

Milwaukee Water Works Consumer Confidence Report

Safe, Abundant Drinking Water.

The Consumer Confidence Report is a service of the Milwaukee Water Works, a national leader in providing safe, high-quality drinking water and water quality monitoring. In this report, you will find:

- Information about the source of your drinking water
- The treatment process that ensures the highest quality water
- Results of water quality testing and compliance with water quality laws
- Additional educational information

The U.S. Environmental Protection Agency (EPA) requires drinking water utilities to provide an annual Consumer Confidence Report to help consumers understand where their drinking water comes from so they can make informed decisions about their health and protection of the environment.

The City of Milwaukee-owned public utility provides pure, safe water to 16 communities:

Milwaukee, Brown Deer, Butler, Franklin, Greendale, Greenfield, Hales Corners, Menomonee Falls, Mequon, New Berlin, Shorewood, St. Francis, Thiensville, Wauwatosa, West Allis, West Milwaukee, and to the Milwaukee County Grounds facilities.

Crystal-clear Milwaukee water is available fresh and pure 24 hours a day. While contributing to a high quality of life, the Milwaukee Water Works provides a reliable supply of pure water at a low price to support business, industry, and research.

Since 1993, the Milwaukee Water Works has invested \$417 million in its infrastructure, from treatment plants to distribution systems, to ensure a reliable supply of high quality drinking water. Milwaukee Water Works drinking water quality meets or exceeds all state and federal health standards for drinking water.

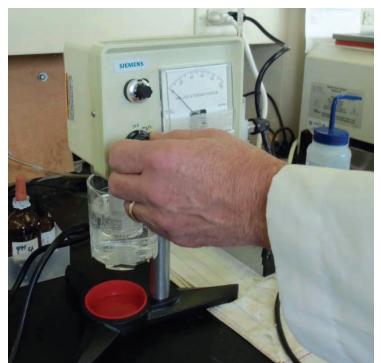
The utility treats Lake Michigan water with ozone as the primary disinfectant. This highly reactive gas destroys illness-causing micro-organisms and harmful compounds, removes taste and odor, and reduces the formation of disinfection byproducts. Particles are removed through coagulation, flocculation, settling, and biologically active filtration. Chlorine is added as a secondary disinfectant. Fluoride is added at the level recommended by the Department of Health and Human Services to reduce dental cavities. A phosphorous compound is added to control pipe corrosion to prevent lead and copper that may be present in pipes from leaching into the water. Finally, chloramine disinfection maintains a residual in the distribution system to protect against bacterial contamination. Pure, fresh water arrives at your taps.

The Milwaukee Water Works has expanded water quality monitoring and screening activities to include organisms and contaminants not yet regulated but considered of "emerging concern." The utility tests source and treated water for over 500 contaminants while the EPA requires tests for only 91. The monitoring is conducted as a precaution to ensure safe water, to collect baseline data for study, to help increase the understanding of how contaminants may affect public health, and to meet future regulations. The expense of testing for unregulated compounds provides customers with added assurance and confidence in Milwaukee water quality and service.



No water utility has the resources to test for thousands of substances in the environment, many occurring naturally, that are now able to be detected by new scientific methods at extremely low levels in drinking water. Science has not demonstrated any impact on human health at the trace levels these compounds are being discovered. Therefore, the Milwaukee Water Works supports drinking water research by the EPA, the Water Research Foundation, and other government and scientific organizations.

The Milwaukee Water Works has been recognized by the EPA for its work with health agencies to track and respond to public health issues related to water.



The Milwaukee Water Works is the publicly owned utility of the City of Milwaukee. Water quality, operations, and rates are regulated by the Public Service Commission of Wisconsin (PSC), the EPA, and the Wisconsin Department of Natural Resources (DNR).

