

# ANNUAL WATER QUALITY REPORT

Reporting Year 2021



*Presented By*  
**Veolia**

## We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

For a more detailed discussion on PFAS, please visit <https://www.atsdr.cdc.gov/pfas/index.html>.

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

## The Benefits of Fluoridation

In our system, fluoride 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.

## Treatment Train Description

Our water system makes every effort to deliver safe and pure drinking water 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 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 for improved dental health.
- We add an inorganic phosphate blend for corrosion control and to reduce the amount of lead and copper leaching out of household plumbing.
- We add soda ash to adjust the pH of the water in the distribution system.

## Opportunities for Public Participation

Members of the public are welcome to attend the Public Service Committee meetings. They are held every month before the City Council Meeting.

## 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](http://www.epa.gov/safewater/lead).

## 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. 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 view or download a copy of the SWAP report at <https://www.mass.gov/doc/gardner-water-department-swap-report/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>.

## 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.

## 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.

## 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 Snake Pond Well Treatment Facility is a groundwater source. It is used to help with seasonal water demand. The facility has been upgraded and has been producing high-quality drinking water since April 2006. This facility pumped 116 million gallons of raw water to produce 102 million gallons of finished water for the City of Gardner. It has a capacity of 1.3 million gallons a day.

The Crystal Lake Water Treatment Facility continues to produce high-quality drinking water. The facility uses microfiltration membrane filters and has a total capacity of 4.5 million gallons per day. In 2021 552 million gallons of raw water was pumped from Crystal Lake and treated to produce 472 million gallons of finished water for the City of Gardner.

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

## 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.

Although *E. coli* was detected, the water system is not in violation of the *E. coli* MCL.

### REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2021	2	2	0.028	0.028–0.028	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine <sup>1</sup> (ppm)	2021	[4]	[4]	2.03	0.04–3.00	No	Water additive used to control microbes
Fluoride <sup>1</sup> (ppm)	2021	4	4	0.645	0.10–0.80	No	Water additive which promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2 <sup>1</sup> (ppb)	2021	60	NA	21.56	12–35	No	By-product of drinking water disinfection
Nitrate (ppm)	2021	10	10	0.149	0.149–0.149	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2021	2	NA	0.375	0.27–0.48	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
PFAS6 (ppm)	2021	20	NA	2.675	2.38–2.88	No	Industrial and manufacturing sources associated with the production or use of moisture- and oil-resistant coatings on fabrics and other materials; Use and disposal of products such as firefighting foams
Total Coliform Bacteria <sup>2</sup> (Positive samples)	2021	TT	NA	0	NA	No	Naturally present in the environment
TTHMs [Total Trihalomethanes]–Stage 2 <sup>1</sup> (ppb)	2021	80	NA	37.31	28–50	No	By-product of drinking water disinfection
Total Organic Carbon <sup>3</sup> (ppm)	2021	TT	NA	2.275	1.1–2.7	No	Naturally present in the environment
Turbidity <sup>4</sup> (NTU)	2021	TT	NA	0.10	0.05–0.10	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2021	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)	2021	1.3	1.3	0.144	0/60	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	3	1/60	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)	2021	200	NA	10	10–10	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2021	250	NA	116	116–116	No	Runoff/leaching from natural deposits
Manganese <sup>5</sup> (ppb)	2021	50	NA	62	ND–62	Yes	Leaching from natural deposits
pH (units)	2020	6.5–8.5	NA	7.518	7.00–8.49	No	Naturally occurring
Total Dissolved Solids [TDS] (ppm)	2021	500	NA	100	100–100	No	Runoff/leaching from natural deposits

## UNREGULATED SUBSTANCES <sup>6</sup>

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
<b>Bromodichloromethane</b> (ppb)	2021	7	ND–7	Disinfection by-product
<b>Chlorodibromomethane</b> (ppb)	2021	1.8	ND–1.8	Disinfection by-product
<b>Chloroform</b> (ppm)	2021	10.7	ND–10.7	Disinfection by-product
<b>Sodium</b> (ppm)	2021	72	32–72	Natural sources; Runoff from roadways; By-product of treatment process
<b>Sulfate</b> (ppm)	2021	2	2–2	Naturally occurring

## OTHER UNREGULATED SUBSTANCES <sup>6</sup>

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
<b>Magnesium</b> (ppm)	2021	1.91	1.91–1.91	Leaching from natural deposits
<b>Perfluorohexanoic acid</b> (ppm)	2021	1.44	ND–1.44	NA

<sup>1</sup> Results are a locational running annual average (LRAA).

<sup>2</sup> Coliform bacteria are naturally present in the environment and used as an indicator to detect other, potentially harmful, bacteria.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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 MADEP have established public health advisory levels to protect against concerns of potential neurological effects.

<sup>6</sup> 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.

**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).

**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.

## 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.