

ANNUAL WATER QUALITY REPORT FOR CALENDAR YEAR 2016
CITY OF POUGHKEEPSIE
26 Howard Street
Poughkeepsie, New York
Federal Public Water Supply ID #NY1330291

Introduction:

To comply with State regulations, the City of Poughkeepsie annually issues a 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. 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. Sampling and analyses are carried out routinely as directed by the Dutchess County Health Department and the New York State Department of Health and currently meet the drinking water standards.

We want you to be informed about your drinking water. If you have any questions about this report or concerning your drinking water, please contact Joseph Kane, Water Distribution Operator, at the City of Poughkeepsie Department of Public Works, at (845) 451-4192, or the Dutchess County Health Department at (845) 486-3404. If you want to learn more, please attend any of the regularly scheduled Joint Water Board meetings held the first Tuesday of every month in the conference room at the Poughkeepsies' Water Treatment Facility (behind Marist College). For further information about the Poughkeepsies' Water Treatment Facility, telephone the Joint Water Board Administrator, Randy Alstadt at (845) 451-4173, ext. 2003. You may also visit the Poughkeepsies' Water Treatment Facility website at <http://www.cityofpoughkeepsie.com/watertreatment>. This report can be found on the City of Poughkeepsie's web site <http://www.cityofpoughkeepsie.com/departments/dpw/waterdistribution>.

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, in some cases, radioactive material, 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. 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.

The source of water for the City of Poughkeepsie is treated surface water (Hudson River) which is purchased from the jointly owned town and city treatment plant, Poughkeepsies' Water Treatment Facility. The Poughkeepsies' Water Treatment Facility utilizes 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. The larger particles are then removed through settling. Following the settling process the water is filtered through activated carbon and sand media that polishes the final product. Beginning in September 2016 the treatment plant upgrades were completed and an Ozone treatment process was implemented after settling and before filtration. This process was added to reduce disinfection byproduct formation. 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.

Facts and Figures

In 2016 a total volume of 1,830,041,096 gallons of potable water was received from the Poughkeepsies' Water Treatment Facility. Of this total, 500,718,540 gallons was delivered to 3rd party customers and 1,329,322,556 gallons delivered to city residents. Unaccounted water loss was 378,315,371 gallons. This water loss is due to, in part, water main breaks, meter inaccuracies, reservoir loss, flushing programs, hydrant testing and firefighting.

Water Cost

Since April 2016, the City of Poughkeepsie billed its users based on quarterly water meter readings at the rate of \$4.30 per 100 cubic feet of water (or 750 gallons).

Facility Modification

No facility modifications were made in 2016.

Are there contaminants in our drinking water?

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: Total Coliform Bacteria, Turbidity, Orthophosphate, Lead and Copper, Residual Chlorine, Bromate, Total Trihalomethanes and Haloacetic Acids. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test 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.

The test data presented in this report cover solely the City of Poughkeepsie distribution system. An addendum to this report contains data from the Poughkeepsies' Water Treatment Facility. Additional information about the water supplied by the Poughkeepsies' Water Treatment Facility may be found in the Annual Water Quality Report published by the Joint Town/City Water Board.

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 at 800-426-4791, or the Dutchess County Health Department at 845-486-3404, or by viewing the EPA drinking water website, www.epa.gov/safewater, and the New York State Health Department website, www.health.state.ny.us.

Salt Front Information

Our water is taken from the Hudson River Estuary, which is subject to increased chloride and sodium levels during low rainfall periods. In 2016, the Poughkeepsie's Water Treatment Facility did not experience a salt front episode (defined by USGS as Chloride levels exceeding 100 mg/L). Poughkeepsies' Water Treatment Facility tested the raw water for sodium 10 times in 2016 resulting in an average concentration of 20 mg/L (range 14 to 28 mg/L). The use of the water's conductivity and chloride concentration was used as an indicator of sodium level increase. If specific triggers were met, sodium analysis would have taken place. Last year, the average raw water chloride concentration was 31 mg/L (range 20 to 46 mg/L), which did not trigger additional sodium monitoring.

During normal water years the sodium level varies from 15 – 25 mg/L with higher levels occurring during periods of low rainfall. **Customers who are on a salt restricted diet should consult with their physician concerning salt 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.

