

Annual Drinking Water Quality Report for 2017

Village of Attica Public Water Supply

Dunbar Road, Attica, New York

(Public Water Supply ID# NY6000607)

Introduction

To comply with State regulations, **The Village of Attica Public Water System** will be annually issuing 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. Last year, we conducted tests for many different contaminants. Some of these were tested daily. The other contaminants were tested in accordance with State and Federal guidelines. We did have some occasions where our results that were higher than the State allows. However, none of the violations were an immediate threat to public health. 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.

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 picks up many naturally occurring materials as well as materials resulting from animal and human activities. Contaminants that may be present in the water source include: microbial, inorganic, pesticides and herbicides, organic and radioactive. To ensure that water provided to the public is safe the New York State Health Department and the Environmental Protection Agency regulate strict water quality standards.

Our public water supply utilizes three manmade reservoirs located along Crow Creek. These reservoirs are all located south of the Village of Attica. Raw water enters the treatment plant through a 16" ductile iron pipe and is currently dosed with Sodium Permanganate. This chemical is a strong oxidant and has taken the place of pre-filter chlorine as part of our efforts to reduce disinfection by-products in our system. The water is then strained to remove sticks, stones, plants, etc. Polyhydroxyaluminumchloride (PAC) is added as a coagulant to help remove suspended dirt, silt and color. We also treat with powdered activated carbon on an 'as needed' basis. Activated carbon is a porous material that removes organic compounds from liquids by a process known as "adsorption." This material is commonly used in water treatment to reduce taste and odor and generally improves water quality. The treated water flows through two flocculation chambers and into a settling chamber. Most of the coagulated materials are trapped in the settling tubes and the settled water then flows through a mixed media filter. These filters contain layers of anthracite coal, silica sand and fine, high density sand. Filtered water is collected by an under drain system receives a precisely metered dose of hydrofluorsilicic acid (fluoride). The finished water is also treated with a polyorthophosphate. This chemical reduces lead and copper corrosion in the distribution system by forming a protective barrier between the water and the metal surfaces that it comes in contact with. It also controls iron and manganese through sequestration, which reduces staining of fixtures and clothing. A final dose of chlorine is injected to insure that we maintain a suitable residual through the entire water system.

Source Water Assessment

The New York State Health Department has completed a source water assessment for this system based on available information. The state source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can enter our source water. For more information on this assessment contact the Village Office.

The assessment found an elevated susceptibility to contamination for this source of drinking water. The amount of animal pasture land in the assessment area results in a high potential for protozoa contamination. No permitted discharges are found in the assessment area. There are no noteworthy contamination threats associated with other discrete contaminant sources. Finally, it should be noted that hydrologic characteristics (e.g. basin shape and flushing rates) generally make reservoirs highly sensitive to existing and new sources of phosphorus and microbial contamination.

The county and state health departments will use this information to direct future source water protection activities. The Village of Attica and the New York Rural Water Association have developed a written **Source Water Protection Plan** for our water supply. The plan addresses our watershed (water supply area) with regards to potential contaminants, susceptibility to contamination, source protection, best management practices and water system security and protection. In addition to these measures the Village of Attica has an approved set of watershed rules

and regulations that regulate many activities that could have negative impacts on water quality.

Facts and Figures

Water is essential for all life. Besides drinking, food preparation, bathing and recreation, water is used to fight fires and numerous industrial applications. Our water system serves approximately 2,659 people in the Village of Attica. Approximately 4,350 additional people receive water from this treatment facility through outside sales. This is accomplished through our 974 service connections. The total water production for our treatment plant in 2017 was 339,043,000 gallons.

We urge you to contact us if you know of any leaks, theft or other unmetered water usage anywhere in our system. In the end everyone pays for the theft and or loss of this precious resource.

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, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, and synthetic organic compounds. 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, may be more than one year old.

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 Wyoming County Health Department at 786-8894. If you receive your water or water bill directly from the Village of Alexander, the Attica or Wyoming Correctional Facilities there may be additional water quality testing data available to you. Contact your supplier directly.

Table of Detected Contaminants							
Contaminant	Violation Yes/No	Date of most current Sample	OUR RESULTS	Unit Measurement	MCL	Likely source of Contamination	Health information for you and your family
Turbidity (1)	NO	continuous (recorded every four hours)	97.74% ≤ 0.3 NTU	NTU	TT=95% of samples ≤ 0.3 NTU	soil runoff	No health effects, but, can interfere with disinfection effectiveness of chlorine treatment.
Turbidity (1) (highest recorded combined filter effluent)	NO	continuous (recorded every four hours)	0.997	NTU	TT = ≤ 1.0 NTU	soil runoff	No health effects, but, can interfere with disinfection effectiveness of chlorine treatment.
Turbidity (DISTRIBUTION SYSTEM SAMPLES) (2)	NO	One sample/day	.084-.526NTU (0.181 highest monthly average)	NTU	>5 NTU monthly average	soil runoff	No health effects, but, can interfere with disinfection effectiveness of chlorine treatment.
Lead (3)	NO	collected 9/14/15 thru 9/17/15	3.7	ug/L	15 action level	corrosion of household plumbing systems; Erosion of natural deposits	Infants and children who drink 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 this water over many years could develop kidney problems or high blood pressure

