



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.

³ 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. The action level for copper also was not exceeded in any of the samples tested. Turbidity is a measure of the cloudiness of water. ECMA 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 3/08/11 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 turbidity was recorded at 0.41 NTU at the 8AM reading during that day. 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*.

COMPOUNDS TESTED FOR BUT NOT DETECTED

2-Chlorotoluene	Bromobenzene	Mercury
4-Chlorotoluene	Bromochloromethane	Methyl
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
1,1,2,2-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

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

AL = Action Level: the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.	mrem/yr = millirems per year.
CFU/100 ml = Colony Forming Units per 100 milliliters	uS/cm = Microsiemens per centimeter (a unit of conductivity measurement).
MCL = Maximum Contaminant Level: The highest level of a contaminant in drinking water. MCLs are set as close to MCLGs as feasible	ND = Not Detected: absent or present at less than testing method detection limit.
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	ng/liter = nanograms per liter = parts per trillion
MFL = Million fibers/liter (Asbestos)	NE = Not Established
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.	NR = Not Regulated
MRDLG = Maximum Residual Disinfectant Level Goal: The level of a disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of	NTU = Nephelometric Turbidity Units
	pCi/liter = picocuries per liter
	RAA = Running Annual Average
	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) or a treatment technique under certain conditions.
	Variations and Exemptions = State or EPA permission not to meet an MCL
	< = Less Than
	< = Less Than or Equal To

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 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) 665-8570 or on the Internet at www.ecwa.org.