AQUARION Water Company

Stewards of the Environment™

2019 Water Quality Report

Hingham, Hull and North Cohasset System

Water: It's Too Precious To Waste.

In This Report

Hingham, Hull and North Cohasset System Water Quality Table:

Your water has been tested for more than 100 compounds that are important to public health. Only 14 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				Hingham/Hull/ North Cohasset System Detected Level	
Substance (Units of Measure)	**MCLG**	**MCL**	**Compliance**	**Test Date**	**Average**	**Range**
Inorganic Compounds						
Barium (ppm)	2	2	**YES**	2019	0.024	0.024
Copper (ppm)	1.3	AL = 1.3	**YES**	2019	0.72*	
Fluoride (ppm)	4.0	4.0	**YES**	2019	0.68	0.20 – 0.86
Lead (ppb)	0	AL = 15	**YES**	2019	2**	
Nitrate (ppm)	10	10	**YES**	2019	0.520	0.520
Perchlorate (ppb)	NA	2	**YES**	2019	0.09	0.09
Microbials						
Turbidity (NTU)	NA	TT = 1 max	**YES**	2019	0.13+	0.01 – 0.18
Turbidity (NTU)	NA	TT = 95% of samples < 0.3	**YES**	2019	100%	
Disinfectant						
Chlorine (ppm)	MRDLG 4	MRDL 4	**YES**	2019	0.53	ND < 0.05 – 1.52
Organic Compounds						
Total Trihalomethanes (ppb)	NA	80	**YES**	2019	63***	24 – 92
Total Haloacetic Acids (ppb)	NA	60	**YES**	2019	36***	2 – 51
Inorganic Compounds						
Chloride (ppm)	NA	SMCL = 250	**NA**	2019	93	93
Manganese (ppb)	NA	SMCL = 50	**NA**	2019	40	40
Sodium (ppm)	NA	ORSG = 20	**NA**	2019	85	85
Sulfate (ppm)	NA	SMCL = 250	**NA**	2019	45	45

HEALTH EFFECTS

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. The United States EPA and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (micrograms per liter), or 50 parts per billion. 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 manganese. 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 more than a total of 10 days throughout the year.

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.

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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.
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
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
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. One location 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.
+	Value is the highest monthly average for turbidity reported from the treatment plant effluent. Values in the range are individual measurements. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.

Your Health Is Our Priority

Hingham, Hull and North Cohasset System PWS ID#: MA4131000

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. In order to ensure tap water is safe to drink, EPA and MassDEP prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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 delivered to our Hingham, Hull and North Cohasset customers is obtained from several surface water and ground water supplies. Surface water is diverted from Accord Brook and pumped from Accord Pond to our centrally located water treatment facility. Ground water from our 11 active drinking water supply wells is also pumped to our water treatment facility, where the water is blended together and then treated. The treated water is then pumped to our customers using a network of over 192 miles of pipe and two water storage tanks. Our water supply system is all located within the Weir River Watershed and provides water for approximately 30,500 people during the winter and 41,100 people in the summer.
The average amount of water delivered during 2019 was 3.27 million gallons per day. On average, 115,951 gallons per day was pumped through the Cohasset interconnection. In addition, our distribution system has emergency interconnections with the Weymouth and Norwell water systems.

How is your water treated?

All of the water from our wells and surface water supplies is treated at our water treatment facility in Hingham. The water receives both physical and chemical treatment including: the addition of lime for pH adjustment; the addition of potassium permanganate for oxidation; rapid mixing, flocculation, and coagulation using alum and polymer; clarification using an upflow clarifier; filtration using granular-activated carbon filter media; disinfection using chlorine; fluoridation using hydrofluorsilicic acid; and corrosion control using sodium carbonate and zinc orthophosphate. The water that we receive from Cohasset is treated similarly at Cohasset's water treatment facility and matches our own target water quality goals for pH, chlorine, and fluoride.

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 did not detect Cryptosporidium in the reservoir that serves the Hingham/Hull System in our most recent testing.

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 water sources that supply drinking water to the Hingham/Hull/North Cohasset System have a high susceptibility to potential contamination. The SWAP report is available at the state DEP website **mass.gov/dep/water/drinking/3131000.pdf.**

(continued on page 5)

Understanding Your Water Quality Table

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.

