



MADISON WATER UTILITY Annual Water Quality Report

A SUMMARY OF WATER TESTING CONDUCTED IN 2022

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 2022. 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.

Quality & Reliability Since 1882

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 21 active wells and over 900 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.

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 MY 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 2022, the system-wide average of 6,701 tests was 0.70 mg/L.

Three wells have filters that remove more than 95% of the iron and manganese before it enters the piping system. These filters reduce the occurrence of rust-colored water.

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.

Madison Customer Assistance Program

MadCAP assists lower-income households by providing either a \$20 or \$30 monthly credit, or discount, on their Municipal Services Bill. The MadCAP program credit spreads across all municipal services, not just water. Once enrolled, the credit is automatically applied monthly to customer bills and does not need to be repaid. Call 608-266-4641 or visit cityofmadison.com/water for more information.



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 2022, the Water Utility collected 2,791 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 or visit epa.gov/ground-water-and-drinking-water

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 2020 (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 - 8.8	0 of 51
Copper (ppb)	1300	1300	168	68 - 207	0 of 51

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 part per billion is equal to 1,000 parts per trillion (ppt)
- 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	non-detect	nd - 0.3	NO	Well 30	Erosion of natural deposits; Glass & electronics production
Atrazine (ppb) - 2020 data	3	3	0.03	0.03 - 0.04	NO	Wells 14 and 29	Runoff from herbicide used on row crops
Barium (ppb)	2,000	2,000	22	6.4 - 66	NO	All wells	Erosion of natural deposits; Discharge from metal refineries
Chromium, Total (ppb)	100	100	0.3	nd - 2.3	NO	Seventeen wells	Erosion of natural deposits; Discharge from steel and pulp mills
1,2-Dichloroethylene, cis (ppb)	70	70	non-detect	nd - 0.4	NO	Wells 7 & 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	0.8	nd - 2.4	NO	Sixteen wells	Erosion of natural deposits; Electroplating, stainless steel and alloy products
Nitrate (ppm)	10	10	0.8	nd - 4.3	NO	Thirteen wells	Fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
PFOA (ppt)	20*	70	non-detect	nd - 1.1	NO	6,7,9,11,13,16,26,27	Firefighting foam; Landfills, food packaging, clothing, fabrics, upholstery
PFOS (ppt)	20*	70	non-detect	nd - 1.4	NO	7,9,11,16,26	Firefighting foam; Landfills, food packaging, clothing, fabrics, upholstery
Selenium (ppb)	50	50	0.9	nd - 1.9	NO	Seventeen wells	Erosion of natural deposits; Petroleum and metal refineries
Tetrachloroethylene [PCE] (ppb)	zero	5	non-detect	nd - 2.7	NO	6,7,9,11,14,18	Discharge from factories, dry cleaners, and auto shops
Trichloroethylene [TCE] (ppb)	zero	5	non-detect	nd - 0.4	NO	Well 18	Discharge from metal degreasing sites, other factories
Thallium (ppb)	0.5	2	non-detect	nd - 0.3	NO	11,12,16,19,27	Ore processing sites; Electronics, glass, and drug factories
Radionuclides							
Gross Alpha (pCi/L) - 2020 data	zero	15	2.4	0.7 - 11	NO	All Wells	Erosion of natural deposits
Gross Beta (pCi/L) - 2020 data	zero	50	4.2	0.2 - 10	NO	All Wells	Decay of natural and man-made deposits
Radium, 226+228 (pCi/L)	zero	5	2.9	1.4 - 4.8	NO	7,19,24,27,28,30	Erosion of natural deposits
Uranium (ppb) - 2020 data	zero	30	0.7	0.3 - 1.4	NO	Wells sampled: 19, 24, and 27	Erosion of natural deposits
Disinfection By-Products (Distribution)							
Haloacetic Acids [HAA5] (ppb)	60	60	1.3	0.4 - 2.3	NO	n/a	By-product of drinking water chlorination
Haloacetic Acids [HAA9] (ppb) - 2019	n/a	n/a	non-detect	nd - 3.8	NO	n/a	By-product of drinking water chlorination
Total Trihalomethanes [TTHM] (ppb)	zero	80	5.9	1.4 - 12	NO	n/a	By-product of drinking water chlorination
Unregulated Substances							
Bromide (ppb) - 2019 data	n/a	n/a	39	nd - 60	NO	7,9,11,13,15,29	Erosion of natural deposits
Chromium, Hexavalent (ppb)	n/a	n/a	2.0	1.0 - 2.6	NO	Wells sampled: 6, 13, 14, and 16	Erosion of natural deposits; Chrome plating, leather tanning, wood preservation
1,4-Dioxane (ppb)	n/a	n/a	0.3	0.3	NO	Sampled Well 11 only	Discharge from chemical factories; Cosmetics and detergents
Metolachlor (ppb) - 2020 data	n/a	n/a	0.01	nd - 0.01	NO	Well 14	Runoff from herbicide used on row crops
Strontium (ppb)	n/a	n/a	80	55 - 108	NO	All Wells	Erosion of natural deposits
Trichlorofluoromethane (ppb)	n/a	n/a	non-detect	nd - 0.7	NO	Well 11	Discharge from industrial chemical factories; Degreaser, propellant, refrigerant
Other Substances							
Aesthetic Goal							
Chloride (ppm)	250	24	nd - 189	NO	All Except Well 20	Erosion of natural deposits; Road salt application	
Iron (ppm)	0.3	nd	nd - 0.84	NO	7,8,17,19,24,27,28,30	Erosion of natural deposits	
Manganese (ppb)	50	2.6	nd - 48	NO	All Except Wells 6 & 14	Erosion of natural deposits	
Sodium (ppm)	n/a	6.4	2.3 - 63	NO	All Wells	Erosion of natural deposits; Road salt application	
Sulfate (ppm)	250	19	7.3 - 43	NO	All Wells	Erosion of natural deposits	
Zinc (ppb)	5,000	9.3	3.2 - 21	NO	All Except Well 17	Erosion of natural deposits	

