ERIE COUNTY WATER AUTHORITY ♦ PWSID #1400443

2013 Water Quality Monitoring Report - Annual Water Quality Report Supplement

DETECTED CONTAMINANTS

Metals, Inorganics, Physical Tests	Violation Yes/No	Sample Date (or date of highest detection)	MCL	MCLG	Level Detected	Sources in Drinking Water
Barium	No	8/13	2 mg/liter	NE	0.022 - 0.022 mg/liter; Average = 0.022	Erosion of natural deposits; drilling and metal wastes
Chloride	No	3/13	250 mg/liter	NE	16 - 30 mg/liter; Average = 20	Naturally occurring in source water
Chlorine	No	6/13	MRDL = 4.0 mg/liter	MRDLG = 4 mg/liter	<0.20 - 2.20 mg/liter; Average = 0.76	Added for disinfection
Copper	No	7/13	1.3 mg/liter (AL)	0 mg/liter (AL)	0.003 - 0.10 mg/liter, 90th percentile 0.04 mg/liter, 0 of 63 above AL	Home plumbing corrosion natural erosion
Chromium	No	8/13	0.1 mg/liter	0.1 mg/liter	0.0013 -0.0013 mg/liter; Average = 0.0013 mg/L	Erosion of natural deposits; discharges from steel and pulp mills
Fluoride[1]	No	5/13	2.2 mg/liter	2.2 mg/liter	0.6 - 1.2 mg/liter; Average = 0.96, 99% in optimum range 0.8 - 1.2	Added to water to prevent tooth decay
Lead[2]	No	7/13	15 ug/liter (AL)	0 ug/liter (AL)	ND - 82 ug/liter; 90th percentile 2 ug/liter, 1 of 63 above AL	Home plumbing corrosion; natural erosion
Nitrate	No	8/13	10 mg/liter	10 mg/liter	0.05 - 0.07 mg/liter; Average = 0.06	Runoff from fertilizer use
pH	No	12/13	NR	NE	7.25 - 8.35; Average = 7.84 SU	Naturally occurring; adjusted for corrosion control
Turbidity[3]	No	12/13	TT	NE	0.23 NTU highest detected; 100% was lowest monthly % < 0.30 NTU	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 a very effective means of 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 value of 1.0 mg/l. During 2013, 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 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 http://www.epa.gov/safewater/lead. The level presented represents the 90th percentile of the 63 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, 63 samples were collected in the water system and the 90th percentile value for lead was the seventh highest value (2 ug/L). The action level for lead was exceeded in only one of the samples tested.

[3] Turbidity is a measure of the cloudiness of water. Erie County Water Authority 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.

Organic Compounds	Violation Yes/No	Sample Date (or date of highest detection)	MCL (ug/liter)	MCLG (ug/liter)	Level Detected (ug/liter)	Sources in Drinking Water
Total Trihalomethanes[4]	No	8/13	LRAA = 80	NE	10 - 76 ug/liter; LRAA = 63	By-product of water disinfection (chlorination)
Total Haloacetic Acids[5]	No	2/13	LRAA = 60	NE	7 - 43 ug/liter; LRAA = 36	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 single location's running annual average (63 ug/L).

[5] Haloacetic acids are byproducts of the water disinfection process required to kill harmful organisms. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. The level detected represents the system's highest single location's running annual average (36 ug/L).

Radiological Parameters	Violation Yes/No	Sample Date (or date of highest detection)	MCL (pCi/liter)	MCLG (ug/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 detection)	MCL	MCLG	Level Detected (ug/liter)	Sources in Drinking Water
Total Coliform Bacteria	No	11/13[6]	5% of samples positive	NE	0.5% = highest percentage of monthly positives	Naturally present in environment

[6] During November 2013, one distribution sample tested positive for total coliform. Follow-up sampling, testing and reporting were performed as required by regulation, and the results were negative for both total coliform and E.coli.

Giardia and Cryptosporidium	Violation Yes/No	Sample Date (or date of highest detection)	Number of Samples Testing Positive		Number of Samples Tested
			Giardia	Cryptosporidium	
Source Water	No	ND	6	0	22
Treated Drinking Water	No	ND	0	0	22

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 2013.

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 2013.

UNREGULATED SUBSTANCES				
Parameter	MCL	MCLG	Average Level Detected (mg/liter)	Range (mg/liter)
Alkalinity	NR	NE	92	73 - 101
Calcium Hardness	NR	NE	90	73 - 116
Conductivity	NR	NE	309 uS/cm	156 - 403 uS/cm
Magnesium	NR	NE	9	9.0 - 9.1
MIB and Geosmin	NR	NE	ND	ND - 7.6 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	156 - 172
Total Organic Carbon	NR	NE	1.9	0.9 - 4.4

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 state.

