



**This Is Our Annual Report
On**



**Drinking Water Quality
For 2002**

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 817-473-8411.

2002 Drinking Water Quality Report

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.

Dear Customer:

We, the water utility employees of the City of Mansfield, are dedicated to providing a safe and reliable supply of drinking water to all customers and consumers of the municipal water system. We 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.

Our City employs state certified personnel to operate and maintain the municipal water system. Each plant operator and distribution system technician is required to become state certified. The certification process involves gaining knowledge and experience while on-the-job, the completion of specific state approved training courses, and a passing grade on a state issued exam. The training and certification programs help to insure that the City of Mansfield Municipal Water System provides Safe Drinking Water to all consumers.

The information provided in this pamphlet relates to tests conducted in 2002. 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. Please take time to review this pamphlet and do contact us at the above number should you have comments or questions.

Sincerely,
Your Water Utility Employees

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.

Public Participation Opportunities

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, 1200 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).

ABOUT THE FOLLOWING PAGES

The tables 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.

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 feasible 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. |
| AL - 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. (Equivalent to milligrams per liter) | A good comparison of one part per million is one packet of artificial sweetener placed in 250 gallons of iced tea. |
| ppb – Parts Per Billion. (Equivalent to micrograms per liter) | An example of a part per billion is that same packet of sweetener placed in an Olympic-size swimming pool of iced tea. |
| 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. |
| TT - 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. |

These 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.

➤ **Inorganics**

| Year | Constituent | Highest Level at Any Sampling Point | Range of Detected Levels | MCL | MCLG | Unit of Measure | Source of Constituent |
|------|---------------------|-------------------------------------|--------------------------|-----|------|-----------------|---|
| 2002 | Barium | 0.047 | 0.0490-0.0490 | 2.0 | 2.0 | ppm | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits. |
| 2002 | Fluoride | 1.0 | 0.2000-0.2000 | 4 | 4 | ppm | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| 2002 | Nitrate | 0.42 | 0.5200-0.5200 | 10 | 10 | ppm | Runoff from fertilizer use; Leaching from septic tanks, Sewage; Erosion of natural deposits |
| 2002 | Sodium | 18.4 | 20.8000-20.8000 | NA | NA | ppm | Erosion of natural deposits; By-products of oil field activity. |
| 1999 | Gross beta emitters | 3 | 3.0000-3.0000 | 50 | 0 | pci/l | Decay of natural and man-made deposits |

NA = MCL not applicable – not regulated. Special Monitoring Requirement.

➤ **Organics** NOT TESTED FOR OR NOT DETECTED

➤ **Disinfection By-Products**

| Year | Constituent | Average of All Sampling Points | Range of Detected Levels | MCL | MCLG | Unit of Measure | Source of Constituent |
|------|-----------------------|--------------------------------|--------------------------|-----|------|-----------------|--|
| 2002 | Total Trihalomethanes | 31.3 | 24.3-37.7 | 100 | 0 | ppb | By product of drinking water chlorination. |

➤ **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 |
|------|-------------|----------------------------|--|------------------|-----------------|-----------------------|
| 2002 | Turbidity | 0.93 | 98.9% | 0.3 | NTU | Soil runoff. |

➤ Unregulated Contaminants

| Year | Constituent | Average of All Sampling Points | Range of Detected Levels | Unit of Measure | Reason for monitoring |
|------|----------------------|--------------------------------|--------------------------|-----------------|---|
| 2002 | Bromoform | 0.7 | 0.0000-0.6000 | ppb | Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. |
| 2002 | Bromodichloromethane | 11.0 | 11.0000-13.0000 | ppb | Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. |
| 2002 | Chloroform | 11.0 | 11.0000-18.0000 | ppb | Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. |
| 2002 | Chlorodibromomethane | 6.1 | 6.8000-7.2000 | ppb | Unregulated contaminant monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants. |

➤ Lead and Copper

| Year | Constituent | The 90 th Percentile | Number of Sites Exceeding Action Level | Action Level | Unit of Measure | Source of Constituent |
|------|-------------|---------------------------------|--|--------------|-----------------|--|
| 2001 | Lead | 2.2000 | 1 | 15 | ppb | Corrosion of household plumbing systems; Erosion of natural deposits |
| 2001 | Copper | 0.3240 | 0 | 1.3 | ppm | Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives |

What are Coliforms? Total coliform bacteria are used as indicators of microbial contamination of drinking water because they are easily detected in water samples and they are found in the digestive tract of warm-blooded animals. While coliforms are not disease producers, they are often found in association with other microbes that are capable of causing disease. Coliform bacteria are hardier 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 bacteria, in particular E-Coli, is a portion of the coliform bacteria group originating in the intestinal tract of warm-blooded animals and are passed into the environment through feces. The presence of fecal coliform in drinking water may indicate recent contamination of the drinking water supply with fecal material. The following table indicates whether or not total coliform or fecal coliform bacteria were found in the monthly drinking water samples submitted for testing by your water supplier last year.

➤ **Total Coliform** **NOT DETECTED**

➤ **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**.

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 your water.

