



MADISON WATER UTILITY

2017 Water Quality Report

PARA ESPAÑOL HAGA CLIC AQUÍ

This annual report complies with federal and state drinking water regulations, which require us to provide water quality information to our customers each year. Unless otherwise noted, results are based on testing conducted in 2017. We are pleased to report that we continue to supply high quality water that meets or exceeds all federal and state standards for health and safety. Test results are summarized on page 3. Visit our website, madisonwater.org, to learn about water utility programs and projects.

Your Water Source

Madison's drinking water comes from a deep sandstone aquifer that sits hundreds of feet below the city. The water originates as rain or snow that slowly soaks into the ground and is filtered through layers of soil and rock. This natural filtration process produces excellent water for us to enjoy.

WHICH WELL SERVES MY ADDRESS?

The Madison water system consists of 22 wells and over 850 miles of interconnected pipes. Most locations receive water from one to three wells. Our website has an application that can tell you which wells supply water to your home or business. There are links to detailed reports with the latest water quality test results. For more information, call the Water Utility or go to madisonwater.org/myWells.

Quality & Reliability since 1882

WHAT KEEPS OUR WATER SAFE?

The high quality aquifer supplying our drinking water requires little treatment. Madison Water Utility disinfects the water with chlorine to reduce the risk of microbial contamination. A small amount of chlorine kills bacteria and viruses that can be present in groundwater. Chlorine also travels with the water and is ready to kill microbes that it might encounter in the system. Our goal is to maintain a chlorine residual above 0.1 milligrams per liter (mg/L) at all points in the distribution system. Typical concentrations range from 0.2 to 0.4 mg/L.

HOW ELSE IS THE WATER TREATED?

Fluoride is added to Madison drinking water to improve dental health and reduce tooth decay. The US Centers for Disease Control and Prevention (CDC) and Wisconsin Department of Health Services recommend maintaining an average fluoride level of 0.7 mg/L. Water from each well is tested daily to achieve this target. In 2017, the system-wide average of 6,318 tests was 0.71 mg/L.

In addition, two wells have iron and manganese filters. A third well is outfitted with a low-profile air stripper to remove volatile organic compounds (VOC) including PCE and TCE. After air stripping, an additive adjusts the pH to limit chemical scales that can clog water pipes.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those 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 Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

Cryptosporidium and *Giardia*, two organisms commonly linked to water-borne illness, are found primarily in surface waters such as lakes and rivers. Because Madison's drinking water comes from a deep groundwater aquifer, these organisms do not pose a significant health risk in Madison tap water.

Do Your Part To Protect Groundwater

- » Use no more than the recommended amount of road salt on sidewalks and driveways, wisaltwise.com
- » Properly dispose of household hazardous chemicals through Clean Sweep, danecountycleansweep.com
- » Promote healthy lawns and gardens without the use of harmful chemicals, clean-water.uwex.edu/pubs
- » Use non-toxic or biodegradable cleaning products



drink local

POTENTIAL CONTAMINANTS IN DRINKING WATER AND THEIR LIKELY SOURCES

Sources of drinking water, both tap water and bottled water, include rivers, lakes, springs, and wells. As water travels over the surface of the land and 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. Types of potential contaminants and their likely sources include:

- **Microbial contaminants**, such as viruses and bacteria, may come from leaky sewer pipes, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, including metals, minerals, nutrients, and salts, can occur naturally or they may result from urban stormwater runoff, industrial wastewater discharges, mining, or farming activities.
- **Organic contaminants**, including synthetic and volatile organic compounds, are by-products of industrial processes that can come from chemical spills, gas stations, urban stormwater runoff, and septic systems.
- **Pesticides and herbicides** may come from a variety of sources such as agriculture, urban stormwater runoff, and residential use.
- **Radioactive substances** may occur naturally in rock formations and groundwater.

In order to ensure that tap water is safe, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Routine monitoring helps to ensure that drinking water concentrations of any substance remain at safe levels.

MICROBIOLOGICAL TESTING

Bacteria – To ensure drinking water safety, routine bacteriological tests are conducted. Over 200 distribution samples are collected each month from representative locations. Samples are tested for coliform bacteria, indicators of potential contamination. In 2017, the Water Utility collected 2,804 distribution samples. None tested positive for coliform bacteria. The absence of coliform positive samples reflects good source water quality and adequate disinfection maintained in the distribution system.

