



MADISON WATER UTILITY

2014 Water Quality Report

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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 2014. 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.

Mission Statement

We are entrusted by the people of Madison to supply high quality water for consumption and fire protection, at a reasonable cost, while conserving and protecting our ground water resources for present and future generations.

WHICH WELL SERVES MY ADDRESS?

The Madison water system consists of 22 wells and over 840 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 IS THE SOURCE OF MADISON TAP WATER?

Madison drinking water comes from a deep sandstone aquifer, an underground rock formation where water is stored in small spaces between and within rock. Groundwater in the Madison area originates as rain or snow that falls in Dane County, soaks into the ground, and is filtered through layers of soil and rock before replenishing the aquifer. Natural filtration produces high-quality water for us to enjoy.

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 level. In 2014, the system-wide average of 5,256 tests was 0.71 mg/L.

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

- » Properly dispose of household hazardous chemicals through Clean Sweep, danecountycleansweep.com
- » Use non-toxic or biodegradable cleaning products
- » Promote healthy lawns and gardens without the use of harmful chemicals, clean-water.uwex.edu/pubs
- » Limit use of winter salt on sidewalks and driveways

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 2014, the Water Utility collected 2,816 distribution samples with a single sample testing positive for coliform bacteria. The low number 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.

On the Web

- » **Inside MWU** – News about your water and the people who keep it running.
- » **Rebuilding & Renewing** – Learn about our plan to replace Madison's aging water mains.
- » **Toilet Rebate Program** – Find out how to get \$100 just for buying a water-efficient toilet!
- » **Project News** – In 2015, MWU will oversee a variety of construction and engineering projects totaling about \$35 million. Learn how you can get involved.
- » **Sustainability** – See what we're doing to protect Madison's water for future generations, and find out how you can help.

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 ($\mu\text{g/L}$) 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 - 0.7	No	Seventeen wells	Erosion of natural deposits; Glass and electronics production
Barium (ppb)	2000	2000	19	8.4 - 57	No	All wells	Erosion of natural deposits; Discharge from metal refineries
Chromium, Total (ppb)	100	100	0.9	nd - 2.3	No	Fifteen wells	Erosion of natural deposits; Discharge from steel and pulp mills
1,2-Dichloroethane (ppb)	zero	5	non-detect	nd - 0.20	No	Well 17	Discharge from industrial chemical factories
1,2-Dichloroethylene, cis (ppb)	70	70	non-detect	nd - 0.42	No	Well 8 & 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	1.1	0.5 - 5.4	No	All wells	Occurs naturally in soil and water; Used in electroplating, stainless steel & alloy products
Nitrate (ppm)	10	10	0.9	nd - 4.4	No	Fifteen wells	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	50	50	0.5	nd - 1.2	No	Eleven wells	Erosion of natural deposits; Petroleum and metal refineries
Tetrachloroethylene (PCE) (ppb)	zero	5	non-detect	nd - 3.5	No	6, 9, 11, 14, 15, 18, 27	Discharge from factories, dry cleaners, and auto shops
Thallium (ppb)	0.5	2	non-detect	nd - 0.2	No	11, 13, 15, 17, 19, 23, 27, 28	Ore processing sites; Electronics, glass, and drug factories
1,1,1-Trichloroethane (ppb)	200	200	non-detect	nd - 0.26	No	Well 18	Discharge from metal degreasing sites and other factories
Trichloroethylene (TCE) (ppb)	zero	5	non-detect	nd - 0.40	No	11, 14, 15, 18, 27	Discharge from metal degreasing sites and other factories
Radionuclides							
Gross Alpha (pCi/L)	zero	15	3.2	nd - 9.6	No	All except Well 14	Erosion of natural deposits
Gross Beta (pCi/L)	zero	50	3.1	nd - 8.8	No	All except Well 14	Decay of natural and man-made deposits
Radium, 226+228 (pCi/L)	zero	5	1.7	0.5 - 4.5	No	All wells	Erosion of natural deposits
Disinfection By-Products (Distribution)							
Haloacetic Acids [HAA5] (ppb)	60	60	0.8	nd - 3.4	No	n/a	By-product of drinking water chlorination
Total Trihalomethanes [TTHM] (ppb)	zero	80	4.1	0.6 - 11	No	n/a	By-product of drinking water chlorination
Unregulated Substances							
Bromodichloromethane (ppb)	n/a	n/a	non-detect	nd - 2.1	No	Thirteen wells	By-product of drinking water chlorination
Bromoform (ppb)	n/a	n/a	non-detect	nd - 0.6	No	Ten wells	By-product of drinking water chlorination
Chloroform (ppb)	n/a	n/a	non-detect	nd - 2.9	No	Ten wells	By-product of drinking water chlorination
Chromium, Hexavalent (ppb)	n/a	n/a	0.5	nd - 1.9	No	Fourteen wells	Erosion of natural deposits; Chrome plating, leather tanning, wood preservation
Dibromochloromethane (ppb)	n/a	n/a	0.3	nd - 1.8	No	Eighteen wells	By-product of drinking water chlorination
1,1-Dichloroethane (ppb)	n/a	n/a	non-detect	nd - 0.08	No	Well 9	Discharge from industrial chemical factories
1,4-Dioxane (ppb)	n/a	n/a	0.17	0.08 - 0.37	No	9, 11, 14, 15	Discharge from chemical factories; Cosmetics and detergents
Strontium (ppb)	n/a	n/a	76	48 - 101	No	All wells	Erosion of natural deposits
Trichlorofluoromethane (ppb)	n/a	n/a	non-detect	nd - 0.9	No	Well 11	Discharge from industrial chemical factories; Degreaser, propellant, refrigerant
Other Substances							
	Aesthetic Goal						
Chloride (ppm)	250	22	2.4 - 120	No	All wells	Erosion of natural deposits; Road salt application	
Iron (ppm)	0.3	0.04	nd - 0.56	No	Fifteen wells	Erosion of natural deposits	
Manganese (ppb)	50	8.5	0.4 - 50	No	All wells	Erosion of natural deposits	
Sodium (ppm)	n/a	9.3	2.0 - 40	No	All wells	Erosion of natural deposits; Road salt application	
Sulfate (ppm)	250	19	7.1 - 40	No	All wells	Erosion of natural deposits	

