

Annual Drinking Water Quality Report for 2011

The Seneca Nation of Indians

Introduction

The Seneca Nation of Indians (SNI) is pleased to issue this annual report describing the quality of the drinking water delivered to your tap during the year 2011. The purpose of this report is to help you understand what you are using in your daily lives, and to make you more educated consumers.

We are proud to tell you that last year, the water provided for your use met every United States Environmental Protection Agency (USEPA) standard for safety, except for two non-repeatable exceedences – one in the Jimersontown water system in August, and one in the Sullivan Hollow water system in October (numerous resampling and reanalysis showed the water was safe to drink). This report contains information to help everyone understand more about their drinking water.

If, after reading this report, you have any questions about your drinking water, please contact Steve Tome, Sanitarian, at 716-945-5894.

Sources of Water

Cattaraugus Territory

In 2011, all drinking water for the Cattaraugus Territory was purchased from the Erie County Water Authority (ECWA), which like the Nation, had no drinking water quality violations (the Annual Water Quality Report from the ECWA is attached to this document. All water purchased from the ECWA is disinfected and fluoridated by the ECWA prior to distribution to consumers.

Allegany Territory

All drinking water produced in the Allegany Territory comes from groundwater.

Jimersontown Community Water System: On August 8, 2011, there was a positive result for coliform bacteria at 1 colony per 100 milliliters of water, an indicator of possible bacterial contamination. The certified operator was notified as the water was deemed unsafe as sampled. In accordance with USEPA standards, numerous follow-up samples were collected in the days following, and all results were non-detect, indicating that the water was safe. The cause of this event was most likely a chlorine residual that was temporarily too low.

Steamburg Community Water System: There were no detectable contaminants for the Steamburg Community Water system during 2011.

Sullivan Hollow Water System: On October 6, 2011, there was a positive result for coliform bacteria at 1 colony per 100 milliliters of water, an indicator of possible bacterial contamination. The certified operator was notified as the water was deemed unsafe as sampled. In accordance with USEPA standards, numerous follow-up samples were collected in the days following, and all results were non-detect, indicating that the water was safe. The cause of this event was most likely a chlorine residual that was temporarily too low.

Shelton Park: There were no detectable contaminants for the Shelton Park water system during 2011.

Contaminants in Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least trace amounts of some contaminants. The presence of contaminants does not necessarily indicate a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. People with compromised immune systems, 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 about drinking water from their health care providers.

On a monthly basis, all SNI water facilities are sampled and tested for microbiological quality and chlorine residual. Our drinking water was in complete compliance with the associated standards, as no microorganisms were ever confirmed, and a chlorine residual was always detected (a chlorine residual is important in the distribution system to prevent the growth of any microorganisms).

Other analyses were performed on a less frequent basis, as required, including organic chemicals, radioactivity, and lead and copper. Data reported in Tables 1 and 2 are the most recent data available, as some parameters are not analyzed every year, in accordance with EPA requirements. There were no violations of these standards; any data above detection limits are included on Tables 1 and 2.

Definitions From Tables

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 using the best available treatment technology.

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.

mg/l: milligrams per liter, which corresponds to one part of contaminant in one million parts of water.

ug/l: micrograms per liter, which corresponds to one part of contaminant in one billion parts of water.

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

pCi/l: picocuries per liter, which is a measurement of radioactivity in water.

SCWS: Steamburg Community Water System

JCWS: Jimersontown Community Water System.

What Does All of This Mean?

The information presented in this report is meant to make you aware of the importance placed on providing safe drinking water. This quality water is not produced by accident. Certified operators, licensed by the New York State Department of Health, are responsible for operating the facilities that produce your water. Samples are taken by trained professionals and are analyzed and certified by contract laboratories. It is up to you, the consumer, to help us continue to provide water of excellent quality by informing us if you are experiencing problems with taste, odor, color, or lack of pressure in your homes or businesses.

Erie County Water Report

Since this utility provided some of the water to The Seneca Nation during 2011, the data from their annual water report are included for your review.

