MADISON UTILITIES

Water & Wastewater Board of the City of Madison

2018 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 immuno-compromised 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, 2018 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 comuniquese con alguien que pueda traducir la información.

Primary Drinking Water Contaminants

Contaminant	Units	MCL	MD
Bacteriological Contaminants			
Total Coliform Bacteria		<5%	0
Turbidity	NTU	TT	0.136
Fecal coliform and *E. coli*		0	0
Fecal Indicators (enterococci or coliphage)		TT	0
Radiological Contaminants			
Alpha emitters	pCi/L	15	ND
Combined Radium	pCi/L	5	0.774
Disinfections and Disinfection Byproducts			
Chlorine	ppm	MRDL=4	2.52
TTHM (Total Trihalomethanes)	ppb	80	96.4
Haloacetic Acids (HAA5)	ppb	60	64.2
Inorganic Contaminants			
Antimony	ppb	6	ND
Arsenic	ppb	10	1.32
Barium	ppm	2	0.0254
Beryllium	ppb	4	ND
Cadmium	ppb	5	ND
Chlorine, Residual	ppm	4	2.4
Chromium	ppb	100	ND
Copper	ppm	AL=1.3	0.114
Cyanide	ppb	200	ND
Fluoride	ppm	4	0.684
Lead	ppb	AL=15	7.21
Mercury	ppb	2	ND
Nitrate	ppm	10	2.35
Nitrite	ppm	1	ND
Nitrate-Nitrite (Total)	ppm	10	2.77
Selenium	ppb	50	ND
Thallium	ppb	2	ND
Organic Contaminants			
Alachlor	ppb	2	ND
Atrazine	ppb	3	ND
Benzene	ppb	5	ND
Benzo(a)pyrene (PAHs)	ppt	200	ND
Carbofuran	ppb	40	ND
Carbon tetrachloride	ppb	5	ND

Contaminant	Units	MCL	MD
Organic Contaminants (cont.)			
Chlordane	ppb	2	ND
Chlorobenzene	ppb	100	ND
2,4-D	ppb	70	ND
Dalapon	ppb	200	ND
Dibromochloropropane	ppt	200	ND
1,2-Dichloroethane	ppb	5	ND
1,2-Dichloropropane	ppb	5	ND
Dinoseb	ppb	7	ND
Diquat	ppb	20	ND
Endothall	ppb	100	ND
Endrin	ppb	2	ND
Ethylbenzene	ppb	700	ND
Ethylene Dibromide	ppt	50	ND
Glyphosate	ppb	700	ND
Heptachlor	ppt	400	ND
Heptachlor Epoxide	ppt	200	ND
Hexachlorobenzene	ppb	1	ND
Hexachlorocyclopentadiene	ppb	50	ND
Lindane	ppt	200	ND
Methoxychlor	ppb	40	ND
Oxamyl (Vydate)	ppb	200	ND
Pentachlorophenol	ppb	1	ND
Polychlorinated Biphenyls (PCBs)	ppt	500	ND
Picloram	ppb	500	ND
Simazine	ppb	4	0.53
Styrene	ppb	100	ND
Toluene	ppb	1000	ND
TOC (Total Organic Carbon)	ppm	TT	1.89
Toxaphene	ppb	3	ND
2,4,5-TP (Silvex)	ppb	50	ND
1,2,4-Trichlorobenzene	ppb	70	ND
1,1,1-Trichloroethane	ppb	200	ND
1,1,2-Trichloroethane	ppb	5	ND
Vinyl chloride	ppb	2	ND
Xylenes, Total	ppb	10000	ND

Secondary Contaminants

Contaminant	Units	MCL	MD	Contaminant	Units	MCL	MD	Contaminant	Units	MCL	MD	Contaminant	Units	MCL	MD
Aluminum	ppm	0.2	ND	Copper	ppm	1	0.1	Odor	TON	3	4	Sulfate	ppm	250	11.6
Chloride	ppm	250	12.2	Iron	ppm	0.3	ND	pH	su	6.5-8.5	7.5	Total Dissolved Solids	ppm	500	203
Color	pcu	15	3	Manganese	ppm	0.05	ND	Silver	ppb	0.1	ND	Zinc	ppm	5	ND

