



Dear Valued Customer:

At Connecticut Water we know that water touches everything we care about. Our team of more than 200 dedicated, trained professionals is committed to providing you with a reliable supply of high-quality water and responsive service. We know the most important thing we do each and every day is to provide clean, safe drinking water so families can have trust and confidence in the water delivered to their home or business.

Connecticut Water's 2017 Annual Water Quality Report includes the results of more than 170,000 samples, or about 400 tests per day, tested at state certified laboratories for more than 120 potential contaminants and water quality parameters. Our water quality testing data is regularly reviewed for changes or trends, and any customer water quality complaint is escalated for review by our water quality team. We are pleased to report that the water quality results in your system meet state and federal drinking water standards.

We strive to make this report easy to read to help you understand more about your drinking water – where it comes from, what is done to protect and treat it, and what is in it. Within these pages are details about the drinking water quality test results, the source(s) of the drinking water supply, and an assessment about the susceptibility of water supply sources to potential contamination.

Connecticut Water is committed to the stewardship of its water resources, land and the environment and to its protection and conservation for current and future generations. We have a comprehensive source protection program for our water supplies, aquifers and watershed areas. We own and protect approximately 6,000 acres of land that is maintained as protected open space. In addition, our source protection staff review and comment on local land development proposals and activities that could affect water quality at our sources of supply.

Delivering safe drinking water to our customers and communities is our highest priority. Our Connecticut Water team appreciates the trust you put in us every day when you turn on the tap. We are committed to honoring that trust and delivering you a quality product and world-class service for less than a penny a gallon. If you have any questions or comments about your drinking water or this report, please call our Customer Service staff at 1-800-286-5700 or send an e-mail to [customerservice@ctwater.com](mailto:customerservice@ctwater.com).

Sincerely,

A handwritten signature in black ink that reads "David Benoit". The signature is stylized and includes a large, sweeping flourish at the end.

David C. Benoit  
President



# 2017 Water Quality Report Crystal Water System

Public Water System ID# CT0690011

Connecticut Water is pleased to present a summary of the quality of the water provided to you during the past year. This report was prepared under the requirements of the Federal Safe Drinking Water Act to report annually the details of where your water comes from, what it contains, and the risks that our water testing and treatment are designed to prevent.

Federal law allows water providers to make the annual water quality reports available online as an accepted form. . In our effort to reduce costs and environmental impacts of printing, we will provide the information online and will mail the report to customers who request it. Connecticut Water will notify all customers through bill inserts, news releases, our [Web site](#), [Facebook](#) and [Twitter](#) that water quality reports for all systems are available online or upon request.

If you have any questions about this report, please call our customer service team at 1-800-286-5700 or e-mail us at [customerservice@ctwater.com](mailto:customerservice@ctwater.com).

**Water Source:** The Crystal System serves Connecticut Water Company customers in the towns of Brooklyn and Killingly. Water for the Crystal System comes from groundwater wells located in Brooklyn and Killingly.

Sources of tap water and bottled water include reservoirs, ponds, wells, and springs. As water travels over the surface of the land or through the ground, it can dissolve naturally occurring minerals and in some cases, radioactive material, and pick up substances resulting from the presence of animals or from human activity, including:

- Viruses and bacteria, which may come from septic systems, livestock, or wildlife.
- Salts and metals, which can be natural or may result from storm water runoff and farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, or farming.
- Organic chemicals, which originate from industrial processes, gas stations, storm runoff, and septic systems.
- Radioactive substances, which can be naturally occurring.

To ensure safe tap water, the U.S. Environmental Protection Agency (EPA) prescribes limits on these substances in water provided by public water systems.

**Source Water Assessment:** The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies to potential contamination by microbial and chemical contaminants. The susceptibility ranking was assigned using information collected during assessment by the Department of Public Health (DPH).