Turbidity: Sediment particles; naturally occurring iron and manganese; soil runoff.

Chlorine: Water additive used to control microbes.

Total Trihalomethanes: By-product of drinking water chlorination.

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

Chloride: Naturally present in the environment.

Manganese: Erosion of natural deposits.

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

Sulfate: Naturally present in the environment.

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)	Test Date	Detected Level Average	Range	Source of Contaminant
Unregulated Contaminants				
Nickel (ppm)	2019	0.002	0.002	Erosion of natural deposits

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.

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 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.

Immuno-compromised people

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as those with cancer undergoing chemotherapy, people 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 Massachusetts 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

Health issues from lead exposure cannot be cured, but they 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.

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. There is a list of certified testing laboratories on the state Department of Public Health's website (**www.mass.gov/orgs/department-of-public-health**).

For more information, our website has a section dedicated entirely to lead in drinking water; visit **www.aquarionwater.com/learningaboutlead**. If you have questions, call our Water Quality Department at **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 **www.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's commitment to providing the highest quality water is evidenced by our regular inspection of homes, businesses, farms and other sites that could pollute water supplies. We also review new land development projects for impact on water quality. In total, we conduct more than 7,855 water quality tests annually. We use the best water treatment and filtration technology and continue to invest in our water systems' infrastructure to improve your water 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 **(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 backpressure 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 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

Our water supply is sufficient to meet your needs, but 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: fix faucet and toilet leaks; turn off the water while shaving or brushing your teeth; run full loads in your dishwasher and clothes washer; water your lawn in early morning; and use a broom to clean debris from your driveway instead of a hose.

Aquarion's Sample Results for PFAS

Aquarion Water Company sampled the Hingham/Hull system in 2019 to test for PFAS compounds, out of an abundance of caution and concern. PFAS are unregulated contaminants for which there are no established drinking water standards. The purpose of monitoring unregulated contaminants is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted. However, the U.S. Environmental Protection Agency has set a Health Advisory level (HA) of 70 parts per trillion (ppt) for PFOS and PFOA, and the state Department of Environmental Protection's Office of Research and Standards (ORS) had set a goal (ORSG) of 70 ppt for PFOS, PFOA, PFNA, PFHxS and PFHpA individually or as a group. The ORSG was updated in January 2020 to 20 ppt for a group of 6 PFAS compounds (adding PFDA). Our system's reported PFAS results are less than 20 ppt, as shown below.

If you are a sensitive consumer (pregnant women, nursing mothers, and infants), you can minimize your exposure by using bottled water that has been tested for PFAS for drinking, making infant formula and cooking foods that absorb water. Please consult your health practitioner if you have any health-related questions. For a consumer factsheet on PFAS see: **www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas**

Unregulated Contaminants

Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of monitoring such contaminants is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Unregulated Contaminant	Date Collected	Average ppt*	Range of ppt	ORSG or EPA Heath Advisory**	Source of Contaminant	Health Effects
PFAS***	2019	13	12 – 14	70	Man-made chemicals used as surfactant to make products stain- or water-resistant. Also used in fire-fighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (such as Teflon), cosmetics, greases and lubricants, paints, adhesives and photographic films. Manufacturing companies in the U.S. phased out PFOS in 2002, but the compound may still be generated incidentally or found in imported products.	Long-term exposure to PFAS in drinking water may affect the liver, cholesterol levels, development, immune function and neurological function, and it may be associated with cancer. PFHpA and PFNA are not well studied but are structurally very similar to the other PFAS here and may have similar effects.

*ppt: Parts per trillion

**This was the limit as of December 31, 2019. It was lowered to 20 ppt in January 2020.

***Additional PFAS-related water system details are available at **www.aquarionwater.com/pfas**.

Water Conservation Works!

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 save some 1.5 billion gallons of water across our systems over the last two 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" 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 at **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.

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, 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 the tips at **www.aquarionwater.com/conservation.**

Visit Mystic Aquarium's Beluga Whales And Penguins Live!

Aquarion is the sponsor of 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**. Customers also may email us at **waterquality@aquarionwater.com**, or visit **www.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:
www.mass.gov/info-details/public-drinking-water-system-operations

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