



**AQUARION**  
Water Company

*Stewards of the Environment™*

— **2022** —  
WATER  
**QUALITY**  
REPORT

*Water: it's too precious to waste*

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OXFORD SYSTEM

PWS ID#: MA2226000

Este informe contiene información importante sobre su agua potable. Pida a alguien que lo traduzca para usted, o hable con alguien que lo entienda.

## LETTER FROM THE VICE PRESIDENT



*John Walsh*  
Vice President, Operations  
Aquarion Water Company  
of Massachusetts

Dear Aquarion Customer:

I have the pleasure of reporting that Aquarion Water Company continued its delivery of high-quality water to our customers in 2022. We met or exceeded all state and federal water quality standards in your water system, as measured by the 5,943 tests we conducted throughout the year. This includes tests for perfluoroalkyl and polyfluoroalkyl (PFAS), substances that, in high concentrations, can cause serious health effects. You can find our 2022 PFAS updates and test results at [www.aquarionwater.com/pfas](http://www.aquarionwater.com/pfas).

Last summer brought drought back to much of the state, but irrigation schedules helped to maintain adequate water supplies, as did invaluable help from customers everywhere who not only reduced outdoor water use, but also fixed leaks and took other vital conservation measures. Thank you for all you do to avoid wasting water — our most precious resource. For more ideas on what you can do to conserve water, please see page 8 in this report or visit [www.aquarionwater.com/conserve](http://www.aquarionwater.com/conserve).

With Appreciation,



John Walsh



### Questions About Your Water Quality Report?

Customers who have questions about water quality should call us at **800-832-2373**. Customers also may email us at [waterquality@aquarionwater.com](mailto:waterquality@aquarionwater.com), or visit [www.aquarionwater.com/MA](http://www.aquarionwater.com/MA).

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For discolored water, service problems or after-hours emergencies, or to participate in a public meeting, call **800-732-9678**.

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Massachusetts Department of Environmental Protection:  
[www.mass.gov/info-details/  
public-drinking-water-system-operations](http://www.mass.gov/info-details/public-drinking-water-system-operations)

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U.S. Environmental Protection Agency's Safe Drinking Water Hotline: **800-426-4791** or [www.epa.gov/safewater](http://www.epa.gov/safewater)

# WATER QUALITY TABLE

Your water has been tested for more than 100 compounds that are important to public health. Only 13 of these were detected, all of which were below the amounts allowed by state and federal law. Most of these compounds are either naturally occurring or introduced as treatment to improve water quality. Monitoring frequency varies from daily to once every nine years

per EPA regulation, depending on the parameter. Our testing encompasses the full range of regulated inorganic, organic and radiological compounds and microbiological and physical parameters. Results shown here are for detected compounds only.

Substance (Units of Measure)	Likely Source	MCLG	MCL	Compliance	Test Date	Average	Range
<b>INORGANIC COMPOUNDS</b>							
<b>Barium (ppm)</b>	Erosion of natural deposits	2	2	<b>YES</b>	2021	0.072	0.007 - 0.196
<b>Copper (ppm)</b>	Corrosion of household plumbing systems	1.3	AL = 1.3	<b>YES</b>	2022	0.40*	
<b>Fluoride (ppm)</b>	Water additive that promotes strong teeth; erosion of natural deposits	4.0	4.0	<b>YES</b>	2022	0.74	0.58 - 0.89
<b>Lead (ppb)</b>	Corrosion of household plumbing systems	0	AL = 15	<b>YES</b>	2022	ND < 1**	
<b>Nitrate (ppm)</b>	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10	10	<b>YES</b>	2022	1.293	0.084 - 3.610

<b>DISINFECTANT</b>							
<b>Chlorine (ppm)</b>	Water additive used to control microbes	MRDLG 4	MRDL 4	<b>YES</b>	2022	0.80	0.50 - 1.21