**TABLE 1
DETECTED CONTAMINANTS
CATTARUGUS**

Contaminant	Violation Y/N	Date of Sample	Level Detected	Unit of Measurement	MCLG	Regulatory Limit MCL or AL	Likely Source of Contamination
Barium	N	8/26/09	184	ug/l	2,000	MCL = 2,000	Natural sources
Nitrate	N	8/26/09	2.77	mg/l	10	MCL = 10	Agricultural runoff; natural sources
Lead	N	9/21/10	<1*	ug/l	0	AL = 15	Household plumbing corrosion; natural sources; wood preservatives
Copper	N	9/21/10	23*	ug/l	1,300	AL = 1,300	Household plumbing corrosion; natural sources
Gross alpha	N	8/26/09	2.58 ± 2.21	pCi/l	0	MCL = 15	Natural sources
Radium 228	N	8/26/09	0.248 ± 0.331	pCi/l	0	MCL = 5	Natural sources
Haloacetic Acids	N	10/13/11	0.026	mg/l	n/a	MCL = 0.06	Disinfection By-Product
Trihalomethanes	N	10/13/11	0.05	mg/l	n/a	MCL = 0.08	Disinfection By-Product

* Value at 90th percentile

**TABLE 2
DETECTED CONTAMINANTS
ALLEGANY**

Contaminant	Violation Y/N	Date of Sample	Level Detected	Unit of Measurement	MCLG	Regulatory Limit MCL or AL	Likely Source of Contamination
Lead	N	9/21/10	2*	ug/l	0	AL = 15	Household plumbing corrosion; natural sources; wood preservatives
Copper	N	9/21/10	80*	ug/l	1,300	AL = 1,300	Household plumbing corrosion; natural sources
Haloacetic Acids	N	10/13/11	0.026	mg/l	n/a	MCL = 0.06	Disinfection By-Product
Trihalomethanes	N	10/13/11	0.05	mg/l	n/a	MCL = 0.08	Disinfection By-Product
Nitrate (Hoag)	N	11/17/11	1.0	mg/l	10	10	Agricultural runoff; natural sources
Nitrate (SCWS)	N	11/17/11	2.1	mg/l	10	10	Agricultural runoff; natural sources
Nitrate (JCWS)	N	11/17/11	1.6	mg/l	10	10	Agricultural runoff; natural sources

* Value at 90th percentile



ERIE COUNTY WATER AUTHORITY

2011 WATER QUALITY MONITORING REPORT - 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	11/11	2 mg/liter	NE	0.021 - 0.023 mg/liter ; Average = 0.022	Erosion of natural deposits; drilling and metal wastes
Chloride	No	8/11	250 mg/liter	NE	16 - 49 mg/liter ; Average = 20	Naturally occurring in source water
Chlorine	No	8/11	MRDL = 4.0 mg/liter	MRDLG = 4 mg/liter	<0.20 to 1.88 mg/liter; Average = 0.75	Added for disinfection
Copper	No	8/10	1.3 mg/liter (AL)	0 mg/liter (AL)	0.0005 - 0.04 mg/liter, 90th percentile 0.03 mg/liter, 0 of 79 above AL	Home plumbing corrosion; natural erosion
Fluoride ¹	No	1/11	2.2 mg/liter	2.2 mg/liter	0.67 - 1.25 mg/liter; Average = 0.97; 99 % in optimum range 0.8 - 1.2	Added to water to prevent tooth decay
Lead ²	No	8/10	15 ug/liter (AL)	0 ug/liter (AL)	ND - 8 ug/liter, 90th percentile 3 ug/liter, 0 of 79 above AL	Home plumbing corrosion; natural erosion
Nitrate	No	11/11	10 mg/liter	10 mg/liter	0.17 to 0.19 mg/liter; Average = 0.18	Runoff from fertilizer use
pH	No	4/11	NR	NE	7.32 to 8.14; Average 7.82 SU	Naturally occurring; adjusted for corrosion control
Turbidity ³	No	7/11	TT	NE	0.41 NTU highest detected; 99.4% was lowest monthly % < 0.30 NTU	Soil runoff
Turbidity, Distribution System	No	4/11	5 NTU	NE	0.04-0.98 NTU, Average = 0.25	Soil runoff

¹ 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, the addition of fluoride is very effective means of preventing cavities. To ensure that the fluoride supplement in your water provides optimal dental protection, the State Department of Health (NYSDOH) requires that the Erie County Water Authority monitor fluoride levels on a daily basis. The NYSDOH recommends an optimal range of 0.8 to 1.2 mg/l (parts per million). During the addition of fluoride in 2011, monitoring showed fluoride levels in your water were in the optimal range 99% of the time. None of the monitoring results during fluoride addition showed fluoride at levels that approached the 2.2 mg/l MCL for fluoride.

