



## *Annual Drinking Water Quality Report for 2016* *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, 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 was not operational in 2016.
  - 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>

During 2016, the Richardson Road wells have been offline undergoing repairs.

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 2016 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 2016, a capital project was started to renovate the Cattaraugus Water System Pump Stations. Various watermain projects are planned for 2017. These improvements are funded by EPA and 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**  
**2016 Water Quality Monitoring Report-Annual Water Quality Report Supplement-CATTARAUGUS SYSTEM**

| DETECTED CONTAMINANTS                   |   |                |                 |      |                        |  |
|---|---|----------------|-----------------|------|------------------------|--|
| Metals, Inorganics, Physical Tests      | Violation Yes/No  | Sample Date    | Level Detected  | MCLG | MCL                    | Sources in Drinking Water  |
| Barium                                  | See Erie County Water Authority Supplement for these test results as ECWA was the sole water source in 2016 |                |                 |      |                        |  |
| Chloride                                |   |                |                 |      |                        |  |
| Nitrate                                 |   |                |                 |      |                        |  |
| Chromium                                |   |                |                 |      |                        |  |
| Fluoride                                |   |                |                 |      |                        |  |
| Lead <sup>3</sup>                       | No  | Various (2016) | 0.003 mg/l      | 0    | AL=15                  | Household plumbing, corrosion, natural sources, wood preservatives |
| Copper <sup>3</sup>                     | No  | Various (2016) | 0.05 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=0.049 mg/l | NE   | MCL=0.08               | Disinfection By-Product  |
| Haloacetic Acids                        | No  | quarterly      | LRAA=0.021 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                             | See Erie County Water Authority Supplement for these test results as ECWA was the sole water source in 2016 |                |                 |      |                        |  |
| Radium 228                              |   |                |                 |      |                        |  |
| Radium 226                              |   |                |                 |      |                        |  |
| Microbiological Parameters <sup>2</sup> | 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                               |

<sup>1</sup> 90<sup>th</sup> percentile

<sup>2</sup> Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2016.

<sup>3</sup> There were 20 lead and copper samples collected and analyzed in 2016. The minimum number of samples was 20 samples. Lead & Copper sampling will be conducted again in 2019.

**TABLE 2**  
**2016 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               | 9/29/15     | 229 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               | 12/20/16    | 1.75 mg/l               | 10         | MCL = 10    | Agricultural runoff; natural sources                               |
| Copper                             | No               | 12/1/16     | 0.07 mg/l <sup>1</sup>  | AL=1.30    | AL=1.30     | Home plumbing corrosion, natural erosion                           |
| Lead                               | No               | 12/1/16     | 0.005 mg/l <sup>1</sup> | 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               | 9/29/15     | <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               | 8/18/15     | 0.031 mg/l     | NE   | MCL=0.08 | Disinfection By-Product   |
| Haloacetic Acids  | No               | 8/18/15     | <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               | 9/29/15     | 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 <sup>2</sup> | 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 |

<sup>1</sup> Maximum result

<sup>2</sup>Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2016.

**TABLE 3**  
**2016 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               | 9/29/15     | 216 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               | 12/20/16    | 2.21 mg/l               | 10         | MCL = 10    | Agricultural runoff; natural sources                               |
| Copper                             | No               | 9/28/16     | 0.09 mg/l <sup>1</sup>  | AL=1.30    | AL=1.30     | Home plumbing corrosion, natural erosion                           |
| Lead                               | No               | 9/28/16     | 0.002 mg/l <sup>1</sup> | AL = 0.015 | AL = 0.015  | Household plumbing, corrosion, natural sources, wood preservatives |
| Chromium                           | No               | 9/29/15     | 0.01 mg/l               | 0.1 mg/l   | 0.1 mg/l    | Erosion of natural deposits  |
| Fluoride                           | No               | 9/29/15     | <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               | 8/18/15     | <0.0037 mg/l   | NE   | MCL=0.08 | Disinfection By-Product   |
| Haloacetic Acids  | No               | 8/18/15     | <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               | 9/29/15     | -0.433 ±0.759 pCi/l  | 0    | MCL=15 | Natural sources           |
| Gross Beta              | No               | 9/29/15     | 1.81±1.34 pCi/l      | 0    | MCL=15 | Natural sources           |
| Radium 228              | No               | 9/29/15     | -0.00276 ±0.335pCi/l | NE   | NE     | Natural sources           |
| Radium 226              | No               | 9/29/15     | 0.266 ±0.522pCi/l    | NE   | NE     | Natural sources           |

| Microbiological Parameters <sup>2</sup> | 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 |

<sup>1</sup> Maximum result

<sup>2</sup> Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2016.

