

# **WATER REPORT**

## **2006 Drinking Water Quality Report**

### **DOTHAN UTILITIES – WATER SYSTEM**

#### **Introduction**

We are pleased to present the 2006 Drinking Water Quality Report for the City of Dothan, Alabama. This report is designed to provide information about the quality of our water and associated services delivered during the previous calendar year. This publication complies with state and federal laws requiring water utilities to provide water quality information to their customers every year.

Based upon the findings of our water quality monitoring, Dothan's drinking water has been determined to be safe. It meets, or is better than, federal and state requirements and was in full compliance with all drinking water quality standards over the past year.

#### **Source of our Water**

Groundwater, our only source of potable water, is provided from shallow and deep wells. Depending upon the location and depth of each well, Dothan's high quality water comes from the following formations: Lisbon, Tallahatta, Hatchetigbee, Tuscahoma Sand, Nanafalia, Salt Mountain Limestone, Clayton, and Providence Sand. From our 32 wells (28 million gallon per day capacity) that are located throughout the City and surrounding areas, the Dothan Water System provides an average usage of 13.7 million gallons of water per day. Therefore, approximately 4.99 billion gallons of water were pumped, prepared and safely distributed during 2006.

Dothan Utilities has a "Source Water Assessment Plan" that provides information about the location of our wells, screened intervals, groundwater data and potential sources of contamination. This plan, in conjunction with other wellhead information collected, comprises items required in the voluntary wellhead protection program. The susceptibility analysis, which is the final section of the Source Water Assessment Plan, was completed in 2002 with the assistance of the Alabama Department of Environmental Management (ADEM). The most likely sources of possible contamination identified in our area are agricultural fields and privately-owned wells. The "Source Water Assessment Plan" is available for review at the Dothan Utilities Complex, 200 Kilgore Drive in Dothan, Alabama.

#### **Treatment of Dothan Water**

Raw water must be properly treated prior to being pumped into the water distribution system. Treatment of our well water includes: addition of chlorine to help protect against bacteria; addition of fluoride to assist in preventing dental diseases; and the addition of phosphate to aid in the reduction of red water and leaching of metallic piping substances. After treatment, the water is either directly discharged into our distribution system or pumped to one of our thirteen water storage tanks.

#### **Water Quality Monitoring and Results**

The Dothan Utilities Water System routinely monitors for constituents (sometimes referred to as "contaminants") in our drinking water according to federal and state laws. Tables in this report show the results of our monitoring for the period from January 1, 2006, to December 31, 2006, or our most recent testing results (prior to the 2006 calendar year) accomplished in accordance with applicable regulations. In order to ensure that tap water is safe to drink, U.S. Environmental Protection Agency (EPA) and ADEM prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. Contaminants that may be present in source water include microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemical contaminants, and

radioactive contaminants, along with their definitions. Any drinking water, including bottled water, can reasonably be expected to contain at least small amounts of various contaminants. It is important to remember that the presence of these contaminants does not necessarily pose a health risk. Additional information about contaminants and their potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

