City of Troy

Annual Drinking Water Quality Report for 2018

Public Water Supply ID# 4100050

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Mayor

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Introduction

To comply with State and Federal regulations, 10 NYCRR, Subpart 5-1.72 and 40CFR Part 141, Subpart O, respectively, the city of Troy, Department of Public Utilities is issuing this annual report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and increase your awareness of the need to protect our drinking water sources. Last year your tap water met all State drinking water health standards except for a slightly elevated maximum contaminant level for Total Tri-Halo Methane and a violation for the amount of Lead and Copper samples taken. This report provides an overview of last year's water quality. Included in the report 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 the city of Troy, Department of Public Utilities at 518-237-0319. If you want to learn more, please attend any of the regularly scheduled City Council meetings. The meetings are held the first Thursday of each month at the Troy City Hall, 433 River Street, 5th Floor.

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 Health Department 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 water source for the city of Troy is the Tomhannock Reservoir, a man made reservoir 6 ½ miles northeast of the city. The reservoir is 5 ½ miles long and holds 12.3 billion gallons when full. The quality of the water from the Tomhannock Reservoir is good to excellent. During 2018, the city did not experience any restriction of our water source. Water flows from the reservoir by gravity where seasonally potassium permanganate is added at the intake and at the Melrose Chlorination Station the water is pre-disinfected with chlorine dioxide all year long. The water then flows to the John P. Buckley Water Treatment Plant (WTP) a conventional water treatment plant utilizing coagulation, flocculation, sedimentation, filtration, chlorination and fluoridation processes.

The New York State Health Department completed a Source Water Assessment for the Tomhannock Reservoir. It includes a susceptibility rating based on the risk posed by each potential source of contamination and how likely contaminants could enter the reservoir and is only an estimate of the potential for contamination. It does not mean that the water delivered to your home is or will become unsafe to drink. The assessment found an elevated susceptibility to contamination for this source of drinking water. The amount of agricultural land in the assessment area results in an elevated potential for protozoa and pesticides contamination, however, there is reason to believe that the land cover data may over estimate the percentage of row crops in the assessment area. While there are some facilities present, permitted discharges do not likely represent an important threat to source water quality, based on their density in the assessment area. In addition, it appears that the total amount of wastewater discharged to surface water in this assessment area is not high enough to further raise the potential for contamination (particularly for protozoa). There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include mines and closed landfills. 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.

Facts and Figures

The city of Troy, Department of Public Utilities serves water to over 50,000 residents of Troy, as well as the industrial and commercial customers within the city, through over 13,000 service connections. In addition, the city wholesales water to the city of Rensselaer, Towns of East Greenbush, North Greenbush, Brunswick, Schaghticoke, Poestenkill, and Halfmoon, and Villages of Menands and Waterford. The total finished water produced at the water treatment plant in 2018 was 7,032.77 million gallons or an average of 19.28 million gallons a day. Of this, 1,219.56 million gallons were accounted for through metered sales within the city, with the remainder being used for the wholesale customers and the unaccounted for water. The unaccounted for water is estimated to be about 32%. In 2018, water customers within the city of Troy were charged $ 3.432 per 1,000 gallons of water.

Are There Contaminants In Our Drinking Water?

Water quality testing is required of all public water systems by Part 5 of the New York State Sanitary Code. According to these requirements, the Department routinely tests 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 tables below indicate which contaminants were detected and which were not.

We are 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 city of Troy 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.
It should be noted that all drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the 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 Rensselaer County Health Department at 518-270-2626.

What Does This Information Mean?

As you can see by the tables, our system had two MCL violations with regard to Tri-Halo Methane (THM). We have also learned through our testing that some other contaminants have been detected; however, these contaminants were detected below New York State requirements. They are also indicated in the table below as non-detected contaminants.

Is Our Water System Meeting Other Rules That Govern Operations?

During 2018, our system was in compliance with all applicable State drinking water operating and reporting requirements, except for a lack of lead and copper samples due to lack of participation.

Do I Need to Take Special Precautions?

Although our drinking water met most 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).

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. 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 2018 monitoring showed fluoride levels in your water were in the optimal range (0.7ppm – 1.2ppm) 100 % of the time. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l MCL for fluoride.

What are Trihalomethanes (THM's)?

Trihalomethanes are a group of chemicals that are formed in drinking water during disinfection when chlorine reacts with naturally occurring organic material (e.g., decomposing vegetation such as tree leaves, algae or other aquatic plants) in surface water sources such as rivers and lakes. They are disinfection byproducts and include the individual chemicals chloroform, bromoform, bromodichloromethane, and chlorodibromomethane. The amount of trihalomethanes formed in drinking water during disinfection can change from day to day, depending on the temperature, the amount or organic material in the water, the amount of chlorine added, age of water, and a variety of other factors.

Disinfection of drinking water by chlorination is beneficial to public health. Drinking water is disinfected by public water suppliers to kill bacteria and viruses that could cause serious illnesses, and chlorine is the most commonly used disinfectant in New York State. All public water systems that use chlorine as a disinfectant contain trihalomethanes to some degree.

