

# City of Grapevine 2017 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 provide this report every year.

## En Español

Este reporte incluye la información importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono 817.410.3330.

## 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:

You may be more vulnerable than the general population to certain microbial contaminants, such as *Cryptosporidium*, in drinking water. Infants, some elderly, or immunocompromised persons such as those undergoing chemotherapy for cancer; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders can be particularly at risk from infections. You should seek advice about drinking water from your physician or health care provider. Additional guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Safe Drinking Water Hotline at 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 at 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 2017 – December 2017, our system lost an estimated 2.52 gallons per connection per day. This loss is 1.72% 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.

A Source Water Susceptibility Assessment for your drinking water source(s) is currently being updated by the Texas Commission on Environmental Quality. This information 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 the assessment allows us to focus source water protection strategies.

TCEQ classified the risks to our source water as “High” for most contaminants. “High” susceptibility means events or activities near sources of the City of Grapevine drinking water make it very likely that chemical constituents may come into contact with our source water. It does not mean there are any health risks present.

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://>

<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 299 miles of distribution pipelines.

**Definitions** – The following 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 level of a contaminant allowed in drinking water. MCLs are set as close to maximum contaminant level goals as feasible using the best available treatment technology.

**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 contaminants.

**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.

**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.

<b>REGULATED AT THE CUSTOMER'S TAP</b>							
Collection Date or Range	Contaminant	The 90 <sup>th</sup> Percentile	Number of Sites Exceeding Action Level	Action Level	Unit of Measure	Violation	Source of Contaminant
2016	Lead	4.0	1	15	ppb	No	Corrosion of household plumbing systems; Erosion of natural deposits.
2016	Copper	0.19	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. The City of Grapevine 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 two 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>.

<b>ORGANIC CONTAMINANTS</b>										
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
2017	Atrazine	0.2	0.2	0.2	0.2	3	3	ppb	No	Runoff from herbicide used on row crops.

<b>INORGANIC CONTAMINANTS</b>										
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
2017	Arsenic	ND	1.1	ND	1.1	10	0	ppb	No	Erosion of natural deposits; Runoff from orchards; runoff from glass & electronics production wastes.
2017	Barium	0.061	0.046	0.046	0.061	2	2	ppm	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
2017	Bromate	NA	<5	NA	<5	10	0	ppb	No	By-product of drinking water ozonation.
2017	Chromium	0.0015	ND	ND	0.0015	0.1	0.1	ppm	No	Discharge from steel and pulp mills; Erosion of natural deposits.
2017	Cyanide	50.3	24.3	24.3	50.3	200	200	ppb	No	Discharge from plastic and fertilizer factories; Discharge from steel/metal factories.
2017	Fluoride	0.648	0.714	0.648	0.714	4	4	ppm	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
2017	Gross Beta	6.2	5.2	5.2	6.2	50	0	(pCi/L)	No	Decay of natural and manmade deposits.
2017	Nitrate	0.52	0.145	0.145	0.52	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

<b>TURBIDITY</b>									
<b>GRAPEVINE WATER(1)TRA WATER(2)</b>									
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
2017	Turbidity	0.21	100%	0.22	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.

<b>UNREGULATED CONTAMINANTS</b>							
<b>GRAPEVINE WATER (1)TRA WATER (2)</b>							
Collection Date or Range	Contaminant	Minimum Level(1)	Maximum Level(1)	Average Level(2)	Maximum Level(2)	Unit of Measure	Source of Contaminant
2017	Bromoform	4.2	4.2	ND	ND	ppb	By-product of drinking water disinfection.
2017	Bromodichloromethane	21.0	21.0	11.7	11.7	ppb	
2017	Chloroform	11.6	11.6	12.5	12.5	ppb	
2017	Dibromochloromethane	18.8	18.8	5.55	5.55	ppb	

Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of the unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

<b>DISINFECTION BY-PRODUCTS</b>											
<b>GRAPEVINE WATER (1)TRA WATER (2)</b>											
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
2017	Total Trihalomethanes	42.1	22.0	59.7	30.6	30.6	30.6	80	ppb	No	By-product of drinking water disinfection.
2017	Total Haloacetic Acids	19.2	11.7	24.8	20.1	20.1	20.1	60	ppb	No	

<b>DISINFECTANT RESIDUALS</b>									
Collection Date or Range	Disinfectant	Annual Average (high)	Minimum Level	Maximum Level	MRDL	MCLG	Unit of Measure	Violation	Likely Source of Contamination
2017	Chloramines	2.42	0.54	3.9	4	>4.0	ppm	No	Disinfectant used to control microbes.

