



Stewards of the Environment™

2019 Water Quality Report

Birchwood Estates System, Marlborough

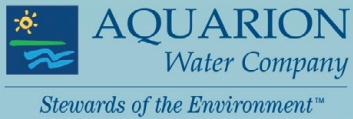
Water: It's Too Precious To Waste.



A Message from the President



Donald J. Morrissey
President



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Dear Aquarion Customer:

As Aquarion Water Company's new president, I am honored to tell you that, during 2019, **the water we supplied you continued to meet or surpass every state and federal water quality standard.**

In addition, we voluntarily expanded our already rigorous testing program last year to check for levels of per- and polyfluoroalkyl substances (PFAS). These man-made chemicals have been detected in drinking water sources across the nation. However, tests of all Aquarion systems showed PFAS concentration levels ranging from undetected to amounts well under the current governmental advisory limits. Elsewhere in this report, you will find more information on how we're protecting our supplies and continuing to provide you with high-quality water and services.

The quality issues confronting other U.S. systems underscore just how essential clean and plentiful water is to communities' health and well-being. That's why we continue to urge all Aquarion customers to safeguard water supplies by avoiding inefficient practices such as overwatering lawns and gardens.

Working with state and local officials, we have scheduled outdoor sprinkler irrigation in six Connecticut towns — Darien, Greenwich, New Canaan, Newtown, Stamford and Westport — to two days per week. This program has been very successful in conserving supplies, and homeowners are finding that lawns and gardens can do just fine, if not better, with less water.

Environmental stewardship is another important issue for Aquarion, which is why we again are seeking nominations for our annual Aquarion Environmental Champion Awards. Connecticut residents, businesses and non-profits that have engaged in outstanding, voluntary efforts to protect and restore Connecticut's natural resources are eligible. We invite you to submit your nominations for the awards by May 1. You'll find all the information you need at www.aquarionwater.com/awards.

Finally, I want to thank you, as an Aquarion customer, for all you're doing to help us save billions of gallons of water through your conservation efforts. You can find even more ways to save water in this report or at www.aquarionwater.com/conservation.

With Appreciation,

Donald J. Morrissey

Clean, safe water is just the start!

Free admission tickets!

Be sure to take advantage of the special 2-for-1 ticket deals and other offers that Aquarion has arranged for its customers at great Connecticut attractions like the Stamford Museum and Nature Center, Connecticut's Beardsley Zoo, the Mystic Aquarium, the Westport Country Playhouse, the Sound Tigers hockey team, the Discovery Museum, the Trumbull Marriott and the Stepping Stones Museum for Children. You'll find full details at www.aquarionwater.com.



We've got whales and penguins!

Watch Mystic Aquarium's fascinating collection of beluga whales and penguins live on the webcams Aquarion sponsors. Find the fun at www.aquarionwater.com.



Birchwood Estates System, Marlborough 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.

Substance (Units of Measure)	Highest Allowed by Law		Compliance	Test Date	Birchwood Estates System Detected Level	
	MCLG	MCL			Average	Range
Inorganic Compounds						
Barium (ppm)	2	2	YES	2019	0.025	0.025
Copper (ppm)	1.3	AL = 1.3	YES	2019	0.11*	
Fluoride (ppm)	4.0	4.0	YES	2019	0.24	0.24
Lead (ppb)	0	AL = 15	YES	2019	ND < 1**	
Nitrate (ppm)	10	10	YES	2019	0.175	0.175
Disinfectant						
Chlorine (ppm)	MRDLG 4	MRDL 4	YES	2019	1.02	0.60 – 1.60
Organic Compounds						
Total Trihalomethanes (ppb)	NA	80	YES	2019	5	5
Radiologicals						
Radium 226 & 228 (pCi/L)	0	5	YES	2019	1.6	1.6
State-Required Testing						
Physical Characteristics[^]						
Color (CU)	NA	15	YES	2019	1	1 – 2
pH	NA	6.4 – 10.0	YES	2019	7.5	7.2 – 7.9
Turbidity (NTU)	NA	5	YES	2019	0.11	0.05 – 0.15
Inorganic Compounds						
Chloride (ppm)	NA	250	YES	2019	35.0	35.0
Sodium (ppm)	NA	NL = 28	NA	2019	15.8	15.8
Sulfate (ppm)	NA	SMCL = 250	NA	2019	58.8	58.8

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.
CU	Color Units
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
NL	State of Connecticut customer notification level
NTU	Nephelometric Turbidity Units: a measure of the presence of particles. Low turbidity is an indicator of high-quality water.
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.
^	Measured at representative locations within the distribution system.

Your Health Is Our Priority

Birchwood Estates System, Marlborough PWS ID#: CT0790051

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?

