AQUARION
Water Company

Stewards of the Environment™

2017 Water Quality Report

Oxford System

It's Time To Conserve.

Water: It's Too Precious To Waste.

A Message from the Vice President

John Walsh
Vice President, Operations
Aquarion Water Company of MA

AQUARION Water Company
Stewards of the Environment™

Dear Aquarion Customer:

Once again, we are pleased to provide you with our annual report on the quality of the water we provide to you, and details on how it continues to meet or surpass every state and federal standard.

One of Aquarion's major highlights in 2017 was our becoming a wholly-owned subsidiary of Eversource. A member of the Fortune 500, headquartered in Boston and Hartford, Eversource will help us gain greater access to resources that will allow us to continue to improve the water supply infrastructure serving you. Eversource and Aquarion share many of the same core values, including a commitment to operational excellence, customer service, and support for the communities we serve.

Infrastructure investments are a key component to operational success. Replacement of water mains this past year will help improve water service reliability by reducing the risk of water main breaks and increasing our capacity to distribute water.

As in past years, we have enjoyed taking part in and sponsoring many local community events and organizations. Aquarion is proud to support Oxford Little League, Oxford Lassie League, Oxford Police Association, Oxford Firefighters Association, the Barton Center for Diabetes, Oxford Lion's Club, Toys for Tots, and the High School Robotics Team.

We continue to meet regularly with our Customer Advisory Board in Oxford. This board comprises a group of residents and business leaders from town who provide ongoing feedback about our service. I want to thank them for their contributions and their support.

In closing, I would like to thank all our employees for their excellent work in providing you with safe, high-quality water and dependable service.

From all of us at Aquarion, it is a pleasure serving you.

Sincerely,

John Walsh
Vice President, Operations

In This Report

Facts and Figures

Aquarion conducts an extensive quality testing program each year to ensure our 56,000 customers in Massachusetts have safe, clean drinking water. In 2017, we collected 1,697 samples, on which we conducted 7,520 quality tests. These tests are designed to detect and measure the presence of more than 100 compounds, many of which occur through erosion of natural deposits. Constant testing enables us to confirm that the water we supply meets or exceeds state and federal standards.

The results reported in the table on the next page demonstrate the effectiveness of our ongoing efforts to protect the purity of Aquarion water every step of the way from the source to your tap.

Oxford System Water Quality Table:

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Your water has been tested for more than 100 compounds that are important to public health. Only 16 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 below are for detected compounds only.

	Highest Allowed by Law				Oxford System Detected Level	
Substance (Units of Measure)	**MCLG**	**MCL**	**Compliance**	**Test Date**	**Average**	**Range**
Inorganic Compounds						
Arsenic (ppb)	0	10	**YES**	2015	3	ND < 1 – 4
Barium (ppm)	2	2	**YES**	2015	0.011	0.007 – 0.020
Copper (ppm)	1.3	AL = 1.3	**YES**	2016	0.33*	
Fluoride (ppm)	4.0	4.0	**YES**	2017	0.89	0.52 – 1.00
Lead (ppb)	0	AL = 15	**YES**	2016	3**	
Nitrate (ppm)	10	10	**YES**	2017	2.73	0.116 – 3.79
Perchlorate (ppb)	NA	2	**YES**	2017	0.08	0.08
Disinfectant						
Chlorine (ppm)	MRDLG 4	MRDL 4	**YES**	2017	0.69	0.37 – 1.04
Organic Compounds						
Methyl tertiary butyl ether (MTBE) (ppb)	NA	ORSG = 70	**NA**	2017	0.59^^	ND < 0.5 – 1.09
Total Trihalomethanes (ppb)	NA	80	**YES**	2017	30***	30
Total Haloacetic Acids (ppb)	NA	60	**YES**	2017	4***	4
Radiologicals						
Alpha Emitters (pCi/L)	0	15	**YES**	2010	ND < 2.8	ND < 2.8 – 3.6
Uranium (ppb)	0	30	**YES**	2010	ND < 1.0	ND < 1.0 – 1.1
Inorganic Compounds						
Chloride (ppm)	NA	SMCL = 250	**NA**	2015	73.2	40.0 – 140
Manganese (ppb)	HA = 300	SMCL = 50	**NA**	2017	95	ND < 2 – 1,350^
Sodium (ppm)	NA	ORSG = 20	**NA**	2015	33.9	18.0 – 58.0

HEALTH EFFECTS

Arsenic: While your drinking water meets the EPA's standard for arsenic, it does contain low levels of arsenic. The EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. The EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Manganese: 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 can have undesirable effects on certain sensitive populations at elevated concentrations. Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L (parts per billon), the water may be discolored and taste bad. Over a lifetime, the EPA recommends that people drink water with manganese levels less than 300 ug/L and over the short term, it recommends that people limit their consumption of water with levels over 1,000 ug/L, 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 ug/L, nor should formula for infants be made with that water for longer than 10 days.

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.

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.