<b>DETECTED TEST RESULTS</b>						
<b>Contaminant</b>	<b>Violation Y/N</b>	<b>Level Detected</b>	<b>Unit Measurement</b>	<b>MCLG</b>	<b>MCL</b>	<b>Likely Source of Contamination</b>
<b>Radioactive Contaminants</b>						
Alpha emitters (2004)	N	0.36 (Avg), Range 0.8 to 2.8	pCi/l	0	15	Erosion of natural deposits
Beta/Photon emitters (4 mrem/yr) (2003)	N	3.18 (Avg), Range 2.0 to 4.6	mrem/yr	0	4	Decay of natural and manmade deposits
Combined Radium (2003)	N	.8727 (Avg), Range .08 to 1.0	pCi/l	0	5	Erosion of natural deposits
<b>Inorganic Contaminants</b>						
Copper (2004)	N	0.55, Range 0.03 to 0.68	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Fluoride+ Napier Field Area (No Fluoride Added) (Completed in 2001)	N	0.12 (Avg) Range 0.11 to 0.13	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Fluoride Dothan Area (Fluoride Added)	N	1.01 typical concentration	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead (2004)	N	BDL 90%, Range BDL to BDL	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	0.29 (Avg) Range BDL to 4.34	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen) (2004)	N	BDL (Avg) Range BDL to BDL	ppm	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Chlorine*	N	1.31 (Avg)	ppm	N/A	4	Added for Disinfection of Drinking Water
<b>Volatile Organic Contaminants</b>						
HAA5 [Total Haloacetic Acids]	N	BDL (Avg) Range BDL to BDL	ppb	0	60	By-product of drinking water chlorination
TTHMs [Total trihalomethanes]	N	5.0 (Avg) Range 3.6-6.4	ppb	0	80	By-product of drinking water chlorination
<b>Secondary Maximum Contaminant Levels (2004)</b>						
Chloride	N	8.54 (Avg) Range 5.01 TO 23.3	ppm		250	Erosion of natural deposits
Color	N	BDL (Avg) Range BDL to BDL	Units		15	Constituents in the water
Copper	N	0.002 (Avg) Range BDL to 0.015	ppm		1	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Iron	N	0.16 (Avg) Range BDL to 1.92	ppm		0.3	Corrosion of plumbing systems, erosion of natural deposits
Manganese	N	0.004 (Avg) Range BDL to 0.03	ppm		0.05	Erosion of natural deposits
Sulfate	N	11.85 (Avg) Range 3.9 to 17.6	ppm		250	Erosion of natural deposits
Silver	N	BDL (Avg) Range BDL to BDL	ppm		0.1	Erosion of natural deposits
Zinc	N	0.006 (Avg) Range BDL to 0.08	ppm		5.0	Corrosion of plumbing systems, erosion of natural deposits
Total Dissolved Solids	N	184.63 (Avg) Range 104 to 230	ppm		500	Constituents in the water
<b>Bacteriological</b>						
Total Coliform Bacteria	N	0.02%	Percentage	0	≤ 5%	Human and animal fecal waste
<b>UNREGULATED CONTAMINANT MONITORING RULE (UCMR)</b>						
As required by USEPA, UCMR monitoring of the following contaminants was accomplished in 2002 and testing resulted in no detects (ND): 2,4-dinitrotoluene, 2,6-dinitrotoluene, Acetochlor, DCPA mono-acid degradate, DCPA di-acid degradate, 4,4'-DDE, EPTC, Molinate, MTBE, Nitrobenzene, Perchlorate, Terbacil.						

Note: + Fluoride is not added at the three Napier Field Wells.

\* 4 mg/l Maximum Residual Disinfectant Level (MRDL) for Chlorine in Distribution System

## Table of Primary Contaminants

At high levels primary contaminants are known to pose a health risks to humans. This table provides a quick glance of any primary contaminant detections.

