]	ND–0.80[1]	No	Water additive which promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2022	60	NA	25.06[1]	15–38[1]	No	By-product of drinking water disinfection
Nitrate (ppm)	2022	10	10	0.149	ND–1.28	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2022	2	NA	0.21	0.11–0.21	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
PFAS6 (ppt)	2022	20	NA	3.08	2.77–3.08	No	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil-resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as firefighting foams.
Total Coliform Bacteria[2] (positive samples)	2022	TT	NA	3	NA	No	Naturally present in the environment
Total Organic Carbon (ppm)	2022	TT[3]	NA	4.9	0.7–9.1	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 2 (ppb)	2022	80	NA	33.875	23–52	No	By-product of drinking water disinfection
Turbidity[4] (NTU)	2022	TT	NA	0.28	0.02–0.28	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2022	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)	2022	1.3	1.3	0.095	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2022	15	0	8	2/32	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)	2022	200	NA	12	ND–12	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2022	250	NA	136	119–136	No	Runoff/leaching from natural deposits
Manganese[5] (ppb)	2022	50	NA	53	ND–53	No	Leaching from natural deposits
pH (units)	2022	6.5–8.5	NA	7.615	7.1–8.24	No	Naturally occurring
Total Dissolved Solids [TDS] (ppm)	2022	500	NA	328	224–328	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES[6]				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2022	13	ND–13	Disinfection by-product
Chlorodibromomethane (ppb)	2022	0.8	ND–0.8	Disinfection by-product
Chloroform (ppm)	2022	9.1	0.7–9.1	Disinfection by-product
Sodium (ppm)	2022	83	64–134	Natural sources; Runoff from use as salt on roadways; By-product of treatment process
Sulfate (ppm)	2022	12	3–21	Naturally occurring

OTHER UNREGULATED SUBSTANCES				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Magnesium (ppm)	2022	1.825	1.78–1.87	Leaching from natural deposits
Perfluorohexanoic acid (ppt)	2022	1.82	1.53–1.82	NA

[1] Results are LRAA/RAA.

[2] Coliform bacteria are naturally present in the environment and used as an indicator of other, potentially harmful, bacteria.

[3] The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to 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.

[4] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

[5] Manganese is a naturally occurring mineral found in rocks, soil, groundwater, and surface water. Manganese is necessary for proper nutrition and part of a healthy diet, but it can have undesirable effects on certain sensitive populations at elevated concentrations. The U.S. EPA and DEP have established public health advisory levels to protect against concerns of potential neurological effects.

[6] Unregulated 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.

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.

LRAA: Locational running annual average.

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).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

RAA (Running Annual Average): Running annual average means the sum of 1, 2, 3, or 4 calendar quarter sample results divided by 4. The first sample may be the average of the initial and confirmation sample results.

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.