<b>ORGANIC COMPOUNDS</b>							
<b>Haloacetic Acids 5 (ppb)</b>	By-product of drinking water chlorination	NA	60	<b>YES</b>	2022	5***	5
<b>PFAS6 (ppt)</b>	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	N/A	20	<b>Yes</b>	2022	3^	ND < 2 - 3
<b>Total Trihalomethanes (ppb)</b>	By-product of drinking water chlorination	NA	80	<b>YES</b>	2022	30***	30

Continued on page 4

# WATER QUALITY TABLE Continued from page 3

Substance (Units of Measure)	Likely Source	MCLG	MCL	Compliance	Test Date	Average	Range
<b>RADIOLOGICALS</b>							
<b>Alpha Emitters (pCi/L)</b>	Erosion of natural deposits	0	15	<b>YES</b>	2019	2.9	ND < 2.8 - 2.9

<b>INORGANIC COMPOUNDS</b>							
<b>Chloride (ppm)</b>	Naturally present in the environment	NA	SMCL = 250	<b>NA</b>	2021	83.5	48.9 - 105
<b>Manganese (ppb)</b>	Erosion of natural deposits	HA = 300	SMCL = 50	<b>NA</b>	2022	10	ND < 2 - 1230^^
<b>Sodium (ppm)</b>	Water treatment processes; use of road salt; naturally present in the environment	NA	ORSG = 20	<b>NA</b>	2021	53.7	23.8 - 76.9

## Footnotes and Definitions

< Less than

**AL Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

### HA Health Advisory

**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 contamination.

**NA Not Applicable**

**ND Not Detected**

**NTU Nephelometric Turbidity Units,** a measure of the presence of particles. Low turbidity is an indicator of high-quality water.

**ORSG Office of Research and Standards Guideline - State of Massachusetts**

**pCi/L Picocuries per liter**

**ppb parts per billion,** or micrograms per liter (ug/L)

**ppm parts per million,** or milligrams per liter (mg/L)

**ppt parts per trillion,** or nanograms per liter (ng/L)

**SMCL Secondary Maximum Contaminant Level**

**TT Treatment Technique:** A required process intended to reduce the level of a contaminant in drinking water.

\* 90th percentile value in copper monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for copper.

\*\* 90th percentile value in lead monitoring. Result is representative of customer sampling stagnant water. No locations exceeded the action level for lead.

\*\*\* Reported value is the highest locational, annual average of quarterly measurements for disinfection by-products in the distribution system. Values in the range are individual measurements.

^ Average is the highest quarterly average of all sample sites. Values in the range are individual measurements.

^^ Manganese levels in Well #1 ranged from 220 to 1,230 ppb. This well ran intermittently throughout the year and contributed 5% of the total water delivered in the Oxford System. Manganese levels in Well #2 ranged from 130 to 1,090 ppb. This well also ran intermittently

throughout the year and contributed 18% of the total water delivered in the Oxford System. This water is blended with water from Well #3, which had manganese levels ranging from none detected (< 2 ppb) to 10 ppb. Well #3 produced 77% of the total water delivered in the Oxford System. Levels of manganese found in the distribution system ranged from none detected (< 2 ppb) to 100 ppb and averaged 10 ppb.

### Health Effects

**Manganese:** Manganese is a naturally occurring mineral found in rocks, soil, ground water and surface water. It 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 United States EPA and MassDEP have set an

aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ppb (parts per billion or micrograms per liter). In addition, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for this mineral. Drinking water may naturally have manganese and, when concentrations are greater than 50 ppb, the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ppb and, over the short term, it recommends that people limit their consumption of water with levels over 1,000 ppb, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 ppb,

nor should formula for infants be made with that water for more than a total of 10 days throughout the year.

**PFAS:** Some people who drink water containing PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.

**Sodium:** Sodium-sensitive individuals such as those experiencing hypertension, kidney failure, or congestive heart failure, who drink water containing sodium should be aware of levels where exposures are being carefully controlled.

