



# MADISON WATER UTILITY

## Annual Water Quality Report

A SUMMARY OF WATER TESTING CONDUCTED IN 2024

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This annual report complies with federal and state drinking water rules, which require us to provide water quality information to our customers each year. Unless otherwise noted, results are based on testing conducted in 2024. **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 inside this brochure.** Visit our website, [madisonwater.org](https://madisonwater.org), to learn more about our 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 20 active wells and over 920 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](https://madisonwater.org).

#### 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 levels 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 2024, the system-wide average of 6,638 tests was 0.68 mg/L.

To improve water clarity, three Madison 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 at the customer tap. In 2025, a fourth iron-manganese filter will go on-line. Later this year, a PFAS-removal system will be operational at another well.

#### 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 Safe Drinking Water Hotline (800-426-4791) or EPA's website [epa.gov/safewater](https://epa.gov/safewater).

Cryptosporidium and Giardia, 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 Water Utility

119 E Olin Avenue, Madison, WI 53713 • (608) 266-4651 • [water@madisonwater.org](mailto:water@madisonwater.org)

For water quality questions or to request a copy of this report, please call (608) 261-9299

Krishna Kumar, General Manager • Patrick Delmore, Water Utility Board President



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More Testing  
Information

## POTENTIAL CONTAMINANTS IN DRINKING WATER AND THEIR LIKELY SOURCES

Both tap water and bottled water come from rivers, lakes, streams, springs, and 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. The water can also pick up and transport substances resulting from the presence of animals or from human activity. These substances are also called contaminants.

Contaminants are any physical, chemical, biological, or radiological substance or matter in water. Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from leaky sewer pipes, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts, metals, minerals, and nutrients, which can occur naturally in the soil or groundwater or they may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **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 stormwater runoff, and septic systems.
- **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
  - **Pesticide:** Generally, any substance or mixture of substances intended to prevent, destroy, repel, or mitigate any pest.
  - **Herbicide:** Any chemical(s) used to control undesirable vegetation.
- **Radioactive contaminants**, which can occur naturally in rock formations and groundwater or be the result of oil and gas production and mining.

To protect public health, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in tap water provided by public water systems. Similarly, the Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Routine testing helps to ensure that drinking water – tap and bottled – adhere to these regulatory limits.

## 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 2024, the Water Utility collected 3,103 routine 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 mean that water poses a health risk. More information about contaminants and potential health effects can be obtained from the Environmental Protection Agency:

- Safe Drinking Water Hotline, **800-426-4791**
- EPA website, [epa.gov/safewater](https://www.epa.gov/safewater)

## 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 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. 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.

### Hazard Index (HI)

The Hazard Index is an approach that determines the health concerns associated with mixtures of certain PFAS in drinking water. Low levels of multiple PFAS that individually would not likely result in adverse health effects may pose health concerns when combined in a mixture. The Hazard Index MCL represents the maximum level for mixtures of PFHxS, PFNA, HFPO-DA, and/or PFBS allowed in water delivered by a public water system. A Hazard Index greater than 1 requires a system to take action.

### 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 = not detected

**IMPORTANT NOTE ABOUT THE TABLE:** The table reports the maximum and minimum concentrations for each substance found in the water from 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](https://www.madisonwater.org) or call **608-266-4654** to get more information about water quality for the well that serves your home or business.

## PROTECT YOURSELF FROM LEAD EXPOSURE

Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula- and breast-fed) and young children. Lead in drinking water is primarily from materials and parts used in service lines and in home plumbing. Madison Water Utility has removed all known lead service lines. The utility is responsible for providing high-quality drinking water but cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time.

