

A large, cylindrical water tower with a spiral staircase around its base, set against a light blue sky with soft clouds. The tower is the central focus of the background image.

City of Bandera Water Quality Report for 2019

This report is designed to inform you about the excellent water the City of Bandera's Public Works Department delivers to you every day. Our Public Water System is rated "Superior" by the Texas Commission for Environmental Quality. A Superior rating is only given to those Public Water Systems that have been able to consistently meet water quality standards.

Our number one goal is to provide you and your family a safe and dependable supply of drinking water. We strive to deliver a quality product and protect our precious water resources. To ensure the safety of your water, we routinely monitor for contaminants in your drinking water according to Federal and State laws, rules and regulations. Except where indicated otherwise, this water quality report is based on the results of water monitoring for the period of January 1, 2019 to December 31, 2019. Data obtained before January 1, 2019, and presented in this publication are from the most recent testing done in accordance with the laws, rules, and regulations.

For more information regarding this report contact:

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Este reporta incluye informacion importante sobre el agua para tomar. Para asistencia en espanol, favor de llamar al telefona 830-796-3765

About Our Water,

Where It Comes From

Bandera's source of water is groundwater from wells. The City has four wells. Three of the wells draw from the Lower Trinity Aquifer and the fourth well draws from the Middle Trinity. The aquifers we draw from are composed mostly of carbonate and clastic rock from the Cretaceous Age. Recharge to the Lower Trinity is vertically from the Middle Trinity and horizontally by lateral inflow from the north and west. There is no indication that the Lower Trinity is recharged from precipitation. This can be determined by the absence of tritium in water samples.

Tritium is a form of radioactive hydrogen with a half life of 12.3 years. It is detectable in all surface waters. It is produced naturally by cosmic rays and it's also a byproduct of nuclear fission. Tritium levels were at their highest during the atmospheric testing of hydrogen bombs during the 50s and early 60s. Samples taken from the Lower Trinity do not contain a measurable amount of tritium which indicates that the water has not been replenished for at least 70 years.

Lower Trinity water levels in areas where pumpage has been heavy and localized have declined significantly in the past. The City of Kerrville relied on the Lower Trinity as a source of water from the 1920s to the early 1980s, and water-level declines of as much as 250 feet were observed during that time. In 1981 Kerrville brought a surface-water treatment plant on-line, and ground-water production was reduced dramatically. This resulted in aquifer levels in the Kerrville area rebounding as much as 200 feet between 1982 and 1990. Since 1990, however, many wells are again showing significant water-level declines as ground-water use has again increased. In the Bandera area, declines in water levels have been observed over the decades, with declines of as much as 400 feet in some wells.

A Lower Trinity monitoring well located in the City of Bandera has been recording well level depths since 2009. In those ten years the water level has fluctuated over a hundred feet but a downward trend has not been observed. <https://waterdatafortexas.org/groundwater/well/6924225>

How it's Treated

Bandera has three water treatment plants. They are located on Dallas Street, Mulberry Street and at the end of Bandera Boulevard. Prior to the water being sent to the distribution system a small amount of chlorine is added to en-

sure the water remains free of any virus or bacteria. These treatment processes are performed by employees who have been licensed by the Texas Commission on Environmental Quality. Every day, 365 days a year, a licensed employee samples the water to ensure that an acceptable disinfectant is maintained.

The TCEQ completed an assessment of our source water and results indicate that some of our sources are susceptible to certain contaminants. The sampling requirements for our water system are based on this susceptibility and previous sample data. Any detections of these contaminants may be found in this Water Quality Report.

For more information about your source of water, please refer to the Source Water Assessment available at City Hall.

Sampling and Monitoring

Regular sampling and testing is an important assurance of the quality of water and includes the following:

Daily: Chlorine Residuals

Monthly: Bacteria (total coliform)

Disinfection By-Products: Trihalomethanes

Inorganics: Arsenic, Barium, Chromium, Fluoride, Nitrate (measured as Nitrogen), and Selenium

Radioactive Contaminates: Beta/photon emitters

Lead & Copper—Every three years

Both, the UGRA (Upper Guadalupe River Authority) and Third Coast environmental, are instrumental to our quality assurance program. Their independent testing by certified chemists and technicians follows precise procedures established by the U.S. Environmental Protection Agency (EPA).