# OTHER MONITORED SUBSTANCES

## Source Water Assessment Report

The Massachusetts DEP's Source Water Assessment Program (SWAP), has evaluated each water source to identify potential contamination, states that the sources that supply drinking water to the Oxford System have a high susceptibility to potential contamination. The SWAP report is available on the DEP website. Go to [www.mass.gov](http://www.mass.gov) and enter source water assessment report in the search bar.

## System Capacity Report

The MassDEP Drinking Water Program (DWP) conducted a survey of all community and non-transient non-community public water systems to help assess current challenges in maintaining adequate technical, financial, and managerial capacity. A public water system's capacity is determined by its ability to plan for, achieve, and maintain compliance with applicable federal and state drinking water standards now

and in the foreseeable future (6 years). MassDEP/DWP evaluates systems for adequate, conditional, or inadequate capacity primarily during sanitary surveys.

Oxford System Capacity Designation is Conditional. Conditional means the system is currently complying with the majority of the National Primary Drinking Water Standards and MassDEP drinking water regulations. However, the system may have deficiencies that must be

adequately addressed or have inadequate capacity, and the system owner has signed an Administrative Consent Order (ACO) or compliance plan to address or correct the deficiencies. Aquarion plans to review and upgrade chemical feed and control systems to improve overall capacity.

## Monitoring Unregulated Contaminants

Unregulated contaminants are elements that currently have no health standards for drinking water and are not reported in the regulated contaminants table on page 3. Nickel is an unregulated contaminant that is monitored at the same time as the required monitoring for inorganic compounds.

Substance (Units of Measure)	Detected Level			Source of Contaminant
Unregulated Contaminants	Test Date	Average	Range	
<b>Methyl tertiary butyl ether (MTBE) (ppb)+</b>	2022	1.33	ND < 0.5 - 1.33	Fuel additive; leaks and spills from gasoline storage tanks
<b>Nickel (ppm)</b>	2021	0.003	ND < 0.001 - 0.006	Erosion of natural deposits

**ppb** parts per billion, or micrograms per liter (ug/L) • **ppm** parts per million, or milligrams per liter (mg/L) • +Only detected in the Nelson Street Well #3. The ORSG for MTBE is 70 ppb. US EPA has established a lifetime Health Advisory (HA) for MTBE of 0.3 mg/L and an acute HA at 1.0 mg/L • **HEALTH EFFECTS MTBE:** Some people who drink water containing methyl tertiary butyl ether at high concentrations for many years could experience chronic effects on the kidney and liver and possible cancer.

# YOUR HEALTH IS OUR PRIORITY

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. To ensure tap water is safe to drink, the EPA and MassDEP prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food & Drug Administration (FDA) and Massachusetts Department of Public Health Regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline, [800-426-4791](tel:800-426-4791).



## Where Does Your Water Come From?

The water provided to our Oxford customers comes from three groundwater supply wells. The water from each well is treated and then distributed to our customers through an extensive network of more than 40.6 miles of piping and three water storage tanks. Oxford's water supply system is located within the French River Watershed and serves approximately 6,850 people. The average amount of water delivered during 2022 was 611,400 gallons per day.

## How Is Your Water Treated?

All water from the three wells is filtered naturally underground. The water then receives chemical treatment for disinfection, fluoridation to prevent tooth decay/cavities, and pH adjustment for corrosion control.

## Cryptosporidium

The EPA requires public water systems that use surface water sources to monitor for Cryptosporidium. This is a microbial pathogen found in lakes and rivers throughout the U.S. that can cause gastrointestinal illness if consumed. Aquarion continues to monitor its surface water sources and has not detected Cryptosporidium.

## Disinfection By-Products

Disinfection by-products (DBPs) are chemicals formed during the disinfection process, when naturally occurring organic matter reacts with chlorine, which is added to water to eliminate bacteria and other microorganisms. Currently there are limits on two types of DBPs known as Total Trihalomethanes (TTHM) and Total Haloacetic Acids (THAA). Some people who drink water containing DBPs that exceed these limits over many years may experience problems with their livers, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

The state has implemented new DBP regulations that change how compliance with the standards is determined. The intent is to increase protection against the potential health risks associated with DBPs. Aquarion Water Company continues to evaluate its systems to ensure compliance with DBP regulations.

