

# Drinking Water Quality

## 2000

### REPORT



### *A message from the Board...*

**D**uring the year 2000, MAWSS drinking water met or surpassed all Federal and State standards. On a daily basis, we treated and delivered millions of gallons of high-quality drinking water to hundreds of thousands of people, businesses, and industries in the Mobile area.

Converse Reservoir — the main drinking water supply for MAWSS — covers 3,600 acres and lies totally within Mobile County. When it is full, the Reservoir contains approximately 18 billion gallons of water. Because of this plentiful supply of water, MAWSS is able to provide drinking water for most of Mobile County while remaining capable of partnering with other utilities to offer a drinking water source for the region.

During the relentless drought of 2000, MAWSS customers enjoyed a plentiful supply of water with no rationing. The drought caused the Reservoir water level to fall 10 feet below normal, just short of the record low in 1963. Even at this level, an ample source of drinking water remained in reserve for our customers, and for MAWSS to pass on to adjoining communities experiencing a water shortage.

Because water flow in creeks and streams in the Reservoir's 103-square-mile watershed is largely comprised of groundwater, whatever goes into the ground within the watershed may eventually affect water quality coming into the Reservoir. Anticipating that rural development over the watershed in the next 50 years may be more significant than during the last 50 years, MAWSS is conducting a Source Water Assessment to identify current and possible future activities that could adversely affect the

Reservoir's source water quality. The information will be used to minimize possible unfavorable impacts and protect overall Reservoir water quality.

MAWSS is dedicated to being your water services provider. We have prepared this report to give you detailed and scientific information about your drinking water. If you would like additional information, please visit our website at [www.MAWSS.com](http://www.MAWSS.com).

### *The Board*



### *Board of Water and Sewer Commissioners of the City of Mobile*

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**MAWSS**  
MOBILE AREA WATER & SEWER SYSTEM

## Understanding Your Water Safety

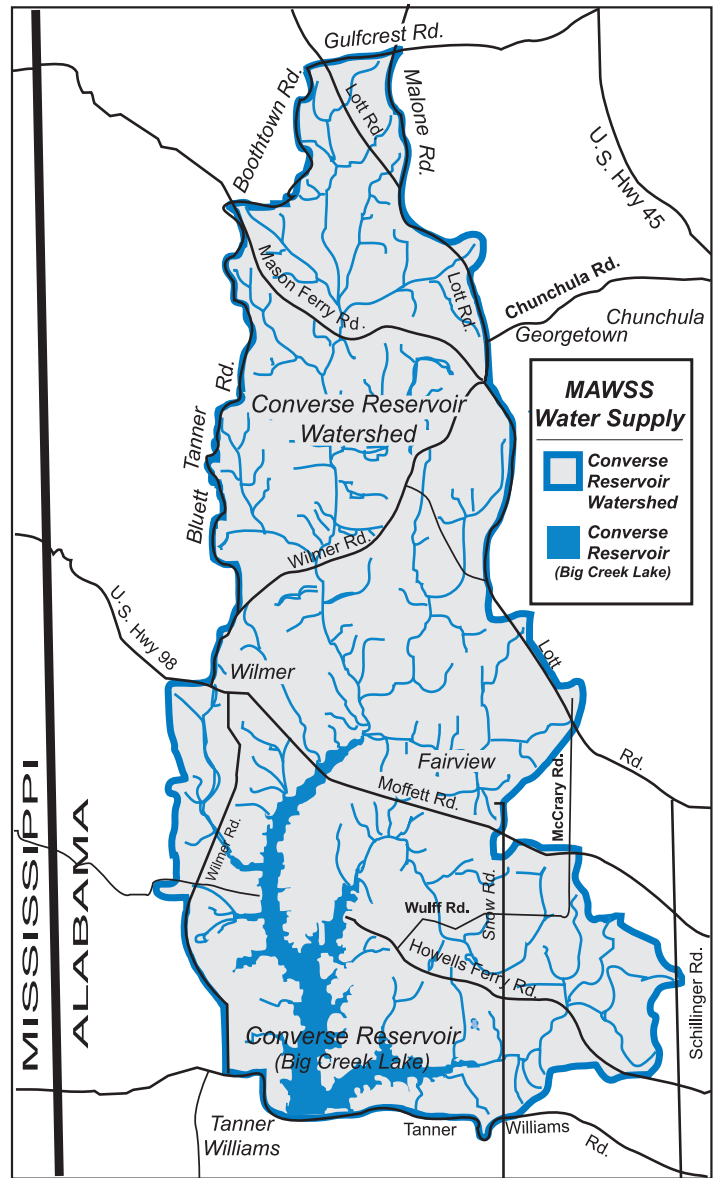
The source of MAWSS customers' drinking water is Converse Reservoir (Big Creek Lake), which is fed by springs, streams, and rainfall in the Converse Reservoir Watershed. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from 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.

