2018 Drinking Water Quality

July 1, 2019

Message From MAWSS

Mobile Area Water and Sewer System (MAWSS) is pleased to present our 2018 Water Quality Report. This report, required annually by the federal Safe Drinking Water Act, states that our water meets or exceeds all state and federal standards for safety. It provides information on our water quality and test results from hundreds of samples collected from throughout our water service area. These daily tests ensure that every time you turn on your tap the water you drink is safe. A safe, reliable and affordable water supply contributes to the health and economic well-being of our community, as well as our quality of life.

MAWSS Water Treatment Plants were again recognized for operational excellence in 2018.

E.M. Stickney Water Treatment Plant received an Award of Excellence from the Alabama Water Pollution and Control Association (AWPCA). This award is based on performance, water quality, record-keeping, appearance and safety. Additionally, Stickney was named an Optimized Plant by the Alabama Department of Environmental Management (ADEM).

H.E. Myers Water Treatment Plant was also named an Optimized Plant by ADEM. This award recognizes plants and operators that consistently maintain treatment standards over and above those required by U.S. Environmental Protection Agency (EPA) and ADEM, providing an extra level of protection for public health. The distribution system received the Best Operated Award from the AWPCA.

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

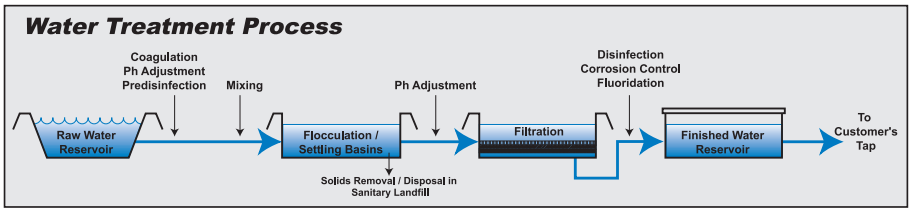
The EPA advises: "All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects 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.

2018 Detected Contaminants

MOBILE AREA WATER & SEWER SYSTEM

REGULATED SUBSTANCES

SUBSTANCE	MCLG	MCL	HIGHEST DETECT	RANGE	MAJOR SOURCES
Fluoride, ppm	4	4	1.14	0.0 - 1.14	Water additive promoting strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Nitrate, ppm	10	10	0.24	0.12 - 0.24	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Arsenic	0	10	0.63	ND - 0.63	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronic wastes
Turbidity, NTU	N/A	TT (under filter) -at least 95% of samples <0.3	0.24 (TT not exceeded)	0.00 - 0.24	Soil runoff
Total Organic Carbon (TOC)	N/A	TT	Lowest Performance Ratio 1.16	1.16 - 2.00	Naturally present in the environment
Chlorine, ppm	MRDLG = 4	MRDL = 4	1.79	0.53 - 1.79	Water additive used to control microbes
Chlorite, ppm	0.8	1	0.73	0 - 0.73	Disinfection by-product
Chlorine Dioxide, ppb	MRDLG = 800	MRDL = 800	420	0 - 420	Water additive used to control microbes
Barium, ppm	2	2	0.03	0.02 - 0.03	Discharge of drilling wastes; Discharge from metal refineries. Erosion of natural deposits
Lead, ppb	0	AL = 15 at 90th percentile	ND at 90th percentile (AL not exceeded)	0.0007 - 0.003	Corrosion of household plumbing systems; Erosion of natural deposits
Copper, ppm	1.3	AL = 1.3 at 90th percentile	0.03 at 90th percentile (AL not exceeded)	ND - 0.07	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Total Trihalomethanes, ppb	N/A	80	Highest average = 41.08	11.9 - 51.7	Disinfection by-product
Haloacetic Acids (HAA5), ppb	N/A	60	Highest average = 25.28	7.2 - 31.7	Disinfection by-product
Gross Alpha, pCi/L	0	15	0.65	ND - 0.65	Erosion of natural deposits
Gross Beta, pCi/L	0	50	1.84	0.115 - 1.84	Erosion of natural deposits
Combined Radium, pCi/L	0	5	1.3	ND - 1.3	Erosion of natural deposits

