



This report was prepared by:
City of Greenville
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Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en español, favor de llamar al telefono (903) 457-3152.

Meeting the Challenge

The City of Greenville is pleased to present to you our annual water quality report. As the provider of the water that comes into your home, we are committed to producing the highest quality water possible for your health and safety. This edition covers all testing completed from January 1 through December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation and community education, while continuing to serve the needs of all our water users.



Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

For more information about this report, or for any questions relating to your drinking water, please call or email James Belcher, Water Treatment Plant Superintendent, at (903) 457-3190 or jbclcher@ci.greenville.tx.us.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Greenville City Council meets the 2nd and 4th Tuesday of each month beginning at 6 p.m. at City Hall, 2821 Washington Street, Greenville, Texas.

Source Water Description

Our Drinking Water is regulated by the Texas Commission on Environmental Quality (TCEQ) and meets all of the requirements as stated in the Federal Drinking Water Standards.

Where Does My Water Come From?

City of Greenville customers are fortunate because we enjoy an abundant water supply from two surface water sources. The Greenville Water Treatment Plant draws water from Greenville Reservoirs (No. 4 & No. 5) and Lake Tawakoni.

Lead in Home Plumbing

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 www.epa.gov/safewater/lead.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. 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 the water poses a health risk.

The sources of drinking water (both tap water 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 can acquire naturally occurring minerals, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses; Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from gas stations, urban stormwater runoff, and septic systems; Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

Contaminants may be found in drinking water that may cause taste, color, or odor problems. These types of problems are not necessarily causes for health concerns. For more information on taste, odor, or color of drinking water, please contact our business office. For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

Source Water Assessment

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

Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.

Turn off the tap when brushing your teeth.

Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.

Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.

Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Fact or Fiction

Tap water is cheaper than soda pop. *(Fact: You can refill an 8 oz. glass of tap water approximately 15,000 times for the same cost as a six-pack of soda pop. And, water has no sugar or caffeine.)*

Methods for the treatment and filtration of drinking water were developed only recently. *(Fiction: Ancient Egyptians treated water by siphoning water out of the top of huge jars after allowing the muddy water from the Nile River to settle. And, Hippocrates, known as the father of medicine, directed people in Greece to boil and strain water before drinking it.)*

A typical shower with a non-low-flow showerhead uses more water than a bath. *(Fiction: A typical shower uses less water than a bath.)*

Water freezes at 32 degrees Fahrenheit. *(Fiction: You can actually chill very pure water past its freezing point (at standard pressure) without it ever becoming solid.)*

The Pacific Ocean is the largest ocean on Earth. *(Fact: The Atlantic Ocean is the second largest and the Indian Ocean is the third largest.)*

A single tree will give off 70 gallons of water per day in evaporation. *(Fact)*

Important Health Information

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.

Information on the Internet

The u.s. EPA Office of Water (www.epa.gov/waterhome) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the TCEQ has a Web site (www.tceq.com) that provides complete and current information on water issues in Texas, including valuable information about our watershed.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs 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 risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.



Who uses the most water?

On a global average, most freshwater withdrawals—69 percent—are used for agriculture, while industry accounts for 23 percent and municipal use (drinking water, bathing and cleaning, and watering plants and grass) just 8 percent.

How much water does a person use every day?

The average person in the U.S. uses 80 to 100 gallons of water each day. During medieval times a person used only 5 gallons per day.

Should I be concerned about what I'm pouring down my drain?

If your home is served by a sewage system, your drain is an entrance to your wastewater disposal system and eventually to a drinking water source. Consider purchasing environmentally friendly home products whenever possible, and never pour hazardous materials (e.g., car engine oil) down the drain. Check with your health department for more information on proper disposal methods.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state allows us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2018	10	0	Less than detectable limit	0-1.0	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Atrazine (ppb)	2018	3	3	0.2	0-.2	No	Runoff from herbicide used on row crops
Barium (ppm)	2018	2	2	.07	0-.07	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chloramines (ppm)	2018	4	4	3.4	2.0-4.0	No	Water additive used to control microbes
Chromium (ppm)	2018	100	100	.0001	.0-.0001	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2011	5	0	1	1-1	No	Erosion of natural deposits
Fluoride (ppm)	2018	4	4	.56	0-1.8	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] I (ppb)	2018	60	NA	46	44-51	No	By-product of drinking water disinfection
Nitrate' (ppm)	2018	10	10	.402	0-.402	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (ppm)	2013	1	1	.0099	0-.0099	No	
Selenium (ppb)	2018	50	50	Less than detectable limit		No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2018	80	NA	37	33-40	No	By-product of drinking water disinfection
Total Coliform Bacteria (# positive samples)	2018	NA	NA	0	NA	No	Naturally present in the environment
Turbidity' (NTU)	2018	TT	NA	.123	.08-.27	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH % TILE)	SITES ABOVE ALL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2018	1.3	.12	.38	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2018	.015	0	.0016	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

¹Footnote for City of Greenville: Not all sample results may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should occur in the future.

