

City of Grapevine 2015 Annual Drinking Water Quality Report

Why are you receiving this report?

This report provides information on the quality of your drinking water. This report includes information on water source(s), levels of detected contaminants and compliance with drinking water rules. The Environmental Protection Agency (EPA) requires that all water suppliers mail this report every year.

En Español

Este informe incluye la información importante sobre el agua para potable. Si tiene preguntas o comentarios sobre éste informe en español, favor de llamar al tel. 817.410.3330 para hablar con una persona bilingüe en español.

Our Drinking Water Meets or Exceeds All Federal (EPA) Drinking Water Requirements

Providing safe and reliable drinking water is our highest priority. We are proud to produce and deliver water that meets or exceeds state and federal standards. This report is a summary of the quality of the water we provide our customers. The analysis was made by using data from the most recent U.S. Environmental Protection Agency (EPA) required tests and is presented in the following pages. We hope this information helps you become more knowledgeable about what is in your drinking water.

Special Notice for the Elderly, Infants, Cancer Patients, People with HIV/AIDS or Other Immune Problems:

Some people may be more vulnerable to certain microbial contaminants, such as *Cryptosporidium*, in drinking water. Immuno-compromised persons can be particularly at risk for infections such as cancer patients undergoing chemotherapy, organ transplant recipients, persons undergoing treatment with steroids, persons with HIV/AIDS or other immune system disorders, infants and some elderly. Immuno-compromised persons should seek advice about drinking water from their health care providers. The EPA and Center for Disease Control (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 or at <http://www.epa.gov/safewater/>

All Drinking Water May Contain Contaminants

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that water poses a health risk. When drinking water meets federal standards, there may not be any health based benefits to purchasing bottled water or point of use devices. More information about contaminants and potential health effects may be obtained by calling EPA's Safe Drinking Water Hotline 800.426.4791 or at <http://www.epa.gov/safewater/>

Awards

The City of Grapevine received the EPA Award for Excellence in 1992, 1995, and 1998 for the best maintained and operated water system for Region VI for water systems of similar size. Region VI consists of Texas, New Mexico, Arkansas, Louisiana and Oklahoma. In 1991, 1998, 2001 and 2004, the City of Grapevine's water was awarded the best tasting water award in North Central Texas, by the North Texas Laboratory Association. The City of Grapevine was awarded the best tasting water in Texas in March 2002. In 1994 and 2013, the Trinity River Authority water was awarded the best tasting water in North Central Texas by the North Texas Laboratory Association. The Trinity River Authority was awarded the best tasting water in Texas in March 2014.

Texas Water Development Board Water Loss Audit

In the Water Loss Audit submitted to the Texas Water Development Board by the City of Grapevine for the time period of January 2015 – December 2015, our system lost an estimated 95,596,293 gallons or 2.80% of total water pumped. If you have any questions about the water loss audit, please call 817.410.3330.

Where do we get our drinking water?

Sources of drinking water (both tap 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. It can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants - such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants - such as salts and metals, which can be naturally-occurring or result from urban storm water runoff.

Industrial or domestic wastewater discharges- oil and gas production, mining, or farming.

Pesticides and herbicides - which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants - including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from stations, urban storm water runoff, and residential uses.

Radioactive contaminants - which can be naturally-occurring or be the result of oil and gas production and mining activities.

Grapevine uses surface water from Lake Grapevine and purchased water from the Trinity River Authority (TRA). TRA raw water is pumped from Cedar Creek Reservoir and Richland-Chambers Reservoir into Lake Arlington.

The TCEQ completed an assessment of your source water and results indicate that some of your sources are susceptible to certain contaminants. The sampling requirements for your water system are based on this susceptibility and previous sample data. Any detections of these contaminants may be found in this Consumer Confidence Report. For more information on source water assessments and protection efforts of our system, call 817.410.3330

For more information about your sources of water, please refer to the Source Water Assessment Viewer available at the following URL:

<http://www.tceq.texas.gov/gis/swaview>

Further details about sources and source-water assessments are available in Drinking Water Watch at the following URL:

<http://dww2.tceq.texas.gov/DWW/>

Lake Water Treatment

At the Grapevine and TRA water treatment plants, the lake water goes through several treatment processes where chemicals such as chlorine, ozone, alum, fluoride, caustic soda, ammonia, potassium permanganate and polymer are added to purify the water. After the water is purified, it is pumped into your homes through more than 290 miles of distribution pipelines.

Definitions – The following table contains scientific terms and measures, some of which may require explanation.

