

# Drinking Water Quality REPORT

July 1, 2002

ISSUE 4

## A Message from MAWSS...



*The Myers Plant is one of two water filtration facilities that process the water from Converse Reservoir for distribution to MAWSS' 300,000 customers.*

During 2001, the daily testing we performed to assure the high quality of your water supply showed that the Mobile Area Water and Sewer System (MAWSS) met or exceeded all federal and state standards for drinking water. The Environmental Protection Agency requires public drinking water suppliers to inform citizens, through annual reports like this one, about the condition of their water.

### **This report includes:**

- 1) Contaminant-testing data
- 2) A diagram of our water treatment process
- 3) Facts about our water source (Converse Reservoir)
- 4) Health warnings for persons with medical problems
- 5) Other information about your water.

The tables in the report are based on tests conducted in 2001 by MAWSS. Treated water samples were taken from the water distribution system and the water treatment plants. Every regulated contaminant that we detected, even the smallest trace, is reported here. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the probable sources of such contamination, footnotes explaining our findings, and a key to units of measurement.

A Source Water Assessment, an evaluation of developments and activity in the approximate 100 square miles of

*Continued on p. 5*

# Where Does Our Water Come From?

The Mobile Area Water and Sewer System (MAWSS) met or exceeded all federal and state standards for drinking water during the 2001 calendar year. The source of MAWSS customers' drinking water is surface water from Converse Reservoir (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 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 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.

## MAWSS Water Treatment

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 treatment process shown in the diagram to provide safe drinking water to all customers.



*Look for  
Bienville Drinking Water—  
the official bottled water  
for Mobile's Tricentennial.*

## 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)**."

## 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

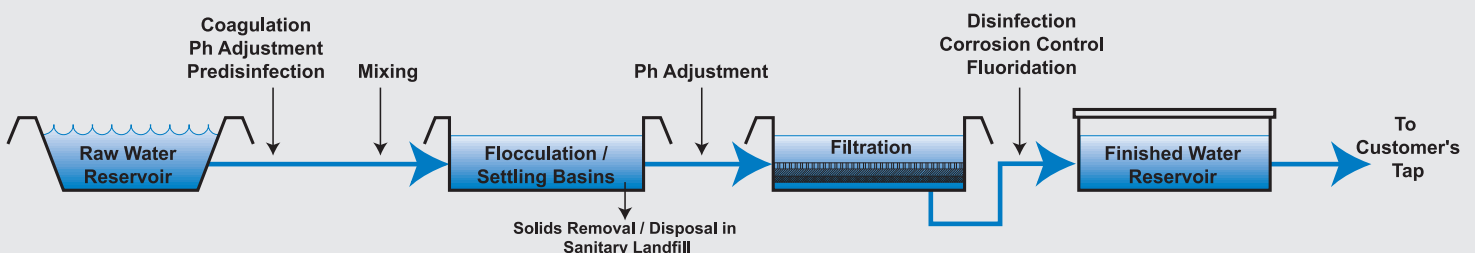
drinking water. The treatment plants have multiple barriers of protection such as enhanced chemical coagulation, filtration, disinfection, and careful monitoring of turbidity to ensure the optimum removal of these organisms. The water in our system is tested routinely for *Cryptosporidium* and *Giardia*. Their presence in

raw water is common, and we have discovered an occasional presence in raw water. We have never found 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)**."

