2022 Drinking Water Quality

JULY 1, 2023

MAWSS
MOBILE AREA WATER & SEWER SYSTEM

Quality Control...

Keeping our water safe!

Where does our water come from?

The source of MAWSS drinking water is Converse Reservoir, also known as Big Creek Lake, which is fed by springs, streams, and rainfall in the Converse Reservoir Watershed.

Converse Reservoir is 3,600 acres in surface area. The reservoir's watershed covers 103 square miles and lies totally within Mobile County. The reservoir provides all the drinking water for MAWSS customers.

How do contaminants get into the water?

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from stormwater runoff or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which can come from gas stations, stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

EPA Advisory Statement

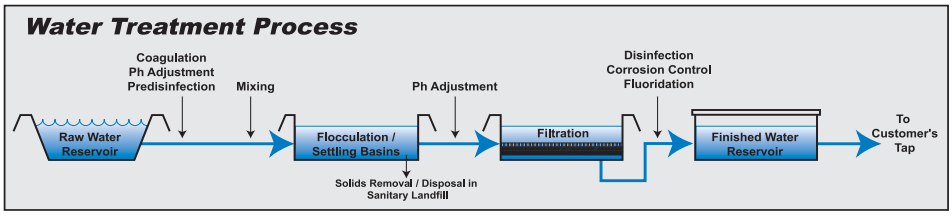
The EPA advises: "All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)."

Lead Specific Statement

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. MAWSS 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 it 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..

For people with compromised immune systems

The EPA advises: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons 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 infections by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791)."



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. MAWSS employs the above treatment process to provide safe drinking water to all customers.

MAWSS
MOBILE AREA WATER & SEWER SYSTEM

2022 Detected Contaminants

REGULATED SUBSTANCES

SUBSTANCE	MCLG	MCL	HIGHEST DETECT	RANGE	MAJOR SOURCES
Antimony, ppb	6	6	ND	ND	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Barium, ppm	2	2	0.025	ND - 0.025	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine, ppm	MRDLG = 4	MRDL = 4	1.79	0.39 - 1.79	Water additive used to control microbes
Chlorine Dioxide, ppb	MRDLG = 800	MRDL = 800	90.0	0.00 - 90.0	Water additive used to control microbes
Chlorite, ppm	0.8	1	0.74	0.24 - 0.74	Disinfection By-Product
Copper, ppm	1.3	AL = 1.3 at the 90th percentile	0.023 at 90th percentile (AL not exceeded)	0.002 - 0.062	"Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives"
Fluoride, ppm	4	4	0.96	0.24 - 0.96	Water additive promoting strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Lead, ppb	0	AL = 15 at 90th percentile	1.20 at 90th percentile (AL not exceeded)	ND - 3.40	Corrosion of household plumbing systems; Erosion of natural deposits
Nitrate, ppm	10	10	0.23	0.19 - 0.23	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total NO2 + NO3, mg/L	10	10	0.23	0.19 - 0.23	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Turbidity, NTU	N/A	"TT (under filter) - at least 95% of samples < 0.3"	0.999 (TT Not Exceeded)	0.010 - 0.999	Soil Runoff
Total Organic Carbon (TOC)	N/A	TT	Lowest Performance Ratio 1.14"	1.14 - 2.30	Naturally present in the environment
Total Trihalomethanes, ppb	N/A	80	Highest average = 73.45*	10.2 - 88.5	Disinfection By-Product
Haloacetic Acids (HAA5), ppb	N/A	60	Highest average = 37.63*	0.9 - 45	Disinfection By-Product
Gross Alpha, pCi/L	0	15	-0.63	-1.72 to -0.63	Erosion of natural deposits
Gross Beta, mrem/yr	0	4	-1.21	-1.58 to -1.21	Erosion of natural deposits
Combined Radium, pCi/L	0	5	0.04	-0.11 - 0.04	Erosion of natural deposits

** All site locations monitor MCL compliance for Total Trihalomethanes and HAA5 based on each site's locational running average (LRAA) based on the last four quarters of monitoring. The LRAA for each site must be < MCL of 80 ppb and 60 ppb, respectively.*