*Based on guidance provided by WI Dept of Health Services

Unregulated Contaminants Monitoring

Once every five years, US EPA prepares a list of unregulated contaminants for required testing by large utilities. In 2018 and 2019, twenty-two Madison wells were tested for 20 of these chemicals. Results for manganese, bromide, and the haloacetic acid group are reported in the Water Quality Table. In 2018, two other chemicals were found in one well – 2-methoxyethanol (Well 26: 0.5 ppb) and 1-butanol (Well 28: 8.0 ppb). Later testing did not find either chemical at any well. Madison regularly tests for other unregulated substances including 1,4-dioxane, hexavalent chromium, PFAS other than PFOA and PFOS, and strontium. Results of these tests are included in the Water Quality Tables.

PFAS TESTING

In 2022, Madison Water Utility tested all of its active wells for up to 30 PFAS (per- and polyfluoroalkyl substances). At least one PFAS was found in nine wells. All active Madison wells meet health-based groundwater standards recommended by the WI Dept. of Health Services (DHS) for 18 types of PFAS, and they meet every PFAS standard set by any other US state.

PFAS OTHER THAN PFOA & PFOS

PFAS	HAL*	Range of Results	Wells with Detections
PFBA (ppt)	10,000	nd - 33	6,9,11,13,16,26,27
PFPeA (ppt)	n/a	nd - 1.2	6,9,11,13,16,26,27
PFHxA (ppt)	150,000	nd - 2.1	6,9,11,13,14,16,26,27
PFHpA (ppt)	n/a	nd - 0.5	Wells 6 & 13
PFBS (ppt)	450,000	nd - 1.8	6,9,11,13,14,16,27
PFPeS (ppt)	n/a	nd - 0.7	Well 6
PFHxS (ppt)	40	nd - 5.6	6,7,9,11,13,14,16,26,27
6:2 Fluorotelomer Sulfonic Acid (ppt)	n/a	nd - 5.6	Well 11

*Health Advisory Level (HAL) - concentration of a contaminant that poses a health risk based on guidance provided by WI Dept of Health Services

PFAS are a large group of human-made chemicals widely used in industry and water-proof, non-stick, and stain-resistant consumer products. These chemicals are not currently regulated by the US EPA under the Safe Drinking Water Act. However, in 2022, Wisconsin DNR adopted drinking water standards for PFOA & PFOS – set at 70 parts per trillion. The table lists PFAS contaminants other than PFOA & PFOS that were detected in at least one Madison well.

You can find more information and sign up for our PFAS updates email list at madisonwater.org/PFAS.

Do Your Part To Protect Our Local Waters

- » Use no more than the recommended amount of road salt on sidewalks and driveways, [wisaltwise.com](https://www.wisaltwise.com)
- » Properly dispose of household hazardous chemicals through Clean Sweep, [danecountycleansweep.com](https://www.danecountycleansweep.com)
- » Promote healthy lawns and gardens without the use of harmful chemicals, [learningstore.extension.wisc.edu](https://www.learningstore.extension.wisc.edu)
- » Find and use PFAS-free alternatives, [pfascentral.org](https://www.pfascentral.org)
- » Use non-toxic or biodegradable cleaning products, [epa.gov/greenerproducts](https://www.epa.gov/greenerproducts)

General Information

Madison Water Utility
119 E. Olin Avenue
Madison, WI 53713

- General Manager: Krishna Kumar
- Board President: Patrick Delmore
- General Inquiries: [608-266-4651](tel:608-266-4651)
- Water Quality Questions or Copy of Report: [608-266-4654](tel:608-266-4654)
- Certified Drinking Water Laboratories in Madison, WI:
 - » Public Health Madison & Dane County: [608-266-4821](tel:608-266-4821)
 - » Wisconsin State Laboratory of Hygiene: [608-224-6202](tel:608-224-6202)

CONNECT WITH MADISON WATER UTILITY

- Website: madisonwater.org
- Facebook: facebook.com/madisonwater
- Twitter: twitter.com/MadWaterUtility
- Instagram: instagram.com/madison_water
- Updates on drinking water quality or water main flushing: sign-up at my.cityofmadison.com

GET INVOLVED

- Visit our **Projects** web page to learn about Madison Water Utility public works projects and provide input.
- Water Utility Board: Monthly meetings are held at 119 E. Olin Avenue, starting at 4:30 p.m.
 - 2023 dates:*
 - May 23 September 27
 - June 27 October 24
 - July 26 November 28
 - August 22

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

LANGUAGE SERVICES

- You have the right to free language services. Please call 608-266-4651 for more information.
- 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.
- 您有權獲得免費的語言服務。請致電 608-266-4651 以了解更多信息。