

# 2008 Midland Water Quality Report

## Drinking Water Quality Report

### En Español

Este reporte incluye información importante sobre el agua potable. Si tiene preguntas o discusiones sobre éste reporte in español, favor de llamar al tel. (432) 685-7100 par hablar con una persona bilingue en español.

### **Special Notice for the ELDERLY, INFANTS, CANCER PATIENTS, people with HIV/AIDS or other immune problems:**

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. The EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

### **Our Drinking Water is Regulated**

by the Texas Commission on Environmental Quality (TCEQ) and they have determined that certain water quality issues exist which prevent our water from meeting all of the requirements as stated in the Federal Drinking Water Standards. Each issue is listed in this report as a violation and we are working closely with the TCEQ to achieve solutions.

### **Public Participation Opportunities**

The Midland City Council meets on the 2<sup>nd</sup> and 4<sup>th</sup> Tuesdays of each month at City Hall, 300 N. Loraine Street, at 10:00 a.m. The Council agenda is posted for public notice at least 72 hours prior to the meetings. To find out whether water issues will be considered at a particular City Council meeting, please call the Utilities Department at (1-432-685-7260).

**WATER SOURCES:** 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 in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminates that may be present in source water before treatment include: microbes, inorganic contaminants, pesticides, herbicides, radioactive contaminants, and organic chemical contaminants.

### **Where Do We Get Our Drinking Water?**

Midland's drinking water comes from the Ogallala and Edwards-Trinity Plateau aquifers in Martin and Andrews Counties and from surface water sources owned and operated by the Colorado River Municipal Water District (CRMWD); lakes J.B. Thomas, O.H. Ivie, Moss Creek and E.V. Spence.

A Source Water Susceptibility Assessment for your drinking water source(s) is currently being updated by the Texas Commission on Environmental Quality and will be provided to us this year. The report will describe the susceptibility and types of constituents that may come into contact with your drinking water source based on human activities and natural conditions. The information contained in this assessment will allow us to focus our source water protection strategies. For more information on source water assessments and protection efforts at our system, please contact us.

### **ALL Drinking Water May Contain Contaminants**

When drinking water meets federal standards there may not be any health-based benefits to purchasing bottled water or point of use devices. 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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

## Secondary Constituents

Many constituents (such as calcium, sodium, or iron) which are often found in drinking water can cause taste, color, and odor problems. These taste and odor constituents are called secondary constituents and are regulated by the State of Texas, not the EPA. These constituents are not causes for health concerns and are therefore, not required to be reported in this document. They may, however, greatly affect the appearance and taste of your water.

## Arsenic

The maximum contaminant level (MCL) for arsenic decreased from 0.05 mg/l (50ppb) to 0.010 mg/l (10ppb) effective January 23, 2006. If we violate, you will be notified. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

## About The Following Pages

The pages that follow list all of the federally regulated or monitored contaminants which have been found in your drinking water. The U.S. EPA requires water systems to test for up to 97 contaminants.

## Report Data

Inorganic Contaminants								
Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Source of Contaminant
2005	Arsenic	23	3	29	10*	0*	ppb	Erosion of natural deposits; Runoff from orchards; runoff from glass and electronics production wastes.
*This arsenic value was effective January 23, 2006. In the event of a violation, you will be notified.								
2005	Barium	0.025	0.025	0.025	2	2	ppm	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
2005	Chromium	3.4	3.4	3.4	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits.
2008	Fluoride	2.8	0.94	5.06	4	4	ppm	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
*May indicate a secondary constituent violation for fluoride.								
2008	Nitrate	1.44	0.91	1.96	10	10	ppm	Runoff from fertilizer use; Leaching from septic tanks, sewage; erosion of natural deposits.
2005	Selenium	15.5	15.5	15.5	50	50	ppb	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
2005	Gross beta emitters	18.1	18.1	18.1	50	0	pCi/L	Decay of natural and man-made deposits.
2005	Gross alpha	9.3	9.3	9.3	15	0	pCi/L	Erosion of natural deposits.

**Organic Contaminants** TESTING WAIVED, NOT REPORTED, OR NONE DETECTED

Maximum Residual Disinfectant Level								
Year	Disinfectant	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Unit of Measure	Source of Chemical
2008	Chloramines	1.64	1.56	1.73	4.0	<4.0	ppm	Disinfectant used to control microbes.

