



2019 Annual Drinking Water Quality Report Seneca Nation



INTRODUCTION

To comply with Federal regulations, the Seneca Nation (SN), 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. Last year, your tap water met all federal drinking water health standards. We are proud to report that our system did not violate a maximum contaminant level or any other water quality standard. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to Federal standards.

The Environmental Health and Engineering division of the SN Health System, with cooperation from the Utility Departments on the Cattaraugus and Allegany Territories, is tasked with sampling, testing and monitoring drinking water quality.

If you have any questions about this report or concerning your drinking water, please contact Joel Merrill, PE, Civil Engineer or Shannon Seneca, PhD., Sanitarian, both at (716) 945-5894.

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, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Our water sources are:

- 1.) Cattaraugus Territory:
 - a. Groundwater Wells: drawn from two drilled wells which are located on Richardson Road. Richardson Road is one of the many systems that adds a low level of fluoride to drinking water in order to provide 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 levels that range from 0.8 mg/l (parts per million). Our fluoride addition facility is designed and operated to meet this optimal range. This source is also disinfected prior to being pumped to two storage tanks and distribution. This source resumed operation in early 2019.
 - b. Intercommunity Water main: Water is purchased in bulk from Erie County Water Authority (ECWA). The connection is located at Routes 5/20 in Irving. This water is fluoridated and disinfected by ECWA. ECWA's water quality report is attached.

- 2.) Allegany Territory:
- a. Groundwater Wells: drawn from two drilled wells which are located on Hiller Rd in Jimersontown. This water is disinfected and pumped to an elevated storage tank prior to distribution.
 - b. Groundwater Wells: drawn from two drilled wells which are located on North Authority Road in Sullivan Hollow, Killbuck. This water is disinfected and filtered prior to usage.
 - c. Groundwater Wells: drawn from two drilled wells which are located on South Loop Road in Steamburg. This water is disinfected and pumped to an elevated storage tank prior to distribution.
 - d. City of Salamanca: Groundwater wells: Salamanca Board of Public Utilities (BPU) report is available at: <http://www.salamancabpu.com>

Each source has undergone a risk analysis to determine the source water's susceptibility to contamination. Except for farming on the Cattaraugus territory, all sources have a low risk of contamination. Source water assessments are available from SN Health. Efforts are underway to further protect SN water sources.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

As the Federal 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, and radiological compounds. A full list of the contaminants tested follows. The tables 1 through 5 presented below depict which compounds were detected in your drinking water. The regulations allow 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. See also Erie County Water Authority's water quality monitoring report supplement attached for their detected contaminants

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 SN Health System at (716) 945-5894.

WHAT DOES THIS INFORMATION MEAN?

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

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Although our drinking water met or exceeded 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

The Cattaraugus system is one of the many drinking water systems that provide 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 of 0.8 mg/l. During 2018 monitoring showed that fluoride levels in your water were within 0.2 mg/l of the target level for 100% of the time. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l NY State Department of Health MCL for fluoride. EPA's Fluoride MCL is 4 mg/l and EPA's secondary standard for fluoride is 2 mg/l.

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 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.
- ◆ 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.

SYSTEM IMPROVEMENTS

In 2019, a capital project was completed to add additional water storage to the Cattaraugus Water System and replace various watermains. Various watermain projects are planned for 2020. These improvements are funded by SN, EPA, IHS drinking water grants and will provide secure storage and delivery of treated water in compliance with federal regulations. In addition, other projects are planned to protect aging infrastructure and provide treated water to areas not currently served.

CLOSING

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all our consumers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.