Annual Average– Regulatory compliance with some MCLs are based on running annual average of monthly samples.

Maximum Contaminant Level Goal (MCLG) - 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 Contaminant Level (MCL) - The highest permissible level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

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

Action Level - The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

Turbidity - A measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Abbreviations

NTU - Nephelometric Turbidity Units (a measure of turbidity)

ppm - parts per million, or milligrams per liter (mg/L) – or one ounce in 7,350 gallons of water

ppb– parts per billion or micrograms per liter (µg/L) – or one ounce in 7,350,000 gallons of water

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

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

ppt - parts per trillion, or nanograms per liter (ng/L)

ppq - parts per quadrillion, or picograms per liter (pg/L)

ND - Not Detected

NA - Not Applicable

ABOUT THE FOLLOWING PAGES

The pages that follow, list all of the federally regulated or monitored contaminants that have been found in your drinking water. The U.S. EPA requires water systems to test up to 97 contaminants. Both Grapevine and TRA results are included.

| REGULATED AT THE CUSTOMER'S TAP | | | | | | | |
|--|-------------|---------------------------------|--|--------------|-----------------|-----------|---|
| Collection Date or Range | Contaminant | The 90 th Percentile | Number of Sites Exceeding Action Level | Action Level | Unit of Measure | Violation | Source of Contaminant |
| 7/18/2013 | Lead | 2.41 | 1 | 15 | ppb | No | Corrosion of household plumbing systems; Erosion of natural deposits. |
| 7/18/2013 | Copper | 0.237 | 0 | 1.3 | ppm | No | Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems; |

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. This water supply is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

| ORGANIC CONTAMINANTS | | | | | | | | | | |
|-----------------------------|-------------|----------------------------|----------------------|---------------|---------------|-----|------|-----------------|-----------|--|
| Collection Date or Range | Contaminant | Grapevine Highest Level(1) | TRA Highest Level(2) | Minimum Level | Maximum Level | MCL | MCLG | Unit of Measure | Violation | Source of Contaminant |
| 2015 | Atrazine | 0.17 | ND | ND | 0.17 | 3 | 3 | ppb | No | Runoff from herbicide used on row crops. |
| 2015 | Simazine | 0.31 | ND | ND | 0.31 | 4 | 4 | ppb | No | Herbicide runoff. |

| INORGANIC CONTAMINANTS | | | | | | | | | | |
|-------------------------------|-------------|----------------------------|----------------------|---------------|---------------|-----|------|-----------------|-----------|--|
| Collection Date or Range | Contaminant | Grapevine Highest Level(1) | TRA Highest Level(2) | Minimum Level | Maximum Level | MCL | MCLG | Unit of Measure | Violation | Source of Contaminant |
| 2015 | Antimony | 0.20 | 0.22 | 0.20 | 0.22 | 6 | 6 | ppb | No | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder; test addition |
| 2015 | Arsenic | 0.89 | ND | ND | 0.89 | 10 | 0 | ppb | No | Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes. |
| 2015 | Barium | 0.055 | 0.041 | 0.041 | 0.055 | 2 | 2 | ppm | No | Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits. |
| 2015 | Bromate | NA | 9.29 | 9.29 | 9.29 | 10 | 0 | ppb | No | By-product of drinking water ozonation |
| 2015 | Chromium | 0.00077 | 0.00068 | 0.00068 | 0.00077 | 0.1 | 0.1 | ppm | No | Discharge from steel and pulp mills; Erosion of natural deposits. |
| 2015 | Cyanide | 40.8 | 66.9 | 40.8 | 66.9 | 200 | 200 | ppb | No | Discharge from plastic and fertilizer factories; Discharge from steel/metal factories. |
| 2015 | Fluoride | 0.596 | 0.24 | 0.24 | 0.596 | 4 | 4 | ppm | No | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories. |
| GPV/TRA 2011/2008 | Gross Beta | 4.4 | 4.6 | 4.4 | 4.6 | 50 | 0 | (pCi/L) | No | Decay of natural and manmade deposits. |
| 2015 | Nitrate | 0.358 | 0.324 | 0.324 | 0.358 | 10 | 10 | ppm | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits. |
| 2011 | Radium-228 | 1.0 | NA | 1.0 | 1.0 | 5 | 0 | (pCi/L) | No | Erosion of Natural Deposits |
| 2015 | Selenium | 1.1 | ND | ND | 1.1 | 50 | 50 | ppb | No | Discharge from mines, petroleum, metal refineries; Erosion of natural deposits. |

