

**This is your annual report
on**



Drinking Water Quality

En Español: Este reporte le avisa que el departamento de agua de la ciudad de Mansfield continua a proveer agua sona y segura. Para solicitar un copia en español, por favor llame al 473-8411.

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**City of Mansfield
Municipal Water System
1305 East Broad Street
Mansfield, TX 76063-1896**

1999 Drinking Water Quality Report

For the

City of Mansfield Municipal Water System

Water Quality Questions: (817) 477-2248

Billing Information: (817) 473-9371

En Español: Este reporte incluye informacion importante sobre el agua para tomar. Para obtener una copia de esta informacion traducida al Espanol, favor de llamar al telefono **(817) 473-8411**.

The City of Mansfield is dedicated to providing a safe and reliable supply of drinking water to all customers and consumers of the municipal water system. All of the employees of the City of Mansfield Municipal Water System take great pride in being recognized as a "Superior Drinking Water System" by the Texas Natural Resource Conservation Commission. In 1997 Mansfield's water system was awarded a certificate of "Outstanding Performance" for no violations of the "Total Coliform Rule" relating to bacteriological quality control for the five-year period from 1992 through 1996. The City of Mansfield employs state certified personnel to operate and maintain the municipal water system. Certified water operators are required to maintain their certification through state approved continuing education courses. The training and certification programs help to insure that the City of Mansfield Municipal Water System provides Safe Drinking Water to all consumers.

This is our second annual report on the quality of your drinking water. The information provided on the following pages relates to tests conducted in 1999. It is important to the City of Mansfield that consumers of the municipal water system receive this information. We want you to have confidence in our water supply and the people that provide drinking water service to your home and/or business.

On the following pages you'll find several lists of what's in the water and at what level it has been detected. There are also explanations of where, why, and how your water is monitored.

Your Questions Or Concerns Are Important To Us.

It's just not possible to answer every question about water quality in a report like this.

So, if you have questions or would like to request a speaker for your group or organization, contact us at (817) 477-2248.

To learn more about drinking water quality and treatment check out "Plain Talk About Drinking Water" at the Mansfield Public Library.

The City of Mansfield Municipal Water System is a part of the city government. The City Council meets at 7:00 p.m. on the second and fourth Monday of each month in the City Council Chambers of the Mansfield Municipal Complex, 1305 East Broad Street.

YOU SHOULD KNOW.

All Drinking Water, including bottled water may reasonably be expected to contain small amounts of some contaminants. The presence of these contaminants does not necessarily indicate the water poses a health risk. More information about contaminants and potential health effects may be obtained by calling EPA's Safe Drinking Water Hotline at: 1-(800) 426-4791.

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 (800-426-4791).

The following tables do not represent any violation of state or federal rules and regulations regarding water quality. They are a list of constituent levels detected. Similar levels are found in drinking water throughout the Metroplex. U.S. EPA requires water systems to test for up to 97 separate constituents.

HOW TO READ THE TABLES

The following list of terms provides a general definition on what each term means. The tables are setup in columns and rows. The shaded box at the top gives the heading for each column. The boxes that are not shaded reflect the information for each constituent.

Definitions:

NTU – Nephelometric Turbidity Units.	This is used to measure water turbidity (clarity).
MCL – Maximum Contaminant Level.	The highest permissible level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as possible using the best available treatment technology.
MCLG – Maximum Contaminant Level Goal.	The level of a contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety.
ACTION LEVEL –	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
ppm – Parts Per Million.	A good comparison of one part per million is one packet of artificial sweetener placed in 250 gallons of iced tea. (mg/l).
ppb – Parts Per Billion.	An example of a part per billion is that same packet of sweetener placed in an Olympic-size swimming pool of iced tea. Micrograms per liter (ug/l).
ppt – Parts Per Trillion	Nanograms per liter.
ppq – Parts per quadrillion	picograms per liter.
pCi/L – Picocuries Per Liter.	This is a measure of radioactivity in water. One picocurie is the amount of radioactive material that produces 2.22 nuclear transformations per minute.
Treatment Technique -	A required process intended to reduce the level of a contaminant in drinking water.
MFL – Million fibers per liter	A measure of asbestos.

About The Following Pages

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

Inorganics

Year	Constituent	Highest Level at Any Sampling Point	Range of Detected Levels	MCL	MCLG	Unit of Measure	Source of Constituent
1999	Barium	0.044	0.042-0.44	2.0	2.0	ppm	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
1999	Fluoride	0.7	0.100-0.700	4	4	ppm	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
1999	Nitrate	0.62	0.000-0.620	10	10	ppm	Runoff from fertilizer use; Leaching from septic tanks, Sewage; Erosion of natural deposits
1999	Gross beta emitters	3	3.000-3.000	50	0	pci/l	Decay of natural and man-made deposits

Organics

Year	Constituent	Highest Average of Any Sampling Point	Range of Detected Levels	MCL	MCLG	Unit of Measure	Source of Constituent
1999	Atrazine	0.25	0.000-0.450	3	3	ppb	Runoff from herbicide used on row crops.
1999	Simazine	0.02	0.000-0.020	4	4	ppb	Herbicide runoff.

