



# ERIE COUNTY WATER AUTHORITY

## 2012 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	11/12	2 mg/liter	NE	0.020 - 0.020 mg/liter ; Average = 0.020	Erosion of natural deposits; drilling and metal wastes
Chloride	No	3/12	250 mg/liter	NE	16 - 30 mg/liter ; Average = 20	Naturally occurring in source water
Chlorine	No	3/12	MRDL = 4.0 mg/liter	MRDLG = 4 mg/liter	<0.20 - 2.20 mg/liter; Average = 0.73	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 <sup>1</sup>	No	4/12	2.2 mg/liter	2.2 mg/liter	0.64 - 1.26 mg/liter; Average = 0.98, 99 % in optimum range 0.8 - 1.2	Added to water to prevent tooth decay
Lead <sup>2</sup>	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	12/12	10 mg/liter	10 mg/liter	0.17 - 0.18 mg/liter; Average = 0.18	Runoff from fertilizer use
pH	No	4/12	NR	NE	7.42 - 8.13; Average 7.90 SU	Naturally occurring; adjusted for corrosion control
Turbidity <sup>3</sup>	No	11/12	TT	NE	0.47 NTU highest detected; 98.8% lowest monthly % < 0.30 NTU	Soil runoff

<sup>1</sup> 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 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 1.0 mg/l. During 2012, monitoring showed fluoride levels in your water were within 0.2 mg/l of the target level for 99% of the time. None of the monitoring results showed fluoride at levels that approach 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 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.

<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 have measurements below 0.3 NTU. The Van de Water Treatment Plant was shut down for a period of time from 11/01/12 to 11/02/12, because of plant improvement construction projects that started to affect the treatment plant filtered water turbidity. The maximum turbidity recorded during this time period was 0.47 ntu in the combined filtered effluent and no violation of treatment standards occurred. There was no interruption of service in the water system, and the distribution system water quality was not affected.

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	8/12	RAA = 80, LRAA = 80	NE	14 - 82 ug/liter; RAA = 42, LRAA = 63	By-product of water disinfection (chlorination)
Total Haloacetic Acids <sup>5</sup>	No	6/12	RAA = 60, LRAA = 60	NE	11 - 48 ug/liter; RAA = 24, LRAA = 30	By-product of water disinfection (chlorination)
1,2 Dichloroethane <sup>6</sup>	No	6/12	5	0	0.9 - 1.2 ug/liter; Average = 1.0	Industrial discharge from chemical factories

<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 system's highest running annual average (42 ug/L), and the highest single location's running annual average (63 ug/L). Both are below the MCL.

<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 system's highest running annual average (24 ug/L), and the highest single location's running annual average (30 ug/L). Both are below the MCL.

<sup>6</sup> Some people who drink water containing 1,2-dichloroethane in excess of the MCL concentration over many years may have an increased risk of getting cancer. The concentrations detected did not exceed the EPA's MCL for this compound.



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>7</sup>	7/12 <sup>8</sup>	5% of samples positive	NE	1.3% = highest percentage of monthly positives	Naturally present in environment

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

<sup>8</sup> During July 2012, two samples at the Trevett Rd Tank and one sample at the ECWA Water Quality Lab 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	5/12	6	0	24
Treated Drinking 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 2012.

*Giardia* is a microbial pathogen present in varying concentrations in many surface waters. In 2012, *Giardia* was detected in 6 of 24 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	83 - 97
Calcium Hardness	NR	NE	91	83 - 98
Conductivity	NR	NE	305 uS/cm	295 - 329 uS/cm
Magnesium	NR	NE	9	9.0 - 9.1
MIB and Geosmin	NR	NE	ND	ND - 6.0 ng/liter
Potassium	NR	NE	1.6	1.5 - 1.6
Sodium	NR	NE	13.0	12.9 - 13.0
Sulfate	NR	NE	20.8	20.6 - 21.0
Total Dissolved Solids	NR	NE	164	155-172
Total Organic Carbon	NR	NE	2.1	1.6 - 5.6

ABBREVIATIONS AND TERMS	
<b>AL</b> = Action Level: the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.	<b>mrem/yr</b> = millirems per year
<b>CFU/100 ml</b> = Colony Forming Units per 100 milliliters	<b>uS/cm</b> = Microsiemens per centimeter (a unit of conductivity measurement)
<b>LRAA</b> = Locational Running Annual Average	<b>ND</b> = Not Detected: absent or present at less than testing method detection limit.
<b>MCL</b> = 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.	<b>ng/liter</b> = nanograms per liter = parts per trillion
<b>MCLG</b> = 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.	<b>NE</b> = Not Established
<b>MFL</b> = Million fibers/liter (Asbestos)	<b>NR</b> = Not Regulated
<b>mg/liter</b> = milligrams per liter (parts per million)	<b>NTU</b> = Nephelometric Turbidity Units
<b>MRDL</b> = 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.	<b>pCi/liter</b> = picocuries per liter
<b>MRDLG</b> = Maximum Residual Disinfectant Level Goal: the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination	<b>RAA</b> = Running Annual Average
	<b>SU</b> = Standard Units (pH measurement)
	<b>TT</b> = Treatment Technique: a required process intended to reduce the level of a contaminant in drinking water.
	<b>ug/liter (ug/L)</b> = micrograms per liter (parts per billion)
	<b>Variances and Exemptions</b> = State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
	<b>&lt;</b> = Less Than
	<b>≤</b> = Less Than or Equal To

TYPES OF CONTAMINANTS
<b>Contaminants that may be present in source water before we treat it include:</b>
<i>*Microbial Contaminants</i> , such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
<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.
<i>*Pesticides and Herbicides</i> , which may come from a variety of sources such as urban storm water runoff, agricultural and residential uses.
<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.
<i>*Radioactive Contaminants</i> , 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 2012 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](http://www.ecwa.org).

COMPOUNDS TESTED FOR BUT NOT DETECTED

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