THE EPA ON DRINKING WATER CONTAMINANTS

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 Environmental Protection Agency's (EPA) Safe Drinking Water Hotline, 800-426-4791.

Lead and Copper

The landmark Lead Service Replacement program helped our community remove or replace nearly 8,000 lead pipes between 1995 and 2011. Water quality tests conducted in 2017 (see table) show that lead and copper corrosion have been minimized.

	Ideal Goal (MCLG)	Action Level (AL)	90th Percentile	Range	Samples Above AL
Lead (ppb)	zero	15	3.2	0.2 - 26	1 of 54
Copper (ppb)	1300	1300	169	75 - 242	0 of 54

Elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water primarily comes from lead service pipes and household plumbing components. While Madison Water Utility has removed all known lead services, we cannot control the materials found in household plumbing components. Some faucets, fixtures, and pipes in your house could still contain lead. The longer water has been standing in the plumbing system, the more lead it may contain. You can minimize the potential for lead exposure by running water from a faucet for 2 to 3 minutes before using it for drinking or cooking. For more information on lead safety, go to www.epa.gov/safewater/lead.

Are you concerned about lead? Test your water. Contact a certified lab to get lead testing information: **Public Health Madison & Dane County**, 608-266-4821; **State Laboratory of Hygiene**, 608-224-6202.

How to Read the Water Quality Data Table

The EPA and Wisconsin Department of Natural Resources (WDNR) establish the safe drinking water regulations that limit the amount of contaminants allowed in drinking water. The table shows the concentrations of detected substances in comparison to the regulatory limits. Substances not detected are not included in the table.

Maximum Contaminant Level (MCL)

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available 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. MCLGs allow for a margin of safety.

Action Level (AL)

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a public water system shall follow.

Units in the Table

- One milligram per liter (mg/L) equals one part per million (ppm)
- One microgram per liter (µg/L) equals one part per billion (ppb)
- One milligram per liter equals 1,000 micrograms per liter
- One ppb is analogous to one second in 32 years
- Picocurie per liter (pCi/L) is a measure of radioactivity
- nd = non-detect

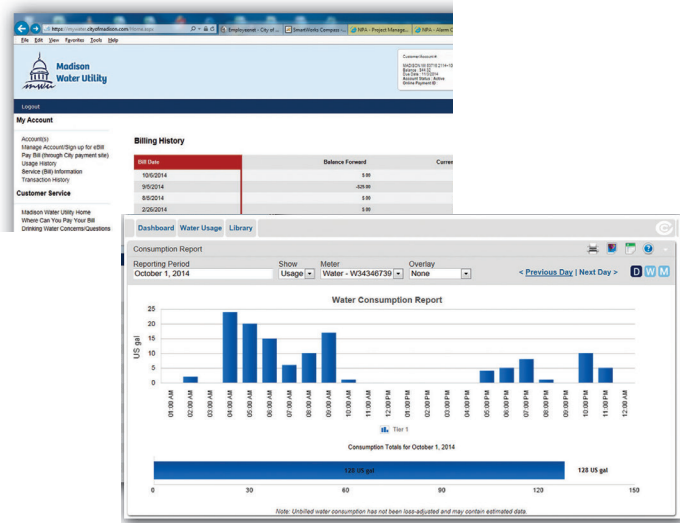
IMPORTANT NOTE ABOUT THE TABLE: The table reports the maximum and minimum concentrations for each substance found in at least one well. Several substances are found only in a few wells. Contaminant levels reported in the table may not be representative of the water quality at your home. Visit madisonwater.org or call 608-266-4654 to get more information about water quality for the well that serves your home or business.