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of most current Sample	OUR RESULTS	Unit Measurement	MCL	Likely source of Contamination	Health information for you and your family
Copper (3)	NO	9/14/15 thru 9/17/15	210	ug/L	1300 action level	corrosion of household plumbing systems; Erosion of natural deposits	<p>Short term exposure: Gastrointestinal distress</p> <p>Long term exposure: Liver or kidney damage</p> <p>People with Wilson's disease should consult their doctor if the amount of copper in their water exceeds the action level</p>
total trihalomethanes (4)	NO	2/9/17	37.4			by-product of drinking water chlorination needed to kill harmful organisms. TTHM's are formed when source water contains large amounts of organic matter	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of cancer
	NO	5/1/17	61.7				
individual samples	NO	8/10/17	63.8				
	NO	11/9/17	70.4				
total trihalomethanes (running annual average STAGE 2)	NO	2/9/17	52.0	ug/L	80 ug/L annual running average		
	NO	5/1/17	53.0				
	NO	8/10/17	54.2				
	NO	11/9/17	58.3				
barium (IOC)	NO	12/5/17	0.0232	mg/L	2	discharge of drilling waste; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure
Antimony	NO	12/5/17	0.4	ug/L	6.0	discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
fluoride (IOC)	NO	daily	0.74 mg/L annual average	mg/L	2.2	erosion of natural deposits or water additive	Many years of drinking water above the MCL could develop bone disease, including pain and tenderness
Haloacetic Acid (5)	NO	2/9/17	70	ug/L		by-product of drinking water chlorination needed to kill harmful organisms. Haloacetic acids are formed when source water contains large amounts of organic matter	Some people who drink water containing haloacetic acids in excess of EPA's standard over many years may have an increased risk of getting cancer.
	NO	5/1/17	45.6				
individual samples	NO	8/10/17	8.54				
	NO	11/9/17	37				
Haloacetic Acid (annual running average STAGE 2)	NO	2/9/17	26.1	ug/L	60 annual running average		
	NO	5/1/17	29.5				
	NO	8/10/17	31.6				
	NO	11/9/17	40.3				

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of most current Sample	OUR RESULTS	Unit Measurement	MCL	Likely source of Contamination	Health information for you and your family
Sodium	NO	12/5/17	18.1	mg/L	(see Health Effects)	Naturally occurring; Road salt; Water softeners; Animal waste.	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.
Chlorine Residual (7)	NO	Sampled continuously throughout the year	1.61 mg/L average 0.01-5.02 mg/L range	mg/L	4.0	Water additive used to control microbes.	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Nitrate	NO	12/18/17	0.579	mg/L	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.
TOC (total organic carbon)	NO	monthly	2.98 average 2.44 – 3.49 range	mg/L	TT	Naturally present in environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

NOTES:

- (1) Turbidity is a measure of the optical clarity of the water. We test this because it is a good indicator of the effectiveness of our filtration plant. Our highest single turbidity measurement for the year (0.997 NTU's) occurred on October 31st, at 8:00 am. There were forty eight additional times throughout the year when the turbidity measurements exceeded 0.30 NTU's when recorded every four hours. The State regulations require that 95% of our samples be below 0.3 NTU. Our results indicate that 97.75% of our readings met the required treatment technique values.
- (2) We are required to collect a turbidity sample in the distribution system daily. The highest reading recorded in 2017 was 0.526 NTU's and the average was 0.181 NTU's which is well below the MCL of 5.0 NTU's.
- (3) The lead level in the table (3.7 ug/L) represents the 90th percentile of the sites tested. The results of lead testing ranged from NOT DETECTED to 4.2 ug/L. The results of the copper testing ranged from 0.78 to 280 ug/L. and the 90th percentile value was 210 ug/L. So, the action level was not exceeded in any of the 10 samples collected.
- (4) The MCL violation status is based on an annual running average result. None of the **individual** results exceeded the MCL. The readings shown on the bottom half of the table reflects the annual running average of all THM samples collected. The range of all samples taken was from 8.54 to 70.0 ug/L. Refer to section entitled "What Does This Information Mean?" for details.
- (5) The MCL violation status for HAA5 is based on an annual running average result. The readings shown on the top half of the table are individual sample sites. The bottom half of the table reflects the annual running average of all HAA5 samples collected. The range of all samples taken was from 26.1 to 40.3 ug/L. Refer to section entitled "What Does This Information Mean?" for details.
- (6) In 2017 ALL required sampling were total coliform negative (more information available under the "What Does This Information Mean?" heading).
- (7) We treat the water with chlorine to ensure that we achieve the proper level of deactivation of harmful organisms. The samples shown in the table represent the water plant effluent before our main storage tank. We also monitor chlorine levels throughout the distribution system. Compliance is based on an average of all samples collected.

