

Annual Drinking Water Quality Report for 2018

Poughkeepsies' Water Treatment Facility

3431 North Road, Poughkeepsie NY 12601

Public Water Supply NY1302774

INTRODUCTION

The Poughkeepsies' Water Treatment Facility, which is owned and operated by the City and Town of Poughkeepsie, provides drinking water to 80,000 individuals within the City of Poughkeepsie, Town of Poughkeepsie, the Dutchess County Water Authority, and the Town of Hyde Park. To comply with State regulations, The Poughkeepsies' Water Treatment Facility annually issues this report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. Last year, your tap water met all State drinking water health standards. We are proud to report that our system did not violate a maximum contaminant level or any other water quality standard. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or concerning your drinking water, please contact Randy Alstadt, Water Plant Administrator, Poughkeepsies' Water Treatment Facility at 451-4173 x2003 or the Dutchess County Department of Behavioral & Community Health, 85 Civic Center Plaza, Suite 106, Poughkeepsie 12601 at 486-3404. If you want to learn more, please attend any of our regularly scheduled Joint Water Board meetings. The meetings are held the first Tuesday of every month at the Water Treatment Facility. Minutes and information reviewed at those meetings are available on our web site www.pokwater.com. For additional information you may also visit EPA's drinking water web site (www.epa.gov/safewater/) and the New York State Department of Health's web site (www.health.state.ny.us).

The tables in this report contain various water quality parameters and the concentration of contaminants detected along with the possible source. A copy of this report and the complete list and results of organic and inorganic contaminants tested throughout the 2018 year can be obtained by contacting Water Plant Administrator, Randy Alstadt at 451-4173 x2003. We are pleased to present to you the 2018 Annual Water Quality Report.

Where does our water come from?

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems and require monitoring for the contaminants. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Our water source is the Hudson River, which originates from the north in the Adirondacks at Lake Tear of the Clouds, located on the southwest shoulder of Mount Marcy; New York State's highest peak. The Hudson River Watershed is very expansive, covering nearly 12,500 square miles, of which the majority is within New York State, however, small portions are located in Vermont, Massachusetts, Connecticut and New Jersey. Raw water is taken from the Hudson River adjacent to our treatment plant, approximately 1,000 feet from shore at a depth of 48 feet below the mean river elevation. Water quality tests have shown the river to be of very high quality. During 2018, our system did not experience any restriction of our water source.

Water Treatment

The Poughkeepsies' Water Treatment Facility utilizes a conventional, state of the art, filtration process to treat the water supply. This process includes chemical application of polyaluminum chloride to stabilize the small particles in the raw water supply. Once stabilized the particles are combined with an organic polymer and previously settled solids, then slowly mixed to form larger particles which are removed through settling. Occasionally carbon dioxide is added prior to this process to aid coagulation for enhanced removal of organic compounds. Following the settling process, ozone is added to assist in the breakdown of organic compounds. The water is then passed through filters made of biologically activated carbon and sand. These filters help polish the water and reduce the organic compounds that can cause disinfection byproducts when water is chlorinated. Disinfection, the process used to kill disease-producing organisms, is accomplished through application of ultraviolet light followed by a carefully monitored chlorination process.

Post treatment includes the addition of phosphoric acid and sodium hydroxide. Phosphoric acid is added at 2.3 mg/L to reduce corrosion of customer's lead piping and fixtures. Sodium hydroxide is added when necessary to increase the treated water to a pH of 7.7 in effort to minimize corrosion of pipes within the distribution system and customers plumbing.

The ozone treatment and biologically activated carbon filters were added to the treatment process in the 2016 plant upgrade. The upgrades have resulted in reduced disinfection byproducts in the finished water.

Facts and Figures

The Poughkeepsies' Water Treatment Facility, which is located along the Hudson River within the Marist College Campus on Route 9, was constructed in 1962 and upgraded in 2004 and 2016. The Facility is currently rated at a maximum production capacity of 19.3 million gallons per day (MGD).

In 2018, the treatment facility produced 3,791,952,000 gallons of potable water, approximately 10.4 MGD. Total billed water to the City was 2,432,624,080 gallons (6.7 MGD) while gallons billed to the Town of Poughkeepsie was 1,359,327,920 (3.7 MGD). The cost of production in 2018 was \$1.21 per 1,000 gallons. This equates to 10 gallons of water for one penny!

Are There Contaminants in our Drinking Water?