You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American National Standards Institute (ANSI) accredited certifier to reduce lead, is effective in reducing lead exposures. Follow instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. **Boiling water does not remove lead from water.**

Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring replacement service line, you may need to flush your pipes for a longer period. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

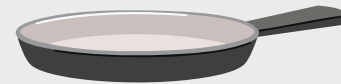
**If you are concerned about lead in your water and wish to have your water tested, contact a local certified lab for lead testing information:**

- Public Health Madison & Dane County, **608-266-4821**
- WI State Laboratory of Hygiene, **608-224-6203**

### #1 Identify and remove piping or fixtures made of lead



### #2 Always use the cold tap for cooking, drinking, and preparing formula



### #3 Run the cold tap until you feel the temperature change, to ensure you are using fresh water



### #4 Contact Madison Water Utility for information on testing if you have an older home



## WATER SERVICE LINE INVENTORY

To comply with the federal Lead and Copper Rule Revisions & Improvements, Madison Water Utility has developed an inventory of all water service lines in our system. The Utility has collected pipe material data for service lines based on permit records, water main tap cards, meter records, and maintenance, repair, and replacement work.

As of December 31, 2024, there were no known lead lines connected to the Madison water system. However, much of the service line pipe material data is based on historic records and, therefore, can present minor inaccuracies. As such, occasionally, previously unknown lead service lines may be newly discovered. The most up-to-date service line inventory can be accessed through the City of Madison Open Data Portal at:

[madisonwater.org/water-quality/lead-copper-in-water/lead-service-line-inventory](http://madisonwater.org/water-quality/lead-copper-in-water/lead-service-line-inventory)

If you have a lead water service line, you may be eligible to receive a rebate covering half the cost of replacement up to \$3,000. Call our general administrative number at **(608) 266-4651** or email [water@madisonwater.org](mailto:water@madisonwater.org) for more information.

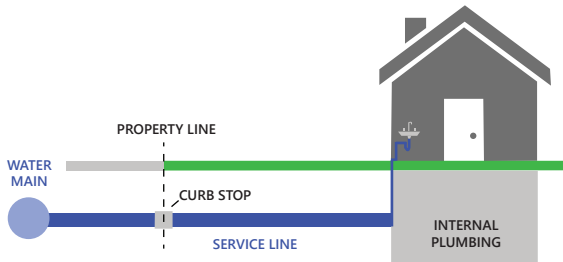
# LEAD AND COPPER TESTING WITHIN THE WATER SYSTEM

Madison’s 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 2023 (see table) continue to show that lead and copper corrosion has been minimized and test results from customer taps were all below action levels.

Corrosion of pipes, plumbing fittings, and fixtures may cause metals, including lead and copper, to enter drinking water. Rather than adding phosphorus-based chemicals to control corrosion, Madison Water Utility is committed to removing any newly discovered lead service line.

To assess corrosion of lead and copper, Madison Water Utility conducts tap sampling for lead and copper at selected sites [50] once every three years. Complete lead tap sampling data (from 2011 through 2023) is available on our website, [madisonwater.org/water-quality/lead-copper-in-water](https://madisonwater.org/water-quality/lead-copper-in-water)

	Ideal Goal (MCLG)	Action Level (AL)	90th Percentile	Range	Samples Above AL
Lead (ppb)	zero	15	1.8	<0.5 – 5.8	0 of 50
Copper (ppb)	1300	1300	150	77 – 210	0 of 50



## PFAS TESTING

Madison wells are tested twice annually for up to 30 PFAS (per- and polyfluoroalkyl substances). The table summarizes the 2024 results – at least one PFAS was found in the water from four wells. US EPA now regulates six PFAS: PFOA, PFOS, PFBS, PFHxS, PFNA, and HPFO-DA (Gen-X). Water from all active Madison wells meets these new federal standards.

PFAS are a large group of human-made chemicals widely used in industry and consumer goods. They are responsible for the waterproof, non-stick, and/or stain-resistant properties of many consumer products. PFAS do not break down in the environment and, because of their widespread use, they are commonly found in air, soil, and water as well as the blood of people and animals all over the world. PFAS get into groundwater from places that make or use PFAS, and the release from consumer products in landfills.

Source	PFAS	MCL/HL	Range of Results
Well 6	PFHxS	10	6.6 – 7.3 (ppt)
Well 9	PFBA	--	36 – 47 (ppt)
Well 11	PFBA	--	nd – 4.0 (ppt)
Well 14	PFBA	--	nd – 3.2 (ppt)
Well 14	PFHxS	10	3.7 – 4.8 (ppt)

**Past Testing:** Over the last five years, regular testing has intermittently found PFAS at ten Madison wells. Except for PFBA and PFHxS at some wells [6, 9, 11, and 14], individual PFAS levels at a particular well are typically 2 parts per trillion (ppt) or lower – a level below which not every lab can reliably measure. Year-to-year variations in test results can stem from changing detection limits at a testing lab or the analytical method used. Each of the following PFAS was found at least once at one Madison well: PFBA, PFBS, PFPeA, PFPeS, PFHxA, PFHxS, PFHpA, PFOA, PFOS, and 6:2 FTS.