Your water is collected in wells, treated, and delivered to you through an underground piping system. The Birchwood Estates System supply is drawn from seven wells in Marlborough. It serves about 240 people and has an average customer demand of 14,200 gallons per day. Company-wide, an average of 19.3% of the demand is water drawn for firefighting, water main cleaning, water main breaks and leaks, and unauthorized use.

How is your water treated?

Water from the wells is filtered naturally underground, treated to remove iron and manganese and then disinfected.

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 meet or exceed state and federal health and treatment standards. In addition, there are no reported cases of waterborne disease due to Cryptosporidium in Aquarion Water Company's drinking water.

Source Water Assessment Report

Connecticut's Department of Public Health (DPH) states in its Source Water Assessment Report that the public drinking water sources in the Birchwood Estates System have a moderate susceptibility to potential contamination. To read the DPH report, visit www.ct.gov/dph.

(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.
Chlorine:	Water additive used to control microbes.
Total Trihalomethanes:	By-product of drinking water chlorination.
Radium 226 & 228:	Erosion of natural deposits.
Color:	Natural organic matter such as decaying leaves; naturally occurring iron and manganese.
pH:	Naturally occurring; water treatment processes.
Turbidity:	Sediment particles; naturally occurring iron and manganese; soil runoff.
Chloride:	Naturally present in the environment.
Sodium:	Water treatment processes; use of road salt; naturally present in the environment.
Sulfate:	Naturally present in the environment.

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 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).

The federal Environmental Protection Agency (EPA) and Connecticut's 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.



- ◆ 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.ct.gov/dph).

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 163,000 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 CT Department of Energy and Environmental Protection 24-hour hotline (**860-424-3338**), Aquarion Water (**800-732-9678**), or your local police.

Protecting your water at home:

Lawn irrigation systems

Your irrigation system helps keep the lawn healthy and beautiful, but did you know it can also contaminate your family's drinking water? Chemicals and microbes on the lawn can flow back through your home's plumbing and even into the neighborhood water mains under low-pressure conditions. These conditions can occur when fire hydrants are in use, and during water main breaks.

To prevent this backflow contamination, the state Department of Public Health (DPH) requires that we inspect your irrigation system to ensure that an appropriate backflow prevention device is in place. The state DPH also requires these devices be tested annually to ensure proper performance. Please call us at **203-337-5871** to schedule your annual inspection and test.

Water conservation in your home

We 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 8.



Aquarion's Sample Results for PFAS

Throughout New England and across the nation, state and local officials, health departments, and water utilities — including Aquarion Water Company — have focused their attention on a group of man-made chemicals called per- and polyfluoroalkyl substances (PFAS) that have been detected in drinking water. PFAS are widely used in consumer products (e.g. nonstick cookware, stain-resistant carpets) and have numerous industrial applications (e.g. firefighting foam). They are pervasive and persistent once released into the environment.

The U.S. Environmental Protection Agency (EPA) has not established a maximum level of these chemicals that they will allow to be present in drinking water; however, EPA currently recommends that concentrations of two of the chemicals, PFOA and PFOS, should not exceed 70 parts per trillion (ppt) individually or combined. The Connecticut Department of Public Health (DPH) has taken a more conservative approach: it agrees that 70 ppt is an appropriate target concentration, but has included three additional PFAS (PFHxS, PFHpA and PFNA). (The limits may

be subject to change in the future.)

Recognizing the growing concern about PFAS, Aquarion voluntarily began a testing program in 2019 for our 72 public water systems in Connecticut. Below, you will find a chart showing test results for the Birchwood Estates System, where no PFAS were detected.

Last November, Gov. Ned Lamont announced that the Connecticut Interagency PFAS Task Force — the group he created the previous summer — had developed its PFAS Action Plan. One of the plan's key recommendations is to test drinking water for PFAS. We believe the results from our 2019 PFAS testing program will help the state implement this endeavor.



In addition to the water tests in 2019, Aquarion also inspected land-use activities around each of our water sources and found no high-risk situations such as industrial, commercial, and municipal circumstances that might

release high levels of PFAS into the environment.

Aquarion will remain vigilant about this important issue, including additional testing for PFAS at some of our water sources. We will continue to share test results with our customers and state and local officials.

We also will maintain our relationships with the public health agencies and drinking

water associations to ensure protection of our drinking water supplies. As always, our primary concern is delivery of high-quality water to our customers.

Birchwood Estates System PFAS Sampling Results

All results reported as parts per trillion (ppt)

Water System Name	Sample Location	PFOA	PFOS	PFHpA	PFHxS	PFNA	Total PFAS (5)	Current CT DPH Guideline	Other PFAS Tested PFBS
Birchwood Estates	Birchwood Wells, POE	ND	ND	ND	ND	ND	ND	70	ND

Definitions:

POE - Point of entry. Sample collected after treatment as water enters the distribution system, before the first customer.

ND - Not Detected

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.

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**.

Connecticut Department of Public Health Drinking Water Section: **860-509-7333** or www.ct.gov/dph

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