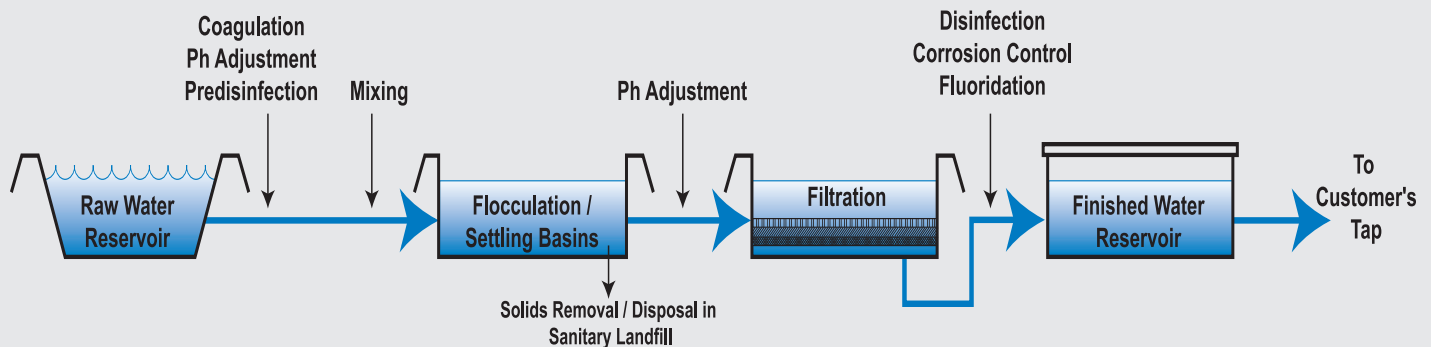
To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems.

The EPA advises: "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)."



Converse Reservoir (formerly Big Creek Lake) 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.

## Water Treatment Process



# MAWSS Drinking Water Quality for 2000

Substance	MCLG	MCL	Highest Detect	Range	Major Sources
<b>REGULATED SUBSTANCES</b>					
Nitrate, ppm	10	10	0.14	N/A	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Barium, ppm	2	2	0.024	0.021 to 0.024	Discharge of drilling wastes; Discharge deposits
Fluoride, ppm	4	4	0.46	0.44 to 0.46	Water additive promoting strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories
Turbidity, NTU <sup>1</sup>	N/A	TT *	0.21	0.06 to 0.21	Soil runoff
Acrylamide, ppm <sup>2</sup>	0	TT *	N/A	N/A	Coagulant added to water during treatment
Lead, ppb <sup>3</sup>	0	AL **	6.0 ppb at 90th percentile	ND to 11.1	Corrosion of household plumbing systems; Erosion of natural deposits
Copper, ppm <sup>4</sup>	1.3	AL **	0.0328 ppm at 90th percentile	ND to 0.0711	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservative
<b>DISINFECTION BY-PRODUCTS</b>					
Total Trihalomethanes, ppb	N/A	100	Highest average = 57.4	7.16 to 70.3	Disinfection By-Product
Haloacetic Acids (Five), ppb	N/A	60	Highest average = 12	8.5 to 12	Disinfection By-Product
<b>UNREGULATED SUBSTANCES</b>					
Bromodichloromethane, ppb	0	Not Regulated	Highest average = 10.2	3.00 to 12.0	Disinfection By-Product
Chloroform, ppb	0	Not Regulated	Highest average = 45.3	3.30 to 56.0	Disinfection By-Product
Dibromochloromethane, ppb	60	Not Regulated	Highest average = 2.0	0.69 to 2.6	Disinfection By-Product
Dichloroacetic Acid, ppb	0	Not Regulated	Highest average = 9.0	ND to 46	Disinfection By-Product
Trichloroacetic Acid, ppb	300	Not Regulated	Highest average = 1.9	ND to 18	Disinfection By-Product

## FOOTNOTES

- 100% of the samples tested for turbidity were below the treatment technique level of 0.3 NTU
- Usage of acrylamide was within the treatment technique parameter of a 0.05% concentration of acrylamide dosed at less than 1 ppm
- No samples tested for lead exceeded the current action level of 15 ppb
- No samples tested for copper exceeded the current action level of 1.3 ppm