Some studies suggest that people who drank water containing trihalomethanes for long periods of time (e.g., 20-30 years) have an increased risk of certain health effects. These include an increased risk for cancer and low birth weights, miscarriages and birth defects. The methods used by these studies could not rule out other factors that could have resulted in the observed increased risks. In addition, other similar studies do not show an increased risk for the health effects. Therefore, the evidence from these studies is not strong enough to conclude that trihalomethanes were a major factor contributing to the observed increased risks for these health effects. Studies of laboratory animals show that some trihalomethanes can cause cancer and adverse reproductive and developmental effects, but that exposures much higher than exposures that could result through normal use of water. The United States Environmental Protection Agency reviewed the information from the human and animal studies and concluded that while there is no causal link between disinfection byproducts (including trihalomethanes) and human health effect, the balance of the information warranted stronger regulations that limit the amount of trihalomethanes in drinking water, while still allowing for adequate disinfection. The risks for adverse health effects from trihalomethanes in drinking water are small compared to the risks for illness from drinking inadequately disinfected water.

What is being done?

The water provided to the area's of concern comes from the five million gallon storage tank located on Peterson Court. As such this tank is in the process of being repainting, with completion anticipated in mid-2019. As part of the project an aeration system will be installed. Aeration has been successful at reducing TTHM's by up to 50%. TTHM's are volatile and easily released from water with the use of aeration.

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 sources, pumping systems and water storage tanks; 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. Run it only when you have loaded 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 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.

System Improvements

The Water Treatment Plant has been undergoing an upgrade to the computer automation equipment.

A new 36" water line was installed to replace the 33" riveted steel water main that is over 100 year old. The steel water main ruptured in January of 2016.
A study has been completed to evaluate tank coatings. Recoating of three of the four tanks is anticipated to be completed in 2019. The water department is underway in bidding and organizing the reconstruction of the 2 water mains that service the water treatment plant.

Combined Sewer Overflows (CSO's)

The city of Troy in cooperation with the city of Albany Water Board, the cities of Cohoes, Rensselaer, Watervliet and the Village of Green Island joined in a venture to develop a CSO's Long Term Control Plan (LTCP), with the Capital District Regional Planning Commission coordinating the project. This is being done as mandated by the NYSDEC and USEPA to comply with the National CSO Control Policy. The communities mentioned conducted the monitoring, sampling and analysis in the summer of 2008 to identify the issues associated with CSO's during wet weather events. The results are being used to determine CSO impacts to the receiving water bodies, i.e. Hudson River, and to develop the required LTCP. NYSDEC implemented a final plan for the communities to reduce the amount of CSO's. For more information please visit www.cdrpc.org/CSO.html

Municipal Separate Storm Sewer Systems (MS4)

The city of Troy in cooperation with other Rensselaer County communities, the NYSDEC and the EPA have been working with the county and local governments to help control storm water run-off and try to educate and inform the public about stormwater. Stormwater should naturally seep into the ground, but impervious areas restrict this process causing flooding and pollution. For questions and brochures please visit:
www.troyny.gov/departments/public-utilities/stormwater-management/, www.epa.gov/npdes/stormwater

Closing

Thank you for allowing us to provide your family with quality drinking water in 2018. We will continue to strive to improve and deliver you safe drinking water for years to come. We ask that all our customers help us protect our local water sources, which are the heart of our community and our way of life. The Rensselaer Land Trust is interested in helping us protect the Tomhannock Watershed. For more information visit their website at www.renstrust.org or write to RTLC, 415 River St., Troy, NY 12180.

Definitions:
* Lead and Copper are reported at 90th percentile, where 90% of samples collected are less than the average value. Two of the thirty lead samples collected were above the Action Level (AL) of 0.015 mg/l.
** 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.
*** A violation occurs when a total coliform positive sample is positive for E. coli or when a total coliform positive sample is negative for E. coli but a repeat total coliform sample is positive and the sample is also positive for E. coli.

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 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 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 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.
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or requirements which a water system must follow.
Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
Non-Detects (ND): Laboratory analysis indicates that the constituent 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.
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): Corresponds to 0.037 disintegrations per second per liter. The average activity within the human body from Potassium-40 is 0.1 micro curies.