CONTAMINANT	MCL	AMOUNT DETECTED	CONTAMINANT	MCL	AMOUNT DETECTED
<b>Microbiological Contaminants</b>			Dinoseb (ppb)	7	ND
Total Coliform Bacteria	5%	0.02%	Diquat (ppb)	20	ND
Fecal Coliform & E. coli	0	ND	Dioxin [2,3,7,8-TCDD] (ppq)	30	N/A
Total Organic Carbon (TOC)	TT	N/A	Endothall (ppb)	100	ND
Turbidity	TT	N/A	Endrin (ppb)	2	ND
<b>Radioactive Contaminants</b>			Epichlorohydrin	TT	N/A
Beta/photon emitters(mrem/yr)	4	3.18	Ethylene dibromide (ppt)	50	ND
Alpha emitters (pCi/L)	15	0.36	Glyphosate (ppb)	700	ND
Combined radium (pCi/L)	5	.8727	Heptachlor (ppt)	400	ND
Uranium (µg/L)	30 ppb	ND	Heptachlor epoxide (ppt)	200	ND
<b>Inorganic Contaminants</b>			Hexachlorobenzene (ppb)	1	ND
Antimony (ppb)	6	ND	Hexachlorocyclopent adiene (ppb)	50	ND
Arsenic (ppb)	10 <sup>1</sup>	ND	Lindane (ppt)	200	ND
Asbestos (MFL)	7	N/A	Methoxychlor (ppb)	40	ND
Barium (ppm)	2	ND	Oxamyl [Vydate] (ppb)	200	ND
Beryllium (ppb)	4	ND	PCBs [Polychlorinated biphenyls] (ppt)	500	ND
Bromate (ppb)	10	ND	Pentachlorophenol (ppb)	1	ND
Cadmium (ppb)	5	ND	Picloram (ppb)	500	ND
Chloramines (ppm)	MRDL=4	nd	Simazine (ppb)	4	ND
Chlorine (ppm)	4 ppm	1.31	Toxaphene (ppb)	3	ND
Chromium (ppb)	100	ND	<b>Volatile Organic Contaminants</b>		
Chlorite (ppm)	1	ND	Benzene (ppb)	5	ND
Chlorine Dioxide (ppb)	MRDL=800	ND	Carbon Tetrachloride (ppb)	5	ND
Copper (ppm)	AL=1.3	0.55	Chlorobenzene (ppb)	100	ND
Cyanide (ppb)	200	ND	o-Dichlorobenzene (ppb)	600	ND
Fluoride (ppm)	4	1.01	p-Dichlorobenzene (ppb)	75	ND
Lead (ppb)	AL=15	ND	1,2-Dichloroethane (ppb)	5	ND
Mercury [inorganic] (ppb)	2	ND	1,1-Dichloroethylene (ppb)	7	ND
Nitrate (ppm)	10	0.29	cis-1,2-Dichloroethylene (ppb)	70	ND
Nitrite (ppm)	1	ND	trans-1,2-Dichloroethylene (ppb)	100	ND
Selenium (ppb)	50	ND	Dichloromethane (ppb)	5	ND
Thallium (ppb)	2	ND	1,2-Dichloropropane (ppb)	5	ND
<b>Synthetic Organic Contaminants including Pesticides and Herbicides</b>			Ethylbenzene (ppb)	700	ND
2,4-D (ppb)	70	ND	Haloacetic Acids (HAA) (ppb)	60	ND
2,4,5-TP [Silvex] (ppb)	50	ND	Styrene (ppb)	100	ND
Acrylamide	TT	N/A	Tetrachloroethylene (ppb)	5	ND
Alachlor (ppb)	2	ND	1,2,4-Trichlorobenzene (ppb)	70	ND
Atrazine (ppb)	3	ND	1,1,1-Trichloroethane (ppb)	200	ND
Benzo(a)pyrene [PAH] (nanograms/L)	200	ND	1,1,2-Trichloroethane (ppb)	5	ND
Carbofuran (ppb)	40	ND	Trichloroethylene (TCE) (ppb)	5	ND
Chlordane (ppb)	2	ND	TTHMs [Total trihalomethanes] (ppb)	80	5.0
Dalapon (ppb)	200	ND	Toluene (ppm)	1	ND
Di-(2-ethylhexyl)adipate (ppb)	400	ND	Vinyl Chloride (ppb)	2	ND
Di(2-ethylhexyl)phthlate (ppb)	6	ND	Xylenes (ppm)	10	ND
Dibromochloro-propane (ppt)	200	ND	MTBE	ND	ND

Note: N/A—Not Applicable or required to be sampled for our system.

<b>Special Monitoring Results for Corrosivity Characteristics</b>				
<b>Contaminant</b>	<b>Average Detected</b>	<b>Detected Range</b>	<b>Unit Measurement</b>	<b>MCL</b>
PH	7.7	7.4 – 8.0	p/H scale	n/a
Total Alkalinity	143	105-165	ppm	n/a
Carbon Dioxide	9.3	4.4-18.3	ppm	n/a
Sodium	31.8	6.3-68.7	ppm	n/a
Sulfates	12.1	9.7-16.2	ppm	250
Calcium	28.6	5.8-44.2	ppm	n/a
Magnesium	6.0	2.5-7.72	ppm	n/a
Hardness	96.3	25-139	ppm	n/a
Total Dissolved Solids	206.7	160-276	ppm	500
Orthophosphate	0.15	0.03-0.32	ppm	n/a