Disinfection Byproducts									
Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	Unit of Measure	Source of Contaminant		
2008	Total Haloacetic Acids	19.7	2.2	36	60	ppb	By-product of disinfection.	of drinking water	
2008	Total Trihalomethanes	56.4	43.6	76.7	80	ppb	By-product of disinfection.	of drinking water	

Unregulated Initial Distribution System Evaluation for Disinfection Byproducts									
This evaluation is sampling required by EPA to determine the range of total trihalomethane and haloacetic acid in the system for future regulations. The samples are not used for compliance, and may have been collected under non-standard conditions. EPA also requires the data to be reported here.									
Year or Range	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	Unit of Measure	Source of Contaminant		
2005-2008	Total Haloacetic Acids	21.6	0	33.4	NA	ppb	By-product of disinfection.	of drinking water	
2005-2008	Total Trihalomethanes	49.7	0	88	NA	ppb	By-product of disinfection.	of drinking water	

Unregulated Contaminants									
Bromoform, chloroform, dichlorobromomethane, and dibromochloromethane are disinfection byproducts. There is no maximum contaminant level for these chemicals at the entry point to distribution.									
Year (Range)	Contaminant	Average Level	Minimum Level	Maximum Level	Unit of Measure	Source of Contaminant			
2005-2008	Bromoform	7.12	0	14.24	ppb	By-product of drinking water disinfection.			
2005-2008	Bromodichloromethane	1.88	0	3.75	ppb	By-product of drinking water disinfection.			
2005-2008	Dibromochloromethane	5.22	0	10.43	ppb	By-product of drinking water disinfection.			

Lead & Copper						
Year (Range)	Contaminant	The 90 <sup>th</sup> Percentile	Number of Sites Exceeding Action Level	Action Level	Unit of Measure	Source of Contaminant
2006	Lead	1.7	0	15	ppb	Corrosion of household plumbing systems; Erosion of natural deposits
2006	Copper	0.191	0	1.3	ppm	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

**Treated Water Total Coliform** REPORTED MONTHLY TESTS FOUND NO FECAL COLIFORM BACTERIA.

**Treated Water Total Fecal Coliform** REPORTED MONTHLY TESTS FOUND NO COLIFORM BACTERIA.

## Turbidity

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

Year	Contaminant	Highest Single Measurement	Lowest Monthly % of Samples Meeting Limits	Turbidity Limits	Unit of Measure	Source of Constituent
2008	Turbidity	0.30	100.00	0.3	NTU	Soil Runoff

## Total Organic Carbon (TOC)

Total organic carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection byproducts. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. Byproducts of disinfection include trihalomethanes (THMs) and haloacetic acids (HAA) which are reported elsewhere in this report.

Year	Contaminant	Average Level	Minimum Level	Maximum Level	Unit of Measure	Source of Contaminant
2008	Source Water	5.12	4.21	6.51	ppm	Naturally present in the environment
2008	Drinking Water	4.57	3.80	5.08	ppm	Naturally present in the environment
2008	Removal Ratio	10.03	-11.2	23.40	% removal*	NA

\*Removal ratio is the percent of TOC removed by the treatment process divided by the percent of TOC required by TCEQ to be removed.

## Secondary and Other Not Regulated Constituents

No associated adverse health effects

Year or Range	Constituent	Average Level	Minimum Level	Maximum Level	Limit	Unit of Measure	Source of Constituent
2005-2008	Bicarbonate	181	145	216	NA	ppm	Corrosion of carbonate rocks such as limestone
2005	Calcium	100	100	100	NA	ppm	Abundant naturally occurring element
2005-2008	Chloride	360	334	386	300	ppm	Abundant naturally occurring element; used in water purification; byproduct of oil field activity
2005	Copper	0.001	0.001	0.001	1	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
2005-2008	Hardness as Ca/Mg	547	447	646	NA	ppm	Naturally occurring calcium and magnesium
2005	Iron	0.068	0.068	0.068	.3	ppm	Erosion of natural deposits; iron or steel water delivery equipment or facilities
2005	Magnesium	96	96	96	NA	ppm	Abundant naturally occurring element
2005	Nickel	0.003	0.003	0.003	NA	ppm	Erosion of natural deposits.
2005-2008	pH	8	7.8	8.1	>7.0	units	Measure of corrosivity of water
2005	Sodium	189	189	189	NA	ppm	Erosion of natural deposits; byproduct of oil field activity
2006-2008	Sulfate	245	176	313	300	ppm	Naturally occurring; common industrial byproduct; byproduct of oil field activity
2005-2008	Total Alkalinity as CaCO <sub>3</sub>	181	145	216	NA	ppm	Naturally occurring soluble mineral salts
2006-2008	Total Dissolved Solids	996	782	1210	1000	ppm	Total dissolved mineral constituents in water
2005	Zinc	0.006	0.006	0.006	5	ppm	Moderately abundant naturally occurring element; used in the metal industry.

