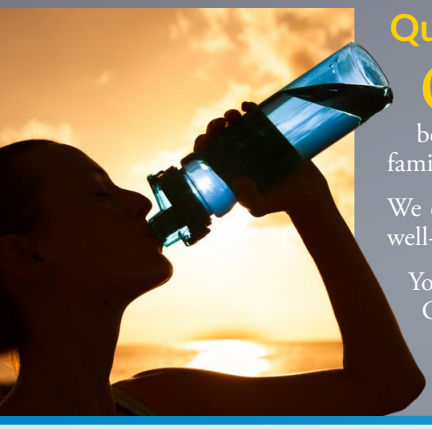
ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020

Presented By
Veolia

PWS ID#: 2103000



Quality First

Once again, 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. 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.

You may attend the Public Service Committee meetings. They are held every month before the City Council Meeting.

For any questions relating to your drinking water, call Timothy Michaud, Chief Operator, at (978) 630-8791.

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 Poly Aluminum Chloride to help coagulate the dirt particles within the untreated water to aid 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 in dental health.
- We add Inorganic Phosphate Blend for corrosion control and 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.

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 doctors 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.

Lead in Home Plumbing

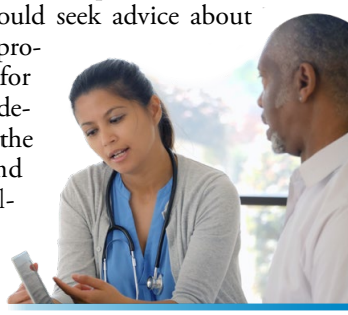
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but 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.

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.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised people 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 Description

Your drinking water comes from ground water 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 Snake Pond Well Treatment facility is a ground water source. It is used to help with seasonal water demand.

The Crystal Lake Water Treatment Facility continues to produce high-quality drinking water. The facility uses Micro Filtration Membrane filters and has a total capacity of 4.5 million gallons per day. 606 million gallons of raw water was pumped from Crystal Lake in 2020 and treated in order to produce 535 million gallons of finished water for the City of Gardner.

The Snake Pond Well Treatment Facility also continues to produce high-quality drinking water. This facility was upgraded and has been on line since April 2006. This facility pumped 77 million gallons of raw water in order to produce 71 million gallons of finished water for the City of Gardner and has a capacity of 1.3 million gallons a day.

There are (3) drinking water storage tanks in the City of Gardner. These above-ground storage tanks are used to help ensure a safe, reliable supply of drinking water and to provide fire protection. The capacity of these storage tanks is 4.75 million gallons.

Arsenic Regulation

Arsenic contamination of drinking water sources may result from either natural or human activities. Volcanic activity, erosion of rocks and minerals, and forest fires are natural sources that can release arsenic into the environment. Although about 90 percent of the arsenic used by industry is for wood preservative purposes, it is also used in paints, drugs, dyes, soaps, metals, and semiconductors. Agricultural applications, mining, and smelting also contribute to arsenic releases. Arsenic is usually found in the environment combined with other elements such as oxygen, chlorine, and sulfur (inorganic arsenic), or combined with carbon and hydrogen (organic arsenic). Organic forms are usually less harmful than inorganic forms. Low levels of arsenic are naturally present in water -- about 2 parts arsenic per billion parts of water (ppb). Thus, you normally take in small amounts of arsenic in the water you drink. Some areas of the country have unusually high natural levels of arsenic in rock, which can lead to unusually high levels of arsenic in water.

In January 2001, the U.S. EPA lowered the arsenic Maximum Contaminant Level (MCL) from 50 to 10 ppb in response to new and compelling research linking high arsenic levels in drinking water with certain forms of cancer. All water utilities were required to implement this new MCL in January 2006. Removing arsenic from drinking water is a costly procedure but well worth the expenditure considering the health benefits. For a more complete discussion, visit the U.S. EPA's arsenic Web site at http://bit.ly/3brsTzX.

Substances That Could Be in Water

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

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.

Source Water Assessment

MADEP has prepared a Source Water Assessment Program (SWAP) report for the water supply sources serving this water 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 MADEP. 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 www.mass.gov/eea/docs/dep/water/drinking/swap/cero/2103000.pdf.

Test Results

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

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2020	2	2	0.025	0.025–0.025	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine[1] (ppm)	2020	[4]	[4]	1.74	0.05–3.04	No	Water additive used to control microbes
Combined Radium (pCi/L)	2015	5	0	0.26	ND–0.26	No	Erosion of natural deposits
Fluoride[1] (ppm)	2020	4	4	0.69	0.10–0.80	No	Water additive that promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2[1] (ppb)	2020	60	NA	19.49	8.5–28	No	By-product of drinking water disinfection
Nitrate (ppm)	2020	10	10	0.084	0.034–0.139	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2020	2	NA	0.595	0.28–0.91	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes]–Stage 2[1] (ppb)	2020	80	NA	38.52	7.6–68	No	By-product of drinking water disinfection
Total Coliform Bacteria[2] (# Positive samples)	2020	TT	NA	0	NA	No	Naturally present in the environment
Total Organic Carbon[3] (ppm)	2020	TT	NA	2.375	1.9–3.6	No	Naturally present in the environment
Turbidity[4] (NTU)	2020	TT	NA	0.18	0.06–0.18	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	0.148	0/60	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2020	15	0	3	0/60	No	Corrosion of household plumbing systems; Erosion of natural deposits

OTHER REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
PFAS6 (ppt)	2020	20	NA	2.35	1.9–2.8	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 fire-fighting foams.

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2020	200	NA	35	ND–70	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2020	250	NA	88	58–118	No	Runoff/leaching from natural deposits
Manganese[5] (ppb)	2020	50	NA	44	ND–44	No	Leaching from natural deposits
pH (Units)	2020	6.5–8.5	NA	7.77	6.71–8.12	No	Naturally occurring
Total Dissolved Solids [TDS] (ppm)	2020	500	NA	114	88–140	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES[6]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2020	8.9	ND–8.9	Disinfection by-product
Chlorodibromomethane (ppb)	2020	2.5	ND–2.5	Disinfection by-product
Chloroform (ppm)	2020	12.5	ND–12.5	Disinfection by-product
Sodium (ppm)	2020	66	66–66	Natural sources; Runoff from use as salt on roadways; By-product of treatment process
Sulfate (ppm)	2020	22	9–22	Naturally occurring

OTHER UNREGULATED SUBSTANCES[6]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Magnesium (ppm)	2020	1.63	1.34–1.63	Leaching from natural deposits
Perfluorohexanoic acid (ppm)	2020	1.93	1.93–1.93	NA

[1] Results are LRAA/RAA.
[2] Coliform bacteria are naturally present in the environment and are used as an indicator to detect for other potentially harmful bacteria.
[3] The 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 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, ground water, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but it can have undesirable effects on certain sensitive populations at elevated concentrations. The U.S. EPA and MADEP 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 monitoring unregulated contaminants is to assist the 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 that, if exceeded, triggers treatment or other requirements that a water system must follow.

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.

pCi/L (picocuries per liter): A measure of radioactivity.

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)

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.