Complete PFAS test results for 2020 through 2024 can be found on our website, [www.madisonwater.org](https://www.madisonwater.org).



# Water Quality Table

2024 data unless otherwise noted

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
<b>Regulated Substances</b>							
Atrazine (ppb)*	3	3	nd	nd - 0.03	NO	11,13,14,16,25,29	Runoff from herbicide used on row crops
Barium (ppb)	2,000	2,000	21	7.2 - 69	NO	All wells	Erosion of natural deposits; Discharge from metal refineries
Chromium, Total (ppb)	100	100	nd	nd - 2.6	NO	11, 14, 20, 25	Erosion of natural deposits; Discharge from steel and pulp mills
1,1-Dichloroethylene (ppb)	7	7	nd	nd - 0.2	NO	Well 18	Discharge from industrial chemical factories
1,2-Dichloroethylene, cis (ppb)	70	70	nd	nd - 0.5	NO	Wells 7 & 11	Discharge from industrial chemical factories; Biodegradation of PCE and TCE
Fluoride (ppm)	4	4	0.7	0.5 - 0.8	NO	All Wells	Erosion of natural deposits; Added to promote strong teeth
Nickel (ppb)	n/a	100	nd	nd - 2.5	NO	6,11,14,17,19,26,27,28	Erosion of natural deposits; Electroplating, stainless steel and alloy products
Nitrate (ppm)	10	10	0.9	nd - 4.1	NO	Thirteen wells	Fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
PFOA (ppt)*	zero	4	nd	nd - 1.9	NO	Nine wells	Firefighting foam; Landfills, food packaging, clothing, fabrics, upholstery
PFOS (ppt)*	zero	4	nd	nd - 1.6	NO	6,9,11,16,26	Firefighting foam; Landfills, food packaging, clothing, fabrics, upholstery
Selenium (ppb)	50	50	nd	nd - 1.5	NO	6, 9, 14	Erosion of natural deposits; Petroleum and metal refineries
Tetrachloroethylene [PCE] (ppb)	zero	5	nd	nd - 3.1	NO	6,7,9,11,18	Discharge from factories, dry cleaners, and auto shops
Trichloroethylene [TCE] (ppb)	zero	5	nd	nd - 0.4	NO	7, 11, 18	Discharge from metal degreasing sites, other factories
<b>Radionuclides</b>							
Gross Alpha (pCi/L)*	zero	15	1.3	nd - 5.1	NO	7, 19, 24, 28	Erosion of natural deposits
Radium, 226+228 (pCi/L)	zero	5	2.4	1.6 - 5.3	NO	7,19,24,27,28,30	Erosion of natural deposits
<b>Disinfection By-Products (Distribution)</b>							
Haloacetic Acids (ppb)	60	60	1.5	0.7 - 2.3	NO	n/a	By-product of drinking water chlorination
Total Trihalomethanes (ppb)	zero	80	5.5	0.5 - 10	NO	n/a	By-product of drinking water chlorination
<b>Unregulated Substances</b>							
Chromium, Hexavalent (ppb)	n/a	n/a	0.4	nd - 2.0	NO	Thirteen wells	Erosion of natural deposits; Chrome plating, leather tanning, wood preservation
1,1-Dichloroethane	n/a	n/a	nd	nd - 0.1	NO	Well 9	Discharge from industrial chemical factories
1,4-Dioxane (ppb)	n/a	n/a	nd	nd - 0.4	NO	9, 11, 18	Discharge from chemical factories; Cosmetics and detergents
Metolachlor (ppb)*	n/a	n/a	nd	nd - 0.01	NO	Well 14	Runoff from herbicide used on row crops
Strontium (ppb)	n/a	n/a	82	49 - 100	NO	All wells	Erosion of natural deposits
Trichlorofluoromethane (ppb)	n/a	n/a	nd	nd - 0.8	NO	Wells 9 & 11	Discharge from industrial chemical factories; Degreaser, propellant, refrigerant
<b>Other Substances      Aesthetic Goal</b>							
Chloride (ppm)	250		16	1.6 - 210	NO	All Wells	Erosion of natural deposits; Road salt application
Iron (ppm)	0.3		nd	nd - 0.25	NO	7, 17,19,24,27,28,30	Erosion of natural deposits
Manganese (ppb)	50		2.5	nd - 45	NO	Fourteen wells	Erosion of natural deposits
Silver (ppm)*	0.1		nd	nd - 0.00	NO	Well 25	Discharge from industrial chemical factories
Sodium (ppm)	n/a		7.3	2.3 - 64	NO	All Wells	Erosion of natural deposits; Road salt application
Sulfate (ppm)	250		18	6.6 - 39	NO	All Wells	Erosion of natural deposits
Zinc (ppb)	5,000		3.8	nd - 8.8	NO	Sixteen wells	Erosion of natural deposits