TABLE 1
2019 Water Quality Monitoring Report-Annual Water Quality Report Supplement-CATTARAUGUS SYSTEM⁴

DETECTED CONTAMINANTS						
Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Barium	No	2/26/19	25 ug/l	2,000	MCL=2,000	Erosion of natural deposits, drilling and metal wastes
Chloride	No	7/19	20.1 mg/l	0	MCL=250	Naturally occurring in source water
Nitrate	No	7/11/19	0.236 mg/l	10	MCL=10	Agricultural runoff; natural sources
Chromium	No	2/26/19	<0.02 mg/l	0.1 mg/l	MCL=0.1	Erosion of natural deposits
Fluoride	No	2/19	0.69 mg/l	NA	2.2 mg/l	Erosion of natural deposits and added for dental health
Lead ³	No	Various (2019)	0.003 mg/l	0	AL=0.015	Household plumbing, corrosion, natural sources, wood preservatives
Copper ³	No	Various (2019)	0.135 mg/l	0	AL=1.300	Home plumbing corrosion, natural erosion

Organic Compounds	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Trihalomethanes	No	quarterly	LRAA=0.064 mg/l	NE	MCL=0.08	Disinfection By-Product
Haloacetic Acids	No	quarterly	LRAA=0.051 mg/l	NE	MCL=0.06	Disinfection By-Product

Radiological Parameters	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Radium 228	No	7/19	ND	NE	NE	Natural sources
Radium 226	No	7/19	ND	NE	NE	Natural sources

Microbiological Parameters ²	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Total coliform bacteria	No	Various	None	NE	5% of samples positive	Naturally present in the environment

¹ 90th percentile

² Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2019.

³ There were 20 lead and copper samples collected and analyzed in 2019. The minimum number of samples was 20 samples. Lead & Copper sampling will be conducted again in 2022.

⁴ Erie County Water Authority and Richardson Road wells were sources in 2019. Results indicate highest level detected in either source.

TABLE 2
2019 Water Quality Monitoring Report-Annual Water Quality Report Supplement-JIMERTONTOWN SYSTEM

DETECTED CONTAMINANTS						
Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Barium	No	10/2/18	259 ug/l	2,000	MCL = 2,000	Erosion of natural deposits, drilling and metal wastes
Chloride	No	9/29/15	115 mg/l	NE	250 mg/l	Naturally occurring in source water
Nitrate	No	2019	1.5 mg/l	10	MCL = 10	Agricultural runoff; natural sources
Copper	No	12/1/16	0.07 mg/l ¹	AL=1.30	AL=1.30	Home plumbing corrosion, natural erosion
Lead	No	10/2/18	<0.002 mg/l ¹	AL = 0.015	AL = 0.015	Household plumbing, corrosion, natural sources, wood preservatives
Chromium	No	9/29/15	<0.010 mg/l	0.1 mg/l	0.1 mg/l	Erosion of natural deposits
Fluoride	No	10/2/18	<0.1	NA	2.2 mg/l	Erosion of natural deposits

Organic Compounds	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Trihalomethanes	No	2019	0.022 mg/l	NE	MCL=0.08	Disinfection By-Product
Haloacetic Acids	No	2019	0.008 mg/l	NE	MCL=0.06	Disinfection By-Product

Radiological Parameters	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Gross Alpha	No	9/29/15	3.37 ±1.8 pCi/l	0	MCL=15	Natural sources
Gross Beta	No	9/29/15	1.79 ±0.922 pCi/l	0	MCL=15	Natural sources
Radium 228	No	9/29/15	0.248 +0.331pCi/l	NE	NE	Natural sources
Radium 226	No	9/29/15	0.297 +0.513pCi/l	NE	NE	Natural sources

Microbiological Parameters ²	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Total coliform bacteria	No	Various	None	NE	5% of samples positive	Naturally present in the environment

¹ Maximum result

²Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2019.

TABLE 3
2019 Water Quality Monitoring Report-Annual Water Quality Report Supplement-STEAMBURG SYSTEM

DETECTED CONTAMINANTS						
Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Barium	No	10/1/18	230 ug/l	2,000	MCL = 2,000	Erosion of natural deposits, drilling and metal wastes
Chloride	No	9/29/15	21.7 mg/l	NE	250 mg/l	Naturally occurring in source water
Nitrate	No	6/28/19	2.35 mg/l	10	MCL = 10	Agricultural runoff; natural sources
Copper	No	9/28/16	0.09 mg/l ¹	AL=1.30	AL=1.30	Home plumbing corrosion, natural erosion
Lead	No	10/1/18	<0.02 mg/l ¹	AL = 0.015	AL = 0.015	Household plumbing, corrosion, natural sources, wood preservatives
Chromium	No	10/1/18	<0.007 mg/l	0.1 mg/l	0.1 mg/l	Erosion of natural deposits
Fluoride	No	10/1/18	<0.1 mg/l	2.2 mg/l	202 mg/l	Erosion of natural deposits