## Copper

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level\* over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in

excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Major sources of copper in drinking water include corrosion of household plumbing systems and erosion of natural deposits.

\*The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

## Immuno-compromised persons

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA and the Center for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline, [800-426-4791](tel:800-426-4791).

# LEAD IN DRINKING WATER: THE FACTS

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing. Aquarion Water Company is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. Fortunately, the Lead in Drinking Water Act, which took effect in January 2014, requires a significant reduction of the lead content in new plumbing components that contact drinking water. As a result, the lead content in new pipes, fittings, fixtures, and solder must be reduced from 8% to 0.25%.

Customers can minimize the potential for lead exposure when water has been sitting for several hours by running the 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

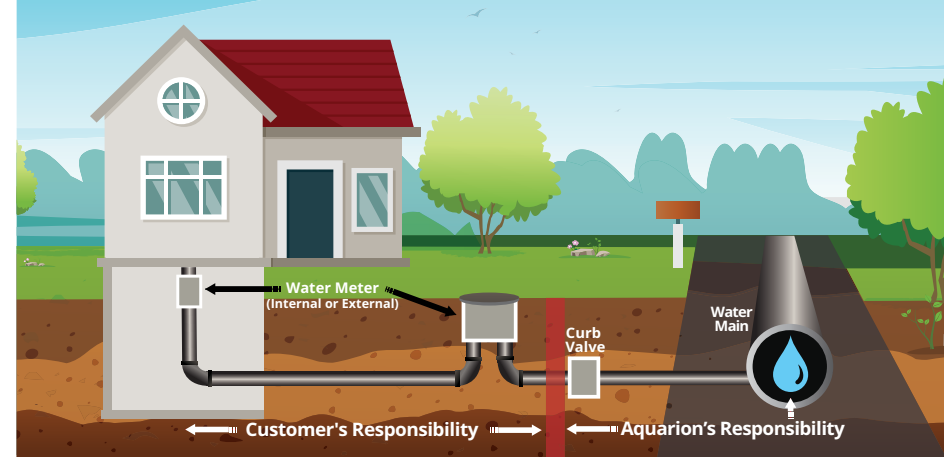
Hotline or at [epa.gov/safewater/lead](http://epa.gov/safewater/lead). Aquarion maintains a regular schedule for lead monitoring.

The EPA and Massachusetts Department of Public Health have established extensive regulations for water utilities to follow regarding lead. If lead is present in drinking water, it can cause numerous harmful effects on a person's health. The EPA has determined there is no safe level of lead.

## Health Effects

Lead is especially harmful for infants and young children, causing developmental delays, learning difficulties, irritability, loss of appetite, weight loss, sluggishness, fatigue, abdominal pain, vomiting, constipation and hearing loss.

Effects on adults may include high blood pressure, abdominal pain, constipation, joint pains, muscle pain, decline in mental functions such as abstract thinking and focus, numb or painful extremities, headache, memory loss, mood disorders, fertility issues in men, and miscarriage or premature birth in pregnant women.



Customer and Aquarion responsibilities shown are representative for most customers.

## What to do About Lead in a Service Line

A service line is the pipe that connects a customer's premises to Aquarion's water main in the street (see illustration above). Homes built before 1986 may have lead service lines (with a few exceptions, most were installed in homes built before 1930), and those built before 1986 may have lead solder and brass fittings (which may have a lead content).

A lead service line can be the primary source of lead in your drinking water, because there is a much greater surface area where lead contacts the water, compared to lead-soldered pipe joints and leaded brass fixtures. If your house or other structure was built prior to 1988, you should check the service line where it enters the wall of your basement to see if it is made of lead. If it is a lead line, contact Aquarion at [800-732-9678](tel:800-732-9678) for advice on replacing it.