SUBSTANCES REGULATED UNDER SECONDARY DRINKING WATER STANDARDS

SUBSTANCE	MCLG	MCL	HIGHEST DETECT	RANGE	MAJOR SOURCES
Aluminum, ppm	N/A	0.2	ND	ND	Secondary contaminant. May cause colored water.
Chloride, ppm	N/A	250	7.00	6.8 - 7.0	Secondary contaminant
Total Dissolved Solids, ppm	N/A	500	96.0	ND - 96.0	Secondary contaminant
pH	N/A	N/A	7.10	7.1 - 8.0	Special Corrosivity Monitoring (MAWSS has implemented a corrosion control program.)
Alkalinity as CaCO3, ppm	N/A	N/A	5.70	3.7 - 5.7	
Sodium, ppm	N/A	N/A	3.80	3.4 - 3.8	
Sulfate as SO4, ppm	N/A	250	25.0	17.0 - 25.0	
Calcium, ppm	N/A	N/A	15.0	ND - 15.0	
Carbon Dioxide, ppm	N/A	N/A	ND	ND	
Magnesium, ppm	N/A	N/A	1.10	ND - 1.1	
Hardness as CaCO3, ppm	N/A	N/A	42.0	28.0 - 42.0	
Temperature, C	N/A	N/A	32.0	11.0 - 32.00	
Corrosivity (saturation index)	N/A	N/A	-2.4	-2.8 to -2.4	
Specific Conductance, µmho/cm	N/A	N/A	120.0	30 - 120	
Orthophosphate as P, ppm	N/A	N/A	0.10	0.10	

DEFINITIONS AND ABBREVIATIONS

Maximum contaminant level goal or 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 or 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 or 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 contamination.

Maximum residual disinfectant level or MRDL - The highest level of a disinfectant allowed in drinking water.

Treatment Technique or TT - A required process intended to reduce the level of a contaminant in drinking water.

Action level or AL - The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.

Range - The lowest to the highest values for all samples tested for each contaminant. If only one sample is tested, no range is listed for that contaminant in the table.

ppm - Parts per million, or milligrams per liter (mg/L)

ppb - Parts per billion, or micrograms per liter (µg/L)

ppt - Parts per trillion, or nanogram per liter (ng/L)

pCi/l - picocuries per liter (a measure of radioactivity)

NTU - Nephelometric Turbidity Units

ND – None detected, or below the detection limit

N/A – Not applicable

** EPA does not have an enforceable MCL for PFOA and PFOS. EPA initiated the process in 2019 to evaluate the need for a MCL for PFOA and PFOS. This process is expected to take a minimum of two years. EPA anticipates finalizing the rule by the end of 2023. On June 15, 2022 the Environmental Protection Agency (EPA) issued new lifetime health advisories for four PFAS compounds. Recent testing by our water system has indicated the presence of at least one of these compounds in our drinking water, at levels above the new advisories.*