KEY TO TABLES

ppm - parts per million
ppb - parts per billion,
ppt - parts per trillion, **pcu** - color units,
pCi/l - picocuries per liter, **su** - standard unit,
NTU - nephelometric turbidity unit,
TON - threshold odor number

MD - Maximum Detected, **ND** - Not Detected

AL (Action Level) - The concentration of a contaminant that triggers treatment or other requirement a water system shall follow.
TT (Treatment Technique) - A required process intended to reduce the level of a contaminant in drinking water.

MRDL (Maximum Residual Disinfectant Level) - 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.
MRDLG (Maximum Residual Disinfectant Level Goal) - 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.

MCL (Maximum Contaminant Level) - 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.
MCLG (Maximum Contaminant Level Goal) - 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.

Unregulated Contaminants

Contaminant	Units	MD
Aldicarb	ppb	ND
Aldicarb Sulfone	ppb	ND
Aldicarb Sulfoxide	ppb	ND
Aldrin	ppb	ND
Alkalinity	ppm	152
Bis(2-ethylhexyl)adipate	ppb	ND
Bis(2-ethylhexyl)phthalate	ppb	ND
Bromoacetic Acid	ppb	6.66
Bromobenzene	ppb	ND
Bromochloromethane	ppb	ND
Bromodichloromethane	ppb	13.3
4-Bromofluorobenzene	% Rec	94.6
Bromoform	ppb	ND
Bromomethane	ppb	ND
Butachlor	ppb	ND
n-Butylbenzene	ppb	ND
sec-Butylbenzene	ppb	ND
tert-Butylbenzene	ppb	ND
Calcium	ppm	61.8
Carbaryl	ppb	ND
Free Carbon Dioxide	ppm	ND
Chloroacetic Acid	ppb	ND
Chlorodibromomethane	ppb	2.38
Chloroethane	ppb	ND
Chloroform	ppb	81.5
Chloromethane	ppb	ND

Contaminant	Units	MD
2-Chlorotoluene	ppb	ND
4-Chlorotoluene	ppb	ND
Dibromoacetic Acid	ppb	2.48
Dibromomethane	ppb	ND
Dicamba	ppb	ND
Dichloroacetic Acid	ppb	27.9
1,2-Dichlorobenzene	ppb	ND
1,3-Dichlorobenzene	ppb	ND
1,4-Dichlorobenzene	ppb	ND
1,2-Dichlorobenzene-d4	% Rec	89.6
Dichlorodifluoromethane	ppb	ND
1,1-Dichloroethane	ppb	ND
1,1-Dichloroethene	ppb	ND
cis-1,2-Dichloroethene	ppb	ND
trans-1,2-Dichloroethene	ppb	ND
1,3-Dichloropropane	ppb	ND
2,2-Dichloropropane	ppb	ND
1,1-Dichloropropene	ppb	ND
1,3-Dichloropropene	ppb	ND
Dieldrin	ppb	ND
Hardness	ppm	182
Hexachloro-1,3-butadiene	ppb	ND
3-Hydroxycarbofuran	ppb	ND
Isopropylbenzene	ppb	ND
p-Isopropyltoluene	ppb	ND
Magnesium	ppm	5.99

Contaminant	Units	MD
MBAS	ppb	0.03
Methomyl	ppb	ND
Methyl tert-butyl ether	ppb	ND
Methylene chloride	ppb	ND
Metolachlor	ppb	ND
Metribuzin	ppb	ND
Naphthalene	ppb	ND
1-Naphthol	ppm	ND
Nickel	ppm	ND
Paraquat	ppm	ND
Propachlor	ppb	ND
n-Propylbenzene	ppb	ND
Sodium	ppm	10.3
Specific Conductance	umhos/cm	507
Temperature	Deg C	21
1,1,1,2-Tetrachloroethane	ppb	ND
1,1,2,2-Tetrachloroethane	ppb	ND
Tetrachloroethene	ppb	ND
Trichloroacetic Acid	ppb	32.6
1,2,3-Trichlorobenzene	ppb	ND
Trichloroethene	ppb	6.14
Trichlorofluoromethane	ppb	ND
1,2,3-Trichloropropane	ppb	ND
1,2,4-Trimethylbenzene	ppb	ND
1,3,5-Trimethylbenzene	ppb	ND