Organic Compounds	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Trihalomethanes	No	2018	0.004 mg/l	NE	MCL=0.08	Disinfection By-Product
Haloacetic Acids	No	2018	0.001 mg/l	NE	MCL=0.06	Disinfection By-Product

Radiological Parameters	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Gross Alpha	No	9/24/18	0.507 ±0.123 pCi/l	0	MCL=15	Natural sources
Gross Beta	No	9/24/18	0.995±0.78 pCi/l	0	MCL=15	Natural sources
Radium 228	No	9/24/18	0.104 ±0.384pCi/l	NE	NE	Natural sources
Radium 226	No	9/24/18	0.0767 ±0.390pCi/l	NE	NE	Natural sources

Microbiological Parameters ²	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Total coliform bacteria	No	Various	None	NE	5% of samples positive	Naturally present in the environment

¹ Maximum result

² Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2019.

TABLE 4: 2019 Water Quality Monitoring Report Supplement-SULLIVAN HOLLOW SYSTEM

DETECTED CONTAMINANTS						
Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Barium	No	6/24/19	120 ug/l	2,000	MCL = 2,000	Erosion of natural deposits, drilling and metal wastes
Chloride	No	9/29/15	3.32 mg/l	NE	250 mg/l	Naturally occurring in source water
Nitrate	No	6/24/19	<0.05 mg/l	10	MCL = 10	Agricultural runoff; natural sources
Copper	No	8/18/15, 8/20/15	<0.01-0.103 mg/l, 0.0665 mg/l ¹ , 0 of 5 above AL	AL=1.30	AL=1.30	Home plumbing corrosion, natural erosion
Lead	No	8/18/15, 8/20/15	<0.001-0.0013 mg/l, 0.0012 mg/l ¹ , 0 of 5 above AL	AL = 0.015	AL = 0.015	Household plumbing, corrosion, natural sources, wood preservatives
Chromium	No	6/24/19	ND	0.1 mg/l	0.1 mg/l	Erosion of natural deposits
Fluoride	No	6/24/19	<0.2 mg/l	2.2 mg/l	202 mg/l	Erosion of natural deposits

Organic Compounds	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Trihalomethanes	No	2018	<0.01 mg/l	NE	MCL=0.08	Disinfection By-Product
Haloacetic Acids	No	2018	<0.01 mg/l	NE	MCL=0.06	Disinfection By-Product

Radiological Parameters	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Gross Alpha	No	9/29/15	0.948 \pm 1.21 pCi/l	0	MCL=15	Natural sources
Gross Beta	No	9/29/15	0.302 \pm 0.95 pCi/l	0	MCL=15	Natural sources
Radium 228	No	9/29/15	0.0938 \pm 0.339 pCi/l	NE	NE	Natural sources
Radium 226	No	9/29/15	0.00 \pm 0.325 pCi/l	NE	NE	Natural sources

Microbiological Parameters ²	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Total coliform bacteria	N	Various	None	NE	5% of samples positive	Naturally present in the environment

¹ 90th percentile

² Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2019.

TABLE 5: 2019 Water Quality Monitoring Report-Report Supplement-SHELTON PARK SYSTEM

DETECTED CONTAMINANTS						
Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Barium	No	6/24/19	154 ug/l	2,000	MCL = 2,000	Erosion of natural deposits, drilling and metal wastes
Chloride	No	4/1/15	78.8 mg/l	NE	250 mg/l	Naturally occurring in source water
Nitrate	No	6/24/19	0.855 mg/l	10	MCL = 10	Agricultural runoff; natural sources
Copper	No	12/21/18	0.04 mg/l, 0 of 5 above AL	AL=1.30	AL=1.30	Home plumbing corrosion, natural erosion
Lead	No	12/21/18	0.003 mg/l, 0 of 5 above AL	AL = 0.015	AL = 0.015	Household plumbing, corrosion, natural sources, wood preservatives
Chromium	No	6/24/19	0.009 mg/l	0.1 mg/l	0.1 mg/l	Erosion of natural deposits
Fluoride	No	4/1/15	<0.1 mg/l	2.2 mg/l	202 mg/l	Erosion of natural deposits