EPA's Unregulated Contaminant Monitoring Rule 3 (UCMR3)

In 2014, the City of Poughkeepsie participated in the first 3 quarterly rounds of sampling for unregulated contaminants to satisfy the federal requirement set by the EPA. The purpose of the UCMR3 is to assist the EPA in determining the occurrence of contaminants in drinking water and whether regulation or a change in existing regulation is required. Contaminants detected are listed in the table. For more information on the testing and results please contact the department manager listed at the beginning of this report.

Table of Detected Contaminants, City of Poughkeepsie, 2016							
Water Distribution System							
Contaminant	Violation Yes/No	Sample Date(s) month/year	Level Detected	Unit of Measurement	MCLG	Regulatory Limit	Likely Source of Contamination
Microbial Contaminants							
Total Coliform	No	40 per month	2 positive sample	N/A	N/A	A violation occurs when more than 5% of samples collected in each month are positive for Total Coliform	Naturally present in the environment.
Lead and Copper Monitoring							
Copper	No	11/16 thru 01/17	0.080 ¹ Range = ND to 0.888	mg/L	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits.
Lead	No	11/16 thru 01/17	2 ² Range = ND to 60	ug/L	0	AL = 15	Corrosion of household plumbing systems, erosion of natural deposits
Inorganic Contaminants							
Turbidity	No	5 per week	Average = 0.31 Range = ND to 6.1	NTU	N/A	MCL = 5.0 ³	Soil runoff
Orthophosphate (reported as Phosphorus)	N/A	1per week	Average = 0.72 Range = 0.64 to 0.80	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.
Disinfection Byproducts							
Free Chlorine Residual	No	Minimum of 40 per month	Average = 1.5 Range = ND to 2.5	mg/L	N/A	MCL = 4 ⁴	Water additive used to control microbes.
Total Trihalomethanes (TTHMs -- chloroform, bromo-dichloromethane, dibromochloromethane, and bromoform)	No	02/10/16 05/11/16 08/10/16 11/9/16	Stage 2 Calculation ⁵ Highest LRAA = 55.1 (Range of detects = 26.1 – 78.2)	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	02/10/16 05/11/16 08/10/16 11/9/16	Stage 2 Calculation ⁹ Highest LRAA = 26.9 (Range of detects = 13 – 40.5)	ug/L	N/A	MCL = 60 for four-quarter average	By-product of drinking water disinfection needed to kill harmful organisms.
Unregulated Contaminant Monitoring Rule (UCMR3)							
Strontium	No	5/14 8/14 11/14	Average = 151 Range = 132 to 182	ug/L	N/A	N/A	Naturally-occurring element in soil and bedrock and may dissolve entering groundwater; commercially used in making ceramics and glass products, pyrotechnics, paint pigments, fluorescent lights, and medicines.
Chlorate	No	5/14 8/14 11/14	Average = 265 Range = 130 to 530	ug/L	N/A	N/A	By-product of drinking water disinfection when sodium hypochlorite or chlorine dioxide is used
Vanadium	No	5/14 8/14 11/14	Average = 0.27 Range = 0.24 to 0.32	ug/L	N/A	N/A	Erosion of natural deposits; found in fossil fuels
Hexavalent Chromium	No	5/14 8/14 11/14	Average = 0.079 Range = 0.061 to 0.100	ug/L	N/A	N/A	Erosion of natural deposits; Discharge from steel and pulp mills
Chromium	No	5/14 7/14 8/14 11/14	Average = 0.25 Range = 0.2 to 0.33	ug/L	100	100	Discharge from steel and pulp mills; Erosion of natural deposits

Footnotes:

1. The level presented represents the 90th percentile of the sites tested for copper.
2. The level presented represents the 90th percentile of the sites tested for lead. The action level was exceeded at one of the locations tested.
3. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of the filtration system of the Poughkeepsies' Water Treatment Facility. In accordance with State regulations for distribution systems, we test for turbidity 5 days/week, 52 weeks/year. Results are reported for the year. Since the City purchases its water from the Poughkeepsies' Water Treatment Facility, Treatment Technique regulations do not apply to the City's distribution system. State regulations for distribution systems require that the monthly average for turbidity must be below 5 NTU.
4. The value reported 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.
5. Disinfection Byproduct Stage 2 calculations were in effect for the fourth quarter of 2015. The regulation requires a Locational Running Annual Average (LRAA) be calculated at each site by averaging the results of the 4 most recent quarters. The LRAA reported in this table is the highest LRAA obtained in the 4th quarter of 2015.

Definitions:

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

CFU/100 mL: Colony Forming Units per 100 milliliters of sample.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as possible.

Maximum Contaminant Level Goal (MCLG): 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.

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): 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.