²Footnote for City of Greenville: Nitrate Advisory - Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

³Footnote for City of Greenville: Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

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

VIOLATIONS

The City of Greenville, Texas, Water System ID TX1160004, has violated the monitoring and reporting requirements set by the Texas Commission on Environmental Quality (TCEQ) in Title 30, Texas Administrative Code (30 TAC), Section 290, Subchapter F. Public water systems that use a series of treatment processes that include coagulation, flocculation, sedimentation or clarification, and filtration as part of the overall treatment protocol must monitor Total Organic Carbon and report the results of that monitoring to the TCEQ on a monthly basis.

The City of Greenville has failed to monitor and/or report the Total Organic Carbon analysis for the month of July 2018 which occurred in the third quarter monitoring period of the calendar year 2018. A laboratory was contracted to take the samples and analyze them in their independent laboratory, as has been the case for many years without any failure or interruption. Due to a mix-up on the part of the contracted laboratory, the sample was not collected and thus analysis was unavailable.

Results of the required monitoring are used as an indicator of whether drinking water is protected from potential adverse health effects associated with disinfectants and disinfection by-products. The City of Greenville Water Treatment Plant did not complete all monitoring or reporting for disinfectant by-product precursors, therefore the TCEQ cannot be sure of the Total Organic Carbon levels in your drinking water during that time period.

Actions taken by the City of Greenville Water Treatment Plant staff in the future to avoid such errors shall include direct monitoring of all activities of contracted lab personnel to ensure they adhere to the requirements of both the City of Greenville, as well as the Texas Commission on Environmental Quality. In addition, City staff will also perform an investigation each month to ensure that such sampling, as performed by contracted outside laboratories, is completed within such time window that emergency outside sampling and analysis may be procured prior to the end of the month or other relevant required time period.

The City of Greenville requests that this information be shared with any and all persons who consume the drinking water, anyone who may not have received this notice directly (i.e. people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or by distributing copies by hand or mail.

If you have questions regarding this matter, you may contact James Belcher, Water Treatment Superintendent for the City of Greenville's Water Treatment Plant at (903)457-3190 or through email at JBelcher@ci.greenville.tx.us

Water Loss Information

Total System Input: 1,807,027,000 Gallons
 Total GPCD (System Input/Retail Population)/365: 138
 Residential Use in Gallons: 879,044,321 gallons
 Total Apparent Water Losses: 180,630,550 gallons

Total Real Losses: 153,534,771 gallons

Total Water Losses: 180,630,550 gallons

Apparent Losses Normalized: 5.58 gallons lost per connection per day

Real Loss Volume: 153,534,771 gallons

Unavoidable Annual Real Losses Volume: 82,122,810 gallons

Infrastructure Leakage Index: 1.87

Real Losses Normalized-Service Connections: 31.60 gallons lost per connection per day

Total water Loss – Percentage: 13.04%

GPCD input: 138

GPCD Loss: 18

Adjusted Real Loss Volume: 139,716,642 gallons

Adjusted Cost of Real Losses: \$269,653.12

Adjusted Total Water Loss Volume: 164,373,801 gallons

Adjusted Total Cost Impact of Apparent and Real Losses: \$363,596.90

Adjusted Real Loss per Connection: 28.76 gallons lost per connection per day

Adjusted Real Loss per Mile: 0 gallons

Adjusted Infrastructure Leakage Index: 1.7

Adjusted Total Water Loss-Percentage: 11.87%

Adjusted GPCD Loss: 16

Achieve Date	Target for Total GPCD	Current Total GPCD	Target for Residential GPCD	Current Residential GPCD	Target for Water Loss GPCD	Current Water Loss GPCD	Target for Water Loss Percentage	Current Water Loss Percentage
Five-year Target Date 2019	149	138	75	88	14	18	9.40 %	13.04 %
Ten-year Target Date 2024	147	13	74	88	13	18	8.84 %	13.04%