**WAIVER:** 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.

## DEFINITIONS:

**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.

**\*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

**ppb** - Parts per billion, or micrograms per liter

**NTU** - Nephelometric Turbidity Units

**ND** - None detected, or below the detection limit

**N/A** - Not applicable

## Standard List of Primary Drinking Water Contaminants

Contaminant	MCL	Amount Detected	Contaminant	MCL	Amount Detected
<b>BACTERIOLOGICAL</b>			Endothall	100 ppb	< 10ppb
Total Coliform Bacteria	< 5 %	none	Endrin	2 ppb	< 0.020 ppb
Turbidity	TT	(See Note 1)	Epichlorohydrin	TT	none
<b>RADIOLOGICAL</b>			Glyphosate	700 ppb	< 6.0 ppb
Beta/photon emitters (mrem/yr)	4	(See Note 2)	Heptachlor	400 ppt	< 10 ppt
Alpha emitters (pCi/L)	15	< 1.5	Heptachlor epoxide	200 ppt	< 20 ppt
Combined radium (pCi/L)	5	(See Note 3)	Hexachlorobenzene	1 ppb	< 0.050 ppb
<b>INORGANIC CHEMICALS</b>			Lindane	200 ppt	<10 ppt
Antimony	6 ppb	< 6 ppb	Methoxychlor	40 ppb	< 0.50 ppb
Arsenic	50 ppb	<10 ppb	Oxamyl [Vydate]	200 ppb	< 1.0 ppb
Asbestos (MFL)	7	(See Note 4)	PCBs	500 ppt	< 500 ppt
Barium	2 ppm	0.024 ppm	Pentachlorophenol	1 ppb	< 1.0 ppb
Beryllium	4 ppb	< 4 ppb	Picloram	500 ppb	< 0.50 ppb
Cadmium	5 ppb	< 5 ppb	Simazine	4 ppb	< 1.0 ppb
Chromium	100 ppb	<10 ppb	Toxaphene	3 ppb	< 1.0 ppb
Copper	AL=1.3 ppm	(See Note 5)	Benzene	5 ppb	< 0.50 ppb
Cyanide	200 ppb	<10 ppb	Carbon tetrachloride	5 ppb	< 0.50 ppb
Fluoride	4 ppm	0.46 ppm	Chlorobenzene	100 ppb	< 0.50 ppb
Lead	AL=15 ppb	(See Note 6)	Dibromochloropropane	200 ppt	< 20 ppt
Mercury	2 ppb	< 0.2 ppb	o-Dichlorobenzene	600 ppb	< 0.50 ppb
Nitrate	10 ppm	0.14 ppm	p-Dichlorobenzene	75 ppb	< 0.50 ppb
Nitrite	1 ppm	< 0.05 ppm	1,2-Dichloroethane	5 ppb	< 0.50 ppb
Selenium	50 ppb	<10 ppb	1,1-Dichloroethylene	7 ppb	< 0.50 ppb
Thallium	2 ppb	< 2 ppb	cis-1,2-Dichloroethylene	70 ppb	< 0.50 ppb
<b>ORGANIC CHEMICALS</b>			trans-1,2-Dichloroethylene	100 ppb	< 0.50 ppb
2,4-D	70 ppb	< 0.50 ppb	Dichloromethane	5 ppb	< 0.50 ppb
2,4,5-TP(Silvex)	50 ppb	< 0.50 ppb	1,2-Dichloropropane	5 ppb	< 0.50 ppb
Acrylamide	TT	(See Note 1)	Ethylbenzene	700 ppb	< 0.50 ppb
Alachlor	2 ppb	< 1.0 ppb	Ethylene dibromide [EDB]	50 ppt	< 20 ppt
Atrazine	3 ppb	< 1.0 ppb	Styrene	100 ppb	< 0.50 ppb
Benzo(a)pyrene [PAHs]	200 ppt	< 200 ppt	Tetrachloroethylene	5 ppb	< 0.50 ppb
Carbofuran	40 ppb	< 0.9 ppb	1,2,4-Trichlorobenzene	70 ppb	< 0.50 ppb
Chlordane	2 ppb	< 0.10 ppb	1,1,1-Trichloroethane	200 ppb	< 0.50 ppb
Dalapon	200 ppb	< 10 ppb	1,1,2-Trichloroethane	5 ppb	< 0.50 ppb
Di (2-ethylhexyl) adipate	400 ppb	< 2.0 ppb	Trichloroethylene	5 ppb	< 0.50 ppb
Di (2-ethylhexyl) phthlates	6 ppb	< 2.0 ppb	TTHM	100 ppb	(See Note 7)
Dinoseb	7 ppb	< 0.50 ppb	Toluene	1 ppm	< 0.00005 ppm
Diquat	20 ppb	< .04 ppb	Vinyl Chloride	2 ppb	< 0.50 ppb
Dioxin [2,3,7,8-TCDD]	30 ppq	(See Note 4)	Xylenes	10 ppm	< 0.0005 ppm

**Note 1** - See the "MAWSS Drinking Water Quality for 2000" table for description of Treatment Technique (TT).

**Note 2** - 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 not detected. Sources of the man-made tritium and strontium-90 are not known to exist in the watershed.

