



City of Waterloo Annual Drinking Water Quality Report for Calendar Year 2016

WATERLOO

IL1330300

Annual Water Quality Report for the period of January 1 to December 31, 2016

This report is intended to provide you with important information about your drinking water and the efforts made by the WATERLOO water system to provide safe drinking water. The source of drinking water used by WATERLOO is Purchased Water.

For more information regarding this report contact:

Name City of Waterloo

Phone (618) 939-8661 Ext 216

Este informe contiene información muy importante sobre el agua que usted bebe. Tradúzcalo ó hable con alguien que lo entienda bien.

For opportunities for public participation for the Waterloo PWS, please contact City Hall at 618-939-8661 to find out when and where the City Council and the Water Committee meet.

Source of Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and groundwater wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water 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 agriculture, urban storm water runoff, 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.

Drinking 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons 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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primary from materials and components associated with service lines and home plumbing. We cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the tap 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 or at <http://www.epa.gov/safewater/lead>

Source Water Name Type of Water Report Status Location

CC 02-MASTER METER FF IL1635040 TP07 SW E SIDE IL RT 3 AT NEW HANOVER RD

The City of Waterloo purchases from Illinois American Water's East St. Louis Treatment Facility.

Source Water Assessment

We want our valued customers to be informed about their water quality. If you would like to learn more, please feel welcome to attend any of our regularly scheduled meetings. The source water assessment for our supply has been completed by the Illinois EPA. If you would like a copy of this information, please stop by City Hall or call our water operator at (618) 939-8661. To view a summary version of the completed Source Water Assessments, including: Importance of Source Water; Susceptibility to Contamination Determination; and documentation/recommendation of Source Water Protection Efforts, you may access the Illinois EPA website at <http://www.epa.state.il.us/cgi-bin/wp/swap-fact-sheets.pl>.

Illinois EPA considers all surface water sources of community water supply to be susceptible to potential pollution problems, hence, the reason for mandatory treatment for all surface water supplies in Illinois. Mandatory treatment includes coagulation, sedimentation, filtration, and disinfection. Within the Illinois portion of the Mississippi River Watershed, which is illustrated in Figure 3, many commodities, including manufactured goods, petrochemicals, and pesticides are transported along the river system. The production, storage, and transportation of these commodities are a major concern, especially when occurring near surface water intakes. In addition, agricultural runoff within the Illinois portion of the Mississippi River Basin contributes to the susceptibility of the IAWC-East St. Louis intakes. With high flow rates and long distances of travel on the Mississippi River, critical areas can be extensive. The critical area for the IAWC-East St. Louis intake was determined using data from a joint U. S. Environmental Protection Agency/U. S. Geological Survey project. This project used a computer modeling program (SPARROW) to determine travel times on major rivers in the United States. Accidental spills of hazardous materials into navigable waterways are a major concern because of their frequency in the United States in recent years. Illinois has access to 1,116 miles of inland waterway that can handle commercial barge traffic. These include the Upper Mississippi River, Illinois River Waterway, and the Ohio River. Along these waterways are numerous facilities that load and unload hazardous materials. Analysis of reported spills indicate that between 1974 and 1989, 794 accidental spills of hazardous materials occurred along Illinois waterways. Approximately 92% of these spills occurred along the Mississippi and/or the Illinois River. Figure 2 shows the critical area of concern (Zone 1) for the IAWC-East St. Louis surface water intake. Spills occurring in this critical area will travel to the intake in five hours or less, making contingency planning and spill reporting a major concern in this watershed. Information concerning spill response planning on the Mississippi River may be found at the U. S. EPA website www.epa.gov/region5/oil, and additional data can also be downloaded at the U. S. Geological Survey's FTP site ftp://ftp.umesc.er.usgs.gov/pub/gis_data/oil_spill.

2016 Regulated Contaminants Detected Waterloo

Lead and Copper

Definitions:

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

Action Level Goal (ALG): The level of a contaminant in drinking water below which there is no known or expected risk to health. ALG's allow for a margin of safety.

Not all sample results may have been used for calculating the Highest Level Detected because some results may have been part of an evaluation to determine where compliance sampling should occur in the future.

Lead and Copper	Data Sampled	MCLG	Action Level (AL)	90 th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	2016	1.3	1.3	0.436	2	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems
Lead	2016	0	15	0	0	ppm	No	Corrosion of Household plumbing systems, Erosion of natural deposits

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Water Quality Test Results

Definitions: The following tables contain scientific terms and measures, some of which may require explanation.

Avg: Regulatory compliance with some MCLs are based on running annual average of monthly samples.

Level 1 Assessment: A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment: A very detailed study of the water system to identify potential problems and determine (if possible) why an E. Coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the Maximum Contaminant Level Goal 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. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of disinfectant allowed in drinking water. Maximum Residual Disinfectant Level Goal (MRDLG): The level of disinfectant in drinking water below which there is no known or expected risk to health.