Water Quality Table

Substance Detected (units)	Ideal Goal (MCLG)	Highest Level Allowed (MCL)	Median Level Found	Range of Results	Violation (Yes/No)	Wells with Detections	Typical Source of Substance
Regulated Substances							
Arsenic (ppb)	zero	10	0.3	nd - 0.8	NO	All except Wells 17 & 27	Erosion of natural deposits; Glass and electronics production
Atrazine (ppb)	3	3	non-detect	nd - 0.03	NO	Well 29	Runoff from herbicide used on row crops
Barium (ppb)	2000	2000	20	8.5 - 68	NO	All wells	Erosion of natural deposits; Discharge from metal refineries
Cadmium (ppb)	5	5	0.1	nd - 0.3	NO	Fourteen wells	Erosion of natural deposits; Runoff from waste batteries and paints
Chromium, Total (ppb)	100	100	1.4	0.7 - 2.9	NO	All wells	Erosion of natural deposits; Discharge from steel and pulp mills
1,2-Dichloroethylene, cis (ppb)	70	70	non-detect	nd - 0.57	NO	Well 11	Discharge from industrial chemical factories; Biodegradation of PCE and TCE
Fluoride (ppm)	4	4	0.8	0.7 - 1.0	NO	All wells	Erosion of natural deposits; Added to promote strong teeth
Nickel (ppb)	n/a	100	3.6	2.2 - 7.3	NO	All wells	Erosion of natural deposits; Electroplating, stainless steel and alloy products
Nitrate (ppm)	10	10	0.8	nd - 4.2	NO	Fifteen wells	Fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	50	50	non-detect	nd - 2.0	NO	Well 6 & Well 14	Erosion of natural deposits; Petroleum and metal refineries
Tetrachloroethylene [PCE] (ppb)	zero	5	non-detect	nd - 2.2	NO	6,9,11,14,18	Discharge from factories, dry cleaners, and auto shops
Thallium (ppb)	0.5	2	non-detect	nd - 0.3	NO	11,12,15,17,19,23,26,27	Ore processing sites; Electronics, glass, and drug factories
Radionuclides							
Gross Alpha (pCi/L)	zero	15	5.0	1.4 - 10	NO	All wells sampled: 7,8,19,24,27,28,30	Erosion of natural deposits
Radium, 226+228 (pCi/L)	zero	5	2.9	1.1 - 4.6	NO		Erosion of natural deposits
Gross Beta (pCi/L)	zero	50	5.3	nd - 7.1	NO		Decay of natural and man-made deposits
Disinfection By-Products (Distribution)							
Haloacetic Acids [HAA5] (ppb)	60	60	2.4	1.7 - 3.1	NO	n/a	By-product of drinking water chlorination
Total Trihalomethanes [TTHM] (ppb)	zero	80	8.3	2.4 - 12	NO	n/a	By-product of drinking water chlorination
Unregulated Substances							
Bromodichloromethane (ppb)	n/a	n/a	non-detect	nd - 3.2	NO	Ten wells	By-product of drinking water chlorination
Bromoform (ppb)	n/a	n/a	non-detect	nd - 0.8	NO	6,9,11,14,15,23,24,26	By-product of drinking water chlorination
Chloroform (ppb)	n/a	n/a	non-detect	nd - 4.4	NO	7,8,9,17,19,20,24,26,29	By-product of drinking water chlorination
Chromium, Hexavalent (ppb)	n/a	n/a	1.4	0.4 - 1.9	NO	Wells tested:13,14,16,23	Erosion of natural deposits; Chrome plating, leather tanning, wood preservation
Dibromochloromethane (ppb)	n/a	n/a	0.4	nd - 1.6	NO	Seventeen wells	By-product of drinking water chlorination
1,1-Dichloroethane (ppb) - 2015 data	n/a	n/a	non-detect	nd - 0.08	NO	Well 9	Discharge from industrial chemical factories
1,4-Dioxane (ppb) - 2015 data	n/a	n/a	non-detect	nd - 0.43	NO	9,11,14,15,17,18	Discharge from chemical factories; Cosmetics and detergents
Metolachlor (ppb)	n/a	n/a	non-detect	nd - 0.01	NO	Well 14	Runoff from herbicide used on row crops
PFOA & PFOS (ppb)	n/a	n/a	non-detect	nd - 0.01	NO	Well 15	Firefighting foam; Landfills, food packaging, clothing, fabrics, upholstery
Strontium (ppb) - 2016 data	n/a	n/a	77	48 - 104	NO	All wells	Erosion of natural deposits
Trichlorofluoromethane (ppb)	n/a	n/a	non-detect	nd - 1.1	NO	Well 11	Discharge from industrial chemical factories; Degreaser, propellant, refrigerant
Other Substances							
Aesthetic Goal							
Chloride (ppm)	250		21	4.2 - 150	NO	All wells	Erosion of natural deposits; Road salt application
Iron (ppm)	0.3		0.03	<0.01 - 0.58	NO	All wells	Erosion of natural deposits
Manganese (ppb)	50		6.3	0.1 - 47	NO	All wells	Erosion of natural deposits
Sodium (ppm)	n/a		8.5	2.3 - 49	NO	All wells	Erosion of natural deposits; Road salt application
Sulfate (ppm)	250		22	8.6 - 43	NO	All wells	Erosion of natural deposits