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 79 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, 79 samples were collected in the water system and the 90th percentile value for lead was the eighth highest value (3 ug/L). The action level for lead was not exceeded in any of the samples tested.

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 have measurements below 0.3 NTU. On 3/09/11 a check valve malfunctioned at the Sturgeon Point WTP causing turbidity excursions in 3 filters. Repairs and adjustments were made and turbidities returned below 0.3 ntu. The combined filter effluent at the plant remained in compliance at all times during this treatment issue. On 11/16/11 a coagulant aid pump malfunctioned at the Sturgeon Point WTP causing turbidity excursions in 7 filters. Repairs and treatment adjustments were made and turbidities returned below 0.3 ntu. The combined filter turbidity was recorded at 0.41 NTU at the 8AM reading during that day. Additional sampling and bacteriological testing was performed in the plant and monitored in the water system during this event and all bacteriological test results were negative at all times.

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	8/11	RAA < 80	NE	15 - 87 ug/liter; RAA = 39	By-product of water disinfection (chlorination)
Total Haloacetic Acids ⁵	No	3/11	RAA < 60	NE	9 - 29 ug/liter; RAA = 17	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 level detected represents the highest running annual average of quarterly results. This result (39 ug/L) is below the MCL.

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 running annual average of quarterly results. This result (17 ug/L) is below the MCL.

Microbiological Parameters	Violation Yes/No	Sample Date (or date of highest detected)	MCL	MCLG	Level Detected	Sources in Drinking Water
Total Coliform Bacteria	No ⁶	7/11 ⁷	>5% of samples positive	NE	0.42% = highest percentage of monthly positives	Naturally present in environment

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

⁷ During May, one distribution system sample tested positive for total coliform and in March and July one entry point sample at the Sturgeon Point Water Treatment Plant tested positive for total coliform. In all cases, follow-up sampling, testing and reporting were performed as required by regulation, and the 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	3/11	5	0	23
Treated Drinking Water	No	ND	0	0	23

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 2011.

Giardia is a microbial pathogen present in varying concentrations in many surface waters. In 2011, *Giardia* was detected in 5 of 23 raw source water samples but was not detected in any treated drinking water samples. *Giardia* is removed/inactivated through a combination of filtration and disinfection or by disinfection alone.

UNREGULATED SUBSTANCES				
Parameter	MCL	MCLG	Average Level Detected (mg/liter)	Range (mg/liter)
Alkalinity	NR	NE	91	61 - 97
Calcium Hardness	NR	NE	91	64 - 107
Conductivity	NR	NE	301 uS/cm	200 - 346 uS/cm
Magnesium	NR	NE	8.6	8.3 - 8.8
Manganese	NR	NE	0.002	0.001 - 0.003
MIB and Geosmin	NR	NE	ND	ND - 2.7 ng/liter
Potassium	NR	NE	1.65	1.6 - 1.7
Sodium	NR	NE	14.1	13.9 - 14.3
Sulfate	NR	NE	21.3	21.0 - 21.5
Total Dissolved Solids	NR	NE	156	149-166
Total Organic Carbon	NR	NE	2.0	1.4 - 4.7

ABBREVIATIONS AND TERMS	
<p>AL = Action Level: the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.</p> <p>CFU/100 ml = Colony Forming Units per 100 milliliters</p> <p>MCL = Maximum Contaminant Level: The highest level of a contaminant in drinking water. MCLs are set as close to MCLGs as feasible</p> <p>MCLG = Maximum Contaminant Level Goal: 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</p> <p>MFL = Million fibers/liter (Asbestos)</p> <p>mg/liter = milligrams per liter (parts per million)</p> <p>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.</p> <p>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</p>	<p>mrem/yr = millirems per year.</p> <p>uS/cm = Microsiemens per centimeter (a unit of conductivity measurement).</p> <p>ND = Not Detected: absent or present at less than testing method detection limit.</p> <p>ng/liter = nanograms per liter = parts per trillion</p> <p>NE = Not Established</p> <p>NR = Not Regulated</p> <p>NTU = Nephelometric Turbidity Units</p> <p>pCi/liter = picocuries per liter</p> <p>RAA = Running Annual Average</p> <p>SU = Standard Units (pH measurement)</p> <p>TT = Treatment Technique: a required process intended to reduce the level of a contaminant in drinking water.</p> <p>ug/liter (ug/L) = micrograms per liter (parts per billion)</p> <p>Variances and Exemptions = State or EPA permission not to meet an MCL or a treatment technique under certain conditions.</p> <p>< = Less Than</p> <p>< = Less Than or Equal To</p>