Footnotes and Definitions for table on left

<	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
ORSG	State Office of Research and Standards Guideline
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)
SMCL	Secondary Maximum Contaminant Level
*	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 measurement for disinfection by-products in the distribution system.
^	Manganese levels in Well #1 ranged from 310 to 1,350 ppb. This well ran intermittently throughout the year and only contributed 3% of the total water delivered in the Oxford System. This water gets diluted with two other wells that have manganese levels ranging from none detected (< 2 ppb) to 1,050 ppb. Levels of manganese found in the distribution system ranged from none detected (< 2 ppb) to 330 ppb.
^^	Only detected in the Nelson Street Well #3.

Your Health Is Our Priority

Oxford System PWS ID#: MA2226000

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

Here is some additional information of interest about Aquarion's drinking water.

Where does your water come from?

The water provided to our Oxford customers comes from four groundwater supply wells. The water from each well is treated and then distributed to our customers through an extensive network of over 40 miles of piping and three water storage tanks. This Oxford water supply system is located within the French River Watershed and serves approximately 6,200 people. The average amount of water delivered during 2017 was 640,000 gallons per day.

How is your water treated?

All water from the four 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.

Source Water Assessment Report

The Massachusetts DEP's Source Water Assessment Program (SWAP), which evaluates 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 at **mass.gov/dep/water/drinking/2226000.pdf**.

(continued on page 5)

Understanding Your Water Quality Table

Arsenic: Erosion of natural deposits.

Barium: Erosion of natural deposits.

Copper: Corrosion of household plumbing systems.

Fluoride: Water additive that promotes strong teeth; erosion of natural deposits.

Lead: Corrosion of household plumbing systems.

Nitrate: Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Perchlorate: Fireworks, munitions, flares, blasting agents. Breakdown product of disinfection additive.

Chlorine: Water additive used to control microbes.

MTBE: Fuel additive; leaks and spills from gasoline storage tanks.

Total Trihalomethanes: By-product of drinking water chlorination.

Total Haloacetic Acids: By-product of drinking water chlorination.

Alpha Emitters: Erosion of natural deposits.

Uranium: Erosion of natural deposits.

Chloride: Naturally present in the environment.

Manganese: Erosion of natural deposits.

Sodium: Water treatment processes; use of road salt; naturally present in the environment.

Your Health Is Our Priority (continued from page 4)

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.*

Revised Total Coliform Rule

This consumer confidence report reflects changes in drinking water regulatory requirements during 2016. All water systems were required to comply with the Total Coliform Rule from 1989 to March 31, 2016, and began compliance with the new Revised Total Coliform Rule on April 1, 2016. The new rule maintains the purpose of protecting public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e. total coliform and *E. coli* bacteria). The EPA anticipates greater public health protection under the new rule, as it requires water systems that are vulnerable to microbial contaminants to identify and fix problems. As a result, there is no longer a monthly maximum contaminant level violation for multiple total coliform detections. Instead, the rule requires water systems that exceed a specified frequency of total coliform occurrences to assess the system and determine if any sanitary defects exist. If defects are found, the public water system must correct them.

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. EPA/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)**.

Lead in Drinking Water: The Facts

The federal Environmental Protection Agency (EPA) and Massachussetts Department of Public Health have established extensive regulations for water utilities to follow with regard to lead — and for very good reason. If present in drinking water, lead can cause numerous harmful effects on a person's health. The EPA has determined there is no safe level of lead.

Aquarion monitors for lead in the water we provide, by testing stagnant tap water samples from high-risk homes (such as homes built before 1950). We follow regulations mandated by the Safe Drinking Water Act, in which the EPA established a limit: 15 parts per billion (or micrograms per liter) in no more than 10 percent of tap water samples. Meeting this limit indicates that the water is minimally corrosive to lead.

If tests reveal that more than 10 percent of tested homes exceed the limit, then the EPA mandates a series of actions we would have to take. These include water treatment, notifying customers about the issue and removing lead service lines. The Aquarion system that supplies your water complies with the lead limit. Even so, some homes may have elevated lead levels due to lead materials in the plumbing or service line.

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.

Do you have a lead service line?

A service line is the pipe that connects a customer's premises to Aquarion's water main in the street. The customer owns the portion of the service line closest to the premises, while Aquarion owns the portion closest to the street. In some older structures built before 1950, these lines may have been made of lead.

If present, 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.

Therefore, if your house was built prior to 1950, 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** for advice on replacing it. This will help reduce your potential exposure to lead in drinking water.

How to reduce exposure to lead in drinking water

Damage from lead exposure cannot be cured, but it can be prevented, especially in drinking water. The best methods for reducing your exposure to lead include removing lead service lines and lead in your home's plumbing, and reducing the amount of time your water sits stagnant in contact with lead materials in the service lines and faucets.

- 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 several minutes. This will bring in fresh water from our water main, which contains no lead. (To conserve water, catch the flushed tap water in buckets or pots to use for cleaning or to water plants.)
- Always use cold water for drinking, cooking and preparing baby formula. Never cook with or drink water from the hot water tap. Never use water from the hot water tap to make baby formula.