To insure maximum water quality for our customers, the Poughkeepsies' Water Treatment Facility staff monitors source, treated and distribution water daily. In addition to continuous plant effluent monitoring for turbidity, chlorine residuals, and pH, approximately 29,660 water quality tests were conducted by the water plant staff in 2018. Operators at our facility analyzed chlorine residual, effluent turbidity and pH 12 times daily or combined or 13,140 analyses. In addition orthophosphate was analyzed 730 tests or twice daily. Additional analyses performed on raw water, plant effluent, and/or distribution system samples included inorganic compounds (metals), volatile organic compounds, total trihalomethanes, haloacetic acids, and synthetic organic compounds. The table presented in this report depicts which compounds were detected in your drinking water.

It should be noted that all drinking water, including bottled drinking water, may be reasonably 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) or the Dutchess County Department of Behavioral & Community Health at 486-3404.

Salt Front

Our water is taken from the Hudson River Estuary, which is subject to increased chloride and sodium levels during low rainfall periods. In 2018, the facility did not experience a salt front episode (defined by USGS as chloride levels exceeding 100 mg/L). Our plant effluent was tested for sodium 12 times in 2018 with values ranging from 19 mg/L to 37.4 mg/L and an average of 26 mg/L. If specific conductivity triggers were met, additional sodium analysis would have taken place.

During normal water years the sodium level varies from 15 – 25 mg/L with higher levels occurring during periods of low rainfall. **Customers that are on a salt restricted diet should consult with their physician concerning sodium in their drinking water.** Information concerning sodium levels in your water can be obtained at any time by contacting the Water Plant Administrator, Randy Alstadt at 451-4173 x 2003.

Hardness

The water obtained from the Hudson River is considered moderately hard. The average hardness of the plant effluent in 2018 was 70 mg/L or 4.09 grains/gallon.

**Poughkeepsies' Water Treatment Facility
Table of Detected Contaminants 2018**

Contaminant	Violation Yes/No	Sample Date(s)	Level Detected	Unit of Measure -ment	MCLG	Regulatory Limit	Likely Source of Contamination
Plant Effluent - Inorganic Contaminants							
Orthophosphate (reported as Phosphorus)	N/A	2 per day	Average = 0.659 Range = 0.420 to 1.25	mg/L	N/A	N/A	Orthophosphate is added at the Poughkeepsies' Water Treatment Facility to inhibit corrosion of lead piping in the distribution system.
Turbidity (Plant Effluent)	No	Continuous Monitoring	Average = 0.036 Range = 0.020 to 0.150	NTU	N/A	MCL = 1 NTU monthly average ¹ MCL = 5 NTU two day average	Soil runoff
Turbidity (Filter Effluent)	No	Continuous Monitoring	Average = 0.036 Range = 0.004 to 0.350	NTU	N/A	TT = 95% of samples < 0.3 NTU ²	Soil runoff
Aluminum	No	1 per week	Average = 34 Range = ND to 83	ug/L	200	N/A	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries
Barium	No	11/15/18	0.0159	mg/L	2	MCL = 2	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries
Bromate	No	Monthly	Average = 3 Range = ND to 12.5 ³	ug/L	N/A	MCL = 10	By-product of drinking water disinfection at treatment plants using Ozone.
Chloride	No	11/15/18	44.8	mg/L	250	N/A	Naturally occurring or indicative of road salt contamination
Nitrate	No	11/15/18	0.33	mg/L	10	MCL = 10	Runoff from fertilizer, Leaking septic tanks, sewage, erosion of natural deposits
Sodium	No	Monthly	Average = 26.7 Range = 26.7 to 37.4	mg/L	N/A	N/A ⁴	Naturally occurring; Road salt; Water softeners; Animal waste
Sulfate	No	11/15/18	16	mg/L	N/A	MCL = 250	Naturally occurring
Plant Effluent - Disinfectants							
Free Chlorine Residual	No	Continuous Monitoring	Average = 2.35 Range = 1.51 to 3.38	mg/L	N/A	MCL = 4 ⁵	Water additive used to control microbes.
Plant Effluent - Disinfection Byproducts							
Total Trihalomethanes (chloroform, bromo-dichloromethane, dibromochloro-methane, and bromoform)	No	02/14/18 05/09/18 08/08/18 11/14/18	Average = 7.63 Range = 3.09 to 14.4	ug/L	N/A	MCL = 80 for four-quarter average	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Haloacetic Acids (mono-, di-, and trichloroacetic acid, and mono- and di-bromoacetic acid)	No	02/14/18 05/09/18 08/08/18 11/14/18	Average = 7.1 Range = 4.7 to 8.7	ug/L	N/A	MCL = 60 for four-quarter average	By-product of drinking water disinfection needed to kill harmful organisms.
Plant Effluent - Radioactive Contaminants							
Gross Alpha Plant Effluent	No	4/11/18 7/6/18 10/4/18	Average = 4.96 Range = ND to 9.87	pCi/L	0	MCL = 15	Erosion of natural deposits.
Raw Water - Radioactive Contaminants							
Gross Alpha	No	4/11/18 7/6/18 10/4/18	Average = 3.71 Range = ND to 6.33	pCi/L	0	MCL = 15	Erosion of natural deposits.
Gross Beta	No	4/11/18 7/6/18 10/4/18	Average = 4.815 Range = ND to 8.89	pCi/L	0	50 ⁶	Decay of natural deposits and man-made emissions.
Uranium	No	4/11/18 7/6/18 10/4/18	Average = 0.221 Range = 0.191 to 0.246	ug/L	0	30	Erosion of natural deposits