Table of Detected Contaminants

Contaminant	Units	Year	Violation	MCLG	MCL	Max	Min	Major Sources
Arsenic	ppb	2018	No	0	10	1.32	<1	Erosion of natural deposits; Runoff from orchards; Runoff from grass and electronics production wastes
Barium	ppm	2018	No	2	2	0.023	0.025	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine, Residual	ppm	2018	No	MRDLG=4	MRDL=4	2.4	2.16	Water additive used to control microbes
Combined Radium	pCi/l	2018	No	0	5	-0.843	0.774	Erosion of natural deposits
Copper	ppm	2018	No	1.3	AL=1.3	0.114	0.004	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Fluoride	ppm	2018	No	4	4	0.684	0.539	Water additive which promotes strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Lead	ppb	2018	No	0	AL=15	7.21	1.39	Corrosion of household plumbing systems
Nitrate	ppm	2018	No	10	10	2.22	0.292	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TOC (Total Organic Carbon)	ppm	2018	No	N/A	TT	1.89	0.68	Naturally present in the environment
Total Haloacetic Acids (HAA5)	ppb	2018	No	N/A	60	64.2	11.9	By-product of drinking water disinfection
Total Trihalomethanes (TTHM)	ppb	2018	No	N/A	80	96.4	12.2	By-product of drinking water chlorination
Turbidity	NTU	2018	No	N/A	5	0.136	0.022	Soil runoff

Contaminant	Units	Year	Max	Min	Avg
Alkalinity	ppm	2018	152	52.4	67.4
Bromoacetic Acid	ppb	2018	6.6	3.4	4.5
Bromodichloromethane	ppb	2018	13.3	3.64	9.35
4-Bromofluorobenzene	% Rec	2018	94.6	93.9	94.25
Calcium	ppm	2018	60.5	15.9	29.85
Chloride	ppm	2018	12.2	9.36	10.78
Chloroacetic Acid	ppb	2015	3.54	<2	3.34
Chlorodibromomethane	ppb	2018	2.38	1.07	1.56
Chloroform	ppb	2018	80.5	6.9	43.8
Color	ppm	2018	3	3	3
Dibromoacetic Acid	ppb	2018	2.48	1.46	1.71
Dichloroacetic Acid	ppb	2018	27.9	4.81	17.5
1,2-Dichlorobenzene-d4	% Rec	2018	88.1	86.6	87.35

Contaminant	Units	Year	Max	Min	Avg
Dissolved Solids	ppm	2018	203	118	160.5
Free Carbon Dioxide	ppm	2017	20.2	<20	20.03
Hardness, Total (ppm as CaCO3)	ppm	2018	182	54.4	97.8
Magnesium	ppm	2018	5.92	3.69	4.73
MBAS	ppb	2018	32	32	32
Odor	T.O.N.	2018	4	4	4
pH (On Site)	su	2018	7.5	7.27	7.36
Sodium	ppm	2018	10.3	6.28	8.82
Specific Conductance	umhos/cm	2018	507	181	269.7
Sulfate	ppm	2018	11.6	9.31	10.3
Temperature	Deg. C	2018	21	11	15.1
Trichloroacetic Acid	ppb	2018	32.6	7.04	19.7
Trichloroethene	ppb	2018	2.26	2.26	2.26