SUBSTANCES REGULATED UNDER SECONDARY DRINKING WATER STANDARDS

SUBSTANCE	MCLG	MCL	HIGHEST DETECT	RANGE	MAJOR SOURCES
Aluminum, ppm	N/A	0.2	0.22	0.15 - 0.22	Secondary contaminant. May cause colored water.
Chloride, ppm	N/A	250	6.9	6.8 - 6.9	Secondary contaminant
Total Dissolved Solids, ppm	N/A	500	77	53 - 77	Secondary contaminant
pH	N/A	N/A	8.14	6.90 - 8.14	Special Corrosivity Monitoring (MAWSS has implemented a corrosion control program.)
Alkalinity as CaCO3, ppm	N/A	N/A	8.9	7.4 - 8.9	
Sodium, ppm	N/A	N/A	3.67	3.48 - 3.67	
Sulfate as SO4, ppm	N/A	250	26.6	17.2 - 26.6	
Calcium, ppm	N/A	N/A	15.2	11.8 - 15.2	
Carbon Dioxide, ppm	N/A	N/A	4.4	2.2 - 4.4	
Magnesium, ppm	N/A	N/A	1.0	0.87 - 1.0	
Hardness as CaCO3, ppm	N/A	N/A	42	33 - 42	
Temperature, C	N/A	N/A	26	17.4 - 26	
Corrosivity (saturation index)	N/A	N/A	-1.83	-1.52 to -1.83	
Specific Conductance, µmho	N/A	N/A	115	94.3 - 115	
Orthophosphate as P, ppm	N/A	N/A	0.21	0.15 - 0.21	

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 radioctivity)

NTU—Nephelometric Turbidity Units

ND—None detected, or below the detection limit

N/A—Not applicable

MAWSS
MOBILE AREA WATER & SEWER SYSTEM

Standard List of Primary Drinking Water Contaminants

CONTAMINANT	MCL	AMOUNT DETECTED
BACTERIOLOGICAL		
Total Coliform Bacteria	<5%	None
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	1.84 (See Note 3)
Alpha emitters (pCi/l)	15	0.65
Combined Radium (pCi/l)	5	1.3
Uranium	30 ppb	(See Note 4)
INORGANIC CHEMICALS		
Antimony	6 ppb	<1 ppb
Arsenic	10 ppb	0.63 ppb
Asbestos (MFL)	7	(See Note 5)
Barium	2 ppm	0.03 ppm
Beryllium	4 ppb	<0.1 ppb
Bromate	10 ppb	(See Note 6)
Cadmium	5 ppb	<0.1 ppb
Chloramines	4 ppm	(See Note 6)
Chlorine	4 ppm	1.79 ppm
Chlorine Dioxide	800 ppb	420 ppb
Chlorite	1 ppm	0.73 ppm
Chromium	100 ppb	<1 ppb
Copper	AL=1.3 ppm	(See Note 7)
Cyanide	200 ppb	<10 ppb
Fluoride	4 ppm	0.59 ppm
Lead	AL=15 ppb	(See Note 8)
Mercury	2 ppb	<0.2 ppb
Nitrate	10 ppm	0.24 ppm
Nitrite	1 ppm	<0.05 ppm
Total Nitrate and Nitrite	10 ppm	0.24 ppm
Selenium	50 ppb	<1 ppb
Thallium	2 ppb	<1 ppb
ORGANIC CHEMICALS		
Acrylamide	TT	(See Note 9)
Alachlor	2 ppb	<0.19 ppb
Atrazine	3 ppb	<0.1 ppb
Benzene	5 ppb	<0.5 ppb
Benzo(a)pyrene (PAHs)	200 ppt	<97 ppt
Carbofuran	40 ppb	<2 ppb
Carbon Tetrachloride	5 ppb	<0.5 ppb
Chlordane	2 ppb	<0.19 ppb
Chlorobenzene	100 ppb	<0.5 ppb
2,4-D	70 ppb	<0.1 ppb
Dalapon	200 ppb	<1 ppb