TYPES OF CONTAMINANTS

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

**Microbial Contaminants*, such as virus 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 discharge, oil and gas production, mining or farming.

**Pesticides and Herbicides*, which may come from a variety of sources such as a 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

Water, including bottled 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.

Results presented here are from 2011 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) 685-8570 or on the Internet at www.ecwa.org.

COMPOUNDS TESTED FOR BUT NOT DETECTED

2-Chlorotoluene	Bromobenzene	Mercury
4-Chlorotoluene	Bromochloromethane	Methomyl
2,4-D	Bromomethane	Methoxychlor
1,2-Dichlorobenzene	Butachlor	Methyl t-butyl ether (MTBE)
1,3-Dichlorobenzene	n-Butylbenzene	Methylene Chloride
1,4-Dichlorobenzene	sec-Butylbenzene	Metolachlor
1,1-Dichloroethane	t-Butylbenzene	Metribuzin
1,2-Dichloroethane	Cadmium	Napthalene
1,1-Dichloroethylene	Carbaryl	Nickel
cis-1,2-Dichloroethylene	Carbofuran	N-nitroso-diethylamine (NDEA)
trans-1,2-Dichloroethylene	Carbon Tetrachloride	N-nitroso-dimethylamine (NDMA)
1,2-Dichloropropane	Chlordane	N-nitroso-di-n-butylamine (NDBA)
1,3-Dichloropropane	Chlorobenzene	N-nitroso-di-n-propylamine (NDPA)
2,2-Dichloropropane	Chloroethane	N-nitroso-methylethylamine (NMEA)
1,1-Dichloropropene	Chloromethane	N-nitroso-pyrrolidine (NPYR)
cis-1,3-Dichloropropene	Chromium	Oxamyl (Vydate)
trans-1,3-Dichloropropene	Cyanide	PCB 1016
3-Hydroxycarbofuran	Dalapon	PCB 1221
2,3,7,8-TCDD (Dioxin)	Di(2-ethylhexyl) adipate	PCB 1232
2,4,5-TP (Silvex)	Di(2-ethylhexyl) phthalate	PCB 1242
1,1,1,2-Tetrachloroethane	Dibromochloropropane	PCB 1248
1,1,1,2,2-Tetrachloroethane	Dibromomethane	PCB 1254
1,2,3-Trichlorobenzene	Dicamba	PCB 1260
1,2,4-Trichlorobenzene	Dichlorodifluoromethane	Pentachlorophenol
1,1,1-Trichloroethane	Dieldrin	Perchlorate
1,1,2-Trichloroethane	Dinoseb	Pichloram
1,2,3-Trichloropropane	Diquat	Propacchlor
1,2,4-Trimethylbenzene	Endothall	n-Propylbenzene
1,3,5-Trimethylbenzene	Endrin	Selenium
Alachlor	Ethylbenzene	Simazine
Aldicarb	Ethylene Dibromide (EDB)	Styrene
Aldicarb Sulfone	Glyphosate	Tetrachloroethene
Aldicarb Sulfoxide	Heptachlor	Thallium
Aldrin	Heptachlor Epoxide	Toluene
Antimony	Hexachlorobenzene	Toxaphene
Arsenic	Hexachlorobutadiene	Trichloroethene
Atrazine	Hexachlorocyclopentadiene	Trichlorofluoromethane
Benzene	Isopropylbenzene	Vinyl Chloride
Benzo(a)pyrene	p-Isopropyltoluene	Xylenes
Beryllium	Lindane	Zinc