The table below shows the regulated contaminants detected in Milwaukee's drinking water during 2012. All are below levels allowed by state and federal laws. The table contains the name of each substance, the highest level allowed by regulation (Maximum Contaminant Level, or MCL), the ideal goals for public health (Maximum Contaminant Level Goal, or MCLG), the amount detected, the usual sources of such contamination, and footnotes explaining the findings and units of measurement. The presence of a substance in drinking

water does not necessarily indicate the water poses a health risk. Certain quantities of some substances are essential to good health, but excessive quantities can be hazardous. A list of the hundreds of other compounds tested for but not detected in the Milwaukee water quality monitoring program can be found at milwaukee.gov/water/about/WaterQuality.htm; scroll down to Resource Links, choose 2012 Undetected Chemical Contaminants.

Substance	Ideal Goals (MCLG)	Highest Level Allowed (MCL)	Median Value	Highest Level Detected	Source(s) of Contaminant
Aluminum	0.2 mg/L	NR	0.047 mg/L	0.119 mg/L	Water treatment additive; Natural deposits
Barium	2 mg/L	2 mg/L	0.02 mg/L	0.02 mg/L	Natural deposits
Bromate	10 µg/L	10 µg/L (RAA)	< 5 µg/L (RAA)	6.8 µg/L	Byproduct of drinking water disinfection
Chlorine, total	4 mg/L	4 mg/L	1.45 mg/L	1.93 mg/L	Residual of drinking water disinfection
Chromium, hexavalent	NR	NR	0.22 µg/L	0.41 µg/L	Natural deposits
Copper (2011)	1.3 mg/L	1.3 mg/L (AL)	0.034 mg/L (AL)	NR	Corrosion of household plumbing systems
Di-haloacetonitriles, total	NR	NR	1.8 µg/L	4.1 µg/L	Byproduct of drinking water disinfection
Fluoride	4 mg/L	4 mg/L	0.97 mg/L	1.35 mg/L	Water treatment additive; Natural deposits
Gross Alpha particles	Zero	15 pCi/L	2.7 pCi/L	2.8 pCi/L	Natural deposits
Gross Beta particles	Zero	50 pCi/L	5.3 pCi/L	6.0 pCi/L	Natural deposits
Haloacetic Acids, total	NA	60 µg/L	1.2 µg/L	3.8 µg/L	Byproduct of drinking water disinfection
Lead (2011)	Zero	15 µg/L (AL)	6 µg/L (AL)	NR	Corrosion of household plumbing systems
Organic Carbon, total	TT	TT	1.2 mg/L	1.4 mg/L	Natural deposits
Perchlorate	NR	NR	0.11 µg/L	0.12 µg/L	Residual of drinking water disinfection
Potassium	NR	NR	1.4 mg/L	1.6 mg/L	Natural deposits
Radium, combined (2011)	Zero	5 pCi/L	1.98 pCi/L	1.99 pCi/L	Natural deposits
Sodium	NR	NR	9.3 mg/L	17.0 mg/L	Natural deposits
Sulfate	500 mg/L	NR	26 mg/L	28 mg/L	Natural deposits
Trihalomethanes, total	NA	80 µg/L	7.3 µg/L	17.1 µg/L	Byproduct of drinking water disinfection total
Total Coliform – positive samples	Zero	< 5% monthly	0.0%	< 1 %	Naturally occurring
Turbidity	NA	<0.3 NTU 95% of the time	0.04 NTU 95% of the time	0.08 NTU 1-day max	Natural deposits
Tritium, dissolved (2011)	Zero	20,000 pCi/L	427 pCi/L	544 pCi/L	Natural deposits
Uranium, total (2011)	Zero	30 pCi/L	0.23 pCi/L	0.25 pCi/L	Natural deposits