CONTAMINANT	MCL	AMOUNT DETECTED
ORGANIC CHEMICALS (Cont'd)		
Dibromochloropropane	200 ppt	<0.02 ppt
o-Dichlorobenzene	600 ppb	<0.5 ppb
p-Dichlorobenzene	75 ppb	<0.5 ppb
1,2-Dichloroethane	5 ppb	<0.5 ppb
1,1-Dichloroethylene	7 ppb	<0.5 ppb
cis-1,2 Dichloroethylene	70 ppb	<0.5 ppb
trans-1,2-Dichloroethylene	100 ppb	<0.5 ppb
Dichloromethane	5 ppb	<0.5 ppb
1,2-Dichloropropane	5 ppb	<0.5 ppb
Di (2-ethylhexyl) adipate	400 ppb	<1.5 ppb
Di (2-ethylhexyl) phthlates	6 ppb	1 ppb
Dinoseb	7 ppb	<0.2 ppb
Dioxin (2,3,7,8-TCDD)	30 ppq	(See Note 5)
Diquat	20 ppb	<0.2 ppb
Endothall	100 ppb	<9 ppb
Endrin	2 ppb	<0.01 ppb
Epichlorohydrin	TT	(See Note 10)
Ethylbenzene	700 ppb	<0.5 ppb
Ethylene dibromide (EDB)	50 ppt	<10 ppt
Glyphosate	700 ppb	<6 ppb
HAA5	60 ppb	(See Note 11)
Heptachlor	400 ppt	<40 ppt
Heptachlor epoxide	200 ppt	<20 ppt
Hexachlorobenzene	1 ppb	<0.1 ppb
Hexachlorocyclopentadiene	50 ppb	<0.1 ppb
Lindane	200 ppt	<20 ppt
Methoxychlor	40 ppb	<0.1 ppb
Oxamyl (Vydate)	200 ppb	<2 ppb
Pentachlorophenol	1 ppb	<0.04 ppb
Picloram	500 ppb	<0.1 ppb
PCBs	500 ppt	<100 ppt
Simazine	4 ppb	<0.07 ppb
Styrene	100 ppb	<0.5 ppb
Tetrachloroethylene	5 ppb	<0.5 ppb
Toluene	1 ppm	<0.0005 ppm
TOC	TT	(See Note 1)
TTHM	80 ppb	(See Note 11)
Toxaphene	3 ppb	<0.96 ppb
2,4,5-TP(Silvex)	50 ppb	<0.2 ppb
1,2,4-Trichlorobenzene	70 ppb	<0.5 ppb
1,1,1-Trichloroethane	200 ppb	<0.5 ppb
1,1,2-Trichloroethane	5 ppb	<0.5 ppb
Trichloroethylene	5 ppb	<0.5 ppb
Vinyl Chloride	2 ppb	<0.5 ppb
Xylene (Total)	10 ppm	<0.0005 ppm

NOTES

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 1.84 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 0.65 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 0.03 ppm, 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 not detectable, 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.

Keeping Water Working

Mobile, we have a problem. The water and wastewater infrastructure that enables us to provide safe drinking water and reliable sanitary sewer service is aging. More than 40 percent of our underground pipes are over 50 years old. Many have reached or exceeded their useful lives. We've patched, we've repaired, and it's now time to renew or replace to ensure reliable service for the future.

MAWSS' educational website, **www.keepwaterworking.com**, explains the impact of aging infrastructure on our community, what MAWSS is doing to fix it and at what cost. The site offers insights as well as practical ways our customers can help us keep water and wastewater costs down.