## Water Treatment Process



SUBSTANCE	MCLG	MCL	HIGHEST DETECT	RANGE	MAJOR SOURCES
<b>REGULATED SUBSTANCES</b>					
Nitrate, ppm	10	10	0.18	0.081 to 0.18	Run-off from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Barium, ppm	2	2	0.030	0.027 to 0.030	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride, ppm	4	4	0.99	0.89 to 0.99	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	0.05 to 0.21	Soil runoff
Total Organic Carbon (TOC) <sup>2</sup>	N/A	TT	Lowest Performance Ratio = 1.06	N/A	Naturally present in the environment
Chlorine, ppm	MRDLG = 4	MRDL = 4	Highest average = 2.1	1.9 to 2.1	Water additive used to control microbes
Chlorite, ppm	0.8	1	0.807	0.386 to 0.807	Disinfection By-Product
Chlorine Dioxide, ppb	MRDLG = 800	MRDL = 800	340	ND to 340	Water additive used to control microbes
Lead, ppb <sup>3</sup>	0	AL	3.56	ND to 8.87	Corrosion of household plumbing systems; Erosion of natural deposits
Copper, ppm <sup>4</sup>	1.3	AL	0.0100	ND to 0.0120	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Total Trihalomethanes, ppb	N/A	80	Highest average = 65.9	27.8 to 114	Disinfection By-Product
Haloacetic Acids (Five), ppb	N/A	60	Highest average = 30.8	19.1 to 49.1	Disinfection By-Product
<b>UNREGULATED SUBSTANCES</b>					
Bromodichloromethane, ppb	0	Not Regulated	Highest average = 10.6	6.52 to 13.7	Disinfection By-Product
Chloroform, ppb	-	Not Regulated	Highest average = 55.4	21.3 to 101	Disinfection By-Product
Dichloroacetic Acid, ppb	0	Not Regulated	Highest average = 23.5	ND to 37.3	Disinfection By-Product
Dibromoacetic Acid, ppb	N/A	Not Regulated	Highest average = 20.5	ND to 36.8	Disinfection By-Product
Monobromoacetic Acid, ppb	N/A	Not Regulated	Highest average = ND	ND	Disinfection By-Product
Monochloroacetic Acid, ppb	N/A	Not Regulated	Highest average = 3.2	ND to 4.0	Disinfection By-Product
Trichloroacetic Acid, ppb	300	Not Regulated	Highest average = 10.0	4.44 to 16.7	Disinfection By-Product
<b>SUBSTANCES REGULATED UNDER SECONDARY DRINKING WATER STANDARDS</b>					
Chloride, ppm	N/A	250	8.1	6.4 to 8.1	Secondary Contaminant  Special Corrosivity Monitoring (MAWSS has implemented a corrosion control program)
Total Dissolved Solids, ppm	N/A	500	81	66 to 81	
Zinc, ppm	N/A	5	0.22	0.16 to 0.22	
pH	N/A	N/A	8.4	7.3 to 8.4	
Alkalinity as CaCO <sub>3</sub> , ppm	N/A	N/A	15	9.9 to 15	
Sodium, ppm	N/A	N/A	3.1	2.6 to 3.1	
Sulfate as SO <sub>4</sub> , ppm	N/A	N/A	25	21 to 25	
Calcium, ppm	N/A	N/A	16	13 to 16	
Magnesium, ppm	N/A	N/A	1.1	1.0 to 1.1	
Hardness as CaCO <sub>3</sub> , ppm	N/A	N/A	44	37 to 44	
Temperature, degrees C	N/A	N/A	30	9 to 30	
Corrosivity (saturation index)	N/A	N/A	-2.0	-1.5 to -2.0	

### FOOTNOTES

- 100% of the samples tested for turbidity were below the treatment technique level of 0.5 NTU
- Required TOC reduction was achieved
- No samples tested for lead exceeded the current action level of 15 ppb
- No samples tested for copper exceeded current action level of 1.3 ppm

### 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. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**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

# Primary Drinking Water List For 2001

The following table contains test results for all substances on ADEM's Primary Drinking Water List.

