

Jamestown BPU Annual Water Quality Report Year 2016

**An annual report on water quality
within the
Jamestown Board of Public Utilities
Water Territory, Jamestown, NY**



INTRODUCTION

To comply with State regulations, The City of Jamestown Board of Public Utilities annually issues this report describing our water system, our water quality and other items that are important for our customers to know about their drinking water such as where it comes from and how it is delivered to your homes and businesses. The goal of this report is to raise your understanding of drinking water, to raise awareness for the need to protect our drinking water sources and the importance of maintaining and upgrading the water system which allows the BPU to continue to deliver safe, high quality drinking water to all of our customers.



*Annual Drinking Water
Quality Report
Year 2016
City of Jamestown
Board of Public Utilities
92 Steele Street
Jamestown, NY 14701
Public Water Supply
ID#NY0600366*

If you have any questions about this report or concerning your drinking water, please contact Rebecca Robbins, Communications Coordinator, at (716)661-1680. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled meetings of the Board of Public Utilities. The meetings are held at 4 p.m. on the third or fourth Monday of each month in the BPU Board Room at 92 Steele Street and the schedule is available at www.jamestownbpu.com or by calling (716)661-1680. We encourage public interest in our community's decisions affecting drinking water.

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 animal or 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.

Our water system serves approximately 46,712 customers through 16,679 service connections. Our water source consists of eight artesian wells in the Cassadaga aquifer and four artesian wells in the Conewango aquifer. Aquifers are areas where enough groundwater (water contained in the soil and rock material below the surface of the earth) exists to supply wells and springs. The Jamestown aquifers are confined or sandwiched between layers of relatively impermeable materials such as clay and shale. The BPU operates eight wells, which draw water from the Cassadaga aquifer, having a watershed of 140 square miles. The BPU also operates four wells in Poland Center drawing water from the Conewango aquifer, which has a watershed of 290 square miles.

The water is collected in a receiving tank, then pumped by a high-pressure mechanical delivery process through the transmission and distribution system. If the water is not used within the day, it back feeds into storage at a 10,000,000 gallon reservoir for future distribution. Two underground reservoirs in the city can store approximately 11,500,000 gallons of treated water. The Lakewood (above ground) water tank contains 2,000,000 gallons of treated water. Two above-ground storage tanks in the Jamestown system each hold an additional 500,000 gallons of raw water (water without chlorine and fluoride.) An elevated tank at the County Airport holds 150,000 gallons of treated water. During 2016, our system did not experience any restriction of our water source. Your drinking water is treated with sodium hypochlorite (for disinfection) and hydrofluoro-silicic acid (for tooth decay prevention) prior to distribution.

Our system is one of the many drinking water systems in New York State that provides drinking water with a controlled, low level of fluoride for consumer dental health protection. To ensure that the fluoride supplement in your water provides optimal dental protection, the State Department of Health requires that we monitor fluoride levels on a daily basis. During 2016, monitoring showed fluoride levels in your water were in the optimal range 42% of the time.

SOURCE WATER ASSESSMENT PROGRAM (SWAP) SUMMARY

The New York State Department of Health has completed a source water assessment for the BPU system, under the Source Water Assessment Program (SWAP). Their findings are summarized in the paragraph below. It is important to stress that these assessments were created using available information and only estimate the potential for source water contamination. It does not indicate that any contamination has or will occur. This water supply provides treatment and regular monitoring to ensure that the water that is delivered to consumers meets all applicable standards. This assessment found an elevated susceptibility to contamination. The amount of pasture in the assessment area results in a high potential for protozoa contamination. There is also a high density of sanitary wastewater discharges in the watershed, which results in elevated susceptibility for nearly all contaminant categories. However, the total amount of wastewater discharged to surface water is not high enough to considerably raise the potential for contamination. There are no noteworthy contamination threats associated with other discrete contaminant sources.

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As mentioned before, BPU water is derived from 12 drilled wells, 8 in the Cassadaga well field, and 4 in the Poland Center well field. The source water assessment has rated the wells in both well fields as having a medium-high susceptibility to microbials, viruses, and nitrates, and a medium susceptibility to industrial solvents,

and other industrial contaminants. The ratings for the Cassadaga well field are due primarily to the close proximity of permitted septic systems or other wastewater treatment systems to the wells, a facility listed on the State's Toxic Release Inventory, and oil and gas well drilling in the area. In addition, the wells draw water from a confined aquifer (an aquifer bounded above and below by geology that restricts the passage of ground water), the aquifer recharge area (the section of land that receives precipitation and allows it to infiltrate into the aquifer) is considered vulnerable to potential sources of contamination.

While the source water assessment rates BPU wells as being susceptible to microbials, please note that BPU water is disinfected to ensure that the finished water delivered into your home meets New York State's drinking water standards for microbial contamination. A copy of the assessment, including a map of the assessment area, can be obtained by contacting us, as noted above.

The BPU designed its water supply emergency plan according to guidelines recommended by the NYS Department of Health. The plan was subsequently submitted to and approved by the New York State Department of Health.

