



**AQUARION**  
Water Company

*Stewards of the Environment™*

*2018 Water Quality Report*

*The Greenwich System*

***It's Time To Conserve.***  
***Water: It's Too Precious To Waste.***



# A Message from the President and CEO



Charles V. Firlotte  
President and CEO

Dear Aquarion Customer:

We are very pleased to provide you with Aquarion’s annual update on the quality of the water we supply to you – and even more pleased to report *again* that **your water continues to meet or surpass every state and federal water quality standard.**

By now, you’ve undoubtedly noticed how we’re matching our ongoing work to maintain the *quality* of your supply with parallel programs to protect its *quantity*— by helping customers use it more efficiently. The memories of recent droughts are all too fresh for us to forget what happens when rain and snow fail to replenish wells and reservoirs across our service area.

Even now, with system-wide drought restrictions eased, we continue requiring residents of six towns (Darien, Greenwich, New Canaan, Newtown, Stamford and Westport) to limit outdoor sprinkler irrigation to two days per week.

That’s not to say we don’t need all of our customers to be careful about how they use water. No one knows when another drought might strike, or what the effects might be. After the 2016 drought, for example, one of our reservoir systems took more than two years to return to full capacity. This experience underscores that the water you save today could well be the water you need tomorrow. Moreover, your efforts to avoid waste benefit the environment by leaving more water in the streams, lakes and ponds.

One ongoing concern is the increasing popularity of outdoor irrigation — particularly automated sprinklers. When users merely “set ‘em and forget ‘em,” they use far more water than lawns and gardens need, resulting in large amounts of waste.

As noted above, we are already limiting outdoor watering in six towns, and we will continue to extend the restrictions to additional towns to ensure adequate supplies, particularly through the hot and dry summer months.

In closing, I thank you and all of our customers for your success in using water wisely and efficiently. Together, you helped save 1.5 billion gallons of water over the last two years. This year, let’s protect even more of our precious supply. For ideas, please check the last page of this report as well as [aquarionwater.com/conserve](http://aquarionwater.com/conserve).

With Appreciation,

Charles V. Firlotte  
President and CEO



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## 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 Mystic Seaport. You’ll find full details at [aquarionwater.com](http://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 [aquarionwater.com](http://aquarionwater.com).

# Greenwich System Water Quality Table

Your water has been tested for more than 100 compounds that are important to public health. Only 18 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	Greenwich System Detected Level	
	MCLG	MCL			Average	Range
<b>Inorganic Compounds</b>						
Barium (ppm)	2	2	YES	2018	0.036	0.035 – 0.039
Copper (ppm)	1.3	AL = 1.3	YES	2016	0.25*	
Fluoride (ppm)	4.0	4.0	YES	2018	0.55	0.51 – 0.68
Lead (ppb)	0	AL = 15	YES	2016	2**	
Nitrate (ppm)	10	10	YES	2018	0.307	0.291 – 0.312
<b>Microbials</b>						
Total Coliform	0 positive samples per month	4 positive samples per month	YES	2018	0^^	0 – 1
Turbidity (NTU)	NA	TT = 1 max	YES	2018	0.05+	0.01 – 0.20
Turbidity (NTU)	NA	TT = 95% of samples < 0.3	YES	2018		100%
<b>Disinfectant</b>						
Chlorine (ppm)	MRDLG 4	MRDL 4	YES	2018	0.66	ND < 0.05 – 1.69
Chlorine Dioxide (ppb)	MRDLG 800	MRDL 800	YES	2018	77++	10 – 150
<b>Organic Compounds<sup>AAA</sup></b>						
Total Organic Carbon /TOC	NA	TT Removal Ratio > 1 <sup>#</sup>	YES	2018	1.6	1.3 – 2.0
<b>Disinfection By-Products</b>						
Chlorite (ppm)	0.8	1	YES	2018	0.17+++	0.01 – 0.30
Total Trihalomethanes (ppb)	NA	80	YES	2018	65***	22 – 102
Total Haloacetic Acids (ppb)	NA	60	YES	2018	43***	20 – 53
<b>State-Required Testing</b>						
<b>Physical Characteristics<sup>^</sup></b>						
Color (CU)	NA	15	YES	2018	2	0 – 13
pH	NA	6.4 – 10.0	YES	2018	7.4	6.9 – 9.0
Turbidity (NTU)	NA	5	YES	2018	0.16	0.05 – 2.6
<b>Inorganic Compounds</b>						
Chloride (ppm)	NA	250	YES	2018	73.5	68.1 – 89.9
Sodium (ppm)	NA	NL = 28	NA	2018	49.2	46.5 – 50.1
Sulfate (ppm)	NA	SMCL = 250	NA	2018	38.4	9.5 – 48