Organic Compounds	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Trihalomethanes	No	2018	<0.01 mg/l	NE	MCL=0.08	Disinfection By-Product
Haloacetic Acids	No	2018	<0.01 mg/l	NE	MCL=0.06	Disinfection By-Product

Radiological Parameters	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Gross Alpha	No	4/1/15	2.23 pCi/l	0	MCL=15	Natural sources
Gross Beta	No	4/1/15	1.85 pCi/l	0	MCL=15	Natural sources
Radium 228	No	4/1/15	-0.34 pCi/l	NE	NE	Natural sources
Radium 226	No	4/1/15	0.1 pCi/l	NE	NE	Natural sources

Microbiological Parameters ²	Violation Yes/No	Sample Date	Level Detected	MCLG	MCL	Sources in Drinking Water
Total coliform bacteria	N	Various	None	NE	5% of samples positive	Naturally present in the environment

¹ 90th percentile

² Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2019.

ABBREVIATIONS AND TERMS

AL = Action Level: the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

CFU/100 ml = Colony Forming Units per 100 milliliters

MCL=Maximum Contaminant Level: the highest level of a contaminant allowed in a drinking water

MCLG= Maximum contaminant level goal: the level of contaminant in a drinking water below which there is no known or expected risk

MFL = Million fibers/liter (Asbestos)

Mg/liter = milligrams per liter (parts per million)

MRDL = Maximum Residential Disinfectant Level: the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary for control of microbial contaminants

MRDLG = Maximum Residual Disinfectant Level Goal: the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination

Mrem/yr = millirems per year

uS/cm= Microseimens per centimeter (a unit of conductivity measurement)

ND= Not detected: absent or present at less than testing method detection limit

Ng/liter= nanograms per liter = parts per trillion

NE= Not Established

NR= not regulated

NTU= Nephelometric turbidity Units

pCi/L= Picocuries per liter

LRAA= Location Running Annual Average

SU = Standard Units (ph measurement)

TT = Treatment Technique: a required process intended to reduce the level of contaminant in drinking water

Ug/liter (ug/L) = micrograms per liter (parts per billion)

Variances and Exemption = State or EPA permission not to meet an MCL or treatment techniques under certain conditions.

< = less than

>= less than or equal to

TYPES OF CONTAMINANTS

**Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

**Inorganic Contaminants*, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Pesticides and Herbicides*, which may come from a variety of sources such as urban storm water runoff, agricultural and residential uses

**Organic Chemical Contaminants*, including synthetic and volatile organic chemicals, which are by-products of the industrial processes and petroleum production, and can also, come from gas stations, urban storm water runoff, and septic systems

**Radioactive Contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities



ERIE COUNTY WATER AUTHORITY

2019 ANNUAL WATER QUALITY REPORT SUPPLEMENT



DETECTED CONTAMINANTS						
Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date (or date of highest detected)	MCL	MCLG	Level Detected	Sources in Drinking Water
Antimony	No	7/19	6.0 ug/L	6.0 ug/L	0.0 - 0.7 ug/L; Average = .35	Discharge from petroleum refineries; fire retardant; ceramics; electronics; solder
Arsenic	No	7/19	10 ug/L	NA	0.0 - 0.52 ug/L; Average = 0.26	Erosion of natural deposits; drilling and metal wastes
Barium	No	7/19	2 mg/liter	2 mg/liter	0.0184 - 0.0195 mg/liter ; Average = 0.019	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Chloride	No	7/19	250 mg/liter	NE	15.3 - 29.6 mg/liter ; Average = 20.1	Naturally occurring in source water
Chlorine	No	6/19	MRDL = 4.0 mg/liter	NA	1.0 - 2.0 mg/liter; Average = 1.47	Added for disinfection
Copper	No	6/19	1300 ug/liter (AL)	1300 ug/liter (AL)	ND - 84 ug/liter, 90th percentile = 36 ug/liter, 0 of 50 above AL	Home plumbing corrosion; natural erosion
Fluoride ¹	No	2/19	2.2 mg/liter	NA	0.12 - 1.07 mg/liter; Average = 0.69	Added to water to prevent tooth decay
Lead ²	No	6/19	15 ug/liter (AL)	0 ug/liter (AL)	ND - 284 ug/liter, 90th percentile = 12.6 ug/liter, 4 of 50 above AL	Home plumbing corrosion; natural erosion
Nickel	No	7/19	NR	NE	0.0 - 0.87 ug/L; Average = 0.25	Nickel enters groundwater and surface water by dissolution of rocks and soils, from atmospheric fallout, from biological decays and from waste disposal.
Manganese	No	8/18	NR	NE	0.89-6.2 ug/liter; Average = 2.1	Naturally occurring; Indicative of landfill contamination
pH	No	2/19	NR	NE	7.45 - 8.39; Average 8.00 SU	Naturally occurring; adjusted for corrosion control
Distribution System Turbidity ³	No	1/19	TT- 5 NTU	NE	0.02 - 0.97; Average = 0.21 NTU	Soil runoff
Entry Point Turbidity ³	No	2/19	TT - 0.3	NE	0.167 NTU highest detected; Lowest monthly % < 0.30 NTU = 100%	Soil runoff