**TABLE 4: 2016 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               | 9/29/15          | 127 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               | 12/20/16         | <0.1 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 <sup>1</sup> , 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 <sup>1</sup> , 0 of 5 above AL | AL = 0.015 | AL = 0.015  | Household plumbing, corrosion, natural sources, wood preservatives |
| Chromium                           | No               | 9/29/15          | <0.01 mg/l   | 0.1 mg/l   | 0.1 mg/l    | Erosion of natural deposits  |
| Fluoride                           | No               | 9/29/15          | <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               | 8/18/15     | <0.005 mg/l    | NE   | MCL=0.08 | Disinfection By-Product   |
| Haloacetic Acids  | No               | 8/18/15     | <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               | 9/29/15     | 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 <sup>2</sup> | 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 |

<sup>1</sup> 90<sup>th</sup> percentile

<sup>2</sup> Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2016.



**TABLE 5: 2016 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               | 4/1/15           | 139 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               | 12/20/16         | 0.7 mg/l   | 10         | MCL = 10    | Agricultural runoff; natural sources                               |
| Copper                             | No               | 8/18/15, 8/20/15 | <0.01-0.03 mg/l, 0.027 mg/l <sup>1</sup> , 0 of 6 above AL     | AL=1.30    | AL=1.30     | Home plumbing corrosion, natural erosion                           |
| Lead                               | No               | 8/18/15, 8/20/15 | <0.001-0.0021 mg/l, 0.0017 mg/l <sup>1</sup> , 0 of 6 above AL | AL = 0.015 | AL = 0.015  | Household plumbing, corrosion, natural sources, wood preservatives |
| Chromium                           | No               | 4/1/15           | <0.001 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               | 8/20/15     | <0.005 mg/l    | NE   | MCL=0.08 | Disinfection By-Product   |
| Haloacetic Acids  | No               | 8/20/15     | <0.005 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 <sup>2</sup> | 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 |

<sup>1</sup> 90<sup>th</sup> percentile

<sup>2</sup> Coliform bacteria is an indicator for possible bacteriological contamination. No coliform bacteria were detected in any samples in 2016.

#### 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

## 2016 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                              |
| Barium                                     | No               | 8/16                                      | 2 mg/liter          | 2 mg/liter         | 0.021 - 0.022 mg/liter ; Average = 0.0215                          | Erosion of natural deposits; drilling and metal wastes |
| Chloride                                   | No               | 1/16                                      | 250 mg/liter        | NE                 | 17 - 28 mg/liter ; Average = 21                                    | Naturally occurring in source water                    |
| Chlorine                                   | No               | 2/16                                      | MRDL = 4.0 mg/liter | NA                 | <0.2 - 2.0 mg/liter; Average = 0.8                                 | Added for disinfection                                 |
| Copper                                     | No               | 8/16                                      | 1300 ug/liter (AL)  | 1300 ug/liter (AL) | ND - 88 ug/liter, 90th percentile 40 ug/liter, 0 of 52 above AL    | Home plumbing corrosion; natural erosion               |
| Fluoride <sup>1</sup>                      | No               | 8/16                                      | 2.2 mg/liter        | NA                 | <0.2 - 1.01 mg/liter; Average = 0.67                               | Added to water to prevent tooth decay                  |
| Lead <sup>2</sup>                          | No               | 8/16                                      | 15 ug/liter (AL)    | 0 ug/liter (AL)    | ND - 29 ug/liter, 90th percentile = 7.8 ug/liter, 2 of 52 above AL | Home plumbing corrosion; natural erosion               |
| Nitrate                                    | No               | 11/16                                     | 10 mg/liter         | 10 mg/liter        | 0.13 - 0.17 mg/liter; Average = 0.15                               | Runoff from fertilizer use                             |
| pH   | No               | 5/16                                      | NR                  | NE                 | 7.62 - 8.17; Average 7.94 SU                                       | Naturally occurring; adjusted for corrosion control    |
| Distribution System Turbidity <sup>3</sup> | No               | 7/16                                      | TT- 5 NTU           | NE                 | 0.01 - 2.62; Average = 0.19 NTU                                    | Soil runoff  |
| Entry Point Turbidity <sup>3</sup>         | No               | 9/16                                      | TT - 0.3            | NE                 | 0.19 NTU highest detected; Lowest monthly % < 0.30 NTU = 100%      | Soil runoff  |