Track Your Water Use Online

How much water do you use doing laundry? How about watering your garden? Now there's an easy way to find out. Join the thousands of Madison Water Utility customers who are tracking their weekly, daily, even hourly water use online. The Utility's online conservation tool lets you see exactly when you're using water and how much you're using. You can set up email alerts so you'll be notified when your usage surpasses a certain number of gallons. All you need to track your water use is a computer or smart phone.



HOW TO SIGN UP

Visit madisonwater.org and click "View Water Usage." You'll need the Customer Number and Account Number from your Municipal Services Bill. Can't find your bill? Call our customer service department at 608-266-4641. From our new Customer Care page you can also view current and past bills and go paperless by signing up for e-billing.

Perfluorinated Compounds

Madison Water Utility monitors your drinking water beyond the minimum requirements set by federal and state regulators. In 2015, the utility tested for a group of chemicals known as perfluorinated compounds (PFCs). The chemicals are widely used in food packaging, flame-retardants, cookware, fabrics, upholstery, and firefighting foams. The utility looked for six different types of PFCs in every Madison well, but none were found.

In 2017, Madison Water Utility tested five wells again using methods nearly a hundred times more sensitive. The wells were located near landfills or the airport, places where PFCs can be found. PFCs were detected at very low levels in two of the wells tested. Well 15 showed trace amounts of five PFCs, with a combined concentration of 35 ng/L (parts per trillion). Well 16 showed trace amounts of one type of PFC, and levels were much lower. The EPA Health Advisory Level for these types of chemicals is a combined 70 ng/L.

Information You Can Use

Madison Water Utility
119 E. Olin Avenue
Madison, WI 53713
608-266-4651

Water Utility General Manager: Tom Heikkinen
Water Utility Board President: Lauren Cnare

Water Quality Dept. or questions about this report . . . 608-266-4654

Certified Drinking Water Laboratories in Madison, WI:

Public Health Madison & Dane County 608-266-4821
Wisconsin State Laboratory of Hygiene 608-224-6202

GET THE LATEST MADISON WATER NEWS ONLINE

- Visit our website: madisonwater.org
- Find us on Facebook: facebook.com/madisonwater
- Follow us on Twitter: twitter.com/MadWaterUtility
- Get updates on drinking water quality or water main flushing: sign-up at my.cityofmadison.com

LANGUAGE SERVICES

- Usted tiene derecho a recibir servicio gratuito de intérprete. Por favor llame al teléfono 608-266-4651 para mayor información.
- Koj muaj tvoj cai tau kev pab txhais lus pub dawb. Thov hu rau 608-266-4651.
- You have the right to free language services. Please call 608-266-4651 for more information.

GET INVOLVED

- Visit our [Project News](#) web page to learn about Madison Water Utility public works projects and provide input.
- Water Utility Board: Monthly meetings held at 119 E. Olin Avenue, starting at 4:30 p.m.

2018 dates:*

April 24	August 28
May 22	September 25
June 26	October 23
July 24	November 27

*Meeting dates are subject to change; check the calendar at madison.legistar.com/Calendar.aspx

On the web at MadisonWater.org

- » **Online Conservation Tool** – Track your weekly, daily, even hourly water use online.
- » **Toilet Rebate Program** – Find out how to get a \$100 bill credit for installing a water-efficient toilet!
- » **Project News** – In 2018, MWU will oversee a variety of public works and water main replacement projects totaling more than \$17 million. Learn how you can get involved.
- » **Inside MWU** – News about your water and the people who keep it flowing.