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Facts about Lead (continued from page 5)

- Periodically remove and clean the faucet screens/aerators. While doing so, run the tap to eliminate debris.
- Check your service line where it enters your building and determine if it is made of lead. If it is, replace it.
- Identify and replace old plumbing fixtures that contain lead. Brass faucets, fittings and valves may leach lead into drinking water — especially those purchased before 2014.

Homeowners who want to determine whether there is lead in their water should have a laboratory test it. You can find information about certified testing on the state Department of Public Health's website **www.mass.gov/eohhs/gov/departments/dph/**.

For more information, our website has a section dedicated entirely to lead in drinking water; visit **aquarionwater.com/learnaboutlead**. If you have questions, call **1-800-832-2373**. You also can email us at **waterquality@aquarionwater.com**.

The EPA advises:

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.

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**.

Water Protection: Information You Should Know

Protecting water at the source

Even small quantities of pollutants may be enough to contaminate a drinking water supply. Examples of pollutants that may wash into surface water or seep into ground water include:

- Microbial contaminants from septic systems, agriculture and livestock operations, and wildlife;
- Inorganic contaminants such as salts and metals that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, or farming;
- Pesticides and herbicides from sources such as agriculture, urban storm water runoff, and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes; and
- Radioactive contaminants that can be naturally occurring.

How does Aquarion protect your drinking water?

Aquarion Water Company is committed to providing the highest quality water. In total, we conduct more than 7,500 water quality tests annually. We use the best water treatment and filtration technology and continue to invest in our water systems' infrastructure to improve the security and quality of your water.

You can help prevent water contamination

- Ensure that your septic system is working correctly.
- Use chemicals and pesticides wisely.
- Dispose of waste chemicals and used motor oil properly.
- Report illegal dumping, chemical spills, or other polluting activities to the MA DEP's Emergency Response Section at **888-304-1133**, Aquarion Water at **781-740-6690**, or your local police.

Protecting your water at home: Cross-Connection Control Program

Our Cross-Connection Control Program helps ensure that your drinking water is protected from possible contamination. A cross-connection, as defined by the Massachusetts Department of Environmental Protection (DEP), "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 personnel 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.

Water conservation in your home

We still encourage you to conserve this precious natural resource for the good of our environment. There are plenty of simple steps you can take to reduce your water consumption, such as using a broom to clean debris from your driveway instead of a hose.

See more tips on page 7.

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Stewards of the Environment™

Water Conservation Works!

The last few years drove home the fact that even the Northeast has a finite supply of water, and that we all need to find ways to cut back on its use. In 2018, let's reduce waste even more and ensure a reliable water supply. Here are some easy tips:

Reduce excessive watering. Get rid of wasteful, "set 'em and forget 'em" clock 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 downspout to capture rainwater for your garden.

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

Enjoy an edible landscape. Replace turf with berry bushes or fruit trees – they use less water.

Fill it up! Wait until you have a full load before running your washing machine and dishwasher.

Look at labels. Washing machines and dishwashers certified by ENERGY STAR use far less water. WaterSense-labeled fixtures do the same.

Jilt the jiggling. Fix leaky toilets. Watch our step-by-step video about finding and fixing leaks. Better yet, upgrade to a new, WaterSense-labeled model to save three or more gallons with every flush.

Turn off the taps. While brushing your teeth, shaving or just groping for a towel, keep good, clean water from disappearing down the drain.

Catch this idea. While waiting for tap or shower water to warm up or cool down, capture it in a container for watering plants or for your pets.

Recycle cooking water. Save water used for cooking pasta and vegetables – it's great for plants.

Shorten shower times. You'll not only use less water – you'll reduce energy costs, too.

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

Put a chill on waste. Keep a pitcher of drinking water in the fridge so you don't have to run the tap until the water gets cold.

Conserving water quickly becomes second nature. For many more ways to ensure that your water supply stays healthy for decades to come, check out more tips at **aquarionwater.com/conserve.**

Visit Mystic Aquarium's Beluga Whales And Penguins Live!

Aquarion sponsors five cameras trained on the exciting beluga whale and African penguin exhibits at Mystic Aquarium in Connecticut.

Go to **aquarionwater.com** and click on the cameras at any time during daylight hours to watch the Aquarium's beluga whales and penguins live.

aquarionwater.com

Questions About Your Water Quality Report?

Customers who have questions about water quality should call us at **800-832-2373;** send an email to **waterquality@aquarionwater.com**; or visit **aquarionwater.com/MA**

For other questions, or to report discolored water/service problems, or if you would like to participate in a public meeting, call **800-732-9678**.

Massachusetts Department of Environmental Protection: **mass.gov/drinking-water-program**

U.S. Environmental Protection Agency's Safe Drinking Water Hotline: **800-426-4791** or **epa.gov/safewater**