



# 2006 Drinking Water Quality Report

## **RRA - ARROWHEAD LAKE LOTS WATER SYSTEM**

**Red River Authority of Texas**

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### **OUR DRINKING WATER MEETS OR EXCEEDS ALL FEDERAL (EPA) DRINKING WATER REQUIREMENTS**

This report is a summary of the quality of the water we provide our customers. The analysis was made by using the data from the most recent U.S. Environmental Protection Agency (EPA) required tests and is presented in the attached pages. We hope this information helps you become more knowledgeable about what's in your drinking water.

#### **En Español**

Este informe incluye información importante sobre el agua potable. Si tiene preguntas o comentarios sobre éste informe en español, favor de llamar al tel. (866) 723-8697 para hablar con una persona bilingüe 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. 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 (800) 426-4791.

#### **WHERE DO WE GET OUR DRINKING WATER?**

The **RRA-Arrowhead Lake Lots Water System** utilizes surface water from Lake Arrowhead located in Clay County, Texas as its sole source supply. Raw lake water is treated at the Authority's treatment facilities located at the lake and the treated water is distributed throughout the system. The Texas Commission on Environmental Quality (TCEQ) has completed and provided the Authority a Source Water Susceptibility Assessment for your drinking water source(s). This report describes 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 activities. For more information on source water assessments and protection efforts for our system contact Henry C. Wied at (866) 723-8697.

## **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 Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

## **PUBLIC PARTICIPATION OPPORTUNITIES**

The Authority's Board of Directors regularly meets on the third Wednesday of January, April, July, and September of each year. Specific times and locations of these and/or any special meetings can be obtained by contacting the Authority at (866) 723-8697.

For more information about the water quality of your water system, public participation programs, water conservation programs, and/or general operations policies, call (866) 723-8697 or e-mail the Authority at: [info@rra.dst.tx.us](mailto:info@rra.dst.tx.us). For service requests or reporting leaks after normal business hours, page your District Manager, Mr. Danny Glenn or Mr. Jon Faris at (940) 763-6509. You may also leave a message on the recorder at the Treatment Plant at (940) 528-2252.

## **SYSTEM INFORMATION**

The Red River Authority of Texas owns and operates 29 registered public water supply systems through its Utility Division. The Utility Division maintains over 2,150 miles of transmission lines, two surface water treatment plants, 65 pumping facilities, and serves approximately 10,000 customers residing in a 15 county area of the Red River Basin. The Utility Division is subdivided into geographical districts for proper management, maintenance, and financial accounting of individual systems.

The **RRA-Arrowhead Lake Lots Water System** is one of the water systems operated by the Utility Division's District 19. In 2006, the system served 672 active connections with an average water use of 180 gallons per day per connection. The primary use of

the water was seasonal and rural domestic. New disinfectant equipment was installed to reduce Trihalomethanes and Haloacetic Acids. No other capital improvement items were scheduled for 2006.

The Authority maintains a Water Conservation and Drought Contingency Plan for the Utility Division. Information on the plan is available on the Authority's web page at [www.rra.dst.tx.us](http://www.rra.dst.tx.us) or can be obtained by calling (866) 723-8697.

## **DEFINITIONS:**

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

The highest 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. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

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

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

**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 (ug/l)

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

## SECONDARY CONSTITUENTS

Many constituents (such as calcium, sodium, or iron) which are often found in drinking water, can cause taste, color, and odor problems. The 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. Therefore, secondaries are not required to be reported in this document, but they may greatly affect the appearance and taste of your water.

### ABOUT THE FOLLOWING TABLES

U.S. EPA requires water systems to test up to 97 constituents. The attached table contains all of the federally regulated or monitored constituents which have been found in your drinking water.

### ADDITIONAL INFORMATION – ARSENIC

While your drinking water meets EPA’s standard for arsenic, it does contain low levels of arsenic. EPA’s standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

### 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	Minimum	Maximum	Source of Contaminant
2006	TOC	8.08	2.5	11.4	Naturally present in the environment.

### 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 Contaminant
2006	Turbidity	0.40	99.00	0.3	NTU	Soil Runoff

### Inorganic Contaminants

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Source of Contaminant
2006	Arsenic	4	4	4	10	0	ppb	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
2005	Barium	0.072	0.072	0.072	2	2	ppm	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
2006	Fluoride	0.3	0.3	0.3	4	4	ppm	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
2005	Selenium	7.9	7.9	7.9	50	50	ppb	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
2006	Gross beta emitters	8.1	8.1	8.1	50	0	pci/L	Decay of natural and man-made deposits.

## Unregulated Contaminants

Year or Range	Contaminant	Average Level	Minimum Level	Maximum Level	Unit of Measure	Source of Contaminant
2006	Chloroform	39.7	8.3	63.4	ppb	Byproduct of drinking water disinfection.
2006	Bromoform	58.8	6.5	100.5	ppb	Byproduct of drinking water disinfection.
2006	Bromodichloromethane	63.1	5.3	105.7	ppb	Byproduct of drinking water disinfection.
2006	Dibromochloromethane	19.8	3.8	35.4	ppb	Byproduct of drinking water disinfection.