<sup>1</sup> 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 2016, monitoring showed fluoride levels in your water were within 0.2 mg/l of the target level 99% of the time. None of the monitoring results showed fluoride at levels above the 2.2 mg/l MCL for fluoride.

<sup>2</sup> 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](http://www.epa.gov/safewater/lead).  
The level presented represents the 90th percentile of the 52 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, 52 samples were collected in the water system and the 90th percentile value for lead was the eighth highest value (7.8 ug/L).

<sup>3</sup> 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 <sup>4</sup>  | No               | 8/16                                      | LRAA = 80      | NE              | 13 - 108 ug/liter; LRAA = 65 | By-product of water disinfection (chlorination) |
| Total Haloacetic Acids <sup>5</sup> | No               | 8/16                                      | LRAA = 60      | NE              | 7 - 69 ug/liter; LRAA = 49   | By-product of water disinfection (chlorination) |

<sup>4</sup> 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 (65 ug/L).

<sup>5</sup> 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 (49 ug/L).

| 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               | 4/13                                      | NE              | NE               | 0.99 - 1.10 pCi/liter, Average = 1.05 | Erosion of Natural Deposits |
| Combined Radium 226/228 | No               | 4/13                                      | 5.0             | 0                | 1.15 - 1.25 pCi/liter, Average = 1.2  | 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 <sup>6</sup>  | 10/16 <sup>7</sup>                        | 5% of samples positive | 0    | 0.44% = highest percentage of monthly positives | Naturally present in the environment |

<sup>6</sup> A violation occurs when more than 5% of the total coliform samples collected per month are positive. No MCL violation occurred.

<sup>7</sup> During October 2016, one sample in the distribution system tested positive for total coliform but negative for E.coli. Follow-up sampling, testing and reporting were performed as required by regulation, and results were negative for both total coliform and E.coli.

| 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               | ND  | 0                                  | 0               | 24                       |

*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*. No *Cryptosporidium* was detected in any samples taken in 2016.

*Giardia* is a microbial pathogen present in varying concentrations in many surface waters. Giardia is removed/inactivated through a combination of filtration and disinfection or by disinfection alone. No Giardia was detected in any samples taken in 2016

| DETECTED UNREGULATED CONTAMINANTS          |     |      |                        |          |
|--|-----|------|------------------------|----------|
| Parameter                                  | MCL | MCLG | Average Level Detected | Range    |
| Calcium Hardness (mg/l CaCO <sub>3</sub> ) | NR  | NE   | 93                     | 88 - 99  |
| Conductivity (uS/cm)                       | NR  | NE   | 294                    | 282 -318 |
| Alkalinity (mg/l CaCO <sub>3</sub> )       | NR  | NE   | 91                     | 86 - 95  |

#### 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 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

**ND** = Not Detected: absent or present at less than testing method detection limit.

**NE** = Not Established

**NR** = Not Regulated

**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)

**Variances and Exemptions** = State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

**<** = Less Than

**≤** = Less Than or Equal To

#### TYPES OF CONTAMINANTS

**Contaminants that may be present in source water before we treat it include:**

*\*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 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.

The presence of contaminants does not necessarily indicate that the water poses a health risk. Water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants.

Results presented here are from 2016 analyses or from the most recent year that tests were conducted in accordance with regulatory requirements. Some tests are not required to be performed on an annual basis. Information can be obtained upon request from the ECWA Water Quality Laboratory (716) 685-8580 or on the Internet at [www.ecwa.org](http://www.ecwa.org).