TABLE OF DETECTED CONTAMINANTS 2018

Contaminant	Violation Yes/No	Date or Frequency of Sample	Level Detected			Unit Measurement	MCLG	Regulatory Limit (MCL, TT, MRDL, AL)	Likely Source of Contamination
			Value or Average	Range					
				Low	High		MRDLG		
Physical and Chemical Analytes									
pH	No	Daily	**8.44**	6.33	9.00	-	-	NDL	Adjusted at WTP
Temperature	No	Daily	**12.6**	3.7	23.6	^{o} C	n/a	NDL	-
Color	No	Daily	**12**	0	32	color units	n/a	15	Naturally occurring
Turbidity	No	Daily	**0.46**	0.11	2.70	NTU	n/a	5	Soil runoff
Chlorine	No	Daily	**0.79**	0.58	1.17	mg/L	4	4.0	Added disinfectant
Chlorine Dioxide	No	Daily	**0.019**	0.00	0.17	mg/L	0.8	0.8	Added disinfectant
Fluoride	No	Daily	**0.80**	0.31	1.02	mg/L	n/a	2.2	Adjusted at WTP
Alkalinity, as $CaCO_3$	No	Daily	**41.4**	18.0	63.4	mg/L	n/a	NDL	Naturally occurring
Hardness, as $CaCO_3$	No	Weekly	**46.8**	35.0	54.0	mg/L	n/a	NDL	Naturally occurring
Iron	No	Weekdays	**0.02**	0.00	0.06	mg/L	n/a	0.3	Naturally occurring
Manganese	No	Weekdays	**0.02**	0.00	0.05	mg/L	n/a	0.3	Naturally occurring
Disinfection By-Products									
Chlorite	No	Monthly	**0.89**	0.73	1.06	mg/l	n/a	1.00	Formed by reaction of chlorine dioxide with naturally occurring organics.
Chlorate	No	Monthly	**0.23**	0.17	0.33	mg/l	n/a	n/a	
Lead and Copper									
Lead * (Jan-June)	No	Bi Annually	**0.0080**	<0.001	0.058	mg/l	0.00	(AL) 0.015	Household plumbing corrosion, erosion of natural deposits.
Copper (Jan-June)	No	Bi Annually	**0.1060**	0.003	0.719	mg/l	1.30	(AL) 1.30	
Lead * (July-Dec)	No	Bi Annually	**0.0063**	<0.0010	0.026	mg/l	0.00	(AL) 0.015	
Copper (July-Dec)	No	Bi Annually	**0.0622**	0.003	0.095	mg/l	1.30	(AL) 1.30	
Inorganic Chemicals									
Barium	No	7/30/2018	**0.0303**	-	-	mg/L	2.0	2.0	Naturally occurring
Chloride	No	7/30/2018	**27.3**	-	-	mg/L	n/a	250.0	Naturally occurring or road salt
Nickel	No	7/30/2018	**0.0005**	-	-	mg/L	0.10	0.10	
Sodium **	No	7/30/2018	**14.5**	-	-	mg/L	n/a	**	Naturally occurring
Sulfate	No	7/30/2018	**17.9**	-	-	mg/L	n/a	250.0	Naturally occurring
Radiological									
Gross Alpha Particles	No	3/11/2016	**-0.840**	1 sample taken every 6 years		pCi/l	0	15.0	Naturally occurring
Gross Beta Particles	No	3/11/2016	**0.681**			pCi/l	0	4.0	Naturally occurring
Radium 226	No	3/11/2016	**0.456**			pCi/l	0	5.0	Naturally occurring
Radium 228	No	3/11/2016	**-0.144**			pCi/l	0	5.0	Naturally occurring
Total Uranium	No	3/11/2016	**0.167**			Ug/L	0	30.0	Naturally occurring
MICROBIOLOGICAL TABLE									
Coliform	No	Weekdays	**0.20%**	-	-	%	0	5%	Naturally occurring
E.Coli ***	No	Weekdays	**0**	-	-	-	0	***	Human/animal fecal waste

Disinfection By-Products

			1st Quarter Avg	2nd Quarter Avg	3rd Quarter Avg	4th Quarter Avg	Unit Measurement	NOTE: Trihalomethane and Haloacetic acids are based on a running annual average	
Total Trihalomethanes									
Campbell Ave FS	No	Quarterly	74.6	63.6	51.3	50.7	ug/l	80	Formed by reaction of chlorine with naturally occurring organics.
Griswold Heights	**Yes**	Quarterly	**83.6**	69.9	59.2	57.2	ug/l	80	
Cookie Factory	No	Quarterly	71.1	64.0	51.1	52.3	ug/l	80	
Deli & Brew	**Yes**	Quarterly	**81.3**	71.6	67.7	65.2	ug/l	80	
Total Haloacetic acids									
Campbell Ave FS	No	Quarterly	52.2	42.6	29.6	29.8	ug/l	60	
Griswold Heights	No	Quarterly	54.8	40.2	26.3	25.6	ug/l	60	
Cookie Factory	No	Quarterly	39.4	31.8	25.5	26	ug/l	60	
Deli & Brew	No	Quarterly	44.7	34.0	25.8	25.5	ug/l	60	

TABLE OF NON-DETECTED CONTAMINANTS

Inorganic Chemicals			Organic Chemicals			
Antimony	Chromium	Selenium	2,4,5-TP (Silvex)	Aldicarb Sulfoxide	Heptachlor	Pentachlorophenol
Arsenic	Cyanide	Silver	2,4-D	Atrazine	Heptachlor Epoxide	Toxaphene
Asbestos	Mercury	Thallium	Alachlor	Carbofuran	Lindane	Vinyl Chloride
Beryllium	Nitrate-as N	Zinc	Aldicarb	Chlordane	Methoxychlor	
Cadmium	Nitrite-as N		Aldicarb Sulfone	Endrin	PCB's	