## Cryptosporidium and E. Coli Monitoring Information

We monitored for Cryptosporidium, a microbial parasite that may be commonly found in surface water. Cryptosporidium may come from animal and human feces in the watershed. The result of our monitoring indicated that there may be Cryptosporidium in the raw water and/or treated finished water. Although treatment by filtration removes Cryptosporidium, it cannot guarantee 100 percent removal. The testing methods used cannot determine if the organisms are alive and capable of causing cryptosporidiosis, an abdominal infection with nausea, diarrhea and abdominal cramps that may occur after ingestion of contaminated water.

**E. coli.**—Escherichia coli. A bacteria which can cause acute intestinal distress.

**cryptosporidium**—a protozoan associated with the disease cryptosporidiosis in humans. The disease can be transmitted through ingestion of drinking water, person-to-person contact, or other exposure routes. Cryptosporidiosis may cause acute diarrhea, abdominal pain, vomiting, and fever that lasts 1-2 weeks in healthy adults, but may be chronic or fatal in immunocompromised people.

Year	Contaminant	Average Level	Minimum Level	Maximum Level	Unit of Measure
2008	Cryptosporidium	0	0	0	Oocysts/L
2008	E. Coli	26.75	4	127	E. Coli/100 ml

### Violations

Violation Type	Health Effects	Duration	Explanation	Steps to Correct
ENTRY POINT 003: MCL VIOLATION-FLUORIDE	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.	1/1/2008 to 3/31/2008	The Paul Davis well field has elevated fluoride levels. This source is currently no more than 20% of the City supply. These readings were taken of raw well water at the well field.	The City is redesigning the entry points to our system to insure that the water from the Paul Davis well field is blended with treated surface water to insure the levels of fluoride are always below regulatory limits. This project will be completed by the early 2010.
ENTRY POINT 003: MCL VIOLATION-FLUORIDE	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.	4/1/2008 to 6/30/2008	The Paul Davis well field has elevated fluoride levels. This source is currently no more than 20% of the City supply. These readings were taken of raw well water at the well field.	The City is redesigning the entry points to our system to insure that the water from the Paul Davis well field is blended with treated surface water to insure the levels of fluoride are always below regulatory limits. This project will be completed by the early 2010.
ENTRY POINT 003: MCL VIOLATION-FLUORIDE	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.	7/1/2008 to 9/30/2008	The Paul Davis well field has elevated fluoride levels. This source is currently no more than 20% of the City supply. These readings were taken of raw well water at the well field.	The City is redesigning the entry points to our system to insure that the water from the Paul Davis well field is blended with treated surface water to insure the levels of fluoride are always below regulatory limits. This project will be completed by the early 2010.
ENTRY POINT 003: MCL VIOLATION-FLUORIDE	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.	10/1/2008 to 12/31/2008	The Paul Davis well field has elevated fluoride levels. This source is currently no more than 20% of the City supply. These readings were taken of raw well water at the well field.	The City is redesigning the entry points to our system to insure that the water from the Paul Davis well field is blended with treated surface water to insure the levels of fluoride are always below regulatory limits. This project will be completed by the early 2010.

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### Definitions and Abbreviations

#### **Maximum Contaminant Level (MCL)**

The highest permissible level of a contaminant in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

#### **Maximum Contaminant Level Goal (MCLG)**

The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

#### **Maximum Residual Disinfectant Level (MRDL)**

The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

#### **Maximum Residual Disinfectant Level Goal (MRDLG)**

The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.

A required process intended to reduce the level of a contaminant in drinking water.

#### **Action Level (AL)**

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**NTU** – Nephelometric Turbidity Units

**MFL** – million fibers per liter (a measure of asbestos)

**pCi/L** – picocuries per liter (a measure of radioactivity)

**ppm** – parts per million, or milligrams per liter (mg/l)

**ppb** – parts per billion or micrograms per liter ( $\mu\text{g/l}$ )

**ppt** – parts per trillion or nanograms per liter

**ppq** – parts per quadrillion, or picograms per liter

#### **Treatment Technique (TT)**