New York State Department of Health Source Water Assessment

The New York State Department of Health completed a draft Source Water Assessment of the supply's raw water sources under the state's Source Water Assessment Program (SWAP). The purpose of this program is to compile, organize, and evaluate information regarding possible and actual threats to the quality of public water supply (PWS) sources. It is important to note that source water assessment reports estimate the potential for untreated drinking water sources to be impacted by contamination. These reports do not address the safety or quality of treated finished potable tap water. The Great Lakes' watershed is exceptionally large and too big for a detailed evaluation in the SWAP. General drinking water concerns for public water supplies, which use these sources include: storm generated turbidity, wastewater, toxic sediments, shipping related spills, and problems associated with exotic species (e.g. zebra mussels – intake clogging and taste and odor problems). The SWAP is based on the analysis of the contaminant inventory compiled for the drainage areas deemed most likely to impact drinking water quality at this public water supply's raw water intakes. Separate assessments were completed for the Lake Erie source and the Niagara River source. The assessment found a moderate susceptibility to contamination for the Lake Erie source. The amount of agricultural land in the assessment area results in elevated potential of disinfection byproduct precursors and pesticides contamination. While there are some facilities present, permitted discharges do not likely represent an important threat to source water quality based on their density in the assessment area. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include: landfills. The assessment found an elevated susceptibility to contamination for the Niagara River source. The amount of agricultural (and to a lesser extent residential) lands in the assessment area results in elevated potential for microbials, disinfection byproduct precursors, and pesticides contamination. There is also a high density of sanitary wastewater discharges, which results in elevated susceptibility for all contaminant categories. Non-sanitary wastewater discharges may also contribute to contamination. There is also considerable contamination susceptibility associated with other discrete contaminant sources, and these facility types include: chemical bulk storage, inactive hazardous waste sites, landfills, Resource Conservation and Recovery Act facilities and Toxics Release Inventory facilities.

If you have any questions about New York State's Source Water Assessment Program, please contact Ms. Dolores Funke, P.E., Director of Environmental Health, Erie County Health Department at (716) 961-6800.

Results presented here are from 2013 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 at (716) 685-8570 or on the Internet at www.ecwa.org.

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
LRAA = Locational Running Annual Average
MCL= Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs 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. MCLGs allow for a margin of safety
mg/liter = milligrams per liter (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.
ng/liter = nanograms per liter = parts per trillion
NE = Not Established
NR = Not Regulated
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)
uS/cm = Microsiemens per centimeter (a unit of conductivity measurement)
Variances and Exemptions = State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
< = Denotes Less Than
≤ = Denotes 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 domestic waste water 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.

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.

COMPOUNDS TESTED FOR BUT NOT DETECTED

2-Chlorotoluene	Aldicarb Sulfoxide	Dichlorodifluoromethane	N-nitroso-methylethylamine (NMEA)
4-Chlorotoluene	Aldrin	Dieldrin	N-nitroso-pyrrolidine (NPYR)
2,4-D	Aluminum	Dinoseb	Oxamyl (Vydate)
1,2-Dichlorobenzene	Antimony	Diquat	PCB 1016
1,3-Dichlorobenzene	Arsenic	Endothall	PCB 1221
1,4-Dichlorobenzene	Atrazine	Endrin	PCB 1232
1,1-Dichloroethane	Benzene	Ethylbenzene	PCB 1242
1,1-Dichloroethylene	Benzo(a)pyrene	Ethylene Dibromide (EDB)	PCB 1248
cis-1,2-Dichloroethylene	Beryllium	Glyphosate	PCB 1254
trans-1,2-Dichloroethylene	Bromobenzene	Gross Alpha Particles	PCB 1260
1,2-Dichloropropane	Bromochloromethane	Gross Beta Particles	Pentachlorophenol
1,3-Dichloropropane	Bromomethane	Heptachlor	Pichloram
2,2-Dichloropropane	Butachlor	Heptachlor Epoxide	Propachlor
1,1-Dichloropropene	n-Butylbenzene	Hexachlorobenzene	n-Propylbenzene
cis-1,3-Dichloropropene	sec-Butylbenzene	Hexachlorobutadiene	Radium 226
trans-1,3-Dichloropropene	t-Butylbenzene	Hexachlorocyclopentadiene	Selenium
3-Hydroxycarbofuran	Cadmium	Iron	Simazine
2,3,7,8-TCDD (Dioxin)	Carbaryl	Isopropylbenzene	Styrene
2,4,5-TP (Silvex)	Carbofuran	p-Isopropyltoluene	Tetrachloroethylene
1,1,1,2-Tetrachloroethane	Carbon Tetrachloride	Lindane	Thallium
1,1,2,2-Tetrachloroethane	Chlordane	Manganese	Toluene
1,2,3-Trichlorobenzene	Chlorobenzene	Mercury	Toxaphene
1,2,4-Trichlorobenzene	Chloroethane	Methomyl	Trichloroethylene
1,1,1-Trichloroethane	Chloromethane	Methoxychlor	Trichlorofluoromethane
1,1,2-Trichloroethane	Cyanide	Methyl t-butyl ether (MTBE)	Vinyl Chloride
1,2,3-Trichloropropane	Dalapon	Methylene Chloride	Xylenes
1,2,4-Trimethylbenzene	Di(2-ethylhexyl) adipate	Metolachlor	
1,3,5-Trimethylbenzene	Di(2-ethylhexyl) phthalate	Metribuzin	
Alachlor	Dibromochloropropane	Nickel	
Aldicarb	Dibromomethane	N-nitroso-diethylamine (NDEA)	
Aldicarb Sulfone	Dicamba	N-nitroso-di-n-propylamine (NDPA)	

For a large-print copy of ECWA's 2013 Water Quality Report Supplement, please visit www.ecwa.org or email questionscomments@ecwa.org