# ERIE COUNTY WATER AUTHORITY

## 2010 WATER QUALITY MONITORING REPORT
## ANNUAL WATER QUALITY REPORT SUPPLEMENT

TOWN OF COLDEN

MAR 24 2011

TOWN CLERKS OFFICE

### DETECTED CONTAMINANTS

| Metals, Inorganics, Physical Tests | Violation Yes/No | Sample Date (or date of highest detected) | MCL | MCLG | Level Detected | Sources in Drinking Water |
|---|---|---|---|---|---|---|
| Asbestos | No | 8/06 | 7 MFL | 7 MFL | ND - 0.2 MFL, Average = 0.08 MFL | Erosion of natural deposits; decay of asbestos cement water mains |
| Barium | No | 6/10 | 2 mg/liter | NE | 0.022 mg/liter | Erosion of natural deposits; drilling and metal wastes |
| Chloride | No | 4/10 | 250 mg/liter | NE | 16 - 26 mg/liter ; Average = 20 | Naturally occurring in source water |
| Chlorine | No | 7/10 | MRDL = 4.0 mg/liter | MRDLG = 4 mg/liter | <0.20 to 2.2 mg/liter; Average = 0.80 | 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 | 3/10 | 2.2 mg/liter | 2.2 mg/liter | 0.65 - 1.20 mg/liter; Average = 0.99; 99.5 % 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 |
| Nickel | No | 6/10 | NE | NE | 1.2 ug/liter | Erosion of natural deposits |
| Nitrate | No | 5/10 | 10 mg/liter | 10 mg/liter | 0.07 to 0.08 mg/liter ; Average = 0.075 | Runoff from fertilizer use |
| pH | No | 8/10 | NR | NE | 6.80 to 8.80; Average 7.98 | Naturally occurring; adjusted for corrosion control |
| Turbidity[3] | No | 8/10 | TT | NE | 0.14 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, fluoride is very effective in preventing cavities when present in drinking water at an optimal range from 0.8 to 1.2 mg/l (parts per million). To ensure that the fluoride supplement in your water provides optimal dental protection, the State Department of Health requires that the Erie County Water Authority monitor fluoride levels on a daily basis. During the addition of fluoride in 2010, monitoring showed fluoride levels in your water were in the optimal range 99.5% 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 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 eigth 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.

[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.The combined filter turbidities were below 0.3 NTU 100% of the time in 2010. All turbidity levels recorded were within the acceptable range allowed and did not constitute a treatment technique violation.

| 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 | 6/10 | RAA < 80 | NE | 12 - 81 ug/liter; RAA = 40 | By-product of water disinfection (chlorination) |
| Total Haloacetic Acids[5] | No | 3/10 | RAA < 60 | NE | 2 - 33 ug/liter; RAA = 19 | By-product of water disinfection (chlorination) |
| Carbaryl | No | 5/10 | 50 ug/liter | NE | 4.7 ug/liter | Runoff from pesticide use in agriculture |

[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 (40 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 (19 ug/L) is below the MCL.

| Radioactive Parameters | Violation Yes/No | Sample Date (or date of highest detected) | MCL | MCLG | Level Detected | Sources in Drinking Water |
|---|---|---|---|---|---|---|
| Gross Alpha | No | 1/05 | 15.0 pCi/liter | 0 pCi/liter | ND - 1.7 pCi/liter | Erosion of natural deposits |
| Gross Beta | No | 9/04 | 50** pCi/liter | 0 pCi/liter | ND - 2.2 pCi/liter | Decay of natural and man-made deposits |
| Combined Radium 226/Radium 228 | No | 1/05 | 5.0 pCi/liter | 0 pCi/liter | ND | Erosion of natural deposits |
| Total Uranium | No | 6/04 | 30 ug/liter | 0 ug/liter | ND - 0.48 ug/liter | Erosion of natural deposits |

** New York State Department of Health considers 50 pCi/liter to be the level of concern for beta particles.

| 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] | 8/10[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 August, one distribution system sample tested positive for total coliform and in September one entry point sample at the Sturgeon Point Water Treatment Plant tested positive for total coliform. For both 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*.

| GIARDIA AND CRYPTOSPORIDIUM | Violation Yes/No | Sample Date (or date of highest detected) | Number of Samples Testing Positive | | Number of Samples Tested |
|---|---|---|---|---|---|
| | | | Giardia | Cryptosporidium | |
| Source Water | No | 12/10 | 2 | 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 2010.

*Giardia* is a microbial pathogen present in varying concentrations in many surface waters. In 2010, *Giardia* was detected in 2 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.

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.