Definitions

<	"less than" or not detected
AL	Action Level; the concentration of a contaminant that when exceeded, triggers treatment or other requirement that a water system must follow. Action Levels are reported at the 90th percentile for homes at greatest risk.
Di-haloacetonitriles	Di-chloroacetonitrile; Di-bromoacetonitrile; and bromochloroacetonitrile
Haloacetic Acids	Mono-, di-, and tri-chloroacetic acid; mono- and di-bromoacetic acid; and bromochloroacetic acid
Median	The middle value of the entire data set for the parameter (range from high to low)
µg/L	Microgram per liter or parts per million
mg/L	Milligram per liter or parts per million
NA	Not applicable
NR	Not regulated
NTU	Nephelometric Turbidity Unit – unit to measure turbidity
pCi/L	Picocuries per liter, a measure of radioactivity. A picocurie is 10^{-12} curies.
RAA	Running Annual Average – The average of four (4) quarterly samples collected in one year
TT	Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water
Trihalomethanes	Chloroform, bromodichloromethane, dibromochloromethane, and bromoform

Important Information

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

Información importante para nuestros clientes que hablan español

Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo o hable con alguien que lo entienda bien.

Lug tseem ceeb rua cov siv dlej kws has lug Moob

Ntawm nuav yog cov lug tseem ceeb qha txug kev haus dlej nyob nroog Milwaukee. Yog mej nyeem tsi tau cov lug nuav, thov lwm tug txais rua mej.

Source of Milwaukee's Drinking Water

The source of Milwaukee's drinking water is Lake Michigan, a surface water source. As water flows through rivers and lakes and over land surfaces, naturally occurring substances may be dissolved in the water. The substances are called contaminants. Surface water sources may be highly susceptible to contaminants. Surface water is also affected by animal and human activities. A DNR Source Water Assessment for Milwaukee is available at milwaukee.gov/water/about/WaterQuality.htm; scroll down to Resource Links, choose DNR Source Water Assessment.

Contaminants that may be present in source water include microbial contaminants, such as viruses, protozoa and bacteria; inorganic contaminants such as salts and metals; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants.

To ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems.

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. Learn more about contaminants and potential health effects by calling the EPA Safe Drinking Water Hotline, **1-800-426-4791**.

Information for Persons with Compromised Immune Systems

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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline, **1-800-426-4791**, and the CDC at cdc.gov/parasites/crypto.