This will help reduce your potential exposure to lead in drinking water.

## Other Precautions You Can Take

There are other ways to reduce the risk of lead exposure from your water pipes: If you have not used any of your faucets for a number of hours (for example, overnight or while you are at work), run the water for 30 seconds to 2 minutes. This will bring in fresh water from our water main, which contains no lead.

Always use cold water for drinking, cooking and preparing baby formula. Periodically remove and clean the faucet screens/aerators. While doing so, run the tap to eliminate debris.

Aquarion offers more detailed information on lead in drinking water and how to minimize exposure on our website at [www.aquarionwater.com/learnaboutlead](http://www.aquarionwater.com/learnaboutlead). You also can call the Safe Drinking Water Hotline at [800-426-4791](tel:800-426-4791) or go to [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

# WATER PROTECTION AND CONSERVATION

## How Aquarion Protects Your Drinking Water

Aquarion Water Company is committed to providing the highest quality water to our customers. Toward that end, we conducted 5,943 water quality tests in 2022 across all our Massachusetts systems, and we regularly inspect businesses, farms, homes and other sites that could affect our water supply.

Here are some examples of pollutants that may wash into surface water or seep into groundwater:

- Microbial contaminants from septic systems
- Inorganic contaminants such as road salt or metals
- Pesticides and herbicides from residential uses
- Organic chemical contaminants, including synthetic and volatile organic chemicals



## You Can Protect Water Too:

- Ensure that your septic system works correctly
- Use chemicals and pesticides sparingly
- Dispose of waste chemicals and used motor oil properly
- Report illegal dumping, chemical spills, or other polluting activities to the MassDEP Emergency Response Section at [888-304-1133](tel:888-304-1133); Aquarion Water, [508-865-3998](tel:508-865-3998); or your local police

## Conservation

By reducing water consumption, Aquarion customers have made outstanding progress in ensuring that our area has enough water, no matter what the skies deliver. Many thanks to all the customers who cut back on outdoor sprinkler irrigation and other uses, helping to save more than 2 billion gallons of water across our systems over the last five years. There's still more to do, though. Here are some easy tips on what everyone can do to conserve the supply of this irreplaceable resource:

### Reduce excessive irrigation

Get rid of wasteful, "set 'em and forget 'em" timers. Water only when the ground feels dry. Use WaterSense labeled spray sprinkler bodies.

### Rely more on the sky

Put a rain barrel under a down-spout to capture rainwater for your garden.

### Forget fertilizing

Many use salts that make your lawn less drought-resistant.



### Jilt the jiggling

Fix leaky toilets. Watch our step-by-step video at [www.aquarionwater.com](http://www.aquarionwater.com) about finding and fixing leaks. Better yet, upgrade to a new, WaterSense-labeled model to save three or more gallons with every flush.

### Put scraps to work

Compost vegetable scraps to nourish your garden, instead of using water to grind them up in your garbage disposal.

For more tips, visit [www.aquarionwater.com/conserve](http://www.aquarionwater.com/conserve).

## Protecting your water at home

Our Cross-Connection Control Program helps ensure that your drinking water is protected from possible contamination. A cross-connection, as defined by the MassDEP, "is any actual or potential connection between a distribution pipe of potable water from a public water

system and any waste pipe, sewer, drain, or other unapproved source that has the potential, through back-pressure or back-siphonage, to create a health hazard to the public water supply and the water system within the premises." Aquarion's DEP-certified cross-connection surveyors and testers routinely conduct surveys and test backflow prevention devices at our

customers' facilities for regulatory compliance. If they find unprotected cross-connections, they will require installation of backflow prevention devices to protect the water distribution system.

The best protection against cross-connection contamination is to eliminate the link. Garden hoses are

a leading cause of cross-connection contamination. At your home, you can protect your family and the distribution system from potential contaminants by installing a simple, inexpensive backflow device called a Hose-Bibb Vacuum Breaker (HBVB) that mounts directly to your spigot.