



Water & Wastewater Board of the City of Madison 2016 Drinking Water Quality Report

We are pleased to present our annual Drinking Water Quality Report. We designed this report to inform you about the quality of the drinking water delivered to you every day. Our goal is to provide you with a safe dependable supply of drinking water.

If you have questions about the report, please contact Jason Leggett at 256-772-0253 ext. 119 between the hours of 8:00 a.m. to 4:00 p.m. Monday through Friday. If you want more information you may visit our web site at www.madisonutilities.org. Our Board meetings are on the first and third Monday (unless otherwise posted) of each month at 5:30 p.m. in the conference room of Madison Utilities located at 101 Ray Sanderson Drive.

Health information about your water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and it can pick up substances resulting from the presence of animals or from human activity.

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) establishes limits for contaminants in bottled water.

Consumers should be aware that all drinking water, including bottled water, might 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 Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. People who are immunocompromised such as cancer patients undergoing chemotherapy, organ transplant recipients, HIV/AIDS positive or other immune system disorders, some elderly, and infants can be particularly at risk from infections. People at risk 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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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. Madison Utilities 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 2 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 Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

The Water & Wastewater Board routinely monitors for contaminants in your drinking water in accordance with Federal and State regulations. The tables included in this report detail the results of our monitoring for the period of January 1 - December 31, 2016 or the data as of the latest testing done in accordance with applicable regulations. All data presented is in the highest levels detected unless otherwise noted. Based on a study conducted by the Alabama Department of Environmental Management (ADEM) with the approval of the EPA, a statewide waiver for the monitoring of asbestos and dioxin was issued. Thus, monitoring for any of these contaminants was not required.

Este informe contiene información importante sobre la calidad de su agua potable. Por favor lea este informe o comuníquese con alguien que pueda traducir la información.

Table of Primary Drinking Water Contaminants

Contaminant	Units	MCL	Max Detected	Contaminant	Units	MCL	Max Detected
Microbiological Contaminants				Organic Contaminants (cont.)			
Total Coliform Bacteria		<5%	0	1,2-Dichlorobenzene-d4	% Rec.	N/A	97.8
Turbidity		TT		Dichlorodifluoromethane	ppb	N/A	<0.5
Fecal coliform and <i>E. coli</i>		0	0	1,1-Dichloroethane	ppb	N/A	<0.5
Fecal Indicators (<i>enterococci</i> or <i>coliphage</i>)		TT	0	1,2-Dichloroethane	ppb	5	<0.5
Inorganic Contaminants				cis-1,2-Dichloroethene	ppb	N/A	<0.5
Alkalinity	ppm	N/A	145	1,1-Dichloroethene	ppb	N/A	<0.5
Calcium	ppm	N/A	59.7	trans-1,2-Dichloroethene	ppb	N/A	<0.5
Copper	ppm	AL=1.3	0.0304	1,2-Dichloropropane	ppb	5	<0.5
Free Carbon Dioxide	ppm	N/A	23.9	1,3-Dichloropropane	ppb	N/A	<0.5
Hardness, Total (ppb as CaCO ₃)	ppm	N/A	178	2,2-Dichloropropane	ppb	N/A	<0.5
Lead	ppb	AL=15	12.5	1,1-Dichloropropene	ppb	N/A	<0.5
Magnesium	ppm	N/A	6.02	1,3-Dichloropropene	ppb	N/A	<0.5
Nitrate	ppm	10	3.55	Ethylbenzene	ppb	700	<0.5
Nitrite	ppm	1	<0.1	Total Haloacetic Acids (HAA5)	ppb	60	9.41
pH	su	6.5 - 8.5	7.78	Hexachloro-1,3-butadiene	ppb	N/A	<0.5
Residual Chlorine	ppm	MRDL = 4	2.4	Isopropylbenzene	ppb	N/A	<0.5
Sodium	ppm	N/A	13	Methyl tert-butyl ether	ppb	N/A	<0.5
Sulfate	ppm	500	<5	Methylene chloride	ppb	N/A	<0.5
Organic Contaminants				Naphthalene	ppb	N/A	<5
Benzene	ppb	N/A	<0.5	n-Butylbenzene	ppb	N/A	<0.5
Bromoacetic Acid	ppb	N/A	<1	n-Propylbenzene	ppb	N/A	<0.5
Bromobenzene	ppb	N/A	<0.5	p-Isopropyltoluene	ppb	N/A	<0.5
Bromochloromethane	ppb	N/A	<0.5	sec-Butylbenzene	ppb	N/A	<0.5
Bromodichloromethane	ppb	N/A	5.16	Specific Conductance	umhos/cm	N/A	332
4-Bromofluorobenzene	% Rec.	N/A	96.7	Styrene	ppb	100	<0.5
Bromoform	ppb	N/A	<1	1,1,1,2-Tetrachloroethane	ppb	N/A	<0.5
Bromomethane	ppb	N/A	<0.5	1,1,2,2-Tetrachloroethane	ppb	N/A	<0.5
tert-Butylbenzene	ppb	N/A	<0.5	Tetrachloroethene	ppb	N/A	<0.5
Carbon tetrachloride	ppb	5	<0.5	TOC (Total Organic Carbon)	ppm	TT	3.4
Chloroacetic Acid	ppb	N/A	<2	Toluene	ppb	1000	<0.5
Chlorobenzene	ppb	100	<0.5	Total Trihalomethanes (TTHM)	ppb	80	17.1
Chlorodibromomethane	ppb	N/A	2.56	Trichloroacetic Acid	ppb	N/A	4.78
Chloroethane	ppb	N/A	<0.5	1,2,3 Trichlorobenzene	ppb	N/A	<0.5
Chloroform	ppb	N/A	10	1,2,4-Trichlorobenzene	ppb	70	<0.5
Chloromethane	ppb	N/A	<0.5	1,1,1-Trichloroethane	ppb	200	<0.5
2-Chlorotoluene	ppb	N/A	<0.5	1,1,2-Trichloroethane	ppb	5	<0.5
4-Chlorotoluene	ppb	N/A	<0.5	Trichloroethene	ppb	N/A	4.9
Dibromoacetic Acid	ppb	N/A	1.22	Trichlorofluoromethane	ppb	N/A	<0.5
Dibromomethane	ppb	N/A	<0.5	1,2,3-Trichloropropane	ppb	N/A	<0.5
Dichloroacetic Acid	ppb	N/A	4.84	1,2,4-Trimethylbenzene	ppb	N/A	<0.5
1,2-Dichlorobenzene	ppb	N/A	<0.5	1,3,5-Trimethylbenzene	ppb	N/A	<0.5
1,3-Dichlorobenzene	ppb	N/A	<0.5	Vinyl chloride	ppb	2	<0.5
1,4-Dichlorobenzene	ppb	N/A	<0.5	Xylenes, Total	ppb	10000	<1.5