<b>TOTAL ORGANIC CARBON (TOC)</b>									
<b>GRAPEVINE WATER (1) TRA WATER (2)</b>									
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
2017	Source Water	4.7	4.4	5.1	5.0	4.7	5.4	ppm	Naturally present in the environment.
2017	Drinking Water	3.3	2.8	3.7	3.3	3.0	3.7	ppm	Naturally present in the environment.
2017	Removal Ratio	1.06	1.00	1.24	1.04	1.00	1.18	% Removal*	NA

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
2017	Source Water	4.7	4.4	5.1	5.0	4.7	5.4	ppm	Naturally present in the environment.
2017	Drinking Water	3.3	2.8	3.7	3.3	3.0	3.7	ppm	Naturally present in the environment.
2017	Removal Ratio	1.06	1.00	1.24	1.04	1.00	1.18	% 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 is treated from Lake Arlington. Water from Benbrook, Cedar Creek and Richland-Chambers reservoirs is pumped to Lake Arlington to provide adequate water levels during dry periods. Samples were collected from all four reservoirs monthly from January 2017 through December 2017 and analyzed for *Cryptosporidium*, *Giardia* and enteric viruses in accordance with the Long Term Stage 2 Enhanced Surface Water Treatment Rule. Of the twelve monthly samples taken from Lake Arlington, one (1) sample was found to contain 0.09 *Giardia* (Oo)cysts per liter and one sample tested positive for Adenovirus. No *Cryptosporidium* was detected during the twelve month monitoring period. Samples were collected from Grapevine Lake beginning October 2016 through December 2017 with no positive samples detected.

## 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 hardier 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
2017	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
2017	Acetone	ND	ND	9.29	9.29	NA	ppb	By-product of drinking water disinfection
2017	Aluminum	0.029	0.029	0.056	0.056	50	ppm	Abundant naturally occurring element.
2017	Bicarbonate	114	114	98.7	98.7	NA	ppm	Corrosion of carbonate rocks such as limestone.
2017	Calcium	45.1	45.1	41.0	41.0	NA	ppm	Abundant naturally occurring element.
2017	Chloride	32.1	32.1	21.5	21.5	300	ppm	Abundant naturally occurring element; used in water purification; by-product of oil field activity.
2017	Conductivity	449	449	380	380	NA	µmhos/cm	Ability of water to conduct electricity due to electrolytes.
2017	Copper	0.0034	0.0034	0.024	0.024	1	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
2017	Magnesium	6.38	6.38	4.23	4.23	NA	ppm	Abundant naturally occurring element.
2017	Manganese	ND	ND	0.024	0.024	0.05	ppm	Naturally occurring element.
2017	Nickel	1.5	1.5	1.3	1.3	NA	ppb	Naturally occurring element.
2017	Potassium	4.46	4.46	4.12	4.12	NA	ppm	Abundant naturally occurring element.
2017	pH	7.5	8.4	7.5	8.9	NA	units	Measure of corrosivity of water.
2017	Sodium	31.1	31.1	24.2	24.2	NA	ppm	Erosion of natural deposits; By-product of oil field activity.
2017	Sulfate	62.3	62.3	49.4	49.4	300	ppm	Naturally occurring; common industrial by-product; by-product of oil field activity.
2017	Total Alkalinity as CaCO3	119	119	98.7	98.7	NA	ppm	Naturally occurring soluble mineral salts.
2017	Total Dissolved Solids	270	270	188	188	1000	ppm	Total dissolved mineral constituents in water.
GPV/TRA 2016/2017	Total Hardness as CaCO3	117	117	120	120	NA	ppm	Naturally occurring calcium.