¹ Our system is one of the many 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, the addition of fluoride is a 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 of 0.7 mg/l. During 2019, fluoride was added to the drinking water from January to December at the Sturgeon Point facility and January to June 23 and July 16 to December at the Van de Water facility. The fluoride was not added during this two week period due to a supply issue. During these periods, monitoring showed fluoride levels in your water were within 0.2 mg/L of the target level of 0.7 mg/L 95% of the time.

² Lead is not present in the drinking water that is treated and delivered to your home. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. The Erie County Water Authority 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 (800-426-4791) or at www.epa.gov/safewater/lead. The level presented represents the 90th percentile of the 50 sites tested. A percentile is a value on a scale of 100 that indicates a percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead or copper values detected in the water system. In this case, 50 samples were collected in the water system and the 90th percentile value for lead was the sixth highest value (12.6 ug/L).

³ Turbidity is a measure of the cloudiness of water. ECWA monitors turbidity because it is a good indicator of the effectiveness of our filtration system. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for bacterial growth. State regulations require that the delivered water turbidity must always be below 1 NTU in the combined filter effluent. The regulations also require that 95% of the turbidity samples collected from that point have measurements below 0.3 NTU. The maximum allowed in the distribution system is 5 NTU.

Organic Compounds	Violation Yes/No	Sample Date (or date of highest detected)	MCL (ug/liter)	MCLG (ug/liter)	Level Detected (ug/liter)	Sources in Drinking Water
Total Trihalomethanes ⁴	No	8/19	LRAA = 80	NE	14 - 91 ug/liter; LRAA = 64	By-product of water disinfection (chlorination)
Total Haloacetic Acids ^{5,6}	No	2/19	LRAA = 60	NE	8 - 34 ug/liter; LRAA = 31	By-product of water disinfection (chlorination)

⁴ Trihalomethanes are byproducts of the water disinfection process that occur when natural organic compounds react with the chlorine required to kill harmful organisms in the water. 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 system, and may have an increased risk of getting cancer. The levels detected represent the highest single location's running annual average (64 ug/L).

⁵ Haloacetic acids are byproducts of the water disinfection process required to kill harmful organisms. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. The level detected represents the highest single location's running annual average (31 ug/L).

⁶ A reporting and monitoring violation was issued in 2019. Due to an outside laboratory failure, the ECWA did not provide results for 6 HAA samples taken and submitted second quarter. First and third quarters' results were below the MCL, providing enough evidence to show the public water supply posed no risk to public health.

Radiological Parameters	Violation Yes/No	Sample Date (or date of highest detected)	MCL (pCi/liter)	MCLG (pCi/liter)	Level Detected (pCi/liter)	Sources in Drinking Water
Radium 228	No	7/19	NE	NE	ND	Erosion of Natural Deposits
Combined Radium 226/228	No	7/19	5.0	0	ND	Erosion of Natural Deposits

Microbiological Parameters	Violation Yes/No	Sample Date (or date of highest detected)	MCL	MCLG	Level Detected	Sources in Drinking Water
Total Coliform Bacteria	No ⁷	12/19	5% of samples positive	0	One positive sample	Naturally present in the environment
<i>E. coli</i>	No	12/19	Any positive sample ⁸	0	One positive sample	Human and animal fecal waste

⁷ A violation occurs when more than 5% of the total coliform samples collected per month are positive. No MCL violation occurred.

