

ANNUAL WATER QUALITY REPORT

Reporting Year 2022



Presented By
**Haverhill Water
Department**

PWS ID#: 3128000

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.



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 more information about this report, or for any questions relating to your drinking water, please call Mary D'Aoust, Water Treatment Plant Chemist, at (978) 374-2385, or email mdaoust@haverhillwater.com.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is available at the water treatment plant. This 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.

This report assesses activities on our watershed and identifies potential pollution hazards. These potential hazards, if handled properly, would not pose a threat to our water supplies. These hazards fall in the following categories: fertilizer storage, livestock operations, manure storage/spreading, nurseries, pesticide storage/use, auto repair and body shops, bus and truck terminals, cemeteries, golf courses, junk/salvage yards, nursing homes, repair shops, sand and gravel mining/washing, fuel oil storage, lawn care/gardening, septic systems, aquatic wildlife, combined sewer overflows, composting facilities, fishing /boating, land application of sewage sludge, school, colleges/universities, snow dump, stormwater drains/retention basins, and underground storage tanks. One or all of these hazards can be found near all of Haverhill's water sources. A water department employee checks these areas weekly to identify any violations. If you would like to view this report, please contact the water treatment plant at (978) 374-2385.

Haverhill's Water Sources

Our drinking water comes from combined water sources, all of which are surface water—meaning aboveground supplies, not wells. Our sources are lakes, ponds, and a human-made reservoir. Water is pumped as needed from Millvale Reservoir and Crystal Lake into Kenoza Lake, where the Haverhill Water Treatment Plant is located. Round Pond and Winnekenni Basin are also part of our drinking water system; their water overflows into Kenoza Lake. These combined waters are then pumped from Kenoza Lake into the water treatment plant.

The Benefits of Fluoridation

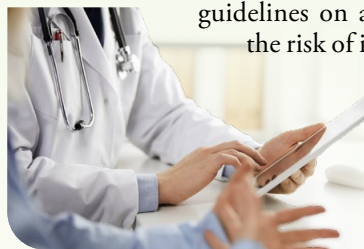
Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system, the fluoride level is adjusted to an optimal level averaging 0.7 part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. There are over 3.9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

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.

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 Process Description

The Haverhill Water Treatment Plant is a conventional filtration plant, which includes coagulation, flocculation, clarification, filtration, and disinfection. The clarified, treated water goes through a two-stage (sand, then granular activated carbon) filtration process. After filtration it is fluoridated, then disinfected with sodium hypochlorite before it is pumped into the distribution system. Last year, the water treatment plant processed 2.1 billion gallons of water. The distribution system is made up of three storage tanks with a capacity of 17 million gallons, 13 pumping stations, and approximately 300 miles of water main.

Year in Review

Water Maintenance

The Haverhill Water Department began a capital improvement project along a segment of Primrose Street. The project's goals are to improve service reliability and water quality by abandoning a segment of 12-inch water main dating back to the early 1900s. New gate valves and fire hydrants were installed along an existing 16-inch water main installed in 1991. Side streets and customer water services along Primrose Street from Fifth to Ninth Avenues were then switched from the 12-inch water main to the newer 16-inch water main. The project is scheduled to be completed in 2023.

The Haverhill Water Department applied for grant funding and entered into an agreement with the consulting engineering firm Woodard and Curran to develop a program to perform a comprehensive water service line inventory. This inventory will verify the material type of all water service lines, including lead. Based on department records, there are fewer than 200 full or partial lead water services left in the distribution system. The regulatory deadline to complete this inventory project is October 16, 2024. Access to customer residences to verify types of water service materials may be required in some circumstances. We ask for the cooperation of all our customers if you are contacted by the water department or its authorized contractor during the inventory phase of the project.

Water Supply and Resources

Great gains were made in 2022 with the acquisition or protection of several parcels of land in the watersheds of Haverhill's public water supply. The acquisitions were made when the development of parcels was deemed to have the potential to have a negative impact on the watershed and water supply. The largest land protection project of 2022 was awarded

a grant of \$250,000 from the state's Drinking Water Supply Protection grant program. That award is being used to protect 54 acres of land around Crystal Lake.

The city continues to work on the development of the next generation of Haverhill's water supply. The project to develop a high-yielding radial collector well along the Merrimack River is in the permitting phase. This phase is anticipated to be completed in spring 2023, which will allow the construction and final approval of the well.

Haverhill, along with all eastern Massachusetts communities, went through historic drought conditions in 2022 that continued into early 2023. Haverhill was more fortunate than most water systems because it was able to manage multiple water sources to keep mandatory water restrictions at bay through the worst of the conditions. Recent precipitation has improved capacities, and the water supply is tracking near normal levels. We ask that our customers remain mindful of their water usage and conserve where possible. The water department provides low-flow faucet aerators and showerheads, which are available at the Water Billing Office, Room 300, in City Hall. Drought conditions are updated on the city's water supply status web page, <https://bit.ly/wtr-supply-status>.

Contact Information

Backflow/Cross-Connections (978) 374-2375

Water Billing (978) 374-2370

Water Maintenance (978) 374-2368

Water Meters (978) 373-8487

Water Treatment (978) 374-2385



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.

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. We are pleased to report that your drinking water meets or exceeds all federal and state requirements.

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	0.008	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2022	[4]	[4]	1.28	0.79–1.57	No	Water additive used to control microbes
Fluoride (ppm)	2022	4	4	0.68	0.05–1.00	No	Water additive which promotes strong teeth
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2022	60	NA	28.3	4.4–37	No	By-product of drinking water disinfection
PFAS6 (ppt)	2022	20	NA	1.7	ND–2.4	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 Organic Carbon (ppm)	2022	TT ¹	NA	1.9	1.6–2.2	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 2 (ppb)	2022	80	NA	54.9	34–64	No	By-product of drinking water disinfection
Turbidity ² (NTU)	2022	TT	NA	0.27	0.01–0.27	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)	2020	1.3	1.3	0.051	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2020	15	0	2.0	0/30	No	Lead service lines; Corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits

About Our Violation

The Haverhill Water Department received a Notice of Noncompliance (NON) from DEP for failure to collect a sample and report the results for six regulated per- and polyfluoroalkyl substances (PFAS6) in the third quarter of 2022. On July 7, 2022, Haverhill collected the required sample for PFAS6 and submitted it to our contract laboratory for analysis. The sample was in turn sent to another environmental laboratory that is certified for PFAS6 analysis. The results for PFAS6 testing must be submitted electronically through DEP's website by our contracted laboratory. Due to slow turnaround time for the analysis and miscommunication between the two laboratories, the results of the testing were not submitted to DEP in electronic format in the required time frame. The results were electronically submitted to DEP on December 6, 2022. The analysis of Haverhill's sample demonstrates that results were well below the maximum contaminant level (MCL) set for the PFAS6 contaminants. At no time were consumers of Haverhill's public water supply consuming water with PFAS6 levels exceeding the MCL.

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
pH (units)	2022	6.5-8.5	NA	7.61	7.19–8.36	No	Naturally occurring
Sulfate (ppm)	2022	250	NA	17	NA	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2022	500	NA	128	NA	No	Runoff/leaching from natural deposits
Zinc (ppm)	2022	5	NA	0.722	NA	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES³

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Alkalinity (ppm)	2022	26	NA	NA

¹The 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.

²Turbidity 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.

³Unregulated 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.

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.

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.

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.