Water line breaks, sanitary sewer overflows, service outages and business disruptions are some of the ways aging pipes interrupt and reduce the quality of our lives. It's easy to say "fix it" until you realize that MAWSS has more than 3,200 miles of sewer pipe and 2,200 miles of water pipe under ground. Placed end to end, MAWSS' sewer pipes would extend from Mobile to Los Angeles and halfway back. Some of our water infrastructure was built as long ago as the late 1800s.

Safe drinking water and reliable sewer service are cornerstones of public health. Furthermore, without them, Mobile would be less attractive to business and industry, costing us jobs and hurting our economy.

With the completion of the master plan expected in 2019, MAWSS will develop a path forward to keep our services safe, reliable and affordable.

MAWSS provides several opportunities to share our story and educate our customers, including a new Citizens Water Academy. Contact us at publicrelations@mawss.com if you would like further information.

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, and PCBs.

1,1-Dichloroethane	Aldicarb	Iron
1,1-Dichloropropene	Aldicarb sulfone	Isopropylbenzene
1,2-Dichloroethane	Aldicarb sulfoxide	Manganese
1,1,1,2-Tetrachloroethane	Aldrin	Methyl-tert-butyl ether
1,1,2,2-Tetrachloroethane	Bromobenzene	Methomyl
trans-1,3-Dichloropropene	Bromochloromethane	Metolachlor
1,2,3-Trichlorobenzene	Bromoform	Metribuzin
1,2,3-Trichloropropane	Bromomethane (Methyl bromide)	Naphthalene
1,2,4-Trimethylbenzene	Butachlor	Nickel
1,3,5-Trimethylbenzene	Carbaryl	n-Butylbenzene
1,3,5-Trimethylbenzene	Chloroethane	n-Propylbenzene
1,3-Dichlorobenzene	Chloromethane	p-Isopropyltoluene
1,3-Dichloropropane	Dalapon	Propachlor
cis-1,3-Dichloropropene	Dicamba	sec-Butylbenzene
2,2-Dichloropropane	Dibromomethane	Silver
2-Chlorotoluene	Dichlorodifluoromethane	tert-Butylbenzene
3-Hydroxycarbofuran	Dieldren	Trichlorofluoromethane
4-Chlorotoluene	Hexachlorobutadiene	Zinc

Testing for Unregulated Contaminants

Unregulated Contaminant Monitoring Rule (UCMR4)*

Type of Cyanotoxin**	Limit	Highest Detected
Total Microcystins (µg/L)	0.3	<0.10
Anatoxin (µg/L)	0.3	<0.01
Cylindrospermopsin (µg/L)	0.09	<0.03

*The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years EPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs). The fourth Unregulated Contaminant Monitoring Rule (UCMR 4) was published in the Federal Register on December 20, 2016. UCMR 4 requires monitoring for 30 chemical contaminants between 2018 and 2020 using analytical methods developed by EPA and consensus organizations. This monitoring provides a basis for future regulatory actions to protect public health.

**From August – November 2018, MAWSS conducted the Assessment Monitoring 3 for Cyanotoxins. Cyanotoxins are produced from freshwater cyanobacteria (or blue-green algae) and may be present as a single organism or a variety of toxic and non-toxic strains. Cyanotoxins are produced and contained within the actively growing cyanobacterial cells, and can be released into the surrounding water. MAWSS was required to test for Total Microcystins, Anatoxins, and Cylindrospermopsin. If the total microcystins had been above 0.3 µg/L, MAWSS would have been required to test for individual components of the total microcystins. No total microcytins were above the 0.3 µg/L level.

30145-I-0046

Disinfectant By-products: Chemicals that may form when disinfectants (such as chlorine) react with plant matter and other naturally occurring materials in the water. These by-products 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.

For more information about your water quality report, write:
Mobile Area Water & Sewer System
P.O. Box 180249
Mobile, AL 36618-0249

MAWSS Park Forest Plaza
4725 Moffett Road
Mobile, AL 36618

Telephone: 251-694-3100
Website: **www.mawss.com**

2019 Meeting Dates:
July 8th, August 5th, September 9th, October 7th, November 4th, and December 16th
Meeting begins at 2:00 pm

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

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