## Footnotes and Definitions for table on left

- > Greater than
- < 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.
- 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. 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.
- +** Value is the highest monthly average for turbidity reported from the surface water treatment plant effluents. Values in the range are individual measurements.
- ++** Value is the highest monthly average for Chlorine Dioxide reported from one surface water treatment plant's effluent. Values in the range are individual measurements.
- +++** Value is the highest monthly average for Chlorite in the distribution system. Values in the range are individual measurements.
- #** The monthly TOC removal ratio is calculated as the ratio between the actual TOC removed and the TOC rule removal requirements. This number should be greater than 1.
- ^** Measured at representative locations within the distribution system.
- ^^** Highest number of samples detected was 1/month. Yearly average is 0/month.
- AAA** **Aquarion Water Co. received a Notice of Violation for failure to monitor and report the annual Volatile Organic Compounds test in 2018 at the Mianus Filter Plant effluent. The Mianus Filter Plant was off-line during the scheduled routine annual testing period and was not rescheduled later in the year when the filter plant was placed back on-line. The 2019 sample is scheduled for April, which will then place the filter plant back in compliance.**

### HEALTH EFFECTS

**Sodium:** If you have been placed on a sodium-restricted diet, please inform your physician that our water may contain as much as 50.1 ppm of sodium.

# Your Health Is Our Priority

Greenwich System PWS ID#: CT0570011

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 reservoirs, treated, and delivered to you through an extensive underground piping system. The Greenwich System supply is drawn from the Putnam/Rockwood Reservoir, Bargh/Brush Reservoir, and Mianus River systems in Greenwich, and the Laurel and North Stamford reservoir systems in Stamford. The system serves about 59,500 people and has an average customer demand of 14.9 million gallons of water per day. Company-wide, an average of 18.3% of the demand is water drawn for firefighting, water main cleaning, water main breaks and leaks, and unauthorized use.

## How is your water treated?

The water is filtered at the Mianus, Putnam, and Stamford water treatment plants, then disinfected, fluoridated, and further treated to protect the water supply piping system.

## 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 reservoirs that served the Greenwich System in 2018.

## 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 Greenwich System have a moderate-to-high susceptibility to potential contamination. To read the DPH report, visit [ct.gov/dph](http://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.
- Total Coliform:** Naturally present in the environment.
- Turbidity:** Sediment particles; naturally occurring iron and manganese; soil runoff.
- Chlorine:** Water additive used to control microbes.
- Chlorine Dioxide:** Water additive used to control microbes.
- Total Organic Carbon:** Naturally present in the environment.
- Chlorite:** By-product of drinking water disinfection.
- Total Trihalomethanes:** By-product of drinking water chlorination.
- Total Haloacetic Acids:** By-product of drinking water chlorination.
- Color:** Natural organic matter such as decaying leaves; naturally occurring iron and manganese.
- pH:** Naturally occurring; water treatment processes.
- 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 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 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.

### **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).

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 ([ct.gov/dph](http://ct.gov/dph)).

For more information, our website has a section dedicated entirely to lead in drinking water; visit [aquarionwater.com/learningaboutlead](http://aquarionwater.com/learningaboutlead). If you have questions, call our Water Quality Department at **203-445-7341** or, outside the Greater Bridgeport area, call **800-832-2373**. You also can email us at [waterquality@aquarionwater.com](mailto: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](http://epa.gov/safewater/lead).

### **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 160,000 water quality tests annually. We use the best water treatment and filtration technology and continue to invest in our water systems' infrastructure to improve 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 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 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.



## 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 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 the tips at [aquarionwater.com/conserve](http://aquarionwater.com/conserve).

## The 2019 Aquarion Environmental Champion Awards

### Nominate Now!

Help us spotlight Connecticut's top Environmental Champions in six categories: adults, students (grades 9-12), non-profits, communications, and small and large businesses.

**Deadline for nominations: May 1, 2019**

**Details:** [aquarionwater.com](http://aquarionwater.com)  
or [facebook.com/aquarionwater](https://facebook.com/aquarionwater)

Help Aquarion Water Company Find Connecticut's Environmental Champions



[aquarionwater.com](http://aquarionwater.com)

## Questions About Your Water Quality Report?

Customers in the Bridgeport area who have questions about water quality should call us at **203-445-7341**, or outside the Bridgeport area, call **800-832-2373**. Customers also may email us at [waterquality@aquarionwater.com](mailto:waterquality@aquarionwater.com), or visit [aquarionwater.com](http://aquarionwater.com).

For other questions, or to report discolored water/service problems, or if you would like to participate in a public meeting, call **203-445-7310** in the Bridgeport area or **800-732-9678** outside the Bridgeport area.

Connecticut Department of Public Health Drinking Water Section: **860-509-7333** or [ct.gov/dph](http://ct.gov/dph)

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