1. Turbidity is a measure of the cloudiness of the water. We test it because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement on the plant effluent (0.15 NTU) occurred on 9/5/18. An MCL violation occurs when the average of all daily entry point analyses for the month exceed the MCL of 1 NTU or when the daily two-day average exceeds 5 NTU.
2. The turbidity of each filter is monitored to determine treatment compliance. State regulations require that turbidity must always be below 1 NTU. State regulations require that 95% of samples are below 0.3 NTU. In 2018, 99.996% of samples were less than 0.3 NTU. The highest filter turbidity reading (0.350 NTU) occurred on 9/6/18.
3. Bromate was detected above the MCL on 8/2/18 at a concentration of 12.5 ug/L. Although the MCL value was exceeded for the monthly testing, an MCL violation did not occur as the yearly average is used to determine compliance. Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
4. Water containing more than 20 mg/L of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.
5. Value presented represents the Maximum Residual Disinfectant Level (MRDL) which is a level of disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.
6. The State considers 50 pCi/L to be the level of concern for beta particles.

Table Definitions

NYSDOH: New York State Department of Health

USEPA: United States Environmental Protection Agency

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in the drinking water.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's 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.

NTU (Nephelometric Turbidity Unit): A measure of the clarity of the water. Turbidity in excess of 5.0 NTU is just noticeable to the average person.

TT: Treatment Technique

N/A: Not Applicable

ND: Not Detected

mg/L (milligrams per liter): Corresponds to one mass part in one million parts of another liquid (parts per million)

µg/L (micrograms per liter): Corresponds to one mass part in one billion parts of another liquid (parts per billion)

pCi/L (Picocuries per liter): A measure of the radioactivity in water.

mrem/yr (millirems per year): A measure of radiation absorbed by the body.

Lead in Your Drinking Water

The facility adds phosphoric acid at 2.3 mg/L to the treated water in order to protect lead plumbing in customer's homes. This program has resulted in significantly reducing lead levels in most homes.

Lead present at elevated levels can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. The Poughkeepsies' Water Treatment Facility is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. Potential exposure to lead in drinking water can be minimized by running the water from the tap for 30 seconds to 2 minutes before using it for drinking or cooking, especially if it has been unused for several hours. 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 (1-800-426-4791) or at www.epa.gov/safewater/lead.

What Does This Information Mean?

As you can see by the table, our system had no violations. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the State.

Is Our Water System Meeting Other Rules That Govern Operations?

During 2018, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

Do I Need to Take Special Precautions?

Although our drinking water met or exceeded state and federal regulations, some people may be more vulnerable to disease causing microorganisms or pathogens 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 from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

Why Save Water and How to Avoid Wasting It?

Although our water source has an adequate amount of water to meet present and future demands, there are a number of reasons why it is important to conserve water:

- ◆ Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- ◆ Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential fire fighting needs are met.

You can play a role in conserving water by becoming conscious of the amount of water your household is using, and by looking for ways to use less whenever you can. It is not hard to conserve water. Conservation tips include:

- ◆ Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- ◆ Turn off the tap when brushing your teeth.
- ◆ Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it up and you can save almost 6,000 gallons per year.
- ◆ Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.
- ◆ Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances, then check the meter after 15 minutes, if it moved, you have a leak.

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all our customers help us protect our water sources, which are the heart of our community and our way of life.