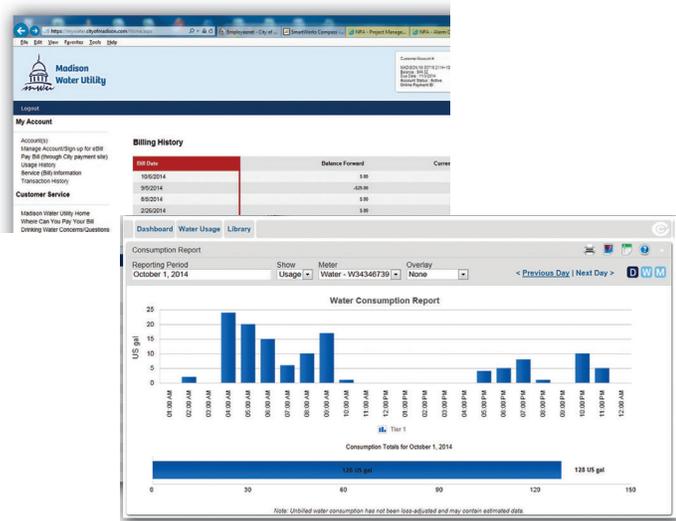
Lead and Copper

The lead service line replacement program ended in 2012. This initiative successfully reduced lead exposure from Madison tap water. Water quality tests conducted in 2014 (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	3.5	nd - 10	0 of 52
Copper (ppb)	1300	1300	185	35 - 292	0 of 52

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.

The Sustainable Choice

Did you know that 17 million barrels of crude oil are used every year to produce plastic water bottles? Not only does Madison tap water cost thousands of times less than bottled water, it's thoroughly tested every single day for quality and safety. We're committed to providing safe, clean water to every home, business, school and hospital in Madison and preserving our city's precious water supply for generations to come.

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: Madeline Gotkowitz

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](https://www.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](http://ProjectNews) website 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.

2015 dates:*

April 28	August 25
May 26	September 29
June 23	October 27
July 28	November 24

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



drink local