## UNREGULATED SUBSTANCES

| Parameter | MCL | MCLG | Average Level Detected (mg/liter) | Range (mg/liter) |
|---|---|---|---|---|
| Alkalinity | NR | NE | 95 | 80 -104 |
| Calcium Hardness | NR | NE | 93 | 74 -113 |
| Conductivity | NR | NE | 295 uS/cm | 227 - 350 uS/cm |
| MIB and Geosmin | NR | NE | ND | ND - 4.9 ng/liter |
| Total Dissolved Solids | NR | NE | 153 | 147-160 |
| Total Organic Carbon | NR | NE | 2.0 | 1.7 - 4.1 |

| COMPOUNDS TESTED FOR BUT NOT DETECTED | | | | |
|---|---|---|---|---|
| 2-Chlorotoluene | 2,2',4,4'-tetrabromodiphenyl ether (BDE-47) | Carbon Tetrachloride | Methiocarb | Simazine |
| 4-Chlorotoluene | 2,2',4,4',5-pentabromodiphenyl ether (BDE-99) | Chlordane | Methomyl | Styrene |
| 2,4-D | 2,2',4,4',5,5'-hexabromobiphenyl (HBB) | Chlorobenzene | Methoxychlor | Terbacil |
| 4,4'-DDE | 2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153) | Chloroethane | Methyl t-butyl ether (MTBE) | Tetrachloroethylene |
| 1,2-Dibromo-3-Chloropropane | 2,2',4,4',6-pentabromodiphenyl ether (BDE-100) | Chloromethane | Methylene Chloride | Thallium |
| 1,2-Dibromoethane | 1,2,3-Trichloropropane | Chromium | Metolachlor | Toluene |
| 1,2-Dichlorobenzene | 1,1,2-Trichlorotrifluoroethane | Cyanide | Metolachlor ethane sulfonic acid (ESA) | Toxaphene |
| 1,3-Dichlorobenzene | 1,2,4-Trimethylbenzene | DCPA Diacid degradate | Metolachlor oxanilic acid (OA) | Trichloroethylene |
| 1,4-Dichlorobenzene | 1,3,5-Trimethylbenzene | DCPA Monoacid degradate | Metribuzin | Trichlorofluoromethane |
| 1,1-Dichloroethane | Acetochlor | Dalapon | Molinate | Vinyl Chloride |
| 1,2-Dichloroethane | Acetochlor ethane sulfonic acid (ESA) | Di(2-ethylhexyl) adipate | Napthalene | Xylenes |
| 1,1-Dichloroethylene | Acetochlor oxanilic acid (OA) | Di(2-ethylhexyl) phthalate | Nitrite | |
| cis-1,2-Dichloroethylene | Alachlor | Dibromomethane | Nitrobenzene | |
| trans-1,2-Dichloroethylene | Alachlor ethane sulfonic acid (ESA) | Dicamba | N-nitroso-diethylamine (NDEA) | |
| 1,2-Dichloropropane | Alachlor oxanilic acid (OA) | Dichlorodifluoromethane | N-nitroso-dimethylamine (NDMA) | |
| 1,3-Dichloropropane | Aldicarb | Dieldrin | N-nitroso-di-n-butylamine (NDBA) | |
| 2,2-Dichloropropane | Aldicarb Sulfone | Dinoseb | N-nitroso-di-n-propylamine (NDPA) | |
| 1,1-Dichloropropene | Aldicarb Sulfoxide | Diquat | N-nitroso-methylethylamine (NMEA) | |
| cis-1,3-Dichloropropene | Aldrin | EPTC | N-nitroso-pyrrolidine (NPYR) | |
| trans-1,3-Dichloropropene | Antimony | Endothall | Oxamyl (Vydate) | |
| 1,3-dinitrobenzene | Arsenic | Endrin | PCB 1016 | |
| 2,4-Dinitrotoluene | Atrazine | Ethylbenzene | PCB 1221 | |
| 2,6-Dinitrotoluene | Benzene | Glyphosate | PCB 1232 | |
| 3-Hydroxycarbofuran | Benzo(a)pyrene | Heptachlor | PCB 1242 | |
| 1-Napthol | Beryllium | Heptachlor Epoxide | PCB 1248 | |
| 2,3,7,8-TCDD (Dioxin) | Bromobenzene | Hexachlorobenzene | PCB 1254 | |
| 2,4,5-TP (Silvex) | Bromochloromethane | Hexachlorobutadiene | PCB 1260 | |
| 1,1,1,2-Tetrachloroethane | Bromomethane | Hexachlorocyclopentadiene | Pentachlorophenol | |
| 1,1,2,2-Tetrachloroethane | Butachlor | Hexahydro-1,3,5-trinitro-1,3,5-triazine | Perchlorate | |
| 1,2,3-Trichlorobenzene | n-Butylbenzene | Isopropylbenzene | Pichloram | |
| 1,2,4-Trichlorobenzene | sec-Butylbenzene | p-Isopropyltoluene | Propacchlor | |
| 1,1,1-Trichloroethane | t-Butylbenzene | Lindane | Propoxur | |
| 1,1,2-Trichloroethane | Cadmium | Manganese | n-Propylbenzene | |
| 2,4,6-trinitrotoluene (TNT) | Carbofuran | Mercury | Selenium | |

## 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 drinking water.
MCLG = Maximum Contaminant Level Goal: the level of a contaminant in 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 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
mrem/yr = millirems per year
uS/cm = Microsiemens 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/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)
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

Results are from 2010 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.*