WATER SOURCE INFORMATION

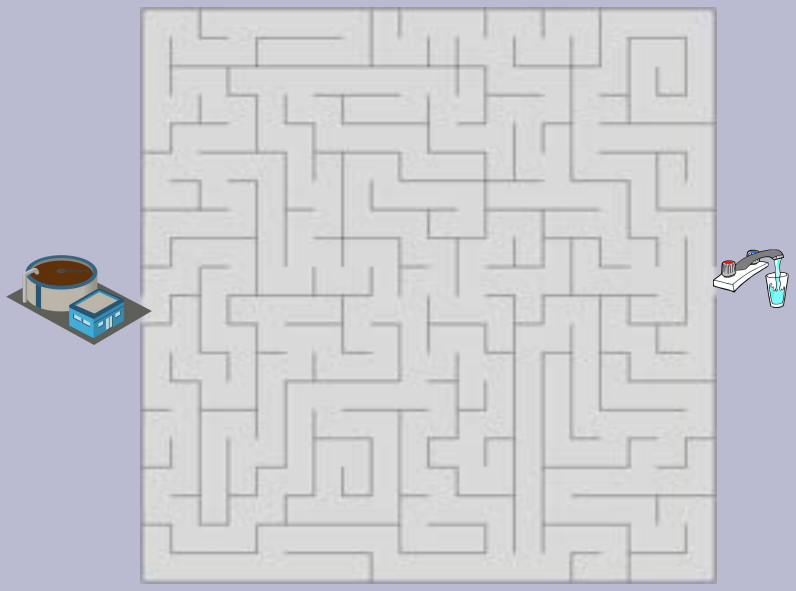
During the first two months of 2018, Madison Utilities (MU) utilized ten groundwater sources in the Tuscumbia/Fort Payne Aquifer. The water from five of the wells (Collier, Drake, Murphy, Rowe, and Triana) is treated at the Quarry Water Treatment Plant (QWTP) using aeration, coagulation, filtration, disinfection and the addition of fluoride. The water from the other five wells (Fiorentino, McCrary, New Gillespie, Nickelson, and Williams) is treated at the Keene Water Treatment Plant (KWTP) using coagulation, filtration, pH adjustment, disinfection, and fluoridation. In March of 2018, MU began pumping water from a new source, the Terris Tatum Tennessee River Intake Facility, which is treated at the QWTP. The river intake served as the primary raw water source for the rest of the year, with additional raw water occasionally supplied from the Drake Well during high demand in summer months.

MOVING FORWARD

The river intake will remain Madison Utilities' primary source for raw water, with possible additions from the Drake Well and the KWTP.

TREATMENT TO TAP

Once treated, the water travels through a distribution system, consisting of over 300 miles of pipes of various sizes and material, to the plumbing in your home. Draw a line through the maze to connect the water from the treatment plant to the faucet in your home!



WHY FIXING LEAKS AROUND YOUR HOME IS IMPORTANT

Even small leaks can have a large impact on your wallet!

- A dripping faucet can lose hundreds of gallons a month
- A running toilet can use anywhere from 10,000 to 100,000 gallons of water in 30 days. Customers are often shocked to see their bill increase by hundreds of dollars simply because of a leaky toilet.

Be proactive and try these leak tests!

- Add coloring to a toilet's tank and wait 15 minutes. If color appears in the bowl, there's a leak. We offer free blue tablets to all customers!
- Turn off all water-using appliances around your home, read the number on your meter, and check back in

SAVE MONEY BY SAVING WATER!

For water conservation tips visit www.madisonutilities.org/customer-service/water-conservation

HOW HARD IS YOUR WATER?

If substantial amounts of Calcium or Magnesium are present in drinking water, the water is said to be hard. Water containing little Calcium or Magnesium is called soft water. The water in Madison was previously moderately hard due to limestone rock formations in this area. Now that the river intake is the primary water source, the water in Madison is relatively soft.

YOUR WATER UTILITY BY THE NUMBERS

Your water utility is comprised of many working parts that are maintained to protect water quality and ensure water is available every time you turn on your faucet. From the pumps that pull water from the Tennessee River to the valves that isolate sections of the system to 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: 55
- Water Sources: 10
- Water Reservoirs: 4
- Waterlines: 335 mi
- Water Valves: 4410
- Fire Hydrants: 2515

MADISON UTILITIES

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www.MadisonUtilities.org