MOBILE AREA WATER & SEWER SYSTEM

Standard List of Primary Drinking Water Contaminants

Contaminant	MCL	Amount Detected
BACTERIOLOGICAL		
Total Coliform Bacteria	< 5 %	0.14%
Turbidity	TT	(See Note 1)
Fecal Coliform and E.coli	0	0
"Fecal Indicators (enterococci or coliphage)"	TT	(See Note 2)
RADIOLOGICAL		
Beta/photon emitters (pCi/L)	50	-1.21 (See Note 3)
Alpha emitters (pCi/L)	15	-0.63
Combined Radium (pCi/L)	5	0.04
Uranium	30 ppb	(See Note 4)
INORGANIC CHEMICALS		
Antimony	6 ppb	< 0.33 ppb
Arsenic	10 ppb	< 1.5 ppb
Asbestos (MFL)	7	(See Note 5)
Barium	2 ppm	0.025 ppm
Beryllium	4 ppb	2.1 ppb
Bromate	10 ppb	(See Note 6)
Cadmium	5 ppb	< 1 ppb
Chloramines	4 ppm	(See Note 6)
Chlorine	4 ppm	1.79 ppm
Chlorine Dioxide	800 ppb	90 ppb
Chlorite	1 ppm	0.74 ppm
Chromium	100 ppb	< 5 ppb
Copper	AL=1.3 ppm	0.062 ppm
Cyanide	200 ppb	< 3.5 ppb
Fluoride	4 ppm	0.96 ppm
Lead	AL=15 ppb	3.4 ppb
Mercury	2 ppb	< 0.15 ppb
Nitrate	10 ppm	0.23 ppm
Nitrite	1 ppm	< 0.018 ppm
Total Nitrate and Nitrite	10 ppm	0.23 ppm
Selenium	50 ppb	< 2.8 ppb
Thallium	2 ppb	< 0.25 ppb
ORGANIC CHEMICALS		
Acrylamide	TT	(See Note 9)
Alachlor	2 ppb	< 0.049 ppb
Atrazine	3 ppb	< 0.03 ppb
Benzene	5 ppb	< 0.2 ppb
Benzo(a)pyrene [PAHs]	200 ppt	< 99 ppt
Carbofuran	40 ppb	< 0.2 ppb
Carbon tetrachloride	5 ppb	< 0.1 ppb
Chlordane	2 ppb	< 0.08 ppb
Chlorobenzene	100 ppb	< 0.2 ppb
2,4-D	70 ppb	< 0.1 ppb
Dalapon	200 ppb	< 0.5 ppb

Contaminant	MCL	Amount Detected
ORGANIC CHEMICALS (CONT'D)		
Dibromochloropropane	200 ppt	< 18 ppt
o-Dichlorobenzene	600 ppb	< 0.2 ppb
p-Dichlorobenzene	75 ppb	< 0.2 ppb
1,2-Dichloroethane	5 ppb	< 0.2 ppb
1,1-Dichloroethylene	7 ppb	< 0.2 ppb
cis-1,2-Dichloroethylene	70 ppb	< 0.2 ppb
trans-1,2-Dichloroethylene	100 ppb	< 0.2 ppb
Dichloromethane	5 ppb	< 0.4 ppb
1,2-Dichloropropane	5 ppb	< 0.2 ppb
Di (2-ethylhexyl)adipate	400 ppb	< 0.59 ppb
Di (2-ethylhexyl) phthlates	6 ppb	< 0.59 ppb
Dinoseb	7 ppb	< 0.08 ppb
Dioxin [2,3,7,8-TCDD]	30 ppq	(See Note 5)
Diquat	20 ppb	< 0.3 ppb
Endothall	100 ppb	< 3.7 ppb
Endrin	2 ppb	< 0.0099 ppb
Epichlorohydrin	TT	(See Note 10)
Ethylbenzene	700 ppb	< 0.2 ppb
Ethylene dibromide [EDB]	50 ppt	< 20 ppt
Glyphosate	700 ppb	< 3.4 ppb
HAA5	60 ppb	(See Note 11)
Heptachlor	400 ppt	< 9.9 ppt
Heptachlor epoxide	200 ppt	< 20 ppt
Hexachlorobenzene	1 ppb	< 0.0099 ppb
Hexachlorocyclopentadiene	50 ppb	< 0.0099 ppb
gamma-BHC	200 ppt	< 9.9 ppt
Methoxychlor	40 ppb	< 0.049 ppb
Oxamyl [Vydate]	200 ppb	< 0.2 ppb
Pentachlorophenol	1 ppb	< 0.02 ppb
Picloram	500 ppb	< 0.07 ppb
PCBs	500 ppt	< 100 ppt
Simazine	4 ppb	< 0.3 ppb
Styrene	100 ppb	< 0.2 ppb
Tetrachloroethylene	5 ppb	< 0.2 ppb
Toluene	1 ppm	< 0.002 ppm
TOC	TT	(See Note 1)
TTHM	80 ppb	(See Note 11)
Toxaphene	3 ppb	< 0.4 ppb
2,4,5-TP(Silvex)	50 ppb	< 0.05 ppb
1,2,4-Trichlorobenzene	70 ppb	< 0.2 ppb
1,1,1-Trichloroethane	200 ppb	< 0.2 ppb
1,1,2-Trichloroethane	5 ppb	< 0.2 ppb
Trichloroethylene	5 ppb	< 0.2 ppb
Vinyl Chloride	2 ppb	< 0.2 ppb
Xylene (Total)	10 ppm	< 0.005 ppm

NOTE 1 - See Table of Detected Contaminants For Description of Treatment Technique (TT).