⁸ A violation occurs when a total coliform positive sample is positive for *E. coli* and a repeat total coliform sample is positive 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*. No MCL violation occurred.

CRYPTOSPORIDIUM AND GIARDIA	Violation Yes/No	Sample Date (or date of highest detected)	Number of Samples Testing Positive		Number of Samples Tested
			Giardia	Cryptosporidium	
Source Water	No	1/17	2	0	6

Cryptosporidium is a microscopic pathogen found in surface waters throughout the United States, as a result of animal waste runoff. It can cause abdominal infection, diarrhea, nausea, and abdominal cramps if ingested.

Our filtration process effectively removes *Cryptosporidium*.

Giardia is a microbial pathogen present in varying concentrations in many surface waters. In our treatment process *Giardia* is removed/inactivated through a combination of filtration and disinfection or by disinfection alone.

DETECTED UNREGULATED CONTAMINANTS					TYPES OF CONTAMINANTS
Parameter	MCL	MCLG	Average Level Detected	Range	<p>Contaminants that may be present in source water before we treat it include:</p> <p><i>*Microbial Contaminants</i>, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.</p> <p><i>*Inorganic Contaminants</i>, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.</p> <p><i>*Pesticides and Herbicides</i>, which may come from a variety of sources such as urban storm water runoff, agricultural and residential uses.</p> <p><i>*Organic Chemical Contaminants</i>, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.</p> <p><i>*Radioactive Contaminants</i>, which can be naturally-occurring or be the result of oil and gas production and mining activities.</p>
Calcium Hardness (mg/l CaCO ₃)	NR	NE	90.1	74 - 112	
Conductivity (uS/cm)	NR	NE	298	232 -423	
Alkalinity (mg/l CaCO ₃)	NR	NE	93.5	75 - 108	

ABBREVIATIONS AND TERMS

AL = Action Level: the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.
LRAA = Locational Running Annual Average
MCL = Maximum Contaminant Level: the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to MCLG's as feasible.

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.

MFL = Million fibers/liter (Asbestos)
mg/liter = milligrams per liter or parts per million

MRDL = Maximum Residual Disinfectant Level : the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial

MRDLG = Maximum Residual Disinfectant Level Goal: the level of a drinking water disinfectant below which there is no known or expected risk to health. **MRDLGs** do not reflect the benefits of the use of disinfectants to control microbial contamination

ND = Not Detected: absent or present at less than testing method detection limit.
NE = Not Established
NR = Not Regulated NA=Not applicable
NTU = Nephelometric Turbidity Units
pCi/liter = picocuries per liter

SU = Standard Units (pH measurement)
TT = Treatment Technique: a required process intended to reduce the level of a contaminant in drinking water.
ug/liter (ug/L) = micrograms per liter = parts per billion

uS/cm = Microsiemens per centimeter (a measure of conductivity)
Variations and Exemptions = State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

< =

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER MONITORING REQUIREMENTS NOT MET FOR ECWA

Our water system violated drinking water requirements over the past year. Even though this was not an emergency, as our customers, you have a right to know what happened and what we did to correct the situation. 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 our drinking water meets health standards. During the 2019 2nd quarter period, the analytical laboratory did not complete tests by the required reporting date. Therefore we could not be sure of the quality of your drinking water during that time.

What should I do? There is nothing you need to do at this time. The table below lists the contaminants that were not reported last year, how often we were supposed to sample, how many samples we were supposed to take, and number of samples taken, and the date on which the following samples were redone by another laboratory. For more information, please contact Sabrina Figler, Director of Water Quality @ 716-685-8574.

Contaminant	Required Sampling Frequency	Number of Samples Taken	Number of Results Received and Reported	No. and Date Samples Retaken
Haloacetic acids	21/quarter	21	15	Twenty one of August 2019