FACTS AND FIGURES

Our water system serves 46,712 people in homes, businesses, industries and schools. The BPU now manages 16,679 active meter connections that carry the water to all its customers. The total number of gallons of water produced in 2016 was 1,871,592,000 with 1,172,481,772 gallons delivered to customers. Our highest single production day was 5/13/16 at 6.87 million gallons. An additional 387,591,581 gallons (20.71% of daily pumpage) was unbilled due to flushing, repaired leaks, fire fighting, bulk water sales, treatment plant use and street cleaning; leaving 311,518,647 gallons lost and unaccounted for (16.64%) in meter under registration, unknown use and hidden leaks. The average daily production of raw water treated and pumped into the distribution system was 5.13 million gallons. In 2016, water customers in Jamestown were charged \$1.99 per unit of water. A unit of water is equal to 100 cubic feet of water or 748 gallons.



WHY SAVE WATER AND HOW TO 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 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: automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded, so load it to capacity. Turn off the tap when brushing your teeth. Check every faucet in your home for leaks. A slow drip can waste 15 to 20 gallons a day. Fix it 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 the meter moved, you have a leak.

FOR WATER CONSERVATION INFORMATION, PLEASE REFER TO THE FOLLOWING WEBSITES:

www.jamestownbpu.com and www.h2ouse.org.

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, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, haloacetic acids, radiological and synthetic organic compounds. The table presented on the next page 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. 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 Chautauqua County Health Department at (716)753-4481.



| Detectable Contaminants | | | | 2016 | | | |
|-------------------------------|--------------------------------|--------|-----------|--|-------|--------------------|------|
| Contaminant | Entry Pt | Date | Violation | Result | units | MCL | MCLG |
| Disinfectants | | | | | | | |
| Chlorine | Cassadaga | daily | No | 1.03 / 0.89-1.36 | mg/l | 4.00 | N/A |
| | Likely Source of Contamination | | | Water Additive used to control microbes | | | |
| Chlorine | Clay Pond | daily | No | 1.04 / 0.88-1.22 | mg/l | 4.00 | N/A |
| | Likely Source of Contamination | | | Water Additive used to control microbes | | | |
| Chlorine | Lakewood | daily | No | 0.86 / 0.59-2.0 | mg/l | 4.00 | N/A |
| | Likely Source of Contamination | | | Water Additive used to control microbes | | | |
| Fluoride | Cassadaga | daily | No | 0.74 / 0.60-1.19 | mg/l | 2.20 | N/A |
| | Likely Source of Contamination | | | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories | | | |
| Fluoride | Clay Pond | daily | No | 0.78 / 0.4-1.07 | mg/l | 2.20 | N/A |
| | Likely Source of Contamination | | | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories | | | |
| Inorganic Contaminants | | | | | | | |
| Lead | Distribution 6/11/14 - 7/1/14 | | No | 2.8 / ND-8.70 | ug/l | 15.00 | 0 |
| | Likely Source of Contamination | | | Corrosion of household plumbing systems; Erosion of natural deposits | | | |
| Copper | Distribution 6/11/14 - 7/1/14 | | No | 0.20 / ND-0.490 | ug/l | 1.30 | 1.3 |
| | Likely Source of Contamination | | | Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives | | | |
| Arsenic | Cassadaga | 5/4/16 | No | 1.50 | ug/l | 10.00 | N/A |
| | Likely Source of Contamination | | | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes | | | |
| Nitrate | Cassadaga | 5/4/16 | No | 0.469 | ug/l | 10.00 | N/A |
| | Likely Source of Contamination | | | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits | | | |
| Barium | Cassadaga | 5/4/16 | No | 0.295 | mg/l | 2.00 | 2 |
| | Likely Source of Contamination | | | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits | | | |
| Iron | Cassadaga | 5/4/16 | No | 20.000 | ug/l | 300.00 | N/A |
| | Likely Source of Contamination | | | Naturally occurring | | | |
| Manganese | Cassadaga | 5/4/16 | No | 77.200 | ug/l | 300.00 | N/A |
| | Likely Source of Contamination | | | Naturally occurring; Indicative of landfill contamination | | | |
| Mercury | Cassadaga | 5/4/16 | No | 0.170 | ug/l | 2.00 | 2 |
| | Likely Source of Contamination | | | Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland | | | |
| Sodium | Cassadaga | 5/4/16 | No | 18.200 | mg/l | see health effects | N/A |
| | Likely Source of Contamination | | | Naturally occurring; Road salt; Water Softeners; Water Containing more than 20 mg/l of sodium should not be used for drinking by people on severley restricted sodium diets. | | | |
| Zinc | Cassadaga | 5/4/16 | No | 0.016 | mg/l | 5.00 | N/A |
| | Likely Source of Contamination | | | Naturally occurring; Mining waste; Zinc has no health effects unless detected in very high concentrations | | | |
| Nitrate | Clay Pond | 5/4/16 | No | 1.280 | mg/l | 10.00 | 10 |
| | Likely Source of Contamination | | | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits | | | |
| Barium | Clay Pond | 5/4/16 | No | 0.485 | mg/l | 2.00 | 2 |
| | Likely Source of Contamination | | | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits | | | |
| Sodium | Clay Pond | 5/4/16 | No | 34.300 | mg/l | see health effects | N/A |
| | Likely Source of Contamination | | | Naturally occurring; Road salt; Water Softeners; Water Containing more than 20 mg/l of sodium should not be used for drinking by people on severley restricted sodium diets. | | | |
| Zinc | Clay Pond | 5/4/16 | No | 0.006 | mg/l | 5.00 | N/A |
| | Likely Source of Contamination | | | Naturally occurring; Mining waste; Zinc has no health effects unless detected in very high concentrations | | | |