NOTE 2 - Fecal Indicators Specifically applies to Ground Water Systems. MAWSS has a Surface Water System and is not applicable.

NOTE 3 - ADEM allows compliance with this requirement to be assumed without further analysis if the average annual concentration of gross beta particle activity is less than 50 pCi/L and if the average annual concentrations of tritium and strontium-90 are less than the MCL. Gross beta particle activity was tested for and detected at -1.21 pCi/L. Sources of the man-made tritium and strontium-90 are not known to exist in the watershed.

NOTE 4 - A gross alpha particle activity measurement may be substituted for the required Uranium analyses, provided that the measured gross alpha particle activity does not exceed 15 pCi/L. Gross alpha particle activity was tested for and detected at -0.63 pCi/L.

NOTE 5 - Based on a study conducted by ADEM with the approval of the EPA a statewide waiver for the monitoring of asbestos and dioxin was issued. Thus, monitoring for these contaminants was not required.

NOTE 6 - Chloramines and Bromate are by-products formed from water treatment additives. These additives were not used during the treatment of the drinking water.

NOTE 7 - The Action Level (AL) for copper is 1.3 ppm at the 90th percentile. Samples were taken at 50 locations throughout the water distribution system. The concentration of copper at the 90th percentile was 0.023, which was under the Action Level.

NOTE 8 - The Action Level (AL) for lead is 15 ppb at the 90th percentile. Samples were taken at 50 locations throughout the water distribution system. The concentration of lead at the 90th percentile was 1.2, which was under the Action Level

NOTE 9 - Acrylamide, an impurity in polymer-based water treatment additives, was not directly added to the drinking water in the treatment process. A polymer-based flocculant, which is certified in accordance with NSF/ANSI Standard 60 for use in potable water, is used to thicken residual solids from the sedimentation and filtration stages of the water treatment process. The solids from both the Stickney and Myers treatment plants are thickened at the Myers treatment plant for final disposal at a landfill. The water that is separated from the solids is directed to the Myers water treatment plant for treatment as drinking water.

NOTE 10 - Epichlorohydrin, an impurity of some water treatment chemicals, was not added to the drinking water.

NOTE 11 - See Table of Detected Contaminants For Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5) analytical results.

Contaminants Tested For, But Not Detected

MAWSS tests all primary contaminants which include microbiological contaminants, radionuclides, inorganic chemicals, organic chemicals (synthetic and volatile), and disinfection by-products. In addition, MAWSS tests for secondary contaminants, unregulated synthetic and volatile organic chemicals.