Milligrams per liter (mg/L): corresponds to one part of liquid in one million parts of liquid (parts per million -- ppm).

Micrograms per liter (ug/L): corresponds to one part of liquid in one billion parts of liquid (parts per billion -- ppb).

N/A: Not Applicable.

ND (Non-Detects): Laboratory analysis indicates that the contaminant is not present.

Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

90th Percentile Value: The values reported for lead and copper represent the 90th percentile. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead and copper values detected at your water system.

Running Annual Average (RAA): This value is determined by first calculating the quarterly average of all 4 locations sampled and then averaging the 4 most recent quarterly averages.

Locational Running Annual Average (LRAA): This value is determined by averaging the 4 most recent quarterly results from one location.

What does this information in the table mean?

As you can see by the table, our system had no violations in 2016. We learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the state.

In August and October of 2016, total coliform bacteria were detected in 1 of the routine monthly compliance samples collected at our system. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful bacteria may be present. Additional samples were subsequently collected and total coliforms were not detected in those samples. Since total coliforms were detected in less than 5% of the samples collected that month, the system did not have an MCL violation. It should be noted that E. coli, associated with human and animal fecal waste, was not detected in any of the samples collected.

Information on Lead

We must provide information on lead in drinking water even though our last round of testing showed no problems. Please take a moment to read the following information on lead:

If present, elevated levels of lead 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 City of Poughkeepsie 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 (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

Information on Fluoride

Up until February 2008, our system was one of the many drinking water systems in New York State that provided drinking water with a controlled, low level of fluoride for consumer dental health protection. The fluoride was added by the Poughkeepsies' Water Treatment Facility before it was delivered to us. According to the United States Centers for Disease Control, fluoride is very effective in preventing cavities when present in drinking water at an optimal range from 0.8 to 1.2 mg/L (parts per million). To ensure that the fluoride supplement in your water provided optimal dental protection, the State Department of Health required that the Joint Town and City of Poughkeepsie Water Treatment Facility monitor fluoride levels on a daily basis. During the period when fluoride was being added to the water, no monitoring test results showed levels of fluoride which approached the 2.2 mg/L MCL.

In February 2008, the Poughkeepsies' Water Treatment Facility stopped adding fluoride to the water. You may want to discuss this with your family dentist to see if some other form of fluoride supplement should be considered for your dental protection.

Is our water system meeting other rules that govern operations?

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. In October 2016, the water treatment plant did not test for Bromate leading to a monitoring violation, and therefore cannot be sure of the quality of your drinking water during that time. Subsequent sampling of Bromate shows that it was not detected in the water. The distribution system was in violation for not collecting 6 of the required 60 lead and copper samples before the end of 2016. A violation was also issued for submitting the lead and copper results to the Department of Health late.

In April of 2017, the distribution system received a monitoring violation for collecting only 39 out of 40 Total Coliform samples.

Administrative Order on Consent

The EPA granted the Poughkeepsies' Water Treatment Facility, City of Poughkeepsie, and Town of Poughkeepsie a consent order that postponed the implementation of Stage 2 Disinfection Byproduct Rules (DBP2) through the 3rd quarter of 2015 to provide time for water treatment improvements. The consent order allowed these systems to use the Stage 1 DBP (DBP1) RAA calculation for the first 3 quarters of 2015. All other provisions of DBP2, including sample locations, MCLs, and other calculations, still applied. The DBP2 LRAA was put into effect in the final quarter of 2015. Upon substantial completion of the capital improvements, the EPA issued compliance to the order in 2016.

Disinfection Byproducts are formed when naturally-occurring organic and inorganic materials in the water react with chlorine that is applied to drinking water for disinfection. The amount of disinfection byproducts is variable depending upon time the water is in contact with chlorine and temperature. As a result, levels vary throughout the distribution system. The Stage 1 standard requires utilities to average the quarterly results throughout the distribution system then average four (4) continuous quarters. The Stage 2 regulation requires the quarterly average be calculated at each individual sample site. The MCL has not changed.

The City of Poughkeepsie and the Town of Poughkeepsie have not failed this standard, however, customers in Hyde Park and East Fishkill have had exceedances. To improve water quality for our customers we have initiated the Treatment Plant Upgrade as required by the Consent order which is now deemed to be in compliance as of September 2016.

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 at 1-800-426-4791.

Why Save Water? How Do I Avoid Wasting It?