| TURBIDITY | | | | | | | | | |
|---------------------------------------|-------------|--------------------------------------|--|--------------------------------|--|------------------|-----------------|-----------|-----------------------|
| GRAPEVINE WATER(1)TRA WATER(2) | | | | | | | | | |
| Collection Date or Range | Contaminant | Grapevine Highest Single Measurement | Grapevine Lowest Monthly % Of Samples Meeting Limits | TRA Highest Single Measurement | TRA Lowest Monthly % of Samples Meeting Limits | Turbidity Limits | Unit of Measure | Violation | Source of Contaminant |
| 2015 | Turbidity | 0.37 | 100% | 0.26 | 100% | 0.30 | NTU | No | Soil runoff. |

Turbidity (NTU) 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.

| UNREGULATED CONTAMINANTS | | | | | | | | | |
|---|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------|--|
| GRAPEVINE WATER (1)TRA WATER (2) | | | | | | | | | |
| Collection Date or Range | Contaminant | Average Level(1) | Minimum Level(1) | Maximum Level(1) | Average Level(2) | Minimum Level(2) | Maximum Level(2) | Unit of Measure | Source of Contaminant |
| 2015 | Bromoform | ND | ND | ND | 1.36 | 1.36 | 1.36 | ppb | By-product of drinking water disinfection. |
| 2015 | Bromodichloromethane | 26.5 | 26.5 | 26.5 | 11.4 | 11.4 | 11.4 | ppb | |
| 2015 | Chloroform | 55.8 | 55.8 | 55.8 | 13.6 | 13.6 | 13.6 | ppb | |
| 2015 | Dibromochloromethane | 6.42 | 6.42 | 6.42 | 4.02 | 4.02 | 4.02 | ppb | |

| DISINFECTION BY-PRODUCTS | | | | | | | | | | | |
|---|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----|-----------------|-----------|--|
| GRAPEVINE WATER (1)TRA WATER (2) | | | | | | | | | | | |
| Collection Date or Range | Contaminant | Average Level(1) | Minimum Level(1) | Maximum Level(1) | Average Level(2) | Minimum Level(2) | Maximum Level(2) | MCL | Unit of Measure | Violation | Source of Contaminant |
| 2015 | Total Trihalomethanes | 43.7 | 5.53 | 111.0 | 43.3 | 43.3 | 43.3 | 80 | ppb | No | By-product of drinking water disinfection. |
| 2015 | Total Haloacetic Acids | 24.4 | 10.2 | 59.0 | 26.8 | 26.8 | 26.8 | 60 | ppb | No | |

| DISINFECTANT RESIDUALS | | | | | | | | | |
|-------------------------------|--------------|-----------------------|---------------|---------------|------|------|-----------------|-----------|--|
| Collection Date or Range | Disinfectant | Annual Average (high) | Minimum Level | Maximum Level | MRDL | MCLG | Unit of Measure | Violation | Likely Source of Contamination |
| 2015 | Chloramines | 2.55 | 0.50 | 3.90 | 4 | >4.0 | ppm | No | Disinfectant used to control microbes. |

TOTAL ORGANIC CARBON (TOC)
GRAPEVINE WATER (1) TRA WATER (2)

Total organic carbon (TOC) has no health effects. The disinfectant can combine with TOC to form disinfection by-products. Disinfection is necessary to ensure that water does not have unacceptable levels of pathogens. By-products of disinfection include Trihalomethanes (THM's) and Haloacetic acids (HAA) which are reported elsewhere in this report.

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

| Collection Date or Range | Contaminant | Average Level(1) | Minimum Level(1) | Maximum Level(1) | Average Level(2) | Minimum Level(2) | Maximum Level(2) | Unit of Measure | Source |
|--------------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------|---------------------------------------|
| 2015 | Source Water | 5.4 | 2.7 | 6.7 | 5.6 | 4.8 | 6.3 | ppm | Naturally present in the environment. |
| 2015 | Drinking Water | 3.5 | 2.6 | 4.0 | 3.4 | 2.5 | 4.0 | ppm | Naturally present in the environment. |
| 2015 | Removal Ratio | 1.04 | 0 | 1.80 | 1.11 | 0.77 | 1.54 | % Removal* | NA |

CRYPTOSPORIDIUM MONITORING INFORMATION

Cryptosporidium is a microbial pathogen that may be found in water contaminated by feces. Although filtration removes Cryptosporidium, It cannot guarantee 100 percent removal nor can the testing methods 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.