Maximum Residual Disinfectant Level Goal (MRDLG): 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 contaminants.

mg/l: milligrams per litre or parts per million - or one ounce in 7,350 gallons of water.

ug/l: micrograms per litre or parts per billion - or one ounce in 7,350,000 gallons of water.

na: not applicable.

mrem: millirems per year (a measure of radiation absorbed by the body)

ppb: micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water

ppm: milligrams per liter or parts per million - or one ounce in 7,350 gallons of water

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Regulated Contaminants

Disinfectants & Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source Of Contaminant
Chlorine	12/31/2016	1.7	1 - 3	MRDLG=4	MRDL=4	ppm	No	Water additive used to control microbes
Total Haloacetic Acids (HAA5)	2016	18	0 - 23.7	No goal for the total	60	ppb	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes]	2016	52	10.9 - 159	No goal for the total	80	ppb	No	By-product of drinking water chlorination

Note: The state requires monitoring of certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some of this data may be more than one year old.

2016 Regulated Contaminants Detected (Illinois American East St. Louis)

Coliform Bacteria

Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level	Highest Number of Positive	Fecal Coliform or E. Coli Maximum Contaminant Level	Total Number of Positive E. Coli or Fecal Coliform Samples	Violation	Likely Source of Contamination
0	5% of monthly samples are positive	0.8		0	No	Naturally Present in the Environment

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Lead and Copper	Data Sampled	MCLG	Action Level (AL)	90 th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	2016	1.3	1.3	0.191	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems
Lead	2016	0	15	2	0	ppb	No	Corrosion of Household plumbing systems, Erosion of natural deposits

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

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ppb: micrograms per liter or parts per billion - or one ounce in 7,350,00 gallons of water

ppm: milligrams per liter or parts per million - or one ounce in 7,350 gallons of water

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water

Regulated Contaminants

Disinfectants & Disinfection By-Products	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source Of Contaminant
Chloramines	12/31/2016	2.6	2 - 3	MRDLG=4	MRDL=4	ppm	N	Water additive used to control microbes
Total Haloacetic Acids (HAA5)	2016	21	5.2 - 33.3	No goal for the total	60	ppb	N	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes]	2016	26	15.9 - 35.1	No goal for the total	80	ppb	N	By-product of drinking water chlorination
Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source Of Contaminant
Arsenic	2016	1	1 - 1	0	10	ppb	N	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Fluoride	2016	0.8	0.73 - 0.77	4	4.0	ppm	N	Erosion of natural deposits; Water additive which promotes strong teeth; Fertilizer discharge
Nitrate (As N)	2016	5	3.5 - 5.05	10	10	ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium There is not a state or federal MCL for sodium. Monitoring is required to provide information to consumers and health officials that are concerned about sodium intake due to dietary precautions. If you are on a sodium-restricted diet, you should consult a physician about this level of sodium in the water.	2016	16	16 - 16.2	N/A	N/A	ppm	N	Erosion of naturally occurring deposits; used in water softener regeneration
Radioactive Contaminates	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source Of Contaminant
Beta/Photon Emitters	05/20/2014	4.4	4.4 - 4.4	0	50	mrem/yr	N	Decay of natural and man-made deposits
Gross alpha emitters excluding radon and uranium	05/20/2014	1.5	0 - 1.5	0	15	(pCi/L)	N	Erosion of natural deposits

Note: The state requires monitoring of certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some of this data may be more than one year old.

Not all samples may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should occur in the future.

Turbidity

	Limit (Treatment Technique)	Level Detected	Violation	Source
Highest Single Measurement	1 NTU	0.16 NTU	No	Soil Runoff
Lowest Monthly % Meeting Limit	0.3 NTU	100%	No	Soil Runoff

Total Organic Carbon

The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set by IEPA, unless a TOC violation is noted in the violations section.

FOOTNOTES

¹ Fluoride is added to the water supply to help promote strong teeth. The Illinois Department of Public Health recommends an optimal fluoride level of 0.9 mg/L to 1.2 mg/L.

² The value in the "amount detected" column is the maximum detected for the year. Nitrate in the drinking water at levels above 10 ppm is a health risk for infants less than 6 months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask the advice of your health care provider.

³ Total organic carbon (TOC) has no health effects, However, TOC provides means for the formation of disinfection by-products. One way to minimize disinfection by-product formation is to remove a specific percentage of the TOC present in the source water. The numbers in the Amount Detected and Range columns are the TOC removal factors, where the removal factor is defined as the actual percent TOC removal divided by the required percent removal. A value of 1.0 or greater in the Amount Detected column indicates that compliance with the removal requirement was achieved.

⁴ Turbidity is measured in Nephelometric Turbidity Units, it is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The treatment technique requires that at least 95% of routine samples are less than or equal to 0.3 NTU, and no sample exceeds 1 NTU. We are reporting the percentage of all readings meeting the standard of 0.3 NTU, plus the highest reading of the year.

⁵ Manganese is not currently regulated by the USEPA. However, there is a state has set a MCL for manganese for supplies serving a population of 1,000 or more. Manganese is not a health concern but can cause staining of plumbing fixtures.

⁶ There is no state or federal MCL for sodium. Monitoring is required to provide information to consumers and health officials that are concerned about sodium intake due to dietary precautions. If you are on a sodium-restricted diet, you should consult a physician about this level of sodium in the water.

⁷ A maximum containment level (MCL) for this substance has not been established by either state or federal regulations, nor has a mandatory health effects language. The purpose for the monitoring this substance is to assist the USEPA in determining the occurrence of unregulated contaminants in the dinking water, and whether future regulation is warranted. For the N-Nitroso-dimethylamine and the N-Nitroso-pyrrolidine in the Amount Detected column we are reporting the average, and in the Range of detection column we are reporting the lowest and highest individual readings.