Although our system 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 saves energy and some of the costs associated with both of these necessities of life;
- 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 firefighting 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.
- Water your garden and lawn only when necessary. Remember that a layer of mulch in the flower beds and garden is not only aesthetically pleasing but will help retain moisture.
- Turn off the tap when brushing your teeth.
- 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. Please call us at the number listed at the beginning of this report if you have any questions.

Addendum

**SUMMARY OF REGULATED CONTAMINANTS DETECTED IN
POUGHKEEPSIES' WATER TREATMENT FACILITY'S PLANT EFFLUENT (PWS # 1302774)**

Poughkeepsies' Water Treatment Facility
PWS # 1302774
3431 North Road
Poughkeepsie, NY 12601
Licensed Operator: Randy J. Alstadt, P.E.

Inorganic Contaminants							
CONTAMINANT	NYSDOH MCL	USEPA MCLG	VIOLATION YES/NO	# OF SAMPLES	RANGE	AVERAGE	SOURCE IN DRINKING WATER
ALUMINUM							
PLANT EFFLUENT	n/a	0.2 mg/L	NO	17	0.086 -0.011 mg/L	0.039 mg/L	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries
ARSENIC							
PLANT EFFLUENT	0.010 mg/L		NO	1	0.0008 mg/L	n/a	Erosion of natural deposits, Runoff from orchards or industries
BARIUM							
PLANT EFFLUENT	2 mg/L	2 mg/L	NO	1	0.023 mg/L	n/a	Erosion of natural deposits; discharge of drilling wastes; discharge from metal refineries
CHLORIDE							
PLANT EFFLUENT	250 mg/L	250 mg/L	NO	1	44 mg/L	44 mg/L	Naturally occurring; run off
CHROMIUM							
PLANT EFFLUENT	0.01 mg/L	n/a	NO	1	0.0032 mg/L	n/a	Erosion of natural deposits, Discharge from steel and pulp mills
MANGANESE							
PLANT EFFLUENT	0.2 mg/L	n/a	NO	1	0.0014 mg/L	n/a	Erosion of natural
NITRATE							
PLANT EFFLUENT	10 mg/L	10 mg/L	NO	1	0.41 mg/L	n/a	Runoff from fertilizer, Leaking septic tanks, sewage, erosion of natural deposits
NICKEL							
							Erosion of natural deposits; discharge

SELINIUM							
PLANT EFFLUENT	0. mg/L	2 mg/L	NO	1	0.0024 mg/L	n/a	Discharge from petroleum refineries; erosion of natural deposits

SODIUM							
PLANT EFFLUENT	n/a	n/a	n/a	1	28 mg/L	n/a	Naturally occurring; run off

SULFATE							
PLANT EFFLUENT	250 mg/L	N/A	NO	1	16 mg/L	n/a	Naturally occurring; run off

Miscellaneous Water Quality Parameters

CONTAMINANT	NYSDOH MCL	USEPA MCLG	VIOLATION YES/NO	# OF SAMPLES	RANGE	AVERAGE	SOURCE IN DRINKING WATER
TURBIDITY							
PLANT EFFLUENT	95% OF SAMPLES < 0.3 NTU ¹	95% OF SAMPLES < 0.3 NTU ¹	NO	Continuous Monitoring	0.02 - 0.17 NTU	0.06 NTU	Soil runoff; flushing hydrants
CHLORINE							
PLANT EFFLUENT	4 mg/L	n/a	NO	Continuous Monitoring	1.72-3.89 mg/L	2.52 mg/L	Disinfectant Additive

CONTAMINANT	NYSDOH MCL	USEPA MCLG	VIOLATION YES/NO	# OF SAMPLES	RANGE	AVERAGE	SOURCE IN DRINKING WATER
HALOACETIC ACIDS (includes mono, di, & trichloroacetic acid; mono & dibromoacetic acid)							
PLANT EFFLUENT	60	n/a	NO	4	5.8-10.0 µg/L	7.9 µg/L	Naturally occurring
TOTAL TRIHALOMETHANES (THM includes chloroform, bromodichloromethane, dibromochloromethane & bromoform)							
PLANT EFFLUENT	80	n/a	NO	4	15.2-36.0 µg/L	23.6 µg/L	Naturally occurring

1. Turbidity is a measure of the cloudiness of the water. It is used as an indicator for overall water treatment. State and Federal regulations require that turbidity must always be less than 1.0 NTU leaving the treatment plant.
2. Only compounds detected are listed in this report. For a complete list of Synthetic and Volatile Organic Compounds tested for, please visit our website at www.pokwater.com.

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.

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.

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)