The following table summarizes the SWAP assessments for the Western system. The assessments are not an indication of water quality from our water sources. The completed SWAP reports can be found at:

<http://tinyurl.com/cwc-swapreport>

Town	Water Supply Source	Type	Overall Susceptibility
Brooklyn	Brooklyn Well field	Groundwater	High
Killingly	Killingly (Hopkins) Well field	Groundwater	High
Killingly	KIP Well 1 & 2	Groundwater	Moderate

**Protecting Water Sources:** Many people don't know that most contaminants enter rivers, lakes, and reservoirs from storm water runoff of streets, parking lots, golf courses, athletic fields, construction sites, farms, and residential neighborhoods. You can help reduce polluted runoff using the following guidelines:

- Restrict the use of lawn chemicals, especially before heavy rains.
- Dispose of pet or animal waste properly so that it does not wash into a nearby stream or storm drain.
- Have septic tanks inspected every two years, and cleaned as needed. Make septic system repairs as soon as possible.
- Do not pour used motor oil on the ground or into storm drains. Contact your town for proper disposal of household chemicals.
- Report muddy runoff from construction sites to your town's zoning or wetland officials.



Connecticut Water regularly inspects more than 3,200 properties within its public water supply watershed areas throughout the state. Our Watershed inspectors protect your drinking water by inspecting properties and ensuring they meet the regulations set by the Connecticut DPH. They look for and report conditions such as failing septic systems, drainage discharge, livestock, soil erosion and sedimentation, leaking heating oil tanks, fertilizer and pesticide use or illegal dumping that could affect water quality.

**Educational Information about Lead and Copper:** Connecticut Water believes it is important to provide you with information about the sources of lead and copper in drinking water and the health effects associated with them.

**What is Lead:**

Major sources of lead in drinking water are corrosion of household plumbing systems and erosion of natural deposits. Health Effects: Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems or high blood pressure.

You should know lead is rarely found in surface water (lakes, streams) and groundwater (aquifers, wells). The primary way lead enters tap water is when the water comes in contact with lead service lines or household plumbing (pipes, faucets) made from lead.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Connecticut Water Company is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your 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 (<https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline>) or [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

Where it is necessary, we have a comprehensive corrosion control program, including pH monitoring and adjustment, to reduce risk of lead leaching from our customers' service line or internal plumbing. Further, we fully comply with the EPA requirements regarding sampling for lead in drinking water and have provided documentation to the Connecticut Department of Public Health to demonstrate our results.

***What is Copper:***

Major sources of copper in drinking water are corrosion of household plumbing systems, erosion of natural deposits, and leaching from wood preservatives. Health Effects: Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount 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. Anyone with Wilson's Disease should consult their personal doctor.

If you are concerned about elevated lead or copper levels, you may wish to have your water tested. Running your tap for 30 seconds to two minutes before use will significantly reduce the levels of lead and copper in the water. Additional information is available from the U.S. Environmental Protection Agency's Safe Drinking Water Hotline website <https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline>.

For information on the levels of lead and copper detected in your drinking water system, please refer to the table in this water quality report.

***Special Considerations:*** 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/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline website <https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline>.

## Water Quality Data – Crystal Water System



The results of the tests conducted on distribution water samples for regulated compounds are summarized in the table below. The Safe Drinking Water Act allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. If levels were tested prior to 2017, the year is identified in the sample year column. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The “Range of Detection” column represents the lowest and highest concentration detected throughout the monitoring period.

DISINFECTANT RESIDUAL								
Analyte	Unit	MRDL	MRDLG	Range of Detection		Sample Year	Met Drinking Water Standards	Typical Source
				Low	High			
Chlorine	ppm	4	4	0.08	1.02	2017	Yes	Water additive used to control microbes

INORGANIC CHEMICALS								
Analyte	Unit	MCL	MCLG	Range of Detection		Sample Year	Met Drinking Water Standards	Typical Source
				Low	High			
Barium	ppm	2	2	0.025	0.025	2015	Yes	Erosion of natural deposits
Chloride	ppm	250	NA	54.2	54.2	2015	Yes	Erosion of natural deposits
Nitrate	ppm	10	10	0.39	1.55	2017	Yes	Runoff from fertilizer
Sodium	ppm	NL = >28	NA	39.8	42.8	2016	Yes*	Erosion of natural deposits
Sulfate	ppm	NA	250	9.6	9.6	2015	Yes	Erosion of natural deposits

### \* Sodium Notification

During routine water quality testing in the Crystal Water System, the results of one water quality sample indicated a sodium level of 42.8 ppm. The State of Connecticut has established a notification level of greater than 28 ppm for sodium in drinking water. Further, Section 19-13-B102 of the State Public Health Code requires us to provide a notice to you if the sodium content exceeds 28 ppm. The reason for the notification is so that consumers on low or restricted sodium diets may take into account their sodium intake from the drinking water. If you have been placed on a sodium-restricted diet, please inform your physician that based on most recent testing, your water contains 42.8 ppm of sodium.