**COMPOUNDS TESTED FOR BUT NOT DETECTED**

|                            |                        |                             |                              |
|----------------------------|------------------------|-----------------------------|------------------------------|
| 4-Androstene-3,17-dione    | 1,3,5-Trimethylbenzene | Di(2-ethylhexyl) adipate    | Metribuzin                   |
| 2-Chlorotoluene            | Alachlor               | Di(2-ethylhexyl) phthalate  | Nickel                       |
| 4-Chlorotoluene            | Aldicarb               | Dibromochloropropane        | Oxamyl (Vydate)              |
| 17beta-Estradiol           | Aldicarb Sulfone       | Dibromomethane              | PCB 1016                     |
| 17alpha-Ethynyl estradiol  | Aldicarb Sulfoxide     | Dicamba                     | PCB 1221                     |
| 2,4-D                      | Aldrin                 | Dichlorodifluoromethane     | PCB 1232                     |
| 1,3 Butadiene              | Antimony               | Dieldrin                    | PCB 1242                     |
| 1,2-Dichlorobenzene        | Arsenic                | Dinoseb                     | PCB 1248                     |
| 1,3-Dichlorobenzene        | Asbestos               | Diquat                      | PCB 1254                     |
| 1,4-Dichlorobenzene        | Atrazine               | Endothall                   | PCB 1260                     |
| 1,1-Dichloroethane         | Benzene                | Endrin                      | Pentachlorophenol            |
| 1,2-Dichloroethane         | Benzo(a)pyrene         | Equillin                    | Perfluorobutanesulfonic acid |
| 1,1-Dichloroethylene       | Beryllium              | Estriol                     | Perfluoroheptanoic acid      |
| cis-1,2-Dichloroethylene   | Bromobenzene           | Estrone                     | Perfluorohexanesulfonic acid |
| trans-1,2-Dichloroethylene | Bromochloromethane     | Ethylbenzene                | Perfluoronanoic acid         |
| 1,2-Dichloropropane        | Bromomethane           | Ethylene Dibromide (EDB)    | Perfluorooctane sulfonate    |
| 1,3-Dichloropropane        | Butachlor              | Glyphosate                  | Perfluorooctanoic acid       |
| 2,2-Dichloropropane        | n-Butylbenzene         | Gross Alpha Particles       | Pichloram                    |
| 1,1-Dichloropropene        | sec-Butylbenzene       | Gross Beta Particles        | Propachlor                   |
| cis-1,3-Dichloropropene    | t-Butylbenzene         | Heptachlor                  | n-Propylbenzene              |
| trans-1,3-Dichloropropene  | Cadmium                | Heptachlor Epoxide          | Radium 226                   |
| 1,4-Dioxane                | Carbaryl               | Hexachlorobenzene           | Selenium                     |
| 3-Hydroxycarbofuran        | Carbofuran             | Hexachlorobutadiene         | Simazine                     |
| 2,3,7,8-TCDD (Dioxin)      | Carbon Tetrachloride   | Hexachlorocyclopentadiene   | Styrene                      |
| 2,4,5-TP (Silvex)          | Chlordane              | Isopropylbenzene            | Tetrachloroethylene          |
| 1,1,1,2-Tetrachloroethane  | Chlorobenzene          | p-Isopropyltoluene          | Thallium                     |
| 1,1,2,2-Tetrachloroethane  | Chlorodifluoromethane  | Lindane                     | Toluene                      |
| 1,2,3-Trichlorobenzene     | Chloroethane           | Mercury                     | Toxaphene                    |
| 1,2,4-Trichlorobenzene     | Chloromethane          | Methomyl                    | Trichloroethylene            |
| 1,1,1-Trichloroethane      | Chromium, Total        | Methoxychlor                | Trichlorofluoromethane       |
| 1,1,2-Trichloroethane      | Cobalt                 | Methyl t-butyl ether (MTBE) | Vinyl Chloride               |
| 1,2,3-Trichloropropane     | Cyanide                | Methylene Chloride          | Xylenes (o,m and p)          |
| 1,2,4-Trimethylbenzene     | Dalapon                | Metolachlor                 |                              |