Aldicarb	tert-Butylbenzene	Nickel
Aldicarb Sulfone	Chloroethane	n-Propylbenzene
Aldicarb Sulfoxide	Chloromethane	1,1,2,2-Tetrachloroethane
Aldrin	o-Chlorotoluene (2-)	1,2,3-Trichlorobenzene
Butachlor	p-Chlorotoluene (4-)	1,2,4-Trichlorobenzene
Carbaryl	Dibromomethane	1,2,3-Trichloropropane
Dicamba	Dichlorodifluoromethane	1,2,4-Trimethylbenzene
Dieldrin	1,3-Dichlorobenzene	1,3,5-Trimethylbenzene
3-Hydroxycarbofuran	1,1-Dichloroethane	Perfluoroundecanoic acid (PFUnA)
Methomyl	1,3-Dichloropropane	Perfluorododecanoic acid (PFDoA)
Metolachlor	2,2-Dichloropropane	Perfluorodecanoic acid (PFDA)
Metribuzin	1,1-Dichloropropene	Perfluorotetradecanoic acid (PFTeDA)
Propachlor	1,3-Dichloropropene	Perfluorotridecanoic acid (PFTrDA)
Benzene	Fluorotrichloromethane	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)
Bromobenzene	Hexachlorobutadiene	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)
Bromochloromethane	Iron	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)
Bromoform	Isopropylbenzene	9-Chlorohexadecafluoro-3-oxanonane -1-sulfonic acid
Bromomethane	p-Isopropyltoluene	11-Chloroeicosafluoro-3-oxaundecane -1-sulfonic acid
n-Butylbenzene	Methyl-tert-butyl ether (MTBE)	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Substance	MCLG	Health Advisory Level*	HIGHEST DETECT	Range	Major Sources
Hexafluoropropylene oxide dimer acid (HFPO-DA), ppt	N/A	10	0.59	0.47 - 0.59	Discharge and waste from industrial facilities utilizing the Gen X chemical process
Perfluorobutane sulfonic acid (PFBS), ppt	N/A	2000	1.50	1.1 - 1.5	Discharge and waste from industrial facilities; tain- resistant treatments
Perfluorohexane sulfonic acid (PFHxS), ppt	N/A	N/A	0.73	0.52 - 0.73	Firefighting foam; Discharge and waste from industrial facilities
Perfluorohexanoic acid (PFHxA), ppt	N/A	N/A	1.40	1.1 - 1.4	Firefighting foam; Discharge and waste from industrial facilities
Perfluorononanoic acid (PFNA), ppt	N/A	N/A	0.59	0.46 - 0.59	Discharge and waste from industrial facilities; Breakdown of precursor compounds
Perfluorooctane sulfonic acid (PFOS), ppt	N/A	0.02	1.60	0.97 - 1.6	Firefighting foam; Discharge from electroplating facilities; Discharge and waste from industrial facilities
Perfluorooctanoic acid (PFOA), ppt	N/A	0.004	2.2	1.8 - 2.2	"Discharge and waste from industrial facilities; Stain-resistant treatments"

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Disinfectant Byproducts: Chemicals that may form when disinfectants (such as chlorine), react with plant matter and other naturally occurring materials in the water. These byproducts may pose health risks in drinking water.

Primary Drinking Water Regulations: Legally enforceable standards that apply to public water systems. These standards protect drinking water quality limiting the levels of specific contaminants that can adversely affect public health and which are known or anticipated to occur in public water supplies.

Secondary Drinking Water Standards: State enforceable standards regarding cosmetic effects (such as tooth or skin discoloration) or aesthetic effects (such as taste, odor, or color) of drinking water.

Giardia and Cryptosporidium: There are two types of microscopic organisms that can cause illness in humans. There are many ways to come in contact with these organisms including contaminated foods, swimming pools, recreational water, day care centers, contact with contaminated soil, nursing homes, and drinking water. MAWSS is taking steps to ensure these organisms do not pose a problem in the drinking water.

The treatment plants have multiple barriers of protection such as enhanced chemical coagulation, filtration, disinfection, and careful monitoring of turbidity to ensure the optimum removal of these organisms. The water in our system is tested routinely for Cryptosporidium and Giardia. Their presence in raw water is common, and we have discovered an occasional presence in raw water. We have never found Cryptosporidium and Giardia in the treated drinking water.

Lifetime Health Advisory: EPA's lifetime health advisories identify levels to protect all people, including sensitive populations and life stages, from adverse health effects resulting from exposure throughout their lives to these PFAS in drinking water. The health advisory levels were calculated to offer a margin of protection against adverse health effects. EPA's lifetime health advisories also take into account other potential sources of exposure to these PFAS beyond drinking water (for example, food, air, consumer products, etc.), which provides an additional layer of protection.

Per- and polyfluoroalkyl substances (PFAS): PFAS are a group of man-made chemicals that includes PFOA, PFOS, FBSA, FBSEE, and thousands of other chemicals. These chemicals have been in use since the early 1940s, and are (or have been) found in many consumer products like cookware, food packaging, and stain repellants. PFOA and PFOS are the most studied PFAS and have been voluntarily phased out by industry, though they are still persistent in the environment. There are many other PFAS, including FBSA, FBSEE, and PFBS in use throughout our economy.
Additional information is on the EPA website: https://www.epa.gov/pfas/.

For more information about your water quality report, write:

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Board Meeting Dates

July 10, 2023
August 7, 2023
September 11, 2023
October 9, 2023
November 6, 2023
December 4, 2023

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MOBILE AREA WATER & SEWER SYSTEM

This report is available at
www.mawss.com/waterqualityreport.pdf

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