| Detectable Contaminants Cont'd | | | | 2016 | | | |
|---|--------------------------------|-----------|-----------|--|-------|------------------------------|------|
| Contaminant | Entry Pt | Date | Violation | Result | units | MCL | MCLG |
| Secondary Inorganics | | | | | | | |
| Chloride | | 2/2/09 | No | 45 / 30-60 | mg/l | 250.00 | NA |
| | Likely Source of Contamination | | | Likely source is naturally occurring or indicative of road salt contamination | | | |
| Sulfate | | 9/30/11 | No | 16.7 / 16.3-17.0 | mg/l | 250.00 | NA |
| | Likely Source of Contamination | | | Likely source is naturally occurring | | | |
| Stage II Disinfection ByProducts | | | | | | | |
| Haloacetic Acids | Airport | quarterly | No | 2.03 / ND-7.3 | ug/l | 60.00 | NA |
| | Likely Source of Contamination | | | By products of drinking water chlorination | | | |
| Trihalomethanes | Airport | quarterly | No | 24.33 / 15.2-43.7 | ug/l | 80.00 | NA |
| | Likely Source of Contamination | | | By products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter | | | |
| Trihalomethanes | WWTP | quarterly | No | 3.93 / 1.76-5.8 | ug/l | 80.00 | NA |
| | Likely Source of Contamination | | | By products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter | | | |
| Trihalomethanes | Busti FD | quarterly | No | 15.08 / 13.3-17.3 | ug/l | 80.00 | NA |
| | Likely Source of Contamination | | | By products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter | | | |
| Haloacetic Acids | BOCES | quarterly | No | 1.9 / ND-4.8 | ug/l | 60.00 | NA |
| | Likely Source of Contamination | | | By products of drinking water chlorination | | | |
| Trihalomethanes | BOCES | quarterly | No | 16.23 / 12.4-19.7 | ug/l | 80.00 | NA |
| | Likely Source of Contamination | | | By products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter | | | |
| Radiological | | | | | | | |
| Gross Alpha | Cassadaga | 5/4/16 | No | 0.046 | pCi/l | 15.00 | NA |
| | Likely Source of Contamination | | | Likely source is from the decay of natural deposits | | | |
| Gross Beta | Cassadaga | 5/4/16 | No | 1.310 | pCi/l | 15.00 | |
| | Likely Source of Contamination | | | Likely source is from the decay of natural deposits | | | |
| Radium 226 | Cassadaga | 5/4/16 | No | 0.117 | pCi/l | 5 pCi/l combined 226 and 228 | |
| | Likely Source of Contamination | | | Likely source is from the decay of natural deposits | | | |
| Radium 228 | Cassadaga | 5/4/16 | No | 0.158 | pCi/l | 5 pCi/l combined 226 and 228 | |
| | Likely Source of Contamination | | | Likely source is from the decay of natural deposits | | | |
| Total Uranium | Cassadaga | 5/4/16 | No | 0.269 | pCi/l | 20.00 | |
| | Likely Source of Contamination | | | Likely source is from the decay of natural deposits | | | |



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1-The level presented represents the 90th percentile of the 30 sites tested for copper. 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 copper values detected at your water system. In this case, 30 samples were collected and the 90th percentile value was the 27th highest value (0.19). The action level for copper was not exceeded at any of the test sites.



2-The level presented represents the 90th percentile of the 30 sites tested. The action level for lead was not exceeded at any of the sites tested.

3-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.

Definitions:

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

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.

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

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

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).

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.

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

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 well below the levels allowed by the State. Lead and copper were detected within the system but of the 30 samples collected none were found exceeding the action levels. We are however required to present the following information on Lead in drinking water: 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 Jamestown Board of Public Utilities 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>.



IS THE BPU WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

We are required to monitor your drinking water for specific contaminants on a regular basis. Results from regular monitoring are an indicator of whether or not your drinking water meets health standards. As you can see from the chart above, the BPU had no water quality (MCL) violations during 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. Immunocompromised 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).



In our continuing efforts to maintain a safe and dependable water supply, it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

In 2016, the BPU Water Department replaced mains as follows: 720 feet of 6" pipe on Newland Avenue; 815 feet of 6" pipe on 22nd Street; 680 feet of 6" pipe on Liberty Street (by contractor); 265 feet of 8" line on North Main Street; 630 feet of 2" main on Bigelow; and 260 feet of 1.5" line on Irvine Street. These locations are all in the City of Jamestown.

CLOSING: 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. Please call BPU Communications if you have questions at (716)661-1680.

4/11/17