\* 2023 water quality testing data

Please call **608-266-4654** if you have any questions about the Water Quality Table, or email: [water@madisonwater.org](mailto:water@madisonwater.org).

# GET TO KNOW YOUR WATER SYSTEM AND STAFF

## CONNECT WITH MADISON WATER UTILITY



Website: [madisonwater.org](https://madisonwater.org)



Facebook: [madisonwater](https://www.facebook.com/madisonwater)



Twitter/X: [MadWaterUtility](https://twitter.com/MadWaterUtility)



Instagram: [madison\\_water](https://www.instagram.com/madison_water)

## 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。

## GET INVOLVED

Water Utility Board: Monthly meetings are held at 119 E. Olin Avenue, starting at 4:30 p.m.

### 2025 Water Utility Board Meeting Dates:\*

- May 27
- June 24
- July 22
- August 26
- September 30
- October 29
- November 24

\*Meeting dates are subject to change. Please find the official Board Meeting calendar at:

[www.cityofmadison.com/city-hall/committees/water-utility-board](https://www.cityofmadison.com/city-hall/committees/water-utility-board)

## WELL 15 PFAS TREATMENT PROJECT

In May 2024, Madison Water Utility (MWU) began installing a PFAS treatment system at Well 15. This treatment system – one of the first of its kind in Wisconsin – is expected to remove all PFAS down to a non-detectable level. It will also remove volatile organic compounds, like perchloroethylene (PCE) and trichloroethylene (TCE), found in water from this well.

The system will use granular activated carbon (GAC) and ion exchange (IX) resin. GAC will remove PFAS (and other volatile organics) while IX will reduce the amount of short-chain PFAS. This project is ongoing and delivery of PFAS-free water from Well 15 is expected in Summer 2025.

PFAS were first discovered at Well 15, located on E. Washington Avenue, during limited testing at wells near landfills and the airport. The well was shut down in 2019 amid community concerns about the PFAS chemicals found there. Since then, MWU and the City of Madison have made a commitment to the community that Well 15 would not be put back in service until treatment to remove PFAS was installed.

## WELL 19 IRON, MANGANESE, AND RADIUM TREATMENT PROJECT

True to its mission, MWU is committed to providing safe, high-quality water to the community. This project will reduce three naturally occurring contaminants - iron, manganese and radium - from water pumped by Well 19. Construction is ongoing with testing and system start-up expected in late 2025.

Iron and manganese will be reduced to non-detectable levels. They are considered “secondary” contaminants since, at high levels, they affect the taste and appearance of water. Radium is a “primary” contaminant and is regulated to protect human health.

Well 19 is located on University of Wisconsin property on Lake Mendota Drive near the Eagle Heights student housing complex. The well pumps nearly 500 million gallons of water a year to the University and surrounding near west side neighborhoods. The well facility was originally built in 1974 and includes a 3-million gallon buried water tank.

Visit our Projects webpage at [madisonwater.org](https://madisonwater.org) to learn about Madison Water Utility public works projects.