THM

Year	Constituent	Average of All Sampling Points	Range of Detected Levels	MCL	MCLG	Unit of Measure	Source of Constituent
1999	Total Trihalomethanes	45.88	35.70-47.40	100	0	ppb	By product of drinking water chlorination.

Unregulated Contaminants

Year	Constituent	Average of All Sampling Points	Range of Detected Levels	Reason for monitoring
1999	Chloroform	18.03	0.000-27.000	Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.
1999	Bromodichloromethane	10.91	7.350-14.000	Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.
1999	Chlorodibromomethane	2.76	1.400-3.900	Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants

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	Constituent	Highest Single Measurement	Lowest Monthly % of Samples Meeting Limits	Turbidity Limits	Unit of Measure	Source of Constituent
1999	Turbidity	(April) 4.4	99%	0.5	NTU	Soil runoff.

Lead and Copper

Year	Constituent	The 90 th Percentile	Number of Sites Exceeding Action Level	Action Level	Unit of Measure	Source of Constituent
1998	Lead	1.600	0	15	ppb	Corrosion of household plumbing systems; Erosion of natural deposits
1998	Copper	0.082	0	1.3	ppm	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Coliforms

What are Coliforms? Coliform bacteria are used as indicators of microbial contamination of drinking water because they are easily detected and found in the digestive tract of warm-blooded animals. While not themselves disease producers, 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 bacteriologically safe for human consumption.

Fecal coliform (mostly E-Coli), is a portion of the coliform bacteria group originating in the intestinal tract of warm-blooded animals that passes into the environment as feces. Fecal coliform is often used as an indicator of the fecal contamination of domestic water supply.

Total Coliform

Year	Constituent	Highest Monthly Number of Positive Samples	MCL	Unit of Measure	Source of Constituent
1999	Total Coliform Bacteria	1	*	Presence	Naturally present in the environment
* Two or more coliform found samples in any single month (definition of asterisk)					

Fecal Coliform: NOT DETECTED

Cryptosporidium is a microscopic parasite affecting the digestive tracts of humans and animals. It is shed in the feces and when ingested, may result in diarrhea, cramps, fever and other gastrointestinal symptoms. No specific drug therapy has proven to be effective, but people with healthy immune systems usually recover within two weeks. Individuals with weak immune systems, however, may be unable to clear the parasite and suffer chronic debilitating illness. *Cryptosporidium* is being tested for in the City of Mansfield's raw water supply and has not been detected. The City of Mansfield uses a multiple barrier water treatment technique to reduce the possibility of contamination of the drinking water supply.

This is a Special Notice for the ELDERLY, INFANTS, CANCER PATIENTS, and people with HIV/AIDS or other problems that weaken the immune system:

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 1-(800) 426-4791**.

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 our drinking water.

The Municipal Water System follows water quality monitoring, reporting, and operation standards established by the City of Mansfield, State of Texas, and the United States Environmental Protection Agency. The Municipal Water System is pleased to report that **NO VIOLATIONS** occurred during the 1999 reporting period. To relate the true meaning of this accomplishment you must understand that literally thousands of analyses were performed on water in every stage; from the lake, through the treatment process, and in the pipe line distribution system. The samples and analysis were collected and/ or analyzed by the City of Mansfield, Tarrant Regional Water District, Tarrant County Health Department, Texas Natural Resource Conservation Commission, and contract laboratory services. Staff members from the City of Mansfield Municipal Water System actively participate in several committees that have been established by our raw water supplier. These committees review and make recommendations on necessary actions to protect and improve water quality. This forum enables the major drinking water providers in Tarrant County to make a concerted effort in protecting public health and providing superior drinking water quality.

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 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 our water.

OUR WATER COMES FROM LAKES/RESERVOIRS

The City of Mansfield uses surface water. Surface water comes from lakes and reservoirs. The City is a member of Tarrant Regional Water District. This water district supplies untreated (raw) water from several different lakes and reservoirs to customer cities like Mansfield, Arlington, Fort Worth and the Trinity River Authority. The sources for Mansfield's water are Cedar Creek Lake and Richland Chambers Reservoir that are located approximately 70 miles southeast of Mansfield and Benbrook Lake near south Fort Worth. The water is transported through two large diameter pipelines (72 and 90 inches). The City has a water tap on each of these pipelines that provides raw water to the City's surface water treatment plant.

Lakes and reservoirs are collectors of rainfall runoff. The area that drains into a lake or reservoir is called a drainage basin. The drainage basins usually include creeks and rivers that run into the lake. The lake, as well as, the creeks and rivers are impacted by the runoff from the land use in the drainage basin. The drainage basins for Cedar Creek Lake and Richland Chambers Reservoir are located primarily in rural areas that are composed of pastures, cultivated farm land, and undeveloped wooded areas.