DEFINITIONS;

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to MCLG's 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. MCLG's allow for a margin of safety

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

Treatment Technique (TT): A required process intended to reduce level of a contaminant in drinking water

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

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

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)

Picocuries per liter (pCi/L): - picocuries per liter is a measure of the radioactivity in water.

WHAT DOES THIS INFORMATION MEAN?

We collected a total of four HAA5 samples in 2017. One of those samples was above the MCL. However the violation for HAA's is based on exceeding an annual running average of 60 mg/L. We were not in violation of the HAA5 standard at any time in 2017. We also collected four Trihalomethane samples during 2017. None of those samples, exceeded the MCL for Trihalomethanes which is currently 80 mg/L. The actual MCL violations for Trihalomethanes are also based on an annual running average and we did not exceed the annual running average MCL at any time during 2017. These compounds are the result of chlorination of our water supply. When chlorine is added to water with large amounts of organic matter these compounds can be formed. The EPA believes that some people who drink water containing Trihalomethanes and Haloacetic acids in excess of EPA's standard over many years may have an increased risk of getting cancer. We have had marginal success with treatment chemicals named Sodium Permanganate and powdered activated carbon. Treating with these chemicals has reduced our dependency on chlorine at our treatment plant and generally reduced the levels of THM's and HAA's.

During our 2017 Inorganics testing we had a sodium result of 18.1 mg/L. There is not a MCL established for sodium however, the recommendation is that anyone on a **severely restricted** sodium diet should avoid drinking water with levels greater than 20 mg/L. Water containing more than 270 mg/l of sodium should not be used for drinking by people on **moderately restricted** sodium diets.

The Village of Attica water system (Public Water System ID #NY6000607) was required to collect 36 total coliform tests for compliance in 2017. All of the coliform samples collected in 2017 came back NEGATIVE for total coliform.

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

Cryptosporidium is a microbial pathogen found in surface water and groundwater under the influence of surface water. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. Our water system was not required to test for cryptosporidium in 2017. However, previous sampling revealed the presence of Cryptosporidium in our source (raw) water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Keep in mind that these samples were collected directly from our raw water source before any treatment or filtration. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their health care provider regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water

Giardia is a microbial pathogen present in varying concentrations in many surface waters and groundwater under the influence of surface water. Giardia is removed/inactivated through a combination of filtration and disinfection or by disinfection. Our water system was not required to test for Giardia in 2017. However, previous sampling revealed the presence of Giardia in our source (raw) water. Current test methods do not allows us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Giardia may cause giardiasis, an intestinal illness. People exposed to Giardia may experience mild or severe diarrhea, or in some instances no symptoms at all. Fever is rarely present. Occasionally, some individuals will have chronic diarrhea over several weeks or a month, with significant weight loss. Giardiasis can be treated with anti-parasitic medication. Individuals with weakened immune systems should consult with their health care providers about what steps would best reduce their risks of becoming infected with Giardiasis. Individuals who think that they may have been exposed to Giardiasis should contact their health care providers immediately. The Giardia parasite is passed in the feces of an infected person or animal and may contaminate water or food. Person to person transmission may also occur in day care centers or other settings where hand washing practices are poor.

INFORMATION ON FLUORIDE ADDITION

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. According to the United States Centers for Disease Control, fluoride is very effective in preventing cavities when present in drinking water at a properly controlled level. To ensure that the fluoride supplement in your water provides optimal dental protection, we monitor fluoride levels on a daily basis to make sure fluoride is maintained at a target level. We have determined to use a target level of 0.70 mg/L. Our daily testing shows results ranging from 0.27 to 1.0 mg/L and we remained within 0.10 mg/L of that target dosage in 93.4% of the samples. The yearly average of daily fluoride testing was 0.73mg/L. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l MCL for fluoride.

Do I Need to Take Special Precautions?

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 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 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.

System Improvements

We are constantly looking to make improvements to our water system to ensure that we are able to meet State and Federal drinking water regulations. We have made great strides in reducing our disinfection by-products in recent years. Even though we did not experience seasonal taste and odor issues in 2017, we did treat with powdered activated carbon on an 'as needed' basis. This treatment technology has the added benefit of reducing the disinfection by-product precursors.

CLOSING

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all customers help us protect our water resources, which play a major role in the success and vitality of our community.

If you have any questions about this report or concerning your drinking water, please contact Brian Krawczyk, Chief Operator at 591-0040. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled Village board meetings. The meetings are held the third Tuesday (subject to change) of every month at 7:00pm at the Village Hall (9 Water Street, Attica, New York). You can also get more information from our web site www.attica.org.

Sincerely,
Brian Krawczyk, Chief Operator
Attica Water Treatment Plant