Table of Detected Contaminants

Contaminant	Units	Year	Violation	MCLG	MCL	Max	Min	Major Sources
Alpha emitters	pCi/l	2012	No	0	15	3.6	2.3	Erosion of natural deposits
Barium	ppm	2012	No	2	2	0.024	0.02	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Combined Radium	pCi/l	2012	No	0	5	1.61	1.25	Erosion of natural deposits
Copper	ppm	2016	No	1.3	AL=1.3	0.304	<0.002	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Fluoride	ppm	2014	No	4	4	0.63	<0.1	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Lead	ppb	2016	No	0	AL=15	12.5	<1	Corrosion of household plumbing systems
Nitrate	ppm	2016	No	10	10	3.55	1.93	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Res. Chlorine (On Site)	ppm	2016	No	MRDLG=4	MRDL=4	2.4	2	Water additive used to control Microbes
TOC (Total Organic Carbon)	ppm	2016	No	N/A	TT	3.4	<0.5	Naturally present in the environment
Total Haloacetic Acids (HAA5)	ppb	2016	No	N/A	60	9.41	<1	By-product of drinking water disinfection
Total Trihalomethanes (TTHM)	ppb	2016	No	N/A	80	17.1	1.09	By-product of drinking water chlorination
Trichloroethylene	ppb	2012	No	0	5	2.9	0	Discharge from metal degreasing sites and other factories
Turbidity	NTU	2013	No	N/A	5	0.37	N/A	Soil runoff

Contaminant	Units	Year	Max	Min	Avg	Contaminant	Units	Year	Max	Min	Avg
Alkalinity	ppm	2016	145	67.3	113.8	Dissolved Solids	ppm	2014	250	150	190
Bromodichloromethane	ppb	2016	5.16	<0.5	2.91	Free Carbon Dioxide	ppm	2016	23.9	<20	20.9
4-Bromofluorobenzene	% Rec.	2016	96.7	77.2	87.7	Hardness, Total (ppm as CaCO3)	ppm	2016	178	73.7	125.67
Calcium	ppm	2016	59.7	19.3	33.8	Magnesium	ppm	2016	6.02	4.82	5.48
Chloride	ppm	2014	6.8	5.4	6.1	pH (On Site)	su	2016	7.78	6.71	7.36
Chloroacetic Acid	ppb	2015	3.54	<2	3.34	Sodium	ppm	2016	13	5.08	8.02
Chlorodibromomethane	ppb	2016	2.56	<0.5	1.62	Specific Conductance	umhos/cm	2016	332	192	277.5
Chloroform	ppb	2016	10	1.09	4.79	Sulfate	ppm	2015	6.8	<5.0	5.9
Dibromoacetic Acid	ppb	2016	1.22	<1	1.05	Trichloroacetic Acid	ppb	2016	4.78	<1	2.35
Dichloroacetic Acid	ppb	2016	4.84	<1	2.81	Trichloroethene	ppb	2016	4.9	<0.5	1.64
1,2-Dichlorobenzene-d4	% Rec.	2016	97.8	85.9	93.02						

DEFINITIONS

ppm - Parts per million, **ppb** - Parts per billion, **ppt** - Parts per trillion, **pCi/l** - Picocuries per liter, **NTU** - Nephelometric turbidity unit

Action Level (AL) - The concentration of a contaminant that triggers treatment or other requirement a water system shall follow.