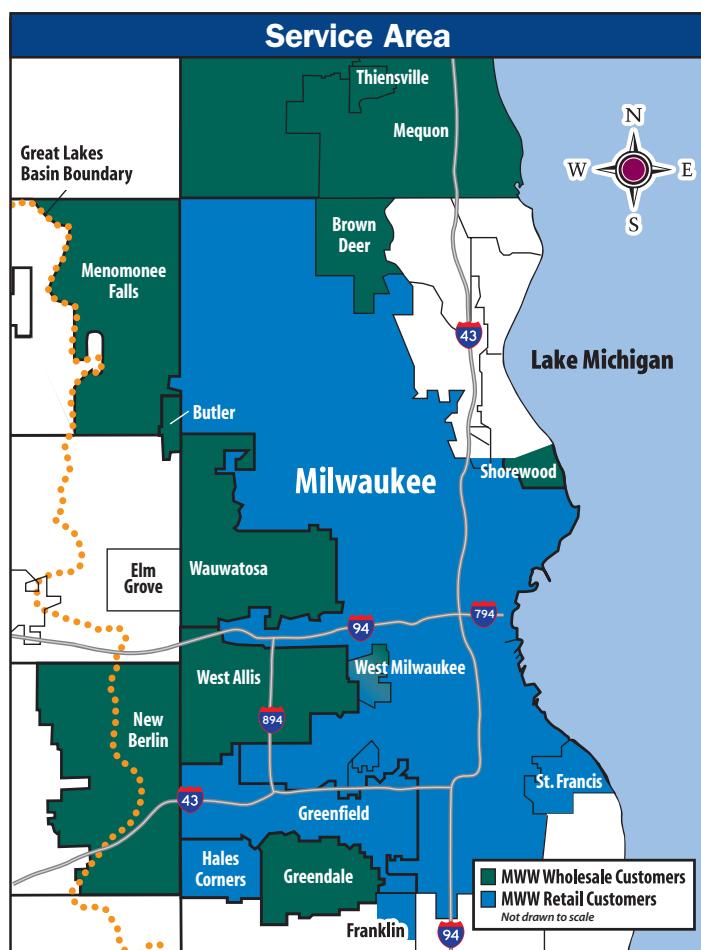
Cryptosporidium

Cryptosporidium is a microscopic protozoan that when ingested, can result in diarrhea, fever, and other gastrointestinal symptoms. The Milwaukee Water Works and the Milwaukee Health Department consider *Cryptosporidium* detection a priority, and since 1993, have continued to test the untreated and treated water for *Cryptosporidium*. The organism is found in many surface water sources (lakes, rivers, streams) and comes from human and animal wastes in the watershed. The risk of *Cryptosporidium* from drinking water in Milwaukee has been reduced to extremely low levels by an effective treatment combination including ozone disinfection, coagulation, sedimentation, biologically active filtration, and chloramine disinfection.

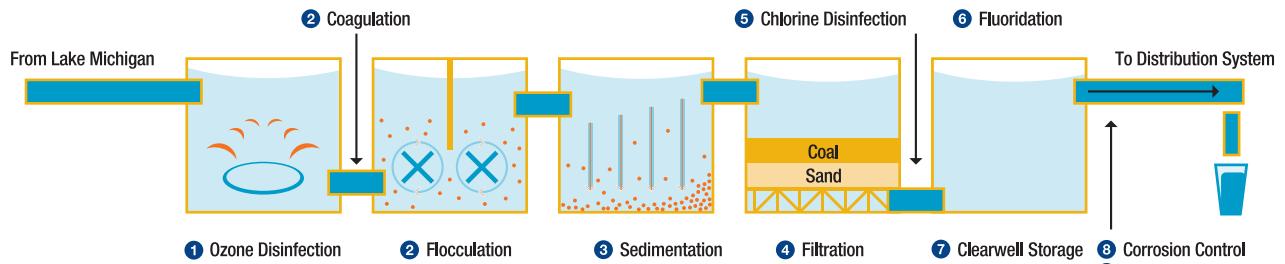
The Milwaukee Health Department and the Milwaukee Water Works have prepared a brochure based on EPA and CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium*. Copies of this brochure are available from the Milwaukee Water Works Customer Service Center, **(414) 286-2830**. Or, view a copy in English or Spanish at milwaukee.gov/water/about/WaterQuality.htm; scroll down to Resource Links, choose Information for Persons with High Risk Immune Systems.

Lead and Copper

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Milwaukee Water Works 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 two 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 EPA Safe Drinking Water Hotline, **1-800-426-4791** or at epa.gov/safewater/lead.



Milwaukee Water Works Drinking Water Treatment Process



① Ozone Disinfection Ozone gas is bubbled through the incoming lake water. Ozone destroys disease-causing microorganisms including *Giardia* and *Cryptosporidium*, controls taste and odor, and reduces the formation of chlorinated disinfection byproducts.

② Coagulation and Flocculation Aluminum sulfate is added to the water to neutralize the charge on microscopic particles in the water. The water is then gently mixed to encourage the suspended particles to stick together to form floc.

③ Sedimentation Sedimentation is the process in which the floc settles out and is removed from the water.

④ Biologically Active Filtration The water is slowly filtered through 24" of anthracite coal and 12" of crushed sand to remove very small particles.

⑤ Chlorine Disinfection After filtration, chlorine is added as a secondary disinfectant. This provides extra protection from potentially harmful microorganisms.

⑥ Fluoridation Fluoride, when administered at low levels, is proven to help prevent tooth decay.

⑦ Clearwell Storage Treated water is stored in deep underground tanks and pumped as needed through the distribution system.

⑧ Corrosion Control A phosphorous compound is added to help control corrosion of pipes. This helps prevent lead and copper from leaching from plumbing into the water.

⑨ Chloramine Protection Ammonia changes the chlorine to chloramine, a disinfectant that maintains bacteriological protection in the distribution system.