## Disinfection Byproducts

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	Unit of Measure	Source of Contaminant
2006	Total Haloacetic Acids	71.8	25	162.9	60	ppb	Byproduct of drinking water disinfection.
2006	Total Trihalomethanes	181.4	23.9	300.7	80	ppb	Byproduct of drinking water disinfection.

## Lead and Copper

Year	Contaminant	The 90 <sup>th</sup> Percentile	Number of Sites Exceeding Action Level	Action Level	Unit of Measure	Source of Contaminant
1999	Copper	0.017	0	1.3	ppm	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.
1999	Lead	1.1	0	15	ppb	Corrosion of household plumbing systems; Erosion of natural deposits.

## Maximum Residual Disinfectant Level

Year	Disinfectant	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Unit of Measure	Source of Chemical
2006	Free Chlorine	2.0	0.2	5.0	4.0	<4.0	ppm	Disinfectant used to control microbes.

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

**Fecal Coliform** - REPORTED MONTHLY TESTS FOUND NO FECAL COLIFORM BACTERIA.

## Total Coliform

Total coliform bacteria are used as indicators of microbial contamination of drinking water because testing for them is easy. While not disease-causing organisms themselves, they are often found in association with other microbes that are capable of causing disease. Coliform bacteria are more hardy than many disease-causing organisms; therefore, their absence from water is a good indication that the water is microbiologically safe for human consumption.						
Year	Contaminant	Highest Monthly Number of Positive Samples		MCL	Unit of Measure	Source of Contaminant
2006	Total Coliform Bacteria	2		Two or more coliform samples found in any single month	Presence	Naturally present in the environment.

## VIOLATIONS

Violation Type	Health Effects	Duration	Explanation	Steps to Correct
<b>MCL Violation - Total Haloacetic Acids (HAA5)</b>	Some people who drink water containing HAAs in excess of the MCL over many years may have an increased risk of getting cancer.	1/1/2006 to 3/31/2006	HAA5 levels were recorded at 162.9 ppb exceeding the MCL.	Testing of new disinfectant equipment.
<b>MCL Violation - Total Haloacetic Acids (HAA5)</b>	Some people who drink water containing HAAs in excess of the MCL over many years may have an increased risk of getting cancer.	4/1/2006 to 6/30/2006	HAA5 levels were recorded at 29.9 ppb exceeding the MCL.	Testing of new equipment and operation.
<b>MCL Violation - Total Haloacetic Acids (HAA5)</b>	Some people who drink water containing HAAs in excess of the MCL over many years may have an increased risk of getting cancer.	7/1/2006 to 9/30/2006	HAA5 levels were recorded at 25.0 ppb exceeding the MCL.	Operations of new equipment.
<b>MCL Violation - Total Haloacetic Acids (HAA5)</b>	Some people who drink water containing HAAs in excess of the MCL over many years may have an increased risk of getting cancer.	10/1/2006 to 12/31/2006	HAA5 levels were recorded at 69.3 ppb exceeding the MCL.	Operations of new equipment. Shut down of equipment.
<b>MCL Violation - Total Trihalomethanes (TTHM)</b>	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.	1/1/2006 to 3/31/2006	TTHM levels were recorded at 270.2 ppb exceeding the MCL.	Testing of new disinfectant equipment.
<b>MCL Violation - Total Trihalomethanes (TTHM)</b>	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.	4/1/2006 to 6/30/2006	TTHM levels were recorded at 23.9 ppb exceeding the MCL.	Testing of new equipment and operation.
<b>MCL Violation - Total Trihalomethanes (TTHM)</b>	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.	7/1/2006 to 9/30/2006	TTHM levels were recorded at 130.8 ppb exceeding the MCL.	Operations of new equipment.
<b>MCL Violation - Total Trihalomethanes (TTHM)</b>	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.	10/1/2006 to 12/31/2006	TTHM levels were recorded at 300.7 ppb exceeding the MCL.	Operations of new equipment. Shut down of equipment.
<b>COLIFORM - Failure to Issue or Report Public Notification</b>	Failure to notify consumers of a bacteriological related violation makes it impossible for consumers to consider alternatives to drinking water that is contaminated or inadequately tested.	7/1/2006 to 7/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>TOTAL COLIFORM NON-ACUTE MCL - No Fecal Found</b>	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.	7/1/2006 to 7/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	3/1/2006 to 3/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	4/1/2006 to 4/30/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.

**RETURN SERVICE REQUESTED**

**VIOLATIONS** (Continued)

<b>Violation Type</b>	<b>Health Effects</b>	<b>Duration</b>	<b>Explanation</b>	<b>Steps to Correct</b>
<b>Surface Water Treatment Technique Violation</b>	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.	5/1/2006 to 5/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	6/1/2006 to 6/30/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	7/1/2006 to 7/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	8/1/2006 to 8/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	9/1/2006 to 9/30/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.
<b>Surface Water Treatment Technique Violation</b>	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.	10/1/2006 to 10/31/2006	While trying to operate the new equipment certain parameters were not met.	Steps were taken to insure that all parameters are met.