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.

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 (TRWD). 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. Each is located approximately 70 miles southeast of the Metroplex. The water is transported through two large diameter pipelines. The City of Mansfield has a water tap on each of these pipelines that provides raw water to the City's water treatment plant. TRWD recently constructed a pump station and pipeline extension to Benbrook Lake, which is located in southwest Fort Worth. Mansfield is now able to receive raw water from Benbrook Lake.

TRWD determines which source water Mansfield receives by considering pumping costs, pipeline loading, and reservoir conditions.

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.

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 source water in the lakes/reservoirs. This is done for the City by Tarrant Regional Water District. This enables the City to make intelligent decisions on treatment techniques and options. The second step includes providing complete treatment as prescribed by the State of Texas and the USEPA. The water treatment processes necessary for complete treatment are coagulation, flocculation, sedimentation, filtration, disinfection, and clearwell storage. The following steps describe the processes at Mansfield Water Treatment Plant:

- (1.) **Coagulation** - A flash mixer is used to evenly disperse the coagulant (aluminum sulfate) in the untreated water.
- (2.) **Flocculation** - The coagulant attracts suspended matter in the water and begins to clump together (coagulation) and get heavier. Flocculators gently stir the water to encourage clump formation.
- (3.) **Sedimentation** - The heavier clumps start to sink to the bottom (sedimentation), removing some of the contaminants trapped and attached to the suspended matter. The water begins to clear (settled water).
- (4.) **Filtration** - 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 such as viruses and bacteria. A small amount of Fluoride is added at this point to reduce dental caries in the population.
- (6.) **Clearwell Storage** - The water is stored in a tank called a clearwell. This allows additional contact time between the disinfectant and the microbes to ensure an effective kill.
- (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.

Water quality control samples are taken and analyzed at each process mentioned above. Additional quality sampling is done after the water leaves the treatment plant. Samples are collected throughout the entire water distribution system (the water distribution system is comprised of over 210 miles of water main and approximately 13,500 customer connections). The distribution samples are analyzed for disinfectant residual, turbidity, taste and odor, pH, alkalinity, and hardness. Each month more than thirty samples are collected at locations throughout the system and analyzed by Tarrant County Health Department for bacteriological quality.

CONSTRUCTION PROJECTS TIMED TO KEEP PACE WITH RAPID POPULATION GROWTH

The City's water treatment plant was expanded to a production capacity of 20 million gallons per day in 2000. Included in the water treatment plant expansion were upgrades to existing process equipment to improve product quality, and the installation of additional quality control monitoring equipment to insure that each step of the treatment process is optimized. At this time, the Water Treatment Plant is in the middle of the upper pressure pump station and clearwell project. The additional clearwell storage capacity will keep the city in compliance with TNRCC minimum storage capacity requirements. The new high service pump station will increase pumping efficiency to the upper pressure plane. The next plant expansion is currently in the design phase. This expansion will increase the plant's production capacity to 27 million gallons per day. The construction of the plant expansion could begin as early as this winter.

The water distribution and collection systems are rapidly expanding as the population continues to grow. Pipeline extensions and replacements are under way to assure an adequate quantity of water is available to the growing population. Additional production facilities, a larger clearwell, an elevated storage tank, a high service pump station, and pipeline networks are being planned to transport and distribute water to our customers.

Plans are under way to forecast water quality in the water distribution system based on the quality leaving the water treatment plant. By the end of summer 2003, we will add chlorine dioxide treatment. Chlorine dioxide will be used to oxidize low levels of iron and manganese, which occur naturally in our lake water supplies. Improvements in dissemination of monitoring and quality information are already being planned by Tarrant Regional Water District that will allow the customer cities to predict and prepare for changing water quality before it leaves the lake.

CONSERVATION MAKES SENSE AND CAN SAVE DOLLARS

1. Don't irrigate while it is raining. Take the time to read up on your irrigation system controls and become familiar with the settings and how to change them.
2. Don't water during the heat of the day. The best time to irrigate is an hour or two before sunrise. You will not lose as much water to evaporation. If you water in the evening you may be supporting mold and fungus growth in your lawn.
3. Set your sprinkler system to apply 1 inch of water every five days. This will allow your lawn to become deep rooted and more drought tolerant. (St. Augustine may require up to 2-inches every five days.)
4. Different grasses and plants require different amounts of water. So when you are re-planting or re-sodding choose native plants and grasses whenever possible, Mother Nature has already made them drought tolerant.
5. Use mulch in flowerbeds around your home to retain moisture. It is important in clay soils to keep the area around your foundation moist to reduce soil shifting and cracks in your foundation.

Even though the City of Mansfield isn't currently purposing drastic actions to enforce water conservation there are some common sense methods that can save water and money that we all should practice.

If you are interested in obtaining more information about native plants or water conservation in general you can contact us at (817) 477-2248. We'll be happy to provide you with the information that fits your particular needs.

In closing, we will continue to improve your water service through diligent planning, research, quality monitoring and timely improvements to our municipal utility system, so that Mansfield may provide "Superior Drinking Water Quality" today and in the future.