### Nitrate:

Connecticut Water Company's Crystal Water System is in compliance with the EPA's standard of less than 10 ppm for nitrate in drinking water. However, you should know that a nitrate level in drinking water above 10 ppm is a health risk for infants less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you may want to ask for advice from your health care provider.

MICROBIOLOGICAL							
Analyte	MCL	MCLG	Detected in Water System		Sample Year	Met Drinking Water Standards	Typical Source
Total Coliforms	>1 **		Absent		2017	Yes	Naturally present in environment
E. coli	See below †	0	Absent		2017	Yes	
Turbidity	TT >5 NTU	0	ND	1.09	2017	Yes	Soil runoff

**\*\* Total Coliform**

This report reflects compliance with the Revised Total Coliform Rule (RTCR) issued April 1, 2016. The RTCR requires water systems to continue to monitor for coliform contamination, and replaced the monthly MCL for total coliform with a TT for total coliform. The TT dictates that when coliform contamination exceeds a specified frequency, water systems must conduct an assessment of the system to identify and correct any potential routes of contamination in order to remain in compliance with Drinking Water Standards.

**† E. coli**

Any routine sample that shows the presence of total coliform triggers repeat samples that must be analyzed for total coliform and *E. coli*. If *E. coli* is found in any repeat sample, the system is considered to be in violation of the MCL.

Any routine sample that shows the presence of *E. coli* triggers repeat samples that must be analyzed for total coliform and *E. coli*. If total coliform is found in a repeat sample, the system is considered to be in violation of the MCL for *E. coli*.

LEAD AND COPPER									
Analyte	Unit	MCL	MCLG	Range of Detection		90 <sup>th</sup> %ile value	Sample Year	Met Drinking Water Standards	Typical Source
				Low	High				
Lead	ppb	AL = 15	0	ND	3.1	1.5	2017	Yes	Corrosion of household plumbing systems
							(0 samples > AL)		
Copper	ppm	AL = 1.3	1.3	0.057	0.67	0.641	2017	Yes	Corrosion of household plumbing systems

**Educational Information about Lead and Copper:**

Connecticut Water believes it is important to provide you with information about the sources of lead and copper in drinking water and the health effects associated with them. The primary source of lead and copper in tap water is household plumbing, and plumbing can vary from house to house within the same neighborhood. For information on the levels of lead and copper detected in your drinking water system, please refer to the table above.

**What is lead:**

Major sources of lead in drinking water are corrosion of household plumbing systems and erosion of natural deposits. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems or high blood pressure.

**What is copper:**

Major sources of copper in drinking water are corrosion of household plumbing systems, erosion of natural deposits, and leaching from wood preservatives. Health Effects: Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount 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. Anyone with Wilson's Disease should consult their personal doctor.

If you are concerned about elevated lead or copper levels, you may wish to have your water tested. Running your tap for 30 seconds to two minutes before use will significantly reduce the levels of lead and copper in the water. Additional information is available from the U.S. Environmental Protection Agency's Safe Drinking Water Hotline at <https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline>.

DISINFECTION BYPRODUCTS									
Analyte	Unit	MCL	MCLG	Range of Detection		LRAA	Sample Year	Met Drinking Water Standards	Typical Source
				Low	High				
Total Trihalomethanes	ppb	80	NA	19.1	19.1	19.1	2017	Yes	By-product of drinking water disinfection
Haloacetic Acids	ppb	60	NA	4.7	4.7	4.7	2017	Yes	By-product of drinking water disinfection

### Monitoring and Reporting Violation

Our public water system recently incurred a violation for monitoring and reporting water quality results. As a supplier of public drinking water, we are required to monitor the water quality of our water supply for specific contaminants on a regular basis to ensure that it meets the current drinking water standards. Failure to conduct monitoring and/or report results of such monitoring to the State Department of Public Health Drinking Water Section constitutes a violation. Although this incident was not an emergency, as our customer, you have a right to know what happened and what we did to correct this situation.