<b>Disinfectants/Disinfection Byproduct Rule Sampling Requirements</b>						
<b>Contaminant</b>	<b>Violation Y/N</b>	<b>Level Detected</b>	<b>Unit Measurement</b>	<b>MCLG</b>	<b>MCL</b>	<b>Likely Source of Contamination</b>
TTHMS [Total trihalomethanes]	N	5.0 (Avg) Range 3.6-6.4	ppb	0	80	By-product of drinking water chlorination
HAA5 [Total Haloacetic Acids]	N	BDL (Avg) Range BDL to BDL	ppb	0	60	By-product of drinking water chlorination
Free Chlorine	N	1.31 (Avg)	ppm	0	4	Disinfection of Drinking Water

In these tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we have provided the following definitions:

### Terms and Abbreviations

- *Non-Detects (ND)* - laboratory analysis indicates that the constituent is not present.
- *Parts per million (ppm) or Milligrams per liter (mg/l)* - one part per million corresponds to one minute in two years or a single penny in \$10,000.
- *Parts per billion (ppb) or Micrograms per liter* - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.
- *Parts per trillion (ppt) or Nanograms per liter (nanograms/l)* - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.
- *Parts per quadrillion (ppq) or Picograms per liter (picograms/l)* - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.
- *Picocuries per liter (pCi/L)* - picocuries per liter is a measure of the radioactivity in water.
- *Millirems per year (mrem/yr)* - measure of radiation absorbed by the body.
- *Million Fibers per Liter (MFL)* - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.
- *Nephelometric Turbidity Unit (NTU)* - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- *Action Level (AL)* - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

- *Treatment Technique (TT)* - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
- *Maximum Contaminant Level* - The “Maximum Allowed” (MCL) is 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 Contaminant Level Goal* - The “Goal”(MCLG) is 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 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 contaminants.
- *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.
- *Below Detection Limits (BDL)* – laboratory analysis indicates that the constituent is below detection limits.
- *Variances & Exemptions* – ADEM or EPA permission not to meet an MCL or a treatment technique under certain conditions.

## **Discussion of Monitoring Results**

To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL (maximum contaminant level) for a lifetime to have a one-in-a-million chance of having the described health effect. Since the MCL’s are set by regulatory agencies at very stringent levels and because we meet or are better than all of the federal and state water quality standards as shown in the tables, it can be determined that the potable water distributed by the Dothan Water System is safe to drink.

In addition to our monitoring, the ADEM has conducted testing of Alabama water systems and based on that study conducted by ADEM, with approval of EPA, a statewide waiver for the monitoring of asbestos and dioxin was issued. Thus, monitoring for these contaminants was not required.

## **Additional Information**

All of our water sources in Alabama start as rain water which fills our lakes, rivers and aquifers. 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 materials and can pick-up substances resulting from the presence of animals or from human activity. Therefore, it is important for each and every one of us to keep our environment clean, which will help protect our sources of drinking water and ultimately the health of our generation and future generations.

## **Notice to Immuno-Compromised People**

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 infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline 1/800/426-4791.

## **Closing**

We at Dothan Utilities consistently strive to provide top quality water to every tap and for every customer. We ask all our customers to help us protect our water sources which are the heart of our community, our way of life and our children’s future. If you have any questions concerning this report or your water utility, please contact the Dothan Utilities Water Section by telephone (334/615-3200), by Fax (334/615-3309), by mail (200 Kilgore Drive;

Dothan, Alabama 36301) or by e-mail (DothanUtilities@dothan.org). Your municipal water utility functions under the authority granted by the Dothan City Commission which meets every Tuesday at 10:00 a.m. in the Dothan Commission Chambers at the Dothan Civic Center.

### **Board of Commissioners**

Pat Thomas Mayor	Larry Matthews Commissioner District 1	Amos Newsome Commissioner District 2	Paul Lee Commissioner District 3	Jason Rudd Commissioner District 4	Taylor Barbaree Commissioner District 5	Phillip Tidwell Commissioner District 6
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