CONTAMINANT	MCL	AMOUNT DETECTED	CONTAMINANT	MCL	AMOUNT DETECTED
<b>BACTERIOLOGICAL</b>			Endothall	100 ppb	< 10 ppb
Total Coliform Bacteria	< 5 %	none	Endrin	2 ppb	< 0.020 ppb
Turbidity	TT	(See Note 1)	Epichlorohydrin	TT	(See Note 8)
<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	0.030 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	0.99 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	0.18 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	< 0.1 ppb
2,4,5-TP(Silvex)	50 ppb	< 0.50 ppb	1,2-Dichloropropane	5 ppb	< 0.50 ppb
Acrylamide	TT	(See Note 7)	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) pthlates	6 ppb	< 2.0 ppb	TTHM	100 ppb	(See Note 9)
Dinoseb	7 ppb	< 0.50 ppb	Toluene	1 ppm	< 0.0005 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 "Drinking Water Quality for 2001" 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 0.0100 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 3.56 ppb, which was under the Action Level. Additionally, the Action Level was not exceeded at any of the 50 sampling sites.

**NOTE 7** - Acrylamide, a water treatment additive, was not added to the drinking water.

**NOTE 8** - Epichlorohydrin, an impurity of some water treatment chemicals, was not added to the drinking water.

**NOTE 9** - See "Drinking Water Quality for 2001" table for total Trihalomethanes (TTHMs) analytical results.

*From p. 1, Message from MAWSS*

the Converse Reservoir watershed, is underway and will be completed before the end of 2002. Since this watershed is entirely within our county limits, we anticipate continued support for protecting the Reservoir that has supplied our community with good quality water for over 50 years. Last year, MAWSS also initiated a long-range effort to identify water needs in the central Gulf Coast in the second half of this century. We are concurrently making plans to coordinate the most efficient use of the abundance of surface water resources in the county.

We invite you to visit our facilities and our website at [www.mawss.com](http://www.mawss.com) for more information about our water and other services provided by MAWSS. Also, please call us or write us using the contact information on the back of this report.

— The Board



**At Right:** MAWSS workers create a new connection to a water main.

## **MAWSS** Table of Additional Testing For 2001

MOBILE AREA WATER & SEWER SYSTEM

The following table contains 65 additional contaminants that were not detected in the drinking water during the 2001 sampling and testing program.

### Contaminants tested for but not detected

1,1,1,2-Tetrachloroethane	Butachlor	Nickel
1,1,2,2-Tetrachloroethane	Carbaryl	n-Propylbenzene
1,1-Dichloroethane	Carbon Dioxide	o-Chlorotoluene
1,1-Dichloropropylene	Chloroethane	Odor
1,2,3-Trichlorobenzene	Chloromethane	PCB-1016
1,2,3-Trichloropropane	cis-1,3-Dichloropropene	PCB-1221
1,2,4-Trimethylbenzene	Color	PCB-1232
1,3,5-Trimethylbenzene	Dibromochloromethane	PCB-1242
1,3-Dichlorobenzene	Dibromomethane	PCB-1248
1,3-Dichloropropane	Dicamba	PCB-1254
2,2-Dichloropropane	Dichlorodifluoromethane	PCB-1260
3-Hydroxycarbofuran	Dieldrin	p-Isopropyltoluene
4-Chlorotoluene	Hexachlorobutadiene	Propachlor
Aldicarb	Iron	sec-Butylbenzene
Aldicarb Sulfone	Isopropylbenzene	Selenium
Aldicarb Sulfoxide	Manganese	Silver
Aldrin	Methomyl	Stryene
Aluminum	Methyl t-butyl ether (MTBE)	Surfactants
Bromobenzene	Metolachlor	tert-Butylbenzene
Bromochloromethane	Metribuzin	trans-1,3-Dichloropropene
Bromoform	Naphthalene	Trichlorofluoromethane
Bromomethane (Methyl bromide)	n-Butylbenzene	

# Drinking Water Quality REPORT

## MOBILE AREA WATER AND SEWER SYSTEM

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

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about your water  
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### Mobile Area Water and Sewer System

207 N. Catherine St.  
Mobile, AL 36604

Or telephone:  
**694-3188**

Or visit our website:  
**[www.mawss.com](http://www.mawss.com)**

*The Board meets on  
alternate Mondays.*

Time: **1:15 p.m.**  
Place: **207 N. Catherine St.**

*Call for a schedule  
of meeting dates.*

## More Information About Your 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 that 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.