**Note 3** - Monitoring for radium-226 and radium-228 is not required by ADEM where gross alpha particle activity does not exceed 5 pCi/L at a confidence level of 95%. Gross alpha particle activity was tested for, and not detected.

**Note 4** - 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 5** - 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 0.0328 ppm, which was under the Action Level. Additionally, the Action Level was not exceeded at any of the 50 sampling sites.

**Note 6** - 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 6.00 ppb, which was under the Action Level. Additionally, the Action Level was not exceeded at any of the 50 sampling sites.

**Note 7** - See the "MAWSS Drinking Water Quality for 2000" table for Total Trihalomethanes (TTHMs) analytical results.

# More Information About Drinking Water

**FLUORIDE** — Fluoride is added to drinking water to help prevent tooth decay. There is minimal naturally occurring fluoride in our water, therefore we add a small amount to meet the EPA, American Medical Association, and American Dental Association recommended levels.

**LEAD** — There is no significant amount of lead in the water as it leaves MAWSS' Stickney and Myers Filtration Plants. On occasion, samples collected at taps from within customers' homes with lead plumbing or copper plumbing with lead soldered joints did show elevated lead levels. The source of the lead would be household plumbing devices, which leach lead into the water under corrosive conditions. In response to this, we have a corrosion control program which has reduced lead levels to almost zero in most homes. We also maintain an extensive monitoring program of customers' homes.

**MICROBIAL TESTING** — The daily tests we perform at the treatment plants and on the distribution

system look for indicator organisms called *Coliform Bacteria*. These are harmless bacteria, but if they are detected there may be a potential for harmful (pathogenic) organisms to be present. We collect over 150 bacterial samples per month throughout our service area to ensure the water is as safe when it arrives at your home as it is when it leaves the drinking water treatment plant.

**NITRATE AND BARIUM** — Nitrate and barium are contaminants that were detected at minimal levels in your drinking water. The source of nitrate is erosion of natural deposits and runoff from fertilizer use. The source of barium is erosion of natural deposits.

**TRIHALOMETHANES AND HALOACETIC ACIDS** — Trihalomethanes and haloacetic acids are formed as by-products of the disinfection process, which uses chlorine to kill harmful bacteria. Total trihalomethanes (TTHMs) are suspected to be possible cancer causing agents at very high levels over

many years. The current annual average of TTHMs found in MAWSS water is 57.4 parts per billion (ppb) which is well BELOW the EPA limit of 100 ppb. MAWSS has achieved low TTHM levels and minimized the use of chlorine by making changes to the disinfection process. Haloacetic acids, also a by-product of the chlorination process, have been shown to cause reproductive or developmental effects in laboratory animals and may present a public health risk. The current level of five haloacetic acids (HAA5) is 12 ppb, which is well BELOW the EPA limit of 60 ppb.

**TURBIDITY** — Turbidity is a measurement of the clarity of the water and is an indicator of overall water quality. As an example, milk is turbid—you cannot see through it. Turbidity has no health effects. However, it can interfere with disinfection and provide a medium for microbial growth. MAWSS measures the turbidity of the water on a continuous basis 24 hours a day, and has consistently produced water that is well BELOW the EPA limit.

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## You May Have Heard About *Giardia* and *Cryptosporidium*

**GIARDIA AND CRYPTOSPORIDIUM** — These 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 waters, 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, filtra-

tion, 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 either *Cryptosporidium* or *Giardia* in the treated drinking water.

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)."

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# Drinking Water Quality 2000 REPORT

## Mobile Area Water and Sewer System

P. O. Box 2368  
Mobile, AL 36652-2368

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**SOURCE WATER SAMPLING** — MAWSS employees Drew Rutherford and Robert Odom take samples and check for water clarity at Converse Reservoir. Continuous water sampling is one part of our efforts to verify and maintain water quality.

For more information about your water quality, write:

Mobile Area Water and Sewer System  
207 North Catherine St.  
Mobile, AL 36604

Phone: 694.3188

[www.MAWSS.com](http://www.MAWSS.com)

The Board meets on alternate Mondays at 1:15 p.m. at 207 North Catherine Street.

Call for a schedule.