Lead

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 components. The City of Bandera is responsible for providing high quality drinking water, but can not control the variety of materials used in home plumbing. 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 wa-

ter, 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 1-800-426-4791 or <http://epa.gov/safewater/lead>

Additional Information About Drinking Water

Drinking water (both tap water and bottled water) comes from many different sources. This includes 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, and can pick up contaminants from the environment.

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, livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or 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 can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems.

The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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 City Hall.

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; persons 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 providers. Additional guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Safe Drinking Water Hotline (800-426-4791).

Understanding Your Drinking Water Report

DEFINITIONS

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

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

Action Level Goal (ALG) The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.

Average Level: Regulatory compliance with some MCLs are based on running annual average or monthly samples.

Level 1 Assessment A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions

Maximum Contaminant Level (MCL) 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.

Maximum Contaminant Level Goal (MCLG) The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

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 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.

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

ABBREVIATIONS

NTU – Nephelometric Turbidity Units (a measure of turbidity)

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

mrem - millirems per year (a measure of radiation absorbed by the body

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

ppm - milligrams per liter or parts per million—or one ounce in 7,350 gallons of water.

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

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

mrem/yr – millirem per year (a measure of radiation)

NA: Not applicable.

WATER QUALITY REPORT 2019

Information about Source Water

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 is based on this susceptibility and previous sample data. Any detections of these contaminants will be found in this report. For more information on source water assessments contact John Hegemier at 830-328-1681

Regulated Contaminants

<i>Lead & Copper</i>								
	Date Sampled	MCLG	Action Level (AL)	90th Percentile	#Sites over AL	Units	Violation	Likely Source of Contamination
Lead	7/12/2017	1.3	1.3	0.1	0	ppm	No	Erosion of natural deposits. Leaching from wood preservatives. Corrosion of household plumbing systems.
Copper	7/12/2017	0	15	2.8	0	ppm	No	Corrosion of household plumbing systems. Erosion of natural deposits.

2019 Water Quality Test Results

Inorganic Contaminants

Collection Date	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit of Measure	Violation	Likely Source of Contamination
2019	Barium	.0847	.0739 - .0847	2	2	ppm	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
2018	Fluoride*	1.8	1.83 - 1.99	4	4	ppm	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum fac-
*Fluoride compounds are salts that form when the element, fluorine, combines with minerals in soil or rocks. The City of Banderera does not add fluoride to its drinking water								
2019	Nitrate (measured as Nitrogen)	.07	0 -.07	10	10	ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Radioactive Contaminants

	Date Sampled	Highest Level Detected	Range of Individual Samples	MCLG	MCL	Units	Violation	Likely Source of Contamination
Beta/photon emitters	05/30/2018	11	11 - 11	0	50	pC/L*	No	Decay of natural and man-made deposits
EPA considers 50 pC/L to be the level of concern for beta particles.								
Combined Radium 226/228	01/14/2015	3.9	3.9-3.9	0	5	pC/L	No	Erosion of natural deposits

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Disinfection By-Products

Collection Date	Contaminant	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Unit of Measure	Violation	Likely Source of Contamination
2019	Haloacetic Acids (HAAS)	2	2.4-.2.4	No goal for the total	60	ppb	N	By-product of drinking water disinfection.
2019	Total Trihalo-methanes (TTHM)	10	10.3-.10.3	No goal for the total	80	ppb	N	By-product of drinking water disinfection.

Disinfectant Residual

	Year	Average Level	Range of Levels Detected	MRDL	MRDLG	Unit of Measure	Violation	Source in Drinking Water
Disinfectant Residual	2019	1.12	0.20-.3.80	4.0	4.0	ppm	No	Water additive used to control microbes