WHAT'S IN THE WATER

When the rainfall/runoff travels over the surface of the land it picks up contaminants and dissolves naturally occurring minerals and salts. In some cases the runoff may carry substances from animal or human activity within the drainage basin. Contaminants that may be found in untreated water include; microbes, such as viruses, bacteria and protozoa; inorganic contaminants, such as salts and metals; organic contaminants, such as herbicides and pesticides (used on farm crops or lawns); chemical contaminants from industrial processes; petroleum contaminants from roads and highways; and radioactive contaminants from natural or unidentified sources.

HOW IS THIS WATER MADE SAFE TO DRINK

In order to ensure that tap water is safe to drink, EPA and the Texas Natural Resource Conservation Commission prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. (The Food and Drug Administration establishes limits and regulations for bottled water that are in place to provide the same protection for public health.)

To reduce and eliminate as much contamination as possible the City of Mansfield uses a multiple barrier water treatment system. The first step in our system includes monitoring the quality of water, (this is done for the City by Tarrant Regional Water District), in the lakes/reservoirs. This enables the City to make intelligent decisions on treatment techniques and options. The second step includes several processes. The water treatment processes are:

- (1.) A flash mixer is used to evenly disperse the coagulant (aluminum sulfate or alum) in the untreated water.
- (2.) The coagulant attracts suspended matter in the water and begins to clump together (coagulation) and get heavier.
- (3.) The heavier clumps start to sink to the bottom (sedimentation), removing some of the contaminants trapped and attached to the suspended matter, and the water begins to clear (settled water).
- (4.) The settled water flows through the filter (made up of GAC granules, sand and gravel). Turbidity is monitored here to track filter performance. Any suspended matter not removed in the sedimentation process should be trapped in the filter. Granular Activated Carbon (GAC) is very efficient at removing taste and odor causing compounds as well as many organic and inorganic contaminants.
- (5.) Disinfection (chlorine) is added after filtration to kill any remaining microbes (viruses, bacteria), as well as, a small amount of fluoride to prevent tooth decay.
- (6.) The water is stored in a tank called a clearwell where the disinfection is allowed additional contact time with the filtered water to ensure an effective kill of microbes.

- (7.) As the water flows into the water treatment plant high service pump station aqueous ammonia is added to reduce the formation of *Trihalomethanes*.
- (8.) The water is pumped into the City's water distribution system for delivery to homes and business.

In steps one through eight the water is sampled and analyzed during every process. However, step eight is not the last barrier in the treatment system. Samples are collected throughout the entire water distribution system (the water distribution system is comprised of over 160 miles of water main and approximately 10,000 customer connections). The distribution samples are analyzed for disinfection residual, turbidity, taste and odor, pH, alkalinity, and hardness. On a monthly basis, in excess of thirty samples are collected at locations throughout the system and analyzed by Tarrant County Health Department for bacteriological quality.

IMPROVEMENTS ARE UNDER CONSTRUCTION AND BEING PLANNED

The City's water treatment plant is currently expanding the daily production capacity to approximately 20 million gallons per day. The improvements will be on-line by mid summer 2000 and will help ensure the reliability of Mansfield's water production capability. Included in the water treatment plant expansion are new systems that will improve drinking water quality, monitoring, treatment and production.

Plans are under way to forecast water quality in the water distribution system based on the quality leaving the water treatment plant. Near future improvements may include ozone as a disinfectant to improve removal of microbes and treat taste and odor causing compounds. Improvements in dissemination of monitoring and quality information are already being planned by Tarrant Regional Water District that will allow the customer cities to predicted and prepare for changing water quality before it leaves the lake.

PROTECTING A PRECIOUS NATURAL RESOURCE

The City of Mansfield participates with Tarrant Regional Water District in a technical and advisory role for developing plans to optimize existing water resources, and investigating when additional supplies will be needed.

We share information on water quality and treatment capability with the water district to help develop plans to mitigate source water problems. The water district is currently conducting a source water assessment of all of the district's reservoirs. It is known that the herbicide *ATRAZINE* is a concern in Richland Chambers Reservoir. Atrazine has been detected in our water supply at levels well below the maximum contaminant level. However, the goal is zero. So the water district is working with farmers and state agencies to develop a management plan that will minimize and reduce the impact of this herbicide on the water supply. (For more information on Tarrant Regional Water District's source water protection efforts contact the Environmental Services Manager at (817) 335-2491.)

The City's expanded water treatment plant has incorporated technology to reduce the possibility of contaminants entering our drinking water supply. Granular activated carbon filters were added to aid in the removal and reduction of organic chemicals like atrazine.

The joint efforts of national, state, county and local governments are directed at preserving and protecting drinking water supplies.

On the local level, the City of Mansfield will continue to use all available resources to provide the customers and consumers of the municipal water system with drinking water of the highest quality and rated among the safest in the world.