For the three-year period between January 1, 2014 and December 31, 2016, we were required to sample for radiological parameters and synthetic organic compounds in the treated water at one of our wellfields and report the results to the Department of Public Health. The sample for that period was inadvertently not collected. All subsequent routine monitoring has been conducted and as of 2017, the system has been in full compliance.

TERMS AND ABBREVIATIONS
<b>AL = Action Level:</b> The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
<b>LRAA = Locational Running Annual Average:</b> The average of sample analytical results for samples taken at a particular monitoring location during the previous 4 calendar quarters. The LRAA is used for direct comparison to the MCL.
<b>MCL = Maximum Contaminant Level:</b> 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.
<b>MCLG = Maximum Contaminant Level Goal:</b> 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.
<b>MRDL = Maximum Residual Disinfectant Level:</b> 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.
<b>MRDLG = Maximum residual disinfectant Level Goal:</b> 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.
<b>NA = Not Applicable</b>
<b>ND = Not Detected</b>
<b>NL = Notification Level:</b> There is no MCL for sodium. However, the Connecticut Department of Public Health requires that customers be notified if sodium levels exceed 28 ppm.
<b>NTU = Nephelometric Turbidity Unit:</b> A measure of water clarity.
<b>ppm = parts per million, or milligrams per liter (mg/L)</b>
<b>ppb = parts per billion, or micrograms per liter (µg/L)</b>
<b>pCi/L = picocuries per liter (a measure of radioactivity)</b>
<b>TT = Treatment Technique:</b> A required process intended to reduce the level of a contaminant in drinking water.
<b>90<sup>th</sup> %ile = 90<sup>th</sup> percentile value:</b> The calculated value that is equal to or greater than 90 percent of the individual sample concentrations for the water system. The 90 <sup>th</sup> percentile value is used for direct comparison to the AL.

### **Special Considerations:**

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/Center of Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline at <https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline>.

### **Infrastructure Investment**

As part of our commitment to maintaining water quality and service, Connecticut Water Company has invested more than \$348 million in infrastructure over the past 10 years, or more than \$3,600 per customer. We are planning to invest another \$45.6 million in 2018. These expenditures have funded upgrades in areas such as water quality and treatment, storage and distribution, pipeline replacement and information technology.

Since 2007, the company has replaced more than 118 miles of old water mains across the state, some over 100 years old, through the Water Infrastructure and Conservation Adjustment (WICA) program.

Families and communities see the benefit of these investments through:

- Clean, safe drinking water that contributes to good health,
- An increase in the volume of water supplied to the nearby hydrant for public safety,
- A reliable supply of water for economic development and job creation, and
- New equipment and programs that result in greater water conservation, which is good for the environment.



In 2017, construction of the new Rockville Water Treatment Facility was completed. The investment in the new facility allows Connecticut Water to meet current and future water supply needs for the 85,000 customers in 10 communities in north central Connecticut and to satisfy increasingly stringent water quality standards and environmental rules.

We are investing in our systems so that they can continue to meet the needs of customers today and those of future generations.



## Conserving Water Indoors and Outdoors

In 2017, Connecticut Water launched the Water Drop Watcher program to educate students in service area schools about the water cycle and the importance of water conservation. Employees visited classrooms and spoke to nearly 2,000 students about the value of water and how they can do their part to conserve this precious resource.

Conserving water helps to ensure that we have an adequate supply of water for public health and safety, and reduces demands on the state's water resources. The typical residential customer uses 15,000 gallons of water per quarter, or 60,000 per year. You can play a role in conserving water by becoming conscious of the amount of water your household is using. Conserving can lower your water bill, and depending on the community where you live, may reduce your sewer bill.

Here are some things you can do to conserve:

- Repair leaking toilets - check for toilet leaks by putting a drop of food coloring in the tank. If the food coloring seeps into the bowl without flushing, there is a leak.
- Consider installing a low-flow 1.6 gallon per flush toilet.
- Don't use toilets as a wastebasket.
- Fix leaking fixtures.
- Run full loads in the dishwasher.
- Set the water level in the washing machine to match the amount of clothes being washed.
- Water lawns and gardens in the early morning.
- Use mulch around plants and shrubs.
- Use a bucket rather than a running hose to wash cars.



Additional water conservation ideas and a link to a water saver calculator can be found at [www.ctwater.com/conservation](http://www.ctwater.com/conservation).