The Milwaukee Water Works is a member of the American Water Works Association, the Association of Metropolitan Water Agencies, the Water Research Foundation, and the Wisconsin Water Association.

Notice to Parents of Infants Six Months of Age or Younger

The American Academy of Pediatrics recommends exclusive breastfeeding for the first 6 months of a child's life, followed by continued breastfeeding as complementary foods are introduced, for optimal short- and long-term health advantages. Go to <<http://pediatrics.aappublications.org/content/129/3/e827.full>> for more information. As of Aug. 31, 2012, City of Milwaukee water is fluoridated at a level of 0.7 mg/L. According to the Centers for Disease Control (CDC), for infants up to 6 months of age, if tap water is fluoridated or has substantial natural fluoride (0.7 mg/L or higher) and is being used to dilute infant formula, a parent may consider using a low-fluoride alternative water source. Bottled water known to be low in fluoride is labeled as purified, deionized, demineralized, distilled, or prepared by reverse osmosis. Ready-to-feed (no-mix) infant formula typically has little fluoride and may be preferable at least some of the time. If breastfeeding is not possible, parents should consult a pediatrician about an appropriate infant formula option. Parents should be aware that there may be an increased chance of mild dental fluorosis if the child is exclusively consuming infant formula reconstituted with fluoridated water. Dental fluorosis is a term that covers a range of visible changes to the enamel surface of the tooth. Go to <www.cdc.gov/fluoridation/safety/infant_formula.htm> for more information on dental fluorosis and the use of fluoridated drinking water in infant formula." Per Common Council File No. 120187

Contact Information

Milwaukee Water Works Customer Service Center

Open Monday-Friday, 7:30 a.m. to 5:00 p.m.

Phone (414) 286-2830 • TDD (414) 286-8801

Fax (414) 286-5452

841 N. Broadway, Room 409, Milwaukee, Wisconsin 53202

24-Hour Water Control Center: (414) 286-3710

Email for non-emergency contact: watwebcs@milwaukee.gov

Visit milwaukee.gov/water

Para una explicación en español, por favor llame al (414) 286-2830.

Participate in decisions that affect drinking water quality at meetings of the Milwaukee Common Council and its Public Works Committee. Call the City Clerk for schedules, **(414) 286-2221**, or visit city.milwaukee.gov.

Use Water Wisely — Control Water Costs

As your drinking water provider, we work to control costs by eliminating leaks in the treatment and distribution systems. Leaks inside homes and businesses are the responsibility of the property owner.

Leaks waste large amounts of water. A toilet that keeps running or a dripping faucet can waste hundreds of gallons and dollars in a short time. Sewer charges are based on the amount of water that passes through your water meter, whether you used the water or it leaked and was wasted. A leaky toilet can waste about 200 gallons a day down the sewer. At that rate, it would cost you \$102.92 each quarter (water charge \$40.87 + MMSD charge \$30.66 + Milwaukee city sewer charge \$31.39 = \$102.92) or \$411.68 a year.

Check for leaks throughout your home at least once every season of the year and control your water costs by fixing leaks. Check your Municipal Services Bill each quarter for water use and compare it to past bills. Find your water use history at milwaukee.gov/water, Account Information. Large fluctuations in use can indicate leaks. Expect increased water use during warm weather months if you water your lawn and garden, fill a pool, or frequently wash your car. Water use is measured in units called Ccf, which stands for 100 cubic feet. One Ccf of water equals 748 gallons of water. The typical person in Milwaukee uses 10 Ccf of water per quarter. Multiply 10 by the number of people in your household to give you the number of Ccf for water used in one quarter (for example, 4 people x 10 = 40 Ccf). If you are using considerably much more than 10 Ccf per person per quarter, you may have water leaks.

Contact or visit our Customer Service Center to receive a worksheet and toilet leak detection dye packet. Most leaks are easy to repair with parts from a hardware store. Or, call a professional plumber for help. Learn more about finding and fixing leaks at milwaukee.gov/water/usewaterwisely.