*Drinking water was obtained from Lake Arlington. Raw water from Cedar Creek and Richland-Chambers reservoirs is pumped into Lake Arlington to provide adequate water levels during dry periods. Samples were collected from all three reservoirs monthly from January 2015 through December 2015 and analyzed for Cryptosporidium, Giardia and enteric viruses in accordance with the Long Term Stage 2 Enhanced Surface Water Treatment Rule. None of the samples were found to contain Cryptosporidium, Giardia or enteric viruses.

COLIFORMS

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 harder than many disease-causing organisms; therefore, their absence from water is a good indication that the water is microbiologically safe for human consumption.

| Collection Date or Range | Contaminant | Highest Monthly % of Positive Samples | MCL | Unit of Measure | Violation | Source of Contaminant |
|--|---------------------------------|---------------------------------------|-----|-----------------|-----------|--------------------------------------|
| 2015 | Total Coliform Bacteria GPV (1) | 1.9 | * | Presence | No | Naturally present in the environment |
| *Presence of coliform bacteria in 5% or more of the monthly samples. | | | | | | |

Fecal Coliform: REPORTED MONTHLY –TESTS FOUND NO FECAL COLIFORM BACTERIA

SECONDARY CONSTITUENTS

Contaminants may be found in drinking water that may cause taste, color, or odor problems. These type of problems are not necessarily causes for health concerns. For more information on taste, odor, or color of drinking water, please contact 817.410.3330.

| Collection Date or Range | Constituent | Minimum Level (1) | Maximum Level (1) | Minimum Level (2) | Maximum Level (2) | Limit | Unit of Measure | Source of Constituent |
|--------------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------|-----------------|---|
| 2015 | Acetone | ND | ND | 11.2 | 11.2 | NA | ppb | By-product of drinking water disinfection |
| 2015 | Aluminum | 0.045 | 0.045 | 0.086 | 0.086 | 50 | ppm | Abundant naturally occurring element. |
| 2015 | Bicarbonate | 96 | 96 | 97 | 97 | NA | ppm | Corrosion of carbonate rocks such as limestone. |
| 2015 | Calcium | 33.1 | 33.1 | 35.6 | 35.6 | NA | ppm | Abundant naturally occurring element. |
| 2015 | Chloride | 56.5 | 56.5 | 15.1 | 15.1 | 300 | ppm | Abundant naturally occurring element; used in water purification; by-product of oil field activity. |
| 2015 | Conductivity | 534 | 534 | 338 | 338 | NA | µmhos/cm | Ability of water to conduct electricity due to electrolytes. |
| 2015 | Iron | ND | ND | ND | ND | 300 | ppb | Erosion of natural deposits; iron or steel water delivery equipment of facilities. |
| 2015 | Copper | 0.0061 | 0.0061 | 0.0097 | 0.0097 | 1 | ppm | Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives. |
| 2015 | Magnesium | 7.15 | 7.15 | 3.66 | 3.66 | NA | ppm | Abundant naturally occurring element. |
| 2015 | Manganese | 0.0015 | 0.0015 | 0.0073 | 0.0073 | 0.05 | ppm | Naturally occurring element. |
| 2015 | Nickel | 2.1 | 2.1 | 0.91 | 0.91 | NA | ppb | Naturally occurring element. |
| 2015 | Potassium | 6.30 | 6.30 | 4.83 | 4.83 | NA | ppm | Abundant naturally occurring element. |
| 2015 | pH | 7.4 | 8.6 | 7.1 | 8.8 | 7 | units | Measure of corrosivity of water. |
| 2015 | Sodium | 53.8 | 53.8 | 23.4 | 23.4 | NA | ppm | Erosion of natural deposits; By-product of oil field activity. |
| 2015 | Silver | ND | ND | ND | ND | 100 | ppb | Naturally occurring element. |
| 2015 | Sulfate | 64.9 | 64.9 | 38.4 | 38.4 | 300 | ppm | Naturally occurring; common industrial by-product; by-product of oil field activity. |
| 2015 | Total Alkalinity as CaCO3 | 96 | 96 | 97 | 97 | NA | ppm | Naturally occurring soluble mineral salts. |
| 2015 | Total Dissolved Solids | 303 | 303 | 184 | 184 | 1000 | ppm | Total dissolved mineral constituents in water. |
| 2015 | Total Hardness as CaCO3 | 112 | 112 | 104 | 104 | NA | ppm | Naturally occurring calcium. |