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.

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 Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Maximum Residual Disinfectant Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Treatment Technique (TT) – A required process intended to reduce the level of a contaminant in drinking water.

CURRENT HAPPENINGS

Madison Utilities is in the process of significantly expanding and improving its infrastructure to insure the supply of water to the residents and businesses of the City of Madison. These improvements include the following major projects for the water system:

- ◆ Installation of the Terris Tatum Tennessee River Intake Facility to begin drawing water from the river.
- ◆ Upgrades to the Quarry Water Treatment Plant to be able to treat the river water.

HOW MUCH DOES YOUR WATER COST?

Affordability is important to us! Did you know a gallon of name brand bottled water would cost \$10.81 on average?

A gallon through Madison Utilities costs just \$0.0027.



WATER SOURCE INFORMATION

Madison Utilities utilized ten groundwater sources in 2016. They are the Collier, Drake, Fiorentino, McCrary, Murphy, New Gillespie, Nickelson, Rowe, Triana, and Williams wells, which are in the Tuscombina/Fort Payne Aquifer.

The water from the Collier, Drake, Murphy, Rowe, and Triana wells is treated at the Quarry Water Treatment Plant using aeration, coagulation, filtration, disinfection and the addition of fluoride. The water from the Fiorentino, McCrary, New Gillespie, Nickelson, and Williams wells is treated at the Keene Water Treatment Plant using coagulation, filtration, pH adjustment, disinfection, and fluoridation.

We have completed our Source Water Assessment Plan and Susceptibility Analysis, and have an established Wellhead Protection Plan. These documents are very extensive and cannot be included within this report but these documents are available for public review at our office located at 101 Ray Sanderson Drive.

YOUR WATER UTILITY BY THE NUMBERS

Your water utility is comprised of wells, lines, valves, and other equipment, that are maintained to protect water quality and ensure water is available every time you turn on your faucet. From the wells that pump water out of underground aquifers to the valves that isolate sections of the water system and help limit service interruptions during line maintenance and repairs, your water utility is a sophisticated mix of hardware and dedicated employees who keep your water clean, reliable, and affordable.

 Employees: 54	 Production Wells: 10
 Water Reservoirs: 4	 Waterlines: 325 mi
 Water Valves: 4410	 Fire Hydrants: 2517

WHY FIXING LEAKS AROUND YOUR HOME IS IMPORTANT

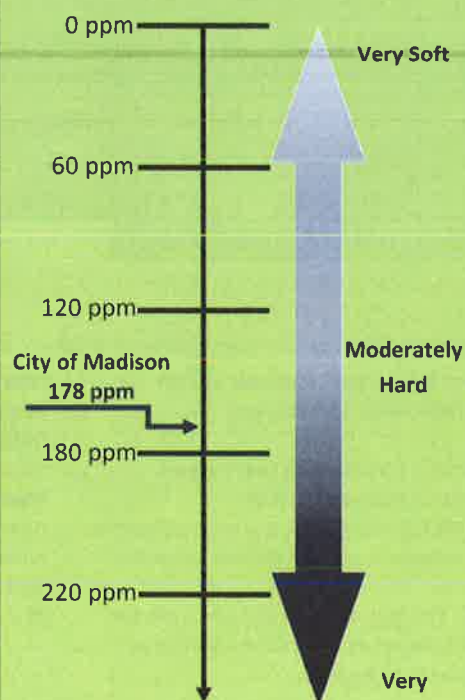
Even the smallest leak can have a large impact on both your water usage and your wallet! Here are some leak facts that may surprise you:

- ◆ A leaking toilet can use 90,000 gallons of water in 30 days.
- ◆ A typical toilet leak loses 30,000 gallons of water per year.
- ◆ A dripping faucet or hose bib can lose up to 180 gallons a month, or 2,160 gallons per year.
- ◆ About 1 in every 318 homes or buildings has a leak.

Source: American Leak Detection and Water Online

HOW HARD IS YOUR WATER?

If substantial amounts of Calcium or Magnesium, both nontoxic minerals, are present in drinking water, the water is said to be hard. Hard water does not dissolve soap readily making lather for washing and cleaning difficult. Water containing little Calcium or Magnesium is